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AND SOCIAL SCIENCES**

**MULTIMEDIA SOFTWARE DEVELOPMENT FOR
COMPUTER EDUCATION**

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**Gaye Özarm: Multimedia Software Development
for Computer Education**

**Approval of the Graduate School of Applied and
Social Sciences**

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Degree of Master of Science in Computer Engineering**

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ABSTRACT

Information Technology and Computer Applications have been developing rapidly over the past decade. Scientists and Engineers have spent time and energy developing faster, smaller and more robust systems, thus accelerating the production and release of high-performance computers. Meanwhile, computer education has advanced steadily but at a slower pace.

With the advance in computational capabilities, Multimedia applications are also developing fast and becoming a common part of many user applications. One of these applications is providing computer education, thus delivering user-friendly interface with PCs.

This thesis presents a novel multimedia application based on software development that is aimed at computer education at its first level. Delphi programming language has been used in developing the new program; namely "Bilgisayar Öğreniyorum". Additionally, a comprehensive study and analysis of computer education techniques at all computer education stages in TRNC. These include Elementary School, Preparatory School, High School and University Levels. An analysis of the existing education techniques and suggestions onto their improvement to keep up with the rapid computer development will be presented.

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CHAPTER ONE

INTRODUCTION

The objectives of this thesis are twofold:

- ⊕ To develop multimedia software that provides elementary computer education with a user-friendly interface, using animations, cartoons and sufficient computer information for the targeted-user age group.
- ⊕ To analyze in detail the ways of applying new education techniques and how to improve computer education quality in the various stages of education in the Turkish Republic of Northern Cyprus.

It is widely accepted that no matter what techniques are used to teach people how to use a computer efficiently to improve their professional performance, there is always room for development. Starting with this notion in mind, the main aim of this work was set, namely producing software that will help teach people at some level the correct and beneficial use of a computer. In order to decide what to do next, a wide and detailed survey of selected educational institutions (schools at all levels, as well as Universities in the Turkish Republic of Northern Cyprus) as to what they teach and how they teach regarding usage of a computer was undertaken. After the analysis of the results of the survey, it was decided to write a program comprising animated multimedia software for children in the 6-8 age-group. This culminated in the program, namely "Bilgisayar Öğreniyorum©" written specifically for the first stage of computer education. The Delphi® programming language was used throughout. Details of the software can be found elsewhere in this text, but suffice to say it uses sound, animation and such other similar techniques to introduce the child into the realm of a computer world, and not vice versa.

The above mentioned survey and analyses of the obtained results provided the opportunity of suggesting ways of improving computer education in the examined educational institutions and the like. This text, therefore, will also contain such propositions and ways of improvement.

Summary : The Elementary School. One year is made up of two semesters. Each year the pupils are taught new things concerning this subject. They are given basic information about computers starting from the very first semester. Each year, new

information is added to the knowledge of the pupils. At first they are shown the basics concerning computers (e.g. monitor, mouse, etc.) and then it becomes more complicated as the details given are increased. This chapter explains the Elementary School Computer Education Methods in North Cyprus.

The Preparatory School (Junior High School). Preparatory School has three grades in North Cyprus. Each year is made up of two semesters. Each year the students are taught new things concerning this subject. They are given more advance information about computers starting from the first semester.

The High School (Lycee School). High School has three grades in North Cyprus. Each year is made up of two semesters. Each year the students are taught new things concerning this subject. They are given more advance information about computers starting from the first semester. North Cyprus has four kind of High School.

The University Education is describes the types of Introduction Computer courses, which are given in. University education. One year is made up of two semesters. The students are taught new things concerning this subject. They are given more advance information about computers starting from the first semester.

Chapter three provides an objective analysis of the problems facing current computer education techniques, and presents new approaches that could be implemented in order to solve the problems at all computer education stages.

Chapter four presents the Multimedia software development that forms a translation of the suggested recommendation in chapter four. Existing computer education techniques will be analyzed, and suggestion to further improve them will be proposed.

Finally and performed some research concerning the kinds of computer courses given in schools in the Turkish Republic of Northern Cyprus, starting from elementary school up until a University level. I realized that there is a big gap in computer education where students who have no experience of computers are concerned.

CHAPTER TWO

ELEMENTARY, PREPARATORY, HIGH SCHOOL AND UNIVERSITY COMPUTER EDUCATION

2.1 Overview

This chapter describes the types of computer courses, which are given in from Elementary School to University in North Cyprus. One year is made up of two semesters. Each year the pupils are taught new things concerning this subject. They are given basic information about computers starting from the very first semester. Each year new information is added to the knowledge of the pupils. At first they are shown the basics concerning computers (e.g. monitor, mouse, etc.) and then it becomes more complicated as the details given are increased. This chapter explains the Elementary School, Preparatory School, High School and University Computer Education Methods in North Cyprus.

2.2 Elementary School Computer Education

Elementary School Education is five grades. The pupils are 6 years of age when they enter the first grade Ref [1]. This grade is of great importance to the children, because it teaches them to take responsibility for the first time, and to make decisions. An important factor is that the educator does not cause the pupil to become bored or stressed, so that he/she will enjoy learning to use the computer. Other previous levels are in addition to more developed aspects of using a computer.

2.2.1. General Objectives

The following subjects are included in the computer courses given in the Elementary School;

- ⊕ Definition of a computer system
- ⊕ The precautions, which have to be taken for safety, while using the computer

- ⊕ How to switch the computer On/Off
- ⊕ How to use a Mouse
- ⊕ How to play games on the computer
- ⊕ How to draw a picture using the mouse
- ⊕ Definition of a keyboard
- ⊕ How to use a keyboard
- ⊕ Move on keyboard use
- ⊕ Definition of a computer system and its use.
- ⊕ Use word processing program
- ⊕ How to create and delete a new file
- ⊕ How to use readily available pictures and shapes found in a special drawing program, and then put them in suitable places to create an animation of an event
- ⊕ Definition of an Animation
- ⊕ Defining the difference between Sounds and Musical Instruments.
- ⊕ Using a previously prepared simple Database
- ⊕ Making use of diagrams previously Drawn
- ⊕ Manual Information Processing
- ⊕ How to use a floppy diskette
- ⊕ How to save a file on to a floppy diskette
- ⊕ How to prepare homework using a computer.
- ⊕ How to use a Printer
- ⊕ How to use the e-mail system to send and receive files.
- ⊕ How to write a simple program language
- ⊕ Using a computer for communication.
- ⊕ Knowing the importance of computer technology in our lives.
- ⊕ Knowing the importance of Information Technology.
- ⊕ Using a simple program application.
- ⊕ Control and observe

2.2.2 General Components of Computer:

Many children do not have access to a computer in their homes, which means that they are able to use a computer for the first time at school. The components introduced to first grade pupils include:

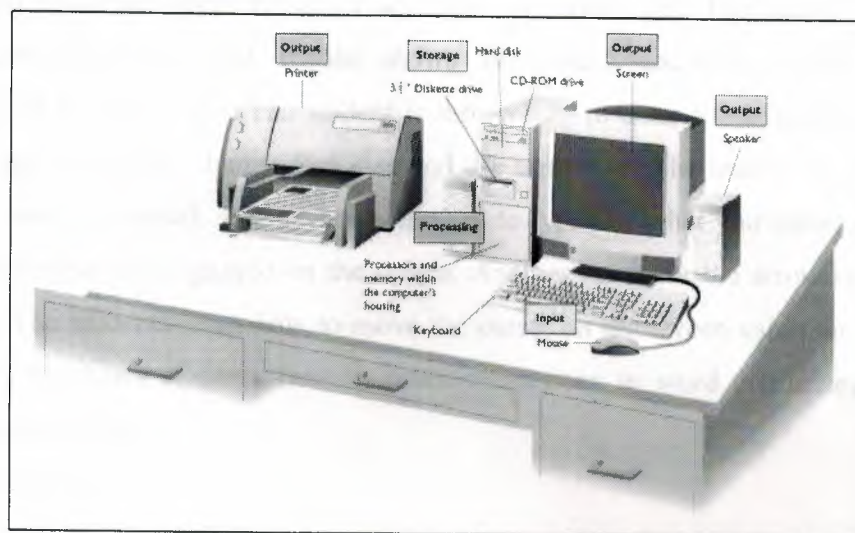


Figure 2.1 Components of Computer

a. Mouse

The mouse is an input device. The teacher shows the pupil how to use this device. He/she shows the student how to select and play computer games using the mouse and use it. Also use it to open and close the program. Another thing that is shown is how to use a mouse to draw a picture and paint using the colors on the screen. Select a computer game using the mouse and use it to play and close the program. Use a mouse to draw a picture and paint using the color palette, which can be found inside the programs menu. They learn how to control software using a mouse, for example you play the game of Solitaire (fortune game) by using a mouse.

A mouse has more than one sign. Such as:




= This sign displays choose able icons or shortcuts.



= This sign means that the computer is reading instructions.

I = This sign displays an area which can be use to write in.

 = This sign displays the moveable object. etc.

b. Keyboard

The keyboard is another input device; it is similar to a typewriter. The teacher shows how the keyboard should be used. He/she shows them the Space Key, Arrow Keys, Character Keys and Numeric Keys. The student is shown how to enter a line, delete a line, copy a line, change font style, change font size and use underline. The teacher shows the students how to use a keyboard. The keyboard is used to type out what you want (words, sentences etc) and these are displayed on the screen. Another name for the arrow keys are Additional keys. The students learn how to move the curser on the screen using the arrow keys. The instructor shows students how to make corrections in word processing text. These subjects are included;

- ⊕ Saving typed text
- ⊕ Moving to the next page
- ⊕ Going back to the previous page

c. Monitor

The monitor is an output device, which is a screen. The screen displays the actions.

d. System

The System Unit is another important device of the computer. The teacher defines the system unit, whilst explaining how the input data is processed, in a simple way to suit this age group.

e. Switching the Computer On/Off

This subject is very important for the pupils. The teacher shows his/her students how to use the On/off button of the computer.

f. Floppy disk drive

Define how the floppy disk drive works and how it should be used. The teacher shows the pupils how to use a floppy diskette and how the file is stored to secondary storage. These subjects are included;

- ⊕ How to search a file from a floppy diskette,
- ⊕ How to find a saved document,
- ⊕ How to make changes from a saved document.

g. Directors' type

The teacher shows the pupils how to create, how to use director and why the users need it and how to copy file inside to director.

h. Diskettes

Define how the floppy disk works and how it is used. Explain also how to save files to a floppy diskette. The most important disks are the hard disk and floppy disk. The hard disk drive is inside of the computer, this disk has more capacity than a floppy disk. A floppy disk is a portable device and the user uses this device driver outside of the computer.

i. Use a Printer

Pupils are taught how to use an Output Device. The following subjects are included;

- ⊕ Explaining the hardware device,
- ⊕ Displaying the printer's cables,
- ⊕ Showing the printer's on/off buttons,
- ⊕ Showing how paper is put inside a printer,
- ⊕ Showing the students how to take a "print-out" from the printer.

j. Using the Computer As a Communication Tool

The teacher shows the pupils the relationship between Communication and the Computer. These subjects are included;

- ⊕ Getting a message from the teacher in network environment,
- ⊕ Sending a message to another user in network environment,
- ⊕ Talking about places of usage of the computer as a communication tool.

2.2.3. Confidence With the Computer:

The teacher shows the pupils how to protect themselves when using electrical devices. This is also a very important part of educating children about computer use.

a. Cable Security

This section explains the importance of the wire inside the electrical cable. Computers contain cables and cables contain electric current. The pupils are made aware of the dangers of touching a line wire.

b. Do not touch wall-socket with wet hands

The second section includes another important point for pupils, which is to never touch a wall socket with wet hands, as it will result in electric shock.

c. Do not touch the monitor with wet hands

The third section (touching the monitor with wet hands) results in the same outcome as seen above. This outcome is called electric shock.

The aim of the above three section is to teach the pupils how to work with computers in a safe way.

2.2.4. Observe and Control:

The teacher shows the students how to observe any movable object, such as remote controlled toys, e.g. robots (move: right, left, front, back) for control. And explain the robot's moves and programming the Robot's moves.

2.2.5. Use Simple Word Processing Software

In this subject students are taught how to write words/sentence on the computer. The instructor teaches pupils how to use word processing software.

2.2.6. Playing Computer Games

The instructor teaches the pupils how to play computer games by themselves. He/she also shows these subjects:

- ⊕ How to choose and run any computer games
- ⊕ How to run a game
- ⊕ How to play a computer game using a mouse.

2.2.7. Drawing Picture With Mouse

The teacher shows the students how to draw a picture and paint shapes using a mouse. These subjects are included;



Figure 2.2 Drawing a Picture

- ⊕ How to draw a picture with a mouse
- ⊕ How to create shapes using a mouse
- ⊕ How to paint inside of a shape with any color
- ⊕ How to choose color for painting
- ⊕ Choosing colors to paint pictures
- ⊕ How to insert words inside a picture
- ⊕ Changing shapes or words
- ⊕ How to save a picture on the computer

2.2.8. Registering Data to Computer and Delete

Students learn how to enter and delete data on the computer. These subjects are included;

- ⊕ How to save a document on to the computer
- ⊕ How to delete a document from the computer
- ⊕ How to delete a shape/shapes from the computer
- ⊕ How to delete another person's document from the computer

2.2.9. Using Readily Available Pictures and Shapes In A Special Drawing Program and Putting Them In Suitable Places To Create the Animation Of An Event

The students are shown how to create animations on the computer. These subjects are included;

- ⊕ How to run a drawing program
- ⊕ How to move a chosen object to an other place on the screen using the mouse
- ⊕ How to put shapes in suitable places on the screen to make an animation of an event
- ⊕ How to the change the places of required shapes
- ⊕ How to delete unwanted shapes
- ⊕ How to save an animation

2.2.10. Explaining an Animation

The students learn how to prepare a presentation. These subjects are included;

- ⊕ Explanation of a drawing, which is on the screen
- ⊕ Preparation of a written explanation on the computer, which concerns an animated diagram on the screen. This is prepared in a written format using a word-processor.
- ⊕ How to delete and rewrite characters or numbers from the text
- ⊕ How to save the document on to the computer
- ⊕ How to jump to the next page
- ⊕ How to jump to the previous page

2.3 Junior High (Preparatory) School Computer Education

Preparatory School has three grades in North Cyprus. When the children are around 12 years old, grade of Elementary School. It is a more developed version of the Elementary School Education.

Each year is made up of two semesters. Each year the students are taught new things concerning this subject. They are given more advance information about computers starting from the first semester.

2.3.1 General Components of Computer:

Students are shown the components of the computer device as in the first grade. This subject is very important for younger users because it teaches them how to use the physical equipment. The components introduced to second grade pupils include:

2.3.1.1.What is the Computer?

The student is shown how to a computer is a machine that can be programmed to accept data, process it into useful information and store it away for safekeeping or later reuse. The processing of input to output is directed by the hardware.

2.3.1.2. History of the Computer and Information Technology

The Teacher teaches to students, how to a computer is telecommunications equipment, and other technologies associated with automation, come under the general heading of Information Technology (IT). Information technology is having an impact on individuals, organizations and society.

2.3.1.3. Way of the Usage and Methods of Computer

The Teacher teaches to students, how to Computers can do just about anything imaginable, but they really excel in certain areas. This section lists some of the principal areas of computer use.

- ⊕ **Graphics**
- ⊕ **Education**
- ⊕ **Retailing**
- ⊕ **Energy**
- ⊕ **Law Enforcement**
- ⊕ **Transportation**
- ⊕ **Money**
- ⊕ **Agriculture**
- ⊕ **Government**
- ⊕ **The Home**
- ⊕ **Health & Medicine**
- ⊕ **Robotics**
- ⊕ **The human connection**

2.3.1.4. Components of Computer

The Teacher teaches to student how to use a function of a computer system requires main aspects of data handling:

a. Input Device:



Figure 2.3 Keyboard



Figure 2.4 Mouse

The teacher shows the students, how to accept data or commands in to the computer can use; the input devices send the data or commands to the processing unit. The teacher shows the students how to use a keyboard. Which is type by displaying it on the screen in front of you. Use a space key, arrow keys, character keys, numeric keys, back and delete keys.

b. Output Device:



Figure 2.5 Monitor



Figure 2.6 Printer

The teacher shows to student how to the processed data --information--in understandable and usable form. The teacher shows the students how to use kind of the monitors. There are, Mono, RGB driver and how to use a TV's monitor like a computer screen.

c. Memory:

The teacher explains to students how to secondary storage devices use it. Such as disk -hard disk or diskettes or some other kind of disk--that can store data and programs outside the computer itself. Other memory types are supplement *memory* or *primary storage*, which can hold data and programs only temporarily.



Figure 2.7 Ram

d. Arithmetic Logic Unit

The teacher shows how to use a part of the central processing unit. The electronic circuitry of the ALU executes all arithmetic and logical operations.

e. Central Processing Unit

The teacher shows how to using a *central processing unit (CPU)*, has electronic circuitry that manipulates input data into the information people want. The central processing unit actually executes computer instructions.

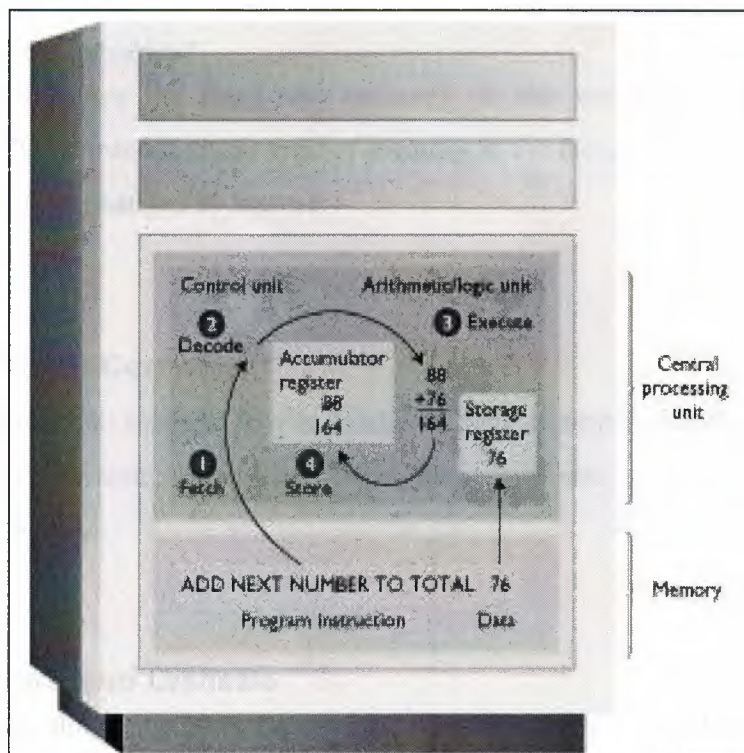


Figure 2.8 CPU

2.3.1.5. Quality of Computer

The teacher teaches to student how to most advertisements displayed of personal computers, accompanied by cryptic descriptions of the total hardware package.

a. Speed

Define how the microprocessor speeds are usually expressed in **megahertz (MHz)**, millions of machine cycles per second.

b. Inside Memory

The teacher define how the **Internal storage**, and **main memory**; all these terms are used interchangeably by people in computer circles. Manufacturers often use the term **RAM**, which stands for *random-access memory*. Memory is the part of the computer that holds data and instructions for processing.

c. Stored Programmed

The teacher define how the **Read-only memory (ROM)** contains programs and data that are permanently recorded into this type of memory at the factory; they can be read and used, but they cannot be changed by the user.

2.3.1.6. Elements of Computer

The teacher shows the students how to hardware devices attached to the computer are called peripheral equipment. **Peripheral equipment** includes all input, output, and secondary storage devices.

c. Disk Drivers and Diskette

The teacher shows the students how to use a diskette and how the file is stored, secured and search to inside of diskette.

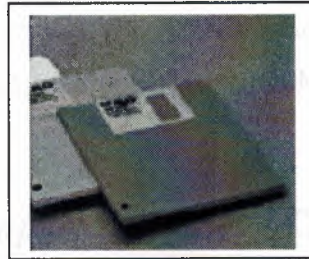


Figure 2.9 Diskettes

d. Fixed Diskette

The teacher shows the students how to use a hard disk. A **hard disk** is a metal platter coated with magnetic oxide that can be magnetized to represent data. A **disk drive** is a device that allows data to be read from a disk or written on a disk.

e. Tapes

The teacher shows the students how to use a **Magnetic tape** and stores data as extremely small magnetic spots. The highest-capacity tape is **digital audiotape**, or **DAT**, which uses a different method of recording data. A **magnetic tape unit** reads and writes data using a **read/write head**; when the computer is writing on the tape, the **erase head**, first erases any data previously recorded. Most backup systems use tape.

f. Printers

The teacher shows the students how to use the printers and kinds. **Printers** produce printed papers output. Printers can be classified as either **impact printers**, which form characters by physically striking the paper, or **non-impact printers**, **laser** and **ink-jet printers**, which use a non-contact printing method.

g. System Requirements

The teacher shows the students how to use hardware, which is compatible with the requirements of the software you are buying. You can find the requirements by reading the fine print on the software package. Such as, a personal computer with a Pentium or higher

processor (Pentium Pro or higher recommended) running Microsoft Windows 98 or later operating system, 32MB of memory (RAM) minimum, 32MB recommended. Hard disk is minimum installation 70 MB, typical installation 120MB.

2.3.2 General Computer Software Commands and Functions:

The teacher define the students how to use some operating system commends and function. And used to the any Word Processor Software Package. The teacher shows to the students, how to write a text, modified to text, stored, installed, deleted and etc...

2.3.3 Written Applications

The teacher shows the students how to word processing application usable techniques.

2.3.3.1. General Computer Software Commands and Functions

This unit include some operating system commends and function. And used to the any Word Processor Software Package. The teachers define to students how to write a text, modified to text, stored, installed, deleted and etc...

2.3.3.2. Use a text and picture together

The teachers shows to students how to prepare a School Newspaper, Bulletin, School Journal, School's Announce, School's Placards, School's Logo, and etc... then take a printout.

2.3.3.3. Use a Desk-Top Publishing

The teachers define to students how to other software package programmed of desktop publisher; for prepare text and graphical documents. The students are discussing to advantages and disadvantages of Desk-Top Publishing software.

2.3.4. Define to Industrial Package Program

The teachers define to students how to use more useable software packages for their future life.

a. The students discussion of Spreadsheet, Word Processing, Database Management, Computer Aided Design, Computer Aided Language, Multimedia' work area.

b. The student explanation and discussion of weakness and strengths of all software that selections of software depend on given opportunities ease of use and price.

c. The students are research of Computers and Information Technology Usage Fields. These subjects are included;

- ⊕ Deciding the time-scale of beginning of computer usage.
- ⊕ Researching of the effect of computer in business.
- ⊕ Points of view related to information processing.
- ⊕ Attempts to improve the system.

d. Discussion of Spreadsheet, Word Processing, Database Management, Computer Aided Design, Computer Aided Language, Multimedia' work area. Teacher is feasibility to student project with this software package.

2.3.5. Use an Editor

The teacher shows to student how to use a word processor software package editor for prepare a text studies.

2.4 Classic Lycee / Commerce Lycee / Industry Occupation Lycee and Collage Computer Education (High School)

High School has three grades in North Cyprus. Each year is made up of two semesters. Each year the students are taught new things concerning this subject. They are given more advance information about computers starting from the first semester. North Cyprus had 4 High School.

When the children are around 15 years old, they start the first grade of High School Education Ref [3]. This is different grade to the third grade of Preparatory School. It is a more developed version of the Preparatory School Education.

2.4.1 Information Technology and Information Society

The students are taught the Information Technology and Information Society as in the first grade. The students are teaches to why is the important an Information Technology for computer education.

2.4.1.A. Information Society.

The students are taught the whole of the national and international community, and at the way organizations are run, highlights the fact that modern society is heavily dependent on the communication, processing and storage of information.

a. Rising of Information Society

The students are taught the computers are just one example of automation although they have many special features. In society that relies heavily on all forms of automation and on the automated handling of information, computers are bound to be very important. The following subjects included;

- ⊕ The discussion of the significance of the transition from Hunter to Gatherer Society Agricultural; Industrial and Information.

- ⊕ Causes of the Information needs

- ⊕ Explain of the information needs of managers.

- ⊕ The importance of developing information coming from past to future.
- ⊕ Define all communication devices or environment from past to now. For example, clay tablets, papyrus, paper, telegraph, telephone, radio, cinema, television, telex, fax, video, computer, modem, communication of satellite, multimedia, magnetic and optic.

b. Character of Information Society

The students are taught the Information Technology is having impact on individual organizations and society. Particular reference will be made to computers, and some key issues, notably privacy and employment. The following subjects included ;

- ⊕ Allocation workforce of Information Society.
- ⊕ Explain of Information goods worth and price.
- ⊕ Manage and Information.
- ⊕ Information resources of Managed.

c. Technologies Role of the Society Changes

Students are taught the when computers are introduced into organizations because of the benefits they can provide it usually affects the work of the staff within the organization. Some jobs are changed, some may be created and some may be lost. The following subjects included;

- ⊕ Opportunities of new jobs.
- ⊕ New occupations.
- ⊕ New customs.
- ⊕ Decrease in occupation according to human force.

d. Evolution of Information Technologies

Students are taught the Information Technology is the use of Modern Technology is aid the capture, processing, storage and retrieval and communication of information, whether in the form of numerical data, text, sound, or image.

2.4.1.B. Information Technology.

Students are taught the Information Technology department is made up of people responsible for the computer resources of an organization.

a. Concepts of Information Technology

This title is having some concepts for first grade students of high school education. The following subjects included;

- ⊕ Meaning of Information
- ⊕ Importance of sharing information
- ⊕ Description of Information sharing
- ⊕ Meaning of information period
- ⊕ Importance of communication
- ⊕ Environments for Information Storage.

b. Ways of the Finding Information.

The students are taught the uses of resources are determined by the goals that are being pursued. The following subjects included;

- ⊕ Name of the finding information resources.
- ⊕ Importance of using written resources.
- ⊕ Obtaining written resources and methods of obtaining.
- ⊕ Obtaining information other than written resources.

c. Importance of Using Information.

The students are taught the current rapid rate of computerization and technical innovation has leads some people to revolution. The following subjects included;

- ⊕ Necessity of learning information.
- ⊕ Explain the use of learned information.
- ⊕ The important of using information when it is need it.

d. Data Communication Technology

The students are taught the Computer systems that transmit data over communications lines, such as public telephone lines or private network cables. The following subjects included;

- ⊕ Define micro – electronic.
- ⊕ Importance of production micro–electronic technology.
- ⊕ Importance of computer for carry to information society.
- ⊕ Define computer's hardware devices.
- ⊕ Computers types.
- ⊕ Where use the micro-electronic and computers.

2.4.2 Information Systems

The students are taught the Information System that is a set of people, data, procedures, hardware and software that works together to achieve the common goal of information management. Includes these subjects;

2.4.2.A. Information Systems.

The students are taught the Information System's important subjects. The following subjects included;

- ⊕ Define Information Connections.
E.g. Bitnet, Internet, Decnet, Arpanet, Compuserve and etc.
- ⊕ Define Electronic mail.
- ⊕ Data Communications.
- ⊕ Data Bases.

2.4.2.B. Concept of Data.

The students are taught the raw input to be processed by a computer. The following subjects included;

a. Define a Data.

The teacher teaches to students a data, which are raw facts that convey little meaning by themselves.

b. Types of data and why user needs data.

The students learnt the numbers, letters, special characters or combinations thereof and etc. how to users need a data because processed data given to information.

c. Define Information.

The teacher teaches to student information which is input data that has been processed by the computer; data that is organized, meaningful, and useful.

d. Define A Difference Between Data And Information.

The teacher teaches to student how to data raw input to be processed by a computer. Information is processed data.

e. Collect To Resources Data And Compile Collected Data Resources For Data Bank.

The Teacher teaches to student how to use information resources. For example;

- ⊕ Collected data with count. For example, census(counting population).
- ⊕ Collected data with use a sample. For example, Public Survey or Questionnaire.
- ⊕ Collected to visual data.
- ⊕ Collected to auditory data.

f. Ways Of The Data Obtain And Compile of Data.

The Teacher teaches to student how to find a data and compile them. For example, visual data, auditory data and statistical data.

g. Define A Numerical Data Concepts

Teacher teaches to student how to use a numerical data. For example national income data.

h. Define A Numerical Data, Visual Data, Auditory Data

The teacher teaches to student how to numerical data is called to real numbers or integer numbers. Visual Data is used in making a screen selection by touching the screen with a finger. Electrodes attached to the skin around the eyes respond to movement of the eye muscles, which produce tiny electric signals when they contract. Auditory data is called to Speaking to a computer, known as voice input or speech recognition is another form of source input.

2.4.2.C. Samples Of Data Compiler.

The Instructor teaches the student how to put in order of data. The following subjects included;

- ⊕ Find out the number of Libraries' book.
- ⊕ Find out the number of persons who are took borrow books in a month.
- ⊕ Find out the number of students for school estimated who are took borrow books.
- ⊕ Calculate to any course' total value with calculator.
- ⊕ Take to list of the class' homework notes, written examination and oral exam notes.
- ⊕ Data processed and to comment on the kind of the some statistics.

2.4.2.D. Convert From Data To Information.

The Teacher teaches the student how to change from data to information. The following subjects included;

- ⊕ Security and Validity of data.
- ⊕ Changes from data to information. For example number of Pass or Fail students.

- ⊕ Phase of the data processed. For example, Saved, classifications, sorts, put in process, too get it, stored, modified, to increase it, reported and conveyed.
- ⊕ Superiority and importance of numerical data.
- ⊕ Processed data to computer.

2.4.4. Individual and Institutional Rights In Information Communication.

The Instructor teaches the student how to use personal and society rights in Information and Communications. The following subjects included;

- ⊕ Define Individual Rights.
- ⊕ Define Institutional Rights.
- ⊕ Define Copyright.
- ⊕ Define Licenses Rights.
- ⊕ Define Patent Rights.
- ⊕ Explain of Unjust Competition.
- ⊕ Define importance of Secure
- ⊕ Define importance of Secret
- ⊕ Decipher of Private Life.
- ⊕ Unauthorized people use private information.
- ⊕ Data Protection Act in different Country.
- ⊕ Data Protection Act in EU.

2.4.5. Components Of Computers: Hardware And Software

The Students are shown the components of the Computer. The student teaches them how to use the physical equipment Ref [4,5].

2.4.5.A. Hardware

The teacher teaches to students how to the hardware devices attached to the computer are called peripheral equipment and processing unit parts, which is how to work.

Peripheral equipment includes all input, output, and secondary storage devices.

a. Other Important Computer's Terms

The Students learned to other important computer' terms which are using more.

Binary System: A system in which data is represented by combinations of 0s and 1s, which correspond to the two states off and on.

Bit: A binary digit.

Byte: Strings of bits (usually 8) used to represent one data character --a letter, digit, or special character.

Kbyte(KB): 1024 bytes.

Mbyte(MB): One million bytes. The unit often use d to measure memory or storage capacity.

ASCII (American Standard Code for Information Interchange): A coding scheme using 7-bit characters to represent data characters. A variation of the code, called ASCII-8, uses 8 bits per character. And given to student other coding schemes are BCD and EBCDIC.

b. Local Area Network System

The student shown how to use a network designed to share data and resources among several computers, usually personal computers in a limited geographical area, such as an office or a building.

c. Most Popular Computer Network System In The World

The students have shown the how to use most widespread network systems in the world. For example;

TELNET, FTP, E-mail, Gopher, Archie, WWW.

2.4.5.B. Software

The student learnt software. The software is how to planned, step-by-step set of instructions required and how to turn data into information that makes a computer useful.

a. Define Software

The student learnt the basic word for Software, which is telling the Machine what to do. There are;

Operating Systems (user / multi-user): An operating system is a set of programs that lies between applications software and the computer hardware; it is the fundamental software that controls access to all other software and hardware resources.

Compile – Translators – Program Languages: *Compile* is a translator that converts the symbolic statements of a high-level language into computer-executable machine language. *Translator* is program that convert statements written in one language to statements in other language. *Programming language* A set of rules that can be used to tell a computer what operations to do.

Utility Software: There is also called service programs, are systems programs that provide a useful service to the user of the computer by providing facilities for performing common tasks of a routine nature. For example Anti-Virus, Zip programs.

Application Software: Programs designed to perform specific tasks and functions, such as Database, Electronic Spreadsheets, Word Processors, Graphic Software and etc...

b. Solve Determined Problems With Software

The Teacher teaches to student how to they solve a problem with software. For example, Stock Control, receipt control, customer control and commercial software, manage of Hotel system; manage student in formation system, banking system and salary payroll software an etc...

2.4.6. Using a Computer

The student learnt from this course, how to uses the fundamentals of computer hardware and software and hands-on computer experience.

2.4.6.A. Define MS-DOS (Microsoft Disk Operating System)

The student learnt importance of operating systems, which every computer requires an operating system to start and manage its operations.

a. Version Of Ms-Dos

The students learnt importance of Ms -Dos, which has gone through a number of versions keep up with changing technology and to correct bugs, or errors, that occurred.

b. Start to Ms-Dos

The students learnt how to the process of starting the computer and loading the operating system into main memory called booting the system.

c. Rules of Directories

The students learnt a directory, which is holds file and lets you organize them into convenient groups so they can be easily located on secondary storage. The main directory called root directory. A subdirectory is directory within another directory.

d. Rules of Filenames

The students learnt a filename, which is a name given to a file to indicate the contents and to distinguish it from other files. It can be from eight characters long and may consist of numbers, letters and special characters (^, #, \$, %, @, !, &, {}, [], ~, -, _, '). File name extension optional and can be from one to three characters long.

e. How to Setup of Dos to Diskette with SYS Command

The student shown the how to the floppy formatted computer automatically load the three system files to floppy for understood the Ms -Dos commands.

f. Most useful Ms-Dos Commands

The student learnt how to the uses most usable Dos commands for manage the secondary storages.

FORMAT: It must be formatted or made ready for use.

DISKCOPY : Copied onto another diskette.

COPY : The duplicate file can be stored on different secondary storage in a different file.

DELETE : To erase or delete a file.

RENAME	: Changes a filename.
TYPE	: Display of content of file.
PRINT	: Send to paper of content of file.
DIR	: Lists all the files and subdirectories contained in the current directory of a secondary storages.
ATTRIB	: Change of the file quality
MD	: Create a new directory
RD	: Delete a directory
CD	: To change from the root directory.
CLS	: Clear a screen
DATE	: Display a date
PATH	: Search a specified directories
TIME	: Displays a time
XCOPY	: Copies a directory with files to another directory

g. Explain Of The Autoexec.Bat File

The student learnt the importance of Autoexec.Bat file. Autoexec.Bat file is a batch file that is automatically executed when you boot your computer. Autoexec.Bat file use this commands;

PROMPT, PATH, MODE, ECHO, SET AND LOADHIGH.

h. Explain Of The Config.Sys File

The student learnt the importance of Config.Sys file. Config.Sys file is configured computer's hardware so can be used by MS -DOS and Application Programs. Ms -Dos executes the commands in the Config.Sys file every time you start to computer. Config.Sys file use this commands; BREAK, BUFFERS, FILES, DEVICE, FCBS, LASTDRIVE, SHELL, STACKS, DOS, DEVICEHIGH. Other device driver commands are; RAMDRIVE.SYS, SMARTDRV.SYS, HIMEM.SYS, EMM 386.EXE, MOUSE.SYS.S

2.4.6.B. USE A WINDOWS

The student shown the how to use Microsoft Windows (=Windows), which is a graphical environment for the Dos Operating System that provides a graphical interface consistent from one application to the text.

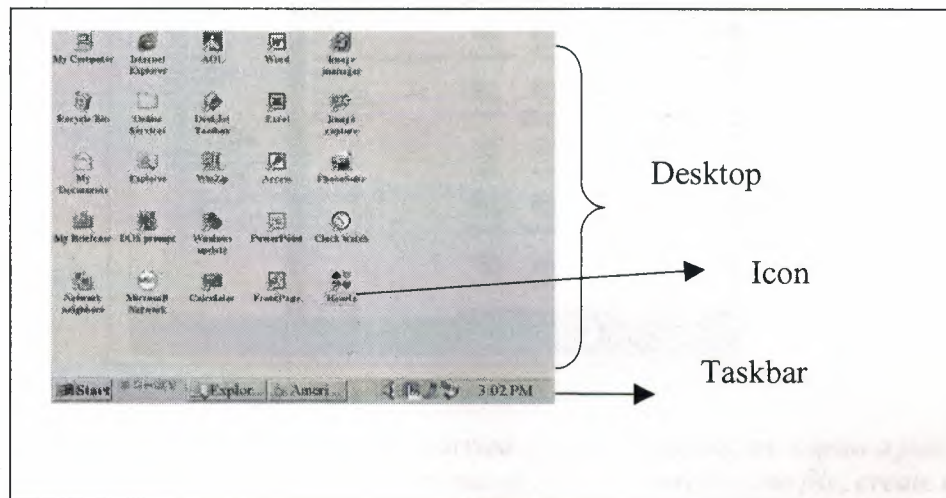


Figure 2.10 Desktop

a. The Desktop:

The student learned the background area of the Windows. There is include the small graphical symbols inside a window are called icons.

b. The Taskbar:

The student learned how to the running more than one piece of software.

c. My Computer:

The student learned, how to uses way of the user access and configure the different pieces of equipment attached to or inside user' computer.

d. Use To Help:

The student learned how to get help in Windows, go into Help choices to open the Help Dialog Box. To given an answer for users understandable information.

e. Define and Use a Windows Explorer:

The student learned how to use Windows Explorer helps you keep track of your files. Explorer shows file folders on the left.

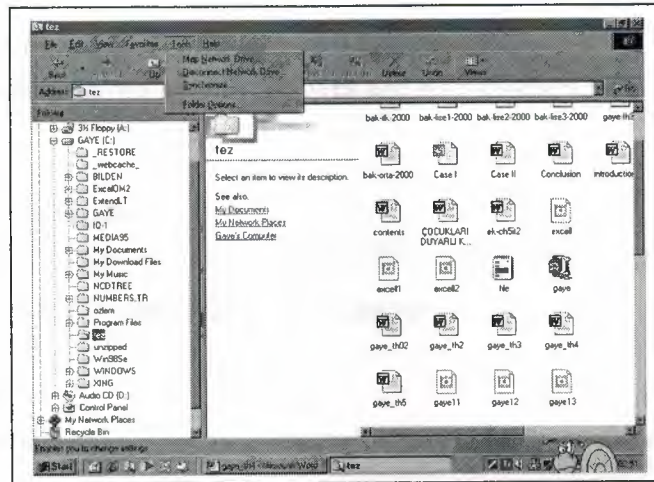


Figure 2.11 Windows Explorer

Windows Explorer for file is to be carried file another location, copies a file, delete a file, change of the file' position, run of the file, search of the file, create a new directory. For Diskette, copies a diskette, change the diskette name, formatting a diskette, create a system diskette. For View, sorting the files for their properties.

f. Control Panel:

The student learned how to the Control Panel' tasks which is customizes the appearance of computer' desktop and configuration. These tasks are: Set to date and time, screen saver, background shapes, set to password, set to curser speed and set to mouse' moves.

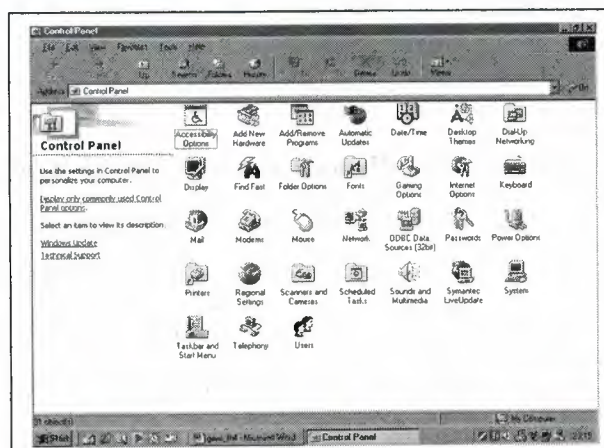


Figure 2.12 Control Panel

g. Set to International Adjustment:

The students showed how to the changes and setting numbers, date format, currencies, time format and displays.

h. Set to Printer Ports Adjustments:

The student shown how to removes and adds changes setting for printers.

i. Print Manager:

The students shown how to sends a file to printer, how to paused a print process and how to deleted a file if user send to file to printer.

j. Fonts:

The student shown how to adds and removes fonts on their computers.

k. Setup:

The students shown how to changes system setting and setting application.

l. Accessories:

The students shown how to the use accessories part which is a given to user helper programs. For example, WordPad, Paintbrush, Notepad, Card file, Calculator, Dial-up Networking, Cable Connector.

2.4.6.C. USE A EDITOR

The students are shown the how to use any editor. The Student follows by these methods for learns.

- ⊕ Knows the difference between Word Processor and Editors.
- ⊕ Install Editor programs to computer.
- ⊕ Write a text to editor.
- ⊕ Saves a text to computer.
- ⊕ Find a mistake words and changes from the editor' text.
- ⊕ Select a text block and moving

- ⊕ Pasted a text block.
- ⊕ Finds text.
- ⊕ Deleted text block.
- ⊕ Changes to background and text color.
- ⊕ Sending a text to print.

2.4.6.D. USE A WORD PROCESSOR

The student learnt how to use any word Processor. The student follows by these methods for learns.

- ⊕ Install Word Processor programs to computer.
- ⊕ Write a text to editor.
- ⊕ Learns Paragraph formatting.
- ⊕ Learns Text Formatting (Font size, Fonts, Font style, margins, etc...)
- ⊕ Saves a text to computer.
- ⊕ Find a mistake words and changes from the word processor' text.
- ⊕ Select a text block and moving
- ⊕ Pasted a text block.
- ⊕ Finds text.
- ⊕ Deleted text block.
- ⊕ Setting to text columns.
- ⊕ Setting to Page Setup
- ⊕ Translate from Calculation Table or graphics programs to Word Processor.
- ⊕ Sending a text to print.

2.4.7. Computers Applications

The students have shown how to use a database, Worksheet Tables and graphics programs. Students are following these ways for learns other applications software.

2.4.7.A. Databases:

The teacher teaches to student, how to use a database application software. The following subjects are included;

- ⊕ Install Database Programs to Computer.
- ⊕ Create a new database file.
- ⊕ Entering data to Database.
- ⊕ Search and sort of data to database file.
- ⊕ Modify to database file.
- ⊕ Sorted data for wanted formatted.
- ⊕ Saving a database file.
- ⊕ Sending a database to print.

2.4.7.B. Worksheet (Spreadsheet):

The teacher student learnt the how to use a worksheet application software. The following subjects are included;

- ⊕ Install Worksheet Programs to Computer.
- ⊕ Define worksheet's cells.
- ⊕ Given to name of columns and rows.
- ⊕ Entering data to cell.
- ⊕ Set to column and row width.
- ⊕ Calculate to numerical data.
- ⊕ Using prepared function.
- ⊕ Using cut-paste, copy-paste actions.
- ⊕ Sorting with column or row order.
- ⊕ Insert column or row to worksheet table.
- ⊕ Delete column or row to worksheet table.
- ⊕ Save to worksheet' file.
- ⊕ Drawing graphics according to worksheet data.
- ⊕ Sending a worksheet to print.

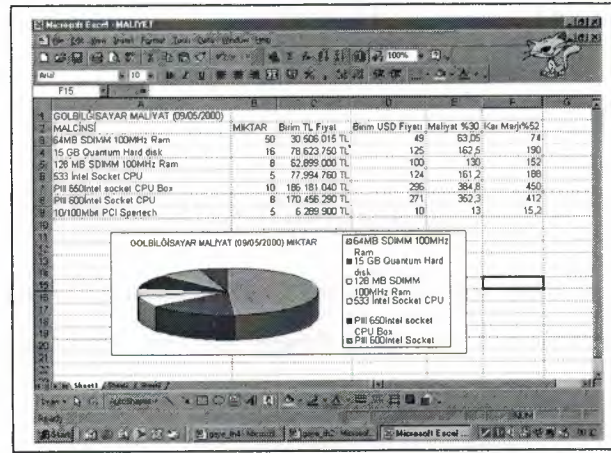


Figure 2.13 Excel Worksheet

2.4.7.C. Graphic Programs:

The student learnt, how to use a graphics application software. The following subjects are included;

- ⊕ Install Graph Programs to Computer.
- ⊕ Drawing picture or shapes with mouse.
- ⊕ Painting picture or shapes with mouse.
- ⊕ Changes picture or shapes.
- ⊕ Using mathematical function.

2.4.8. Computer Network and Information Communications

The teacher teaches to student, how to use a network system for make information communication in this century. The following subjects are included;

⊕ Define the Local Area Network (LAN). LAN use the same cable to transmit and receive data, they must follow a set of rules about when to communicate; otherwise, two or computers could transmit at the same time, causing lost message.

⊕ Define the most popular networks in the world. Learned, how to use Internet and Web browser, taken information TRNC and Turkey' web site information researches.

For example, www, e-mail, ftp and mebnet sites.

⊕ Define the Information Center Personal' functions. This center helps to users in several forms.

2.4.9. Solving Problem With Computers

The teacher teaches to student, how to the write by the little software with Basic Language. Student use Modularity, use search & sort and use databases.

2.4.10. Lycee of Industry and Profession (Without Computer and Electronic Department)

The students learnt inside the computer hardware devices and application software information.

2.4.10.A. Hardware

The students shown how to use the important of hardware devices and how to manage by the each other.

a. Motherboard:

The student shown the motherboard, which is inside the personal computer housing, a board that holds the main chips and circuitry of the computer hardware.

b. Boards:

The student shown the computer system, which is working to the many boards. Each of them had different service. Each board is very important for user. Important boards are, Input/Output Board, Main Board, Monitor Board, Voice Board and Video/Ethernet Board.

c. Drivers:

The student shown to the how to use a diskette and CD, and how the file is stored, secured and search to inside of diskette and CD.

d. Modems:

The student learnt the *modulate/demodulate*. A device that converts a digital signal to an analog signal or vice versa. Used to transfer data between computers over analog communications lines.

e. Backup:

The Teacher teaches to student a method of storing data in more than one place to protect it from damage or loss.

f. Data Stores and Memories:

The student shown the how to the data stored using an additional storage, often on disk, for data and programs. Secondary storage is separate from the CPU and memory.

g. Input Devices and Properties:

The student shown how to the accept data or commands in a form that the computer can use; they send the data or commands to the processing unit. Keyboard, Mouse, Scanner is an example for input devices.

2.4.10.B. Software

The teacher teaches to students how to uses important software how to manage by the hardware devices. Student teaches, most popular operating systems, virus scan, defected, protected and graphics boards.

2.4.10.C. Communication Systems And Computers Networks

The teacher teaches to students how to use a computers communication system and networks. The following subjects are included;

⊕ Wide Area Network (WAN), which is network of geographically distant computers and terminals.

⊕ Local Area Network (LAN), which is usually a network of personal computers that share hardware, software and data.

2.4.10.D. Computer Applications

The Teacher teaches to students, how to use a graphic application software package.

2.4.11. Lycee of Industry and Profession (For Computer and Electronic Department)

The teacher teaches to students, how to use inside computer hardware devices and application software information.

2.4.11.A. Hardware

The Teacher teaches to students, important of hardware devices and how to manage by the each other.

a. Classification Of Computer

The Teacher teaches to students, categories of computers here, keep in mind that computers do not fall too readily into groups of distinct islands; the reality is blurry and overlapping and changing all the time. The following subjects are included;

⊕ **Supercomputers:** They can process trillions of instructions per second. Supercomputers can be found in mainstream activities as varied as stock analysis, automobile design, special effects for movies, and even sophisticated artwork

⊕ **Mainframes:** Mainframes are capable of processing data at very high speeds -- millions of instructions per second --and have access to billions of characters of data. The price of these large systems can vary from several hundred thousand to many millions of dollars.

⊕ **Personal Computers:** PCs, these desktop computers are occasionally known as microcomputers or, sometimes, home computers. Personal computers now fall into categories; most are low-end functional computers (sometimes ungallantly referred to as "cheap PCs") or else fully powered personal computers.

⊕ **Workstations:** There is used by specialized workers such as engineers, financial traders, and graphic designers. Workstations are small enough to fit on a desktop but approach the power of a mainframe.

⊕ **Notebook Computers:** These are wonderfully portable and functional, and they are popular with travelers who need a computer that can go with them. Somewhat larger, heavier versions of these computers are known as laptop computers.

⊕ **Personal Digital Assistant:** PDA can be used to keep track of appointments and other business information, such as customer names and orders. PDA's are also called pen-based computers because, through a pen-like stylus, they can accept handwritten input directly on a touch-sensitive screen

b. Boards:

The student shown how to use the computer system, which is working with many boards. Each of them had different service. Each board is very important for user. Important boards are, Input/Output Board, Main Board, Monitor Board, Voice Board and Video/Ethernet Board.

c. Types of CPU:

The student shown how to working with many Computers type is Pentium III, these computers processors using a 700 Mhz processor. 700 Mhz called to speed of the processor.

d. UPS:

The student learnt about the uninterruptible power supply (UPS), which is device that delivers a constant level of power, or electricity.

e. Types of Modems and Function:

The student shown how to uses the modems vary in the way they connect to the telephone line. Most modems today are directly connected to the phone system by a cable that runs from the modem to the wall jack. A **direct-connect modem** is directly connected

to the telephone line by means of a telephone jack. An **external modem** is separate from the computer. Its main advantage is that it can be used with a variety of computers.

f. Backup:

The teacher teaches to student how to uses a method of storing data in more than one place to protect it from damage or loss.

g. Coding Schemes:

The students learnt how we communicate with the computer and with each other it is appropriate that we use a common scheme for data representation. That is, there must be agreement on which groups of bits represent which characters. The code called ASCII, which stands for American Standard Code for Information Interchange, uses 7 bits for each character. Since there are exactly 128 unique combinations of 7 bits, this 7-bit code can represent only 128 characters. A more common version is ASCII- 8, also called extended ASCII, which uses 8 bits per character and can represent 256 different characters. For example; the letter is A represented by 01 000001. The ASCII representation has been adopted as a standard by the U.S. government and is found in a variety of computers, particularly personal computers.

h. Data Stores and Memories:

The student shown how to data is stored using with additional storage, often on disk, for data and programs. Secondary storage is separate from the CPU and memory.

i. Input Devices and Properties:

The student shown how to accept data or commands in a form that the computer can use; they send the data or commands to the processing unit. Keyboard, Mouse, Scanner is an example for input devices.

j. Electronic Circuits:

The student shown how we to connected the one or more conductors through communicated which electricity flows. There are connected each other for working on computer system.

2.4.11.B. Software

The teacher teaches to students, importance of software how to manage by the hardware devices. The following subjects are included;

- ⊕ Operating Systems,
- ⊕ Types of Programming Languages,
- ⊕ Zip Programs,
- ⊕ Scan of virus, defected and protected,
- ⊕ System performance and control software,
- ⊕ Use to Multimedia software.

2.4.11.C. Communication System And Computers Network

The teacher teaches to students, how to uses a computers communication system and networks. The following subjects are included;

a. Communications:

The student shown how to the make two computers are communicate each other.

b. Hardware Applications:

The teacher teaches to students, devices of computers and how to setup to inside of computers. The following subjects are included;

- ⊕ Accept that all physical equipments of computers,
- ⊕ To put in /out some boards to inside of computers, make it upgrades, make it additional devices, to setup the broken into pieces devices of the computer,
- ⊕ Upgrade of Memories,
- ⊕ Make of clay for processed,
- ⊕ Find to error and changes,
- ⊕ Use to Diagnostic Tools,
- ⊕ Add to External and Internal Board to I/O boards,
- ⊕ Accept the BIOS Properties.
- ⊕ Formatting Floppy diskette and hard disk and transferred system to this secondary storage.
- ⊕ Make it back-up.

c. Software Applications:

The teacher teaches to students, importance of software how to written and how to manage to hardware devices. Students follows by these steps for learns to about to software:

- ⊕ Learns to DOS's controlling programs how to written and changes some commands. For example Autoexec.Bat and Config.Sys and other secret files,
- ⊕ Learns Windows Control Files. For example GRP, ICON, INI and other files,
- ⊕ Virus Scanning for to get good works, reporting virus scans, detected virus, installing Anti-virus and continual controlling the virus from computers,
- ⊕ Tested computer's performance and learn relation between interrupt and addresses,
- ⊕ Learns to be written private .bat files.

d. Communication Applications:

The Teacher teaches to students, how to make two computers are communicate each other and uses. Students follows by these steps for learns to network systems:

- ⊕ Computers are making communicate with modems,
- ⊕ Computers are making communicate with parallel and serial ports,
- ⊕ Computers are making communicate with LANs,
- ⊕ Computers are making communicate with Internet.

2.4.12. Private High School / Collage of Turkish Learning (For GCE Departments)

In this department teacher teaches to students, how to use Windows operating system and Microsoft applications software. These students are had to private examination of GCE.

2.4.12.A. Windows Operating Systems

Teacher teaches to student, Microsoft Windows (=Windows), which is a graphical environment for the Dos Operating System that provides a graphical interface consistent from one application to the text. This part include the these subjects:

a. Accessories/Multimedia:

Teacher teaches to student, accessories part which is a given to user helper programs. Multimedia is software that typically presents information with text, illustrations, photos, narration, music, animation, and film clips --possible because the high-volume capacity of optical disks can accommodate photographs, film clips, and music. To use multimedia software, you must have the proper hardware: a CD-ROM drive, a sound card, and speakers. Multimedia also is offered on several Internet sites.

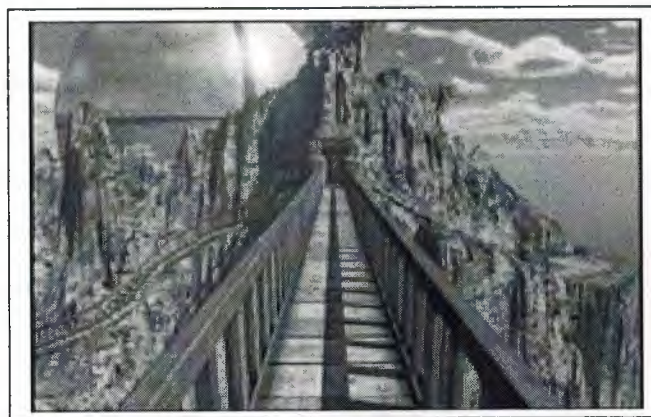


Figure 2.14

This Picture is including the popular interactive game Riven, which uses movement and music to enhance the adventure.

b. Tools/Scandisk:

The students shown how to the checks and repair secondary storages errors.

2.4.12.B. Word processors (Microsoft Word)

The students learnt how to uses Microsoft Word application software, lets you create, edit, format, store, retrieve, and print a *text document*. Let us examine each part of the definition. Teacher teaches these subjects to students:

a. Page Setup:

The students learnt how to change the line pitch, the number of lines per page will automatically be adjusted to fit the changed setting. The student chooses this way;

File → Page Setup.

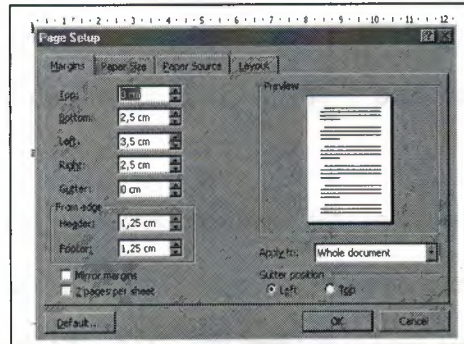


Figure 2.15 Page Setup

b. Text Boundaries:

Students are learns, to insert a text box with a predefined size, click the document. To insert a text box with a different size, drag its sizing handles until the text box is the size you want.

On the **Drawing** toolbar, click **Text Box**. Or select **Insert → Text box**.

c. Font size / Font Type / Font Color.



⊕ The Students learnt how to use the point size of text. On the **Formatting** toolbar, click a point size in the **Font Size** box. Or select **Format → Font → Font Size**.



⊕ Students are learns, to change of the name of the text point. On the **Formatting** toolbar, click a font name in the **Font** box. Or select **Format → Font → Font**.

⊕ Students are learns, to change of the color of the text point. On the **Formatting** toolbar, click a font color in the **Font Color** box. Or select **Format → Font → Font Color**.

d. Cut / Paste / Copy / Undo / Redo.

⊕ Students are learns, to moving a block from one location to another is also called **cutting and pasting**, a reference to what you literally would have to do if you were working with a document on paper. To summarize the move operation: (1) mark the text block, (2) **Edit → cut** or select to ✂ icon standard toolbar, (3) move the cursor to the new destination, and (4) **edit → paste** or select to ■ icon standard toolbar.

⊕ Typical commands for copying a block are copy and paste. To summarize the copy operation: (1) mark the text block, (2) **Edit → copy** or select to  icon standard toolbar, (3) move the cursor to the new destination, and (4) **edit → paste** or select to  icon standard toolbar.

⊕ On the **Standard** toolbar, click the arrow next to **Undo** . Word displays a list of the most recent actions you can undo. Click the action you want to undo. If you don't see the action, scroll through the list. When you undo an action, you also undo all actions above it in the list. If you later decide you didn't want to undo an action, click **Redo (repeat your last action)**  on the **Standard** toolbar. Or select **Edit → Undo** and **Edit → Redo**.

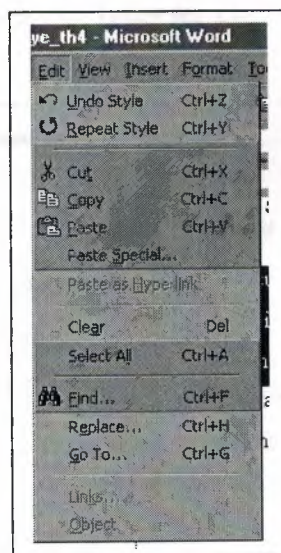



Figure 2.16 Copy-Cut-Paste-Undo-Redo

e. **Save As:**

The Students learnt how to save a file to another secondary storage or changes the current document's file name. Chooses the **File → Save As**.

f. **Save:**

The students learnt, how to uses icon of **Save**  on the **Standard** toolbar. Save a document in a different location or formats.

g. Open:

The students learnt, how to use open an existing document. Search by the file name and open it.

h. New:

The Students learnt how to create a new blank document and given new file name when it is saves.

i. Drawing:

The students learnt how to drawing and painting drawn shapes or picture from drawing toolbars or **Insert → Toolbars → Drawing**. Student learned to these shapes:

- ⊕ Draws a line and chooses line types for example,



Figure 2.17 Lines

- ⊕ Draws a rectangles for example,
- ⊕ Draws a circle for example,
- ⊕ Using a line color and fill color for drawn shapes, for example,
- ⊕ Using a behind / bring to front from **draw → order → sent to behind** or **bring to front**.

j. Columns:

The students learnt how to using a column. Student learned to these points:

- ⊕ Insert a line / row in between, from **table → insert row (below / above)**
- ⊕ Use to columns from a point onwards, **table → insert column (to the left / to the right)**

k. Tables:

The students learnt how to create a table and using. Student learned to these points:

- ⊕ Insert a table, from **table → insert → table** given to columns and rows number and then drawn automatically.

⊕ Students choose a table autoformat for automatically draws a table, from **table → table autoformat**.

Name	Surname	Tel No	e-mail
Ali	Karlı	32...	m@...
Veli	Kan	45...	s@....
Ayşe	Kama	87,..	a@....

Figure 2.18 Table Autoformat

- ⊕ Insert a new line / row in between, from **table → insert row (below / above)**
- ⊕ Insert to new columns from a point onwards, **table → insert column (to the left / to the right)**
- ⊕ Delete to new column and row from a table, but first selected column or row than choose, **table → delete column, table → delete column**.
- ⊕ Sorting according to a column's data,
- ⊕ Fixed to cell's height and width.

l. Images and Object:

The students learnt, how to insert images and object to document, from **Insert → Picture → Clipart or From File** (for calling from directory) and **Insert → Object**.

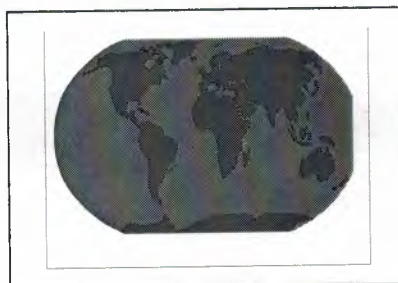


Figure 2.19 Clipart

m. Equation Editor:

The Student learnt, how to insert equation, from **Insert → Object → Equation**.

$$\sum_{i=1}^{2n} 4K + 5/3L$$

Figure 2.20 Equation

n. Project Work:

The students learnt, how to work together their friends for any team projects.

2.4.12.C. Spreadsheets (Microsoft Excel)

The students shown how to use Microsoft Excel application software, lets you calculate formulas, drawing chart. Let us examine each part of the definition. Teacher teaches these subjects to students:

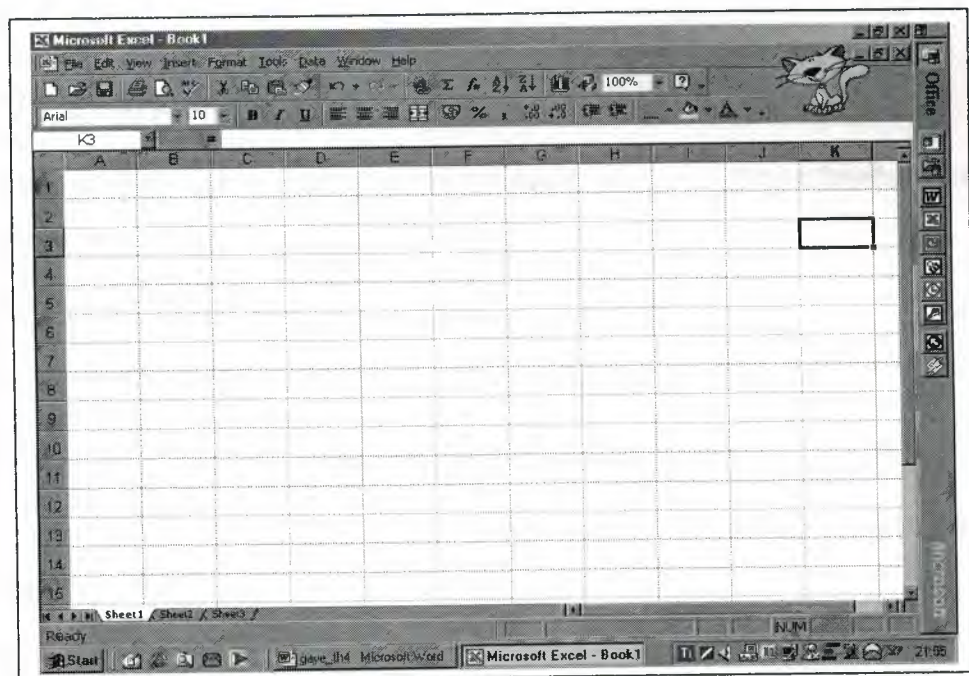


Figure 2.21 Microsoft Excel

- ⊕ Define of the cells which one the have to address. Intersection of column and row called to cell. Column B and fifth row called to the b5,
- ⊕ Entering data to cells,
- ⊕ Using a formula for calculated numerical values,

$$\sum_{i=1}^{2n} 4K + 5/3L$$

Figure 2.20 Equation

n. Project Work:

The students learnt, how to work together their friends for any team projects.

2.4.12.C. Spreadsheets (Microsoft Excel)

The students shown how to use Microsoft Excel application software, lets you calculate formulas, drawing chart. Let us examine each part of the definition. Teacher teaches these subjects to students:

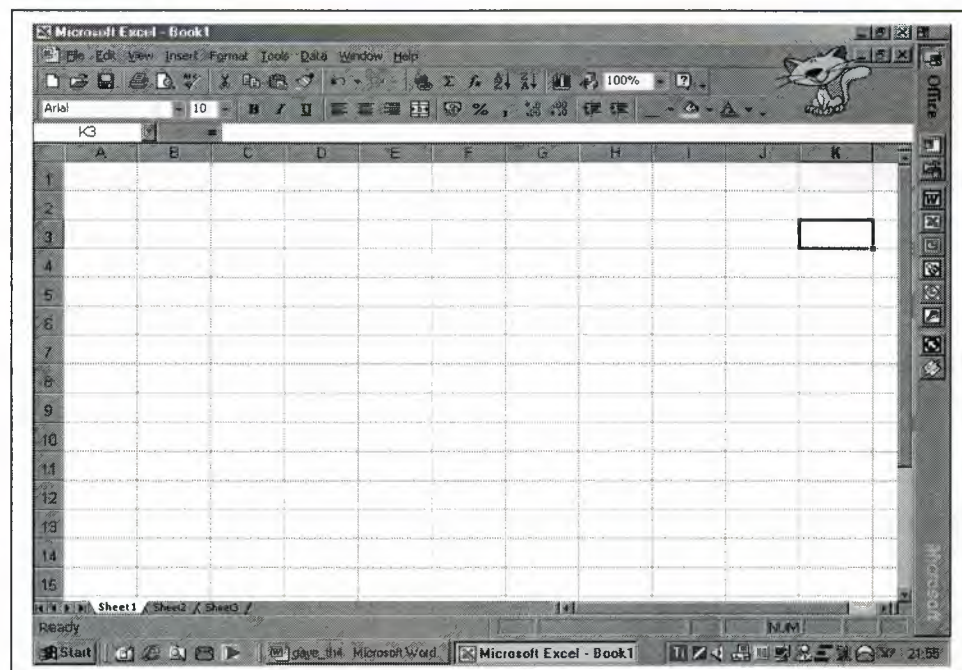


Figure 2.21 Microsoft Excel

- ⊕ Define of the cells which one the have to address. Intersection of column and row called to cell. Column B and fifth row called to the b5,
- ⊕ Entering data to cells,
- ⊕ Using a formula for calculated numerical values,

- ⊕ Using a function for calculated formulas,
- ⊕ Passing data between to other sheets,
- ⊕ Students are preparing team projects.

2.4.12.D. Presentation Packets (Microsoft Power Point)

The students learnt how to use Microsoft Power Point application software, lets you prepare to presentation slides. Uses animation for slides, between to the words, transition to other slides, using sound and etc...

2.4.12.E. Communication Over The Internet

The student learnt how to use Internet Application Software, lets you prepare to Web Page Design and learns to basic HTML Languages.

2.4.13. Lycee of Commercial

In this department the teacher teaches to students how to solves a Problem with computers and using the application software.

2.4.13.A. Solving Problem With Computer

The teacher teaches to students, how to solves a problem step by step and drawing structures. Student learned to these points:

- ⊕ Using a Algorithms and flowcharts,
- ⊕ Learned to methods, how to writing programs and how to choose a programming languages.

2.4.13.B. Solving Problem With Computer And Package Software Application

The teacher teaches to students, how to solve problem and uses application software. Student learned to these points:

- ⊕ Position and uses a commercial packages software for solving problem,



- ⊕ Studies for project to solving problem with computers,
- ⊕ Using different writing application under the Windows. For example, commercial letters, petitions, prepare reports and etc...
- ⊕ Define the importance of hardware and software.
- ⊕ Using Office Automation,
- ⊕ Manage to business and Manages support system,
- ⊕ Define of the Virus, scan of the virus, defected and protected.

2.4.15. Classic Lycee / High School

In this department teacher teaches to students, more developed version of the first and second grade High School Education. In addition more developed aspects of using a computer.

A. Solving Problem With Computers And Using Application Software

The teacher teaches to students, how to solve problem and uses application software. Student learned to these points:

- ⊕ Position and uses a commercial packages software for solving problem (for Lycee of Commercial Stock Control, Pursuit to customer, Banking and etc... , for Industry Lycee, Analyze of electric – electronic circuit design, Printing circuit design software and etc...)
- ⊕ Studies for project to solving problem with computers,
- ⊕ Using different writing application under the Windows. For example, commercial letters, petitions, prepare reports and etc...
- ⊕ Define the importance of hardware and software.
- ⊕ Using Office Automation,
- ⊕ Manage to business and Manages support system,
- ⊕ Define of the Virus, scan of the virus, defected and protected.

2.5 University Education (Excluding Engineering Departments)

This level describes the types of Introduction Computer courses, which are given in University education in TRNC. One year is made up of two semesters. The students are taught new things concerning this subject. They are given more advance information about computers starting from the first semester.

2.5.1 First Semester (Introduction to Information Technology I)

When the students are start the first semester of University Education Ref [6,8]. This is explaining how computers work and what's in them. In addition, roughly half of the efforts go towards equipping the students with fundamental computer skills regarding Windows, Word and Power Point.

2.5.1.A. Theoretical Fundamental Concepts

This is very reasonable considering the benefits of improving the general computer skills of the students as early as possible.

The duration of one semester is not sufficient considering the wide scope of the contents of the course, introducing both hardware and basic software applications. Student learned to these points Ref [4,5]:

a. Define A Computer, Devices and Concepts:

The Instructor teaches to students how to use components of computers: input, processing, output, and storage, list some common input, output, and storage media, Distinguish data from information, appreciate the significance of networking, understand the significance of the Internet and classifications of computers.

b. Define Software or Computer Program:

The Instructor teaches to students, importance of software, which is the planned, step-by-step set of instructions required to turn data into information and that makes a computer useful. Software can be categorized as *systems software* or *applications software*. However, people rarely speak of systems software; it is more common to discuss a subset of systems software known as the operating system, the underlying software found on all computers. Applications software is *applied* to a real world task. It can be used to solve a particular problem or to perform a particular task to keep track of store inventory or design to play a game of solitaire. We will begin with the kinds of applications software that you might use, then move on to a discussion of the underlying operating system.

c. Define a Control Processing Unit (CPU):

The Instructor teaches to student importance of CPU, which is a highly complex, extensive set of electronic circuitry that executes stored program instructions. All computers, large and small, must have at least one central processing unit. The central processing unit consists of two parts: the *control unit* and the *arithmetic/logic unit*. Each part has a specific function. Other subsidiary subjects are, describe how program instructions are execute by the computer, understand how data is represented in the computer, describe how the computer finds instructions and data, understand the measures of computer processing speed and approaches that increase speed.

d. Define a Input / Output Devices:

The Instructor teaches to students how to use the central processing unit is the unseen part of a computer system; users are only dimly aware of it. But users are very much aware of the input and output associated with the computer. They submit input data to the computer to get processed information, the output.

e. Define Secondary Storage And Multimedia:

The Instructor teaches to students how to uses hardware devices which are secondary storage and multimedia devices.

⊕ Secondary Storage is additional storage, often on disk, for data and programs. Secondary storage is separate from the CPU and memory. Also called *auxiliary storage*. Secondary storage is necessary because memory, or primary storage, can be used only temporarily. However, you probably want to reuse information you have derived from processing; that is why secondary storage is needed. For example, Floppy Diskette, Hard Disk and etc...

⊕ Multimedia is, multimedia typically presents information with text, illustrations, photos, narration, music, animation, and film clips. To use multimedia software, you must have the proper hardware: a CD-ROM drive, a sound card, and speakers.



Figure 2.22 Hard disk



Figure 2.23 Multimedia



Figure 2.24 Floppy Diskette

f. Data Communication (Network):

The instructor teaches to students how to uses communications systems which computer systems that transmit data over communications lines such as telephone lines or cables. Most telephone lines through which these digital signals are sent were originally

built for voice transmission, and voice transmission requires analog signals. The next section describes these two types of transmission, and then modems, which translate between them.

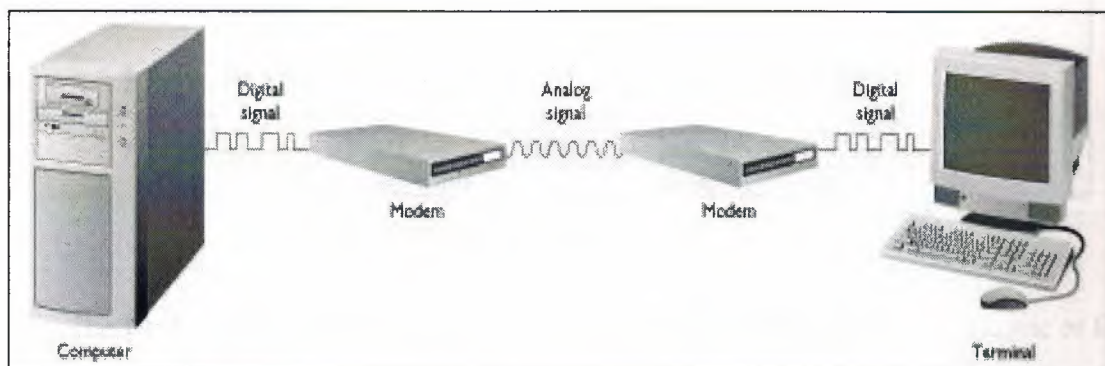


Figure 2.25 Modems

⊕ **Digital transmission** sends data as distinct pulses, either on or off. Some communications media are not digital.

⊕ Communications devices such as telephone lines, coaxial cables, and microwave circuits are already in place for voice (analog) transmission. The easiest choice for most users is to piggyback on one of these. Thus the most common communications devices all use **analog transmission**, a continuous electrical signal in the form of a wave.

⊕ Conversion from digital to analog signals is called **modulation**, and the reverse process, reconstructing the original digital message at the other end of the transmission, is called **demodulation**. An extra device is needed to make the conversions: a modem.

⊕ A **modem** is a device that converts a digital signal to an analog signal and vice versa. Modem is short for **modulate/demodulate**.

g. The Internet:

The instructor teaches to students, how is the Internet is a public communications network once used primarily by businesses, governments, and academic institutions but now also used by individuals via various private access methods. **Internet service**

provider (ISP) An entity that offers, for a fee, a server computer and the software needed to access the Internet.

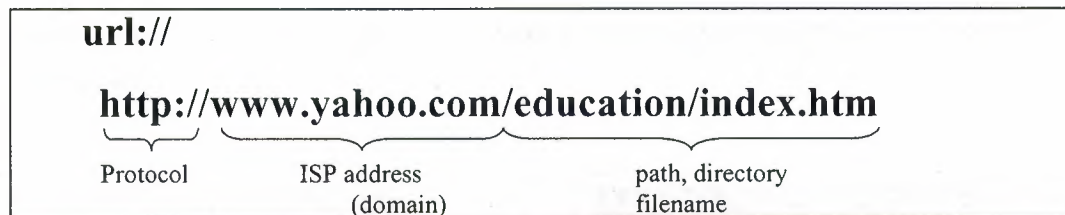


Figure 2.26 Internet address

The **Uniform Resource Locator** represents a unique address of an Internet site or file. Whenever you are looking at a web site, you can see its URL near the top of the screen in the browser's control panel, in the location (address) slot. for **Hyper Text Transfer Protocol**. This protocol is the means of communicating by using links, the click able text or image that transports a user to the desired site. Next comes the **domain name**, which is the address of the Internet service provider

h. Describe Word Processing and Desktop Publishing Software:

The instructor teaches to students, difference between word processor and desktop publishing.

⊕ Word Processor, software lets you create, edit, format, store, retrieve, and print a **text document**. Let us examine each part of the definition. A text document is any text that can be keyed in, such as a memo. **Creation** is the original composing and keying in of the document. *Editing* is making changes to the document to fix errors or improve its content, for example, deleting a sentence, correcting a misspelled name, or moving a paragraph. **Formatting** refers to adjusting the appearance of the document to make it look appropriate and attractive. For example, you might want to center a heading, make wider margins, or use double spacing. **Storing** the document means saving it on disk so that it can be accessed on demand. **Retrieving** the document means bringing the stored document from disk back into computer memory so that it can be used again or changed in some way. **Printing** is producing the document on paper, using a printer connected to the computer.

⊕ Desktop Publishing, **Page composition programs** , also called **page makeup programs**, let you design each page on the computer screen. You can determine the number and the width of the columns of text to be printed on the page. You can also indicate where pictures, charts, graphs, and headlines are to be placed. Once you have created the page design, you can use the page composition program to insert text and graphics into it.

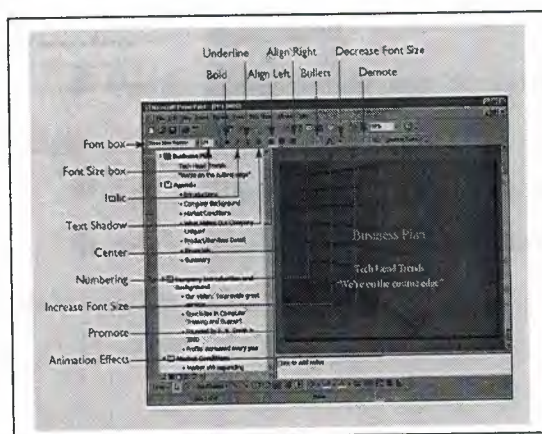


Figure 2.27 Desktop Publishing



Figure 2.28 Desktop Publishing

2.5.1.B. Practical Software Utilities:

The Student learnt is acquired throughout the step -by-step introduction of a certain software utility and the explanation of its purposes and applications in the laboratory. Student learns to Microsoft Word and Microsoft Power Point Application Software.

A. Microsoft Word:

The student shown how to use the word processing software, key in the document, change the document, and save and print the document. Teacher teaches to students these points for learned it more advance function from high school education.

B. Microsoft Power Point:

The student shown how to uses the desktop publishing software. Invoke the desktop publishing gives you the ability to do **page composition**, deciding where you want text and

pictures on a page, what fonts to use, and what other design elements to include. The page composition program is the key ingredient of a desktop publishing system. **Page composition programs**, also called **page makeup programs**, let you design each page on the computer screen. You can determine the number and the width of the columns of text to be printed on the page. You can also indicate where pictures, charts, graphs, and headlines are to be placed. Once you have created the page design, you can use the page composition program to insert text and graphics into it. The instructor teaches to students these following subject included;

- ⊕ Use the changes slide page background color or adding color effects to background color,
- ⊕ Add to clipart picture, any shapes and other Microsoft objects or graphs,
- ⊕ Add to animation to for each slide's text and add to slides when transition from one slide to other slides,

2.5.2.Second Semester(Introduction to Information Technology II)

This course builds upon its pre-requisite course from Introduction to Information Technology I and continues to show how information Technology improves our lives as well as explaining the technological and administrative concepts in relation to database, designing information systems, introduction to expert system Ref [7,8]. In addition roughly half of the efforts go towards equipping the students with fundamental computer skills regarding Excel.

2.5.2.A. Theoretical and Practical Fundamental Concepts

The instructor teaches to students, this is very reasonable considering the benefits of improving the advance technological and administrative skills of the students as early as possible.

The duration of second semester is sufficient considering the wide scope of the contents of the course, introducing both file organization application and processing principles. Student learned to these points:

a. Define Spreadsheets and Concepts:

The instructor shows to universities students, a worksheet that presents data in a grid of rows and columns is called a **spreadsheet**. The manually constructed spreadsheet, on paper, has been used as a business tool for centuries. An **electronic spreadsheet**, or **worksheet**, is a computerized version of a paper spreadsheet. Working with a spreadsheet on a computer eliminates much of the toil of setting up a manual spreadsheet. In general, an electronic spreadsheet works like this: You enter the data you want on your spreadsheet and then key in the types of calculations you need. The electronic spreadsheet program automatically does all the calculations for you, completely error-free, and produces the results in your spreadsheet.

Students learned to Microsoft Excel application software, lets you calculate formulas, drawing chart. Let us examine each part of the definition. Teacher teaches these subjects to students:

- ⊕ Define of the cells which one the have to address. Intersection of column and row called to cell. Column K and third row called to the K5,
- ⊕ Entering data to cells,
- ⊕ Using a formula for calculated numerical values,
- ⊕ Using a function for calculated formulas,
- ⊕ Passing data between to other sheets,
- ⊕ Students are preparing team projects.

b. Define a Data Base Concepts:

The instructor teaches to universities students, appreciate the advantages of databases, understand how databases are organized, become familiar with database terminology, understand, in general, how to build and change a database. For each box in the table contains a single piece of data, known as a **data item**. Each column of the table represents a **field**, which is a type of data item. The specific data items in a field may vary, but each field contains the same type of data item. The full set of data in any given row is called a **record**. Each record has a fixed number of fields. The fields in a particular record contain related data. A collection of related records makes up a **file**. In a relational database a file is also called a **relation**.

There are two steps to creating a database file:

- a. Designing the file structure and
- b. Entering the data.

When a **file structure** is defined, many database programs require the user to identify the field types, field names, and field widths. **Field names** are used to describe the data you want to use. There are four commonly used types of fields: **character fields**, **numeric fields**, **date fields**, and **logical fields**. The **field width** determines the maximum number of letters, digits, or symbols to be contained in the field. One or more **key fields** can be designated as a field on which a query to the database can be based.

SALES REPRESENTATIVE FILE					
REP-ID	LNAME	FNAME	REGION	HDATE	PHONE
114	Abele	Lori	SW	10-15-86	(602) 624-9384
159	Higgins	Heatherlyn	SE	12-16-91	(404) 524-8472
230	Sullivan	Pat	SE	2-21-88	(305) 734-2987
386	Speed	Krisen	MTW	6-14-90	(708) 823-8222
349	Demaree	Dona	NW	7-10-93	(206) 634-1955

CUSTOMER FILE			
CUST-NO	CNAME	CITY	REP-ID
2934	Byland Computer	Seattle	349
3007	Computer City	Miami	230
4987	Laser Systems	Atlanta	159
8987	Varner User Systems	Naperville	386
9185	CGI Computers	Spokane	349
9876	Computing Solutions	Tucson	114

ORDER FILE			
CUST-NO	DATE	ITEM-NO	QTY
3007	8-12-99	7639	11
4987	8-12-99	6720	15
8987	8-13-99	2378	14
9185	8-10-99	1628	10
9876	8-14-99	6720	20

Figure 2.29

Records in the four files in the MOORE database. Observe that there are common fields among the files, enabling the files to reference one another.

2.6. Summary:

This chapter is presented from Elementary School Education to University Level Education Methods in TRNC. Basic Hardware Equipment subject include the inside of the board part and other physical devices. Application software subject include of the Word Processing, Desktop Publishing, Database and Worksheet (Spreadsheets), Graphical Tables. Students are learned in this concepts because prepare for Introduction to Computer Education.

CHAPTER THREE

NEW APPROACHES TO COMPUTER EDUCATION

3.1 Overview

This chapter presents a comprehensive Analysis of the existing computer education methods at all stages; starting with Elementary Education until University Education.

A new approach will be suggested in order to improve the quality of computer education at all stages. The disadvantages of the current methods will be outlined & suggestions will be made as to solve the problem.

3.2 Elementary Computer Education Approach

There are more important aspects that should be considered when analyzing the computer education at elementary school level.

- ⊕ A more Graphical User Interface software system should be used
- ⊕ Uses cartoon animated software (child-friendly)
- ⊕ The instructor should be a computer expert for their course, when introduced to student the instructor should be able to announce that he/she is an expert in computer technology.
- ⊕ The Ministry of Education should prepare and send course outlines concerning semester contents to all of the school. This will be distributed to course instructors to ensure that the same course contents are shown to students in all school.
- ⊕ When the Ministry of Education organizes computer courses for instructors; each instructor should join these courses.
- ⊕ The Ministry of Education courses should include subjects shown in elementary school. Also, Elementary School education system uses a Visual Education method. Any teachers don't use a computer. Because all teachers are not

capable of using computers, they cannot use a computer to their advantage whilst teaching.

- ⊕ Each school should have a computer laboratory and computer education specialist for courses.

- ⊕ The Ministry of Education should provide computer technicians, for when problems occur with the computer.

- ⊕ The Ministry of Education should send original training Cd's to elementary schools.

3.3 Preparatory Computer Education Approach

There are more important aspects that should be considered when analyzing computer education at a preparatory school level.

- ⊕ The students learn the basics of theoretical hardware equipments from the text book; the students should touch and feel the basic hardware devices (e.g. hard disk, ram, rom, voice card and etc)

- ⊕ The students cannot really learn about hardware equipment from books, they read to see and touch than personally. A person may always forget some thing that they have read.

- ⊕ Hands-on experience leads to better knowledge of computer hardware for children in this group.

3.4 High School Computer Education Approach

There are more important aspects that should be considered when analyzing the computer education at high school level.

High school is divided into four parts.

- ⊕ First part is the Classic Lysee or High school. In this part education includes more theoretical chapters, word processor and worksheet software. High school students should be shown more Graphical user interface package software and provided with hardware laboratories.

- ⊕ The second part of Lycee is Commerce & Industry Occupation. These students learn information about their occupation. That's why, if a students department is

Secretary of Commerce Lycee, they should learn more practical information about the word processor, desktop publishing and worksheet software.

⊕ The Third part of Lycee is the Tourism department, students should also learn about interest of tourism package software

⊕ The fourth part of Lycee is the Electric & Electronic department, again the students should also learn about more developed hardware devices and technical information.

3.5 University Computer Education Approach

There are more important aspects that should be considered when analyzing computer education at high school level.

University Level is divided into two parts.

The First level is Introduction to Information Technology I. This is very reasonable considering the benefits of improving the general computer skills of the students as early as possible.

⊕ The current method of teaching students the hardware aspects of computers is not sufficient. What is the sufficient method? Demonstrating computer components should be supported by hands-on experience within the laboratory work. It is suggested that the students should assemble a complete computer system “dissecting a PC” in order to gain practical experience of all hardware components.

The Second level is Introduction to Information Technology II. This is very reasonable considering the benefits of improving the more application software and introduction to basic Internet skills of the students as early as possible.

⊕ The current method of teaching students the Software aspects of computers is reasonable. Educating students; both theory and practice, in the lab is very sufficient; because the students apply their step-by-step instructions immediately on a PC. Using features such as F1 (Help) button for Microsoft Applications Software, can assist students in quick learning and self-dependency when using software utilities.

⊕ The current methods of teaching students the basic Internet system, the students should prepared their simple Home Pages and setup to server by one self.

3.6 Summary

This chapter presented a comprehensive Analysis of the existing computer education methods at all stages; starting with Elementary Education until University Education.

CHAPTER FOUR

SOFTWARE APPLICATION DEVELOPMENT

4.1 Overview

The previous chapter introduced new approaches to computer education methods throughout the education phases in North Cyprus. These approaches aim at improving the standards of computer education and address problems with existing methods. This chapter provides the realization of these new approaches throughout the development of an *original computer education software* “*Bilgisayar Öğreniyorum*”, that has been written using *Delphi* programming language. “*Bilgisayar Öğreniyorum*” has been developed for elementary school phase.

4.2 Software Application Specifications:

There are more important aspects that should be considered this computer education software at elementary school level or beginner level.

- ⊕ Provides history of computers, dictionary of computer & explain all computers hardware devices for why and how to uses it.
- ⊕ Provides computer education in view of recommendations in chapter 2. This software is, prepared by an expert computer instructor. It is a single computer-training program for elementary instructor.
- ⊕ Provides feedback to computer learners through a basic on-screen examination.
- ⊕ This software prepare for 6-10 age group and beginner level.
- ⊕ This software is include user-friendly cartoon characters & pictures
- ⊕ This software Operating Systems compatibility is Windows family
- ⊕ This software’s developing language is Delphi. Delphi language is easy to use and modifications and improvements to the software can be made quicker.
- ⊕ User-Friendly GUI for use by both child and parents supervising the children
- ⊕ Approximate financial cost *five* Euros.

4.3 Software Algorithm

The development of the software algorithm requires the *Visual Delphi 5*-language compiler installed on an up-to-date PC. The installation of the developed software requires also the Windows O/S, to run the finalized software. The flowchart in Figure 4.1 shows the general working of the computer software.

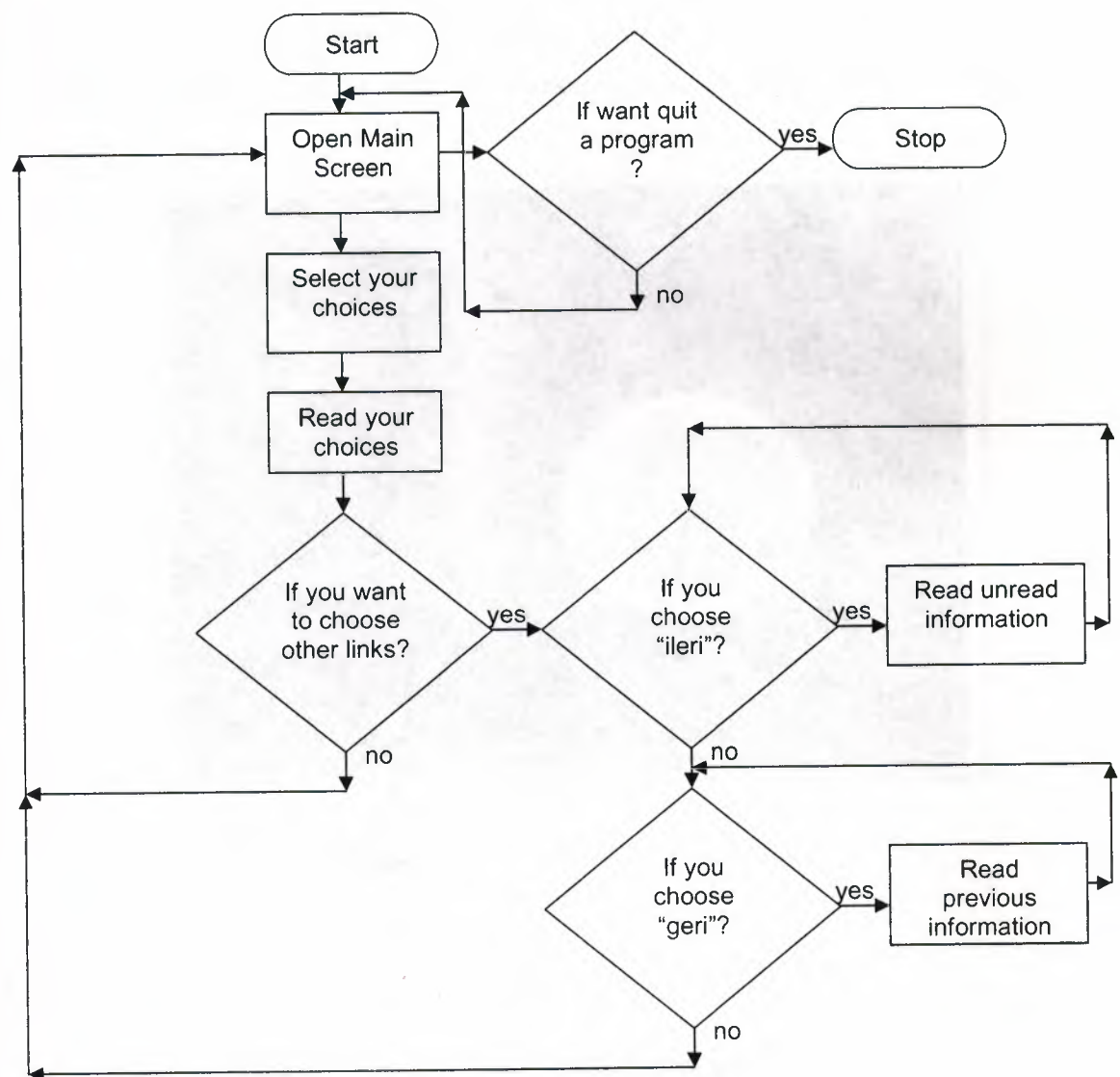


Figure 4.1: Software flowchart

4.4 Graphical User Interface (GUI)

The output of the developed software, as far as the user is concerned, is in the form of the Graphical User Interface (GUI). It is important to come up with a useful and easy-to-use window screens that attracts the target users to spend more time in front of the PC while learning. All developed GUI screens will be presented in this section.

Figure 4.2 shows the first (main) page GUI. If the user is chooses, for example; “Konular”, the picture changes. Each link results in showing a different picture. The software program used to produce this application is presented in section 4.4.1.



Figure 4.2: GUI window showing the first (main) page

4.4.1 Program Listing for Main Page

This section presents the developed software that produces the main page of the program.

```
unit ana_menu;  
interface  
uses
```



```

Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
StdCtrls, Buttons, ExtCtrls, jpeg;
type
  TAna_Menu_Form = class(TForm)
    Panel1: TPanel;
    Label1: TLabel;
    Image1: TImage;
    Image2: TImage;
    Label2: TLabel;
    Test: TLabel;
    Image3: TImage;
    procedure Label2Click(Sender: TObject);
    procedure Label2MouseMove(Sender: TObject; Shift: TShiftState; X,
      Y: Integer);
    procedure Panel1MouseMove(Sender: TObject; Shift: TShiftState; X,
      Y: Integer);
    procedure TestMouseMove(Sender: TObject; Shift: TShiftState; X,
      Y: Integer);
    procedure Image3Click(Sender: TObject);
    procedure TestClick(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
  private
    { Private declarations }
  public
    { Public declarations }
  end;
var
  Ana_Menu_Form: TAna_Menu_Form;
implementation
  uses kon_bilg_pas, Test1_pas, test_pas;
  {$R *.DFM}
  procedure TAna_Menu_Form.Label2Click(Sender: TObject);
  begin
    kon_bilg:=Tkong_bilg.Create(Application);
    kon_bilg.Show;
  end;
  procedure TAna_Menu_Form.Label2MouseMove(Sender: TObject; Shift: TShiftState;
  X,
    Y: Integer);
  begin
    image1.visible:=true;
  end;
  procedure TAna_Menu_Form.Panel1MouseMove(Sender: TObject; Shift: TShiftState;
  X,
    Y: Integer);
  begin

```

```

image1.visible:=false;
image2.visible:=false;
end;
procedure TAna_Menu_Form.TestMouseMove(Sender: TObject; Shift: TShiftState; X,
  Y: Integer);
begin
image2.visible:=true;
end;
procedure TAna_Menu_Form.Image3Click(Sender: TObject);
begin
close;
exit;
Ana_Menu_form.free;

```

4.4.2 Other GUI Screens

All the GUI screen will be presented in this section together with their descriptions.



Figure 4.3: GUI window showing the first (main) page for exit a progr am



Figure 4.4: GUI window showing the Menu Toolbar “Konular” page

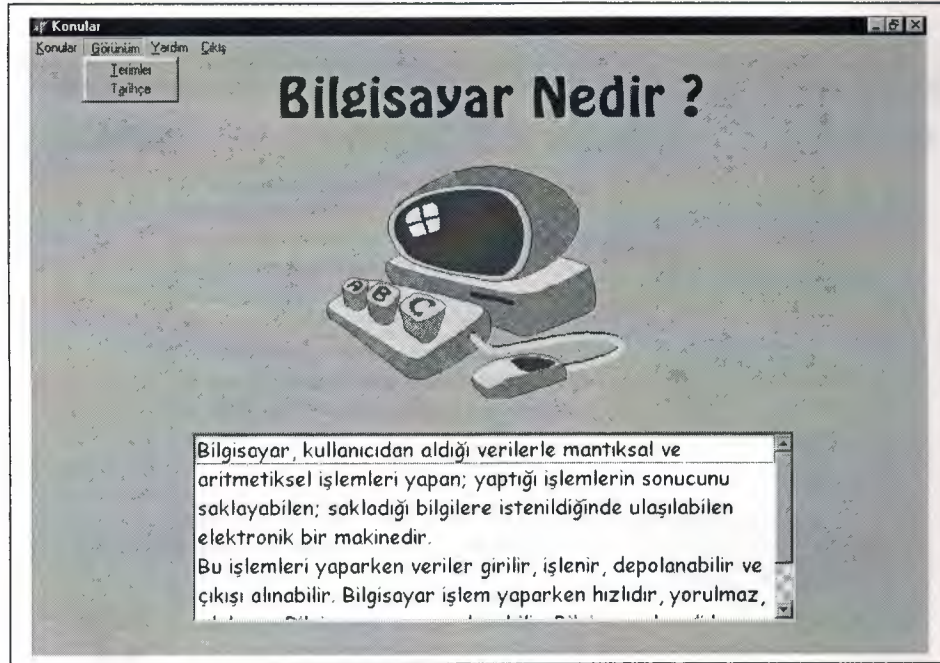


Figure 4.4.a: GUI window showing the Menu Toolbar “ Görünüm” page

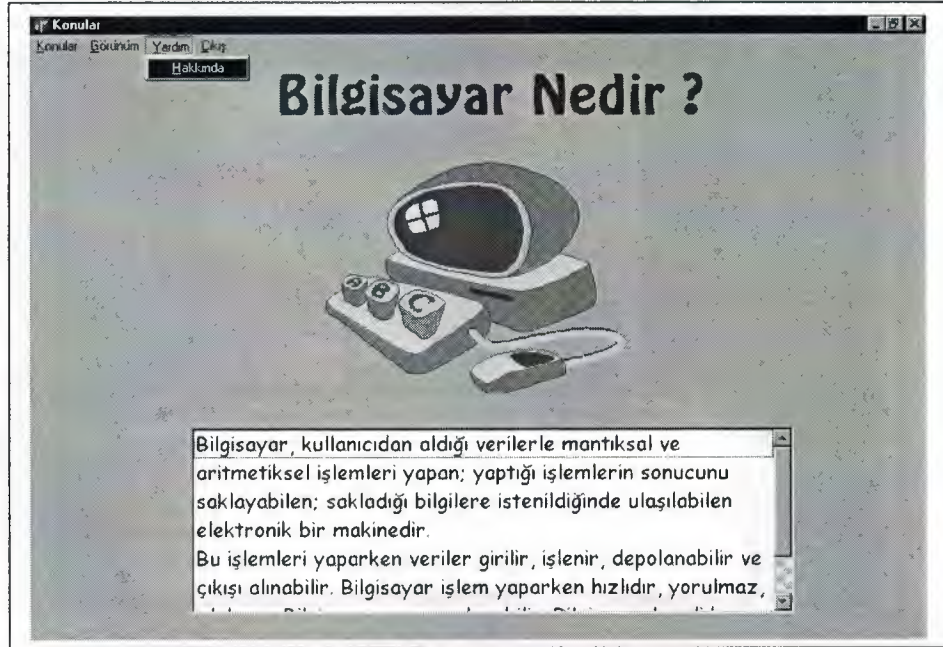


Figure 4.4.b: GUI window showing the Menu Toolbar “Yardım & Çıkış” page



Figure 4.5: GUI window showing the “Giriş Birimleri” page



Figure 4.6: GUI window showing the “İşletim Sistemi” page

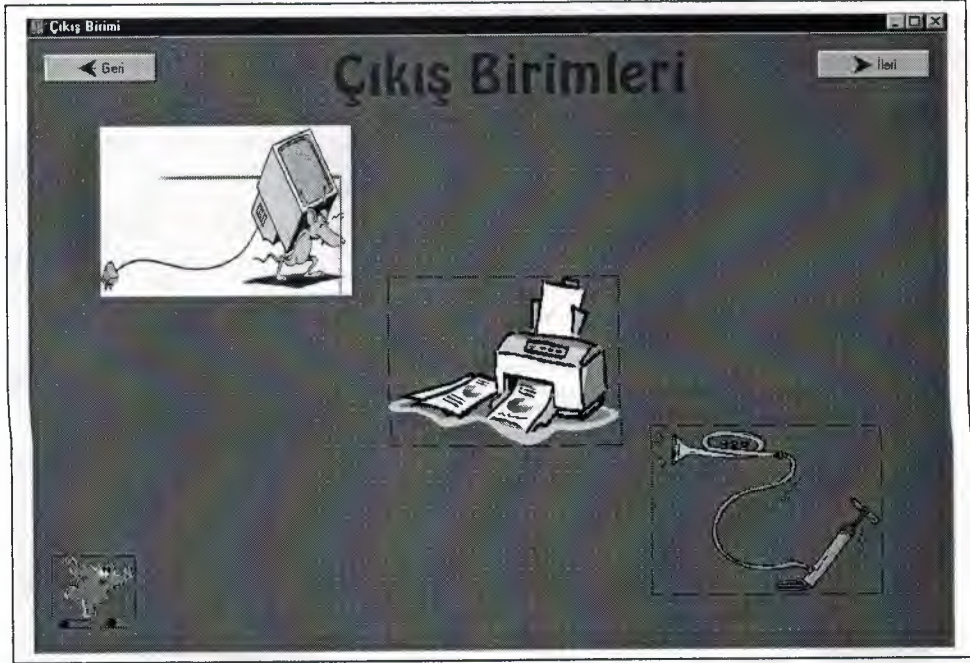


Figure 4.7: GUI window showing the “Çıkış Birimleri” page

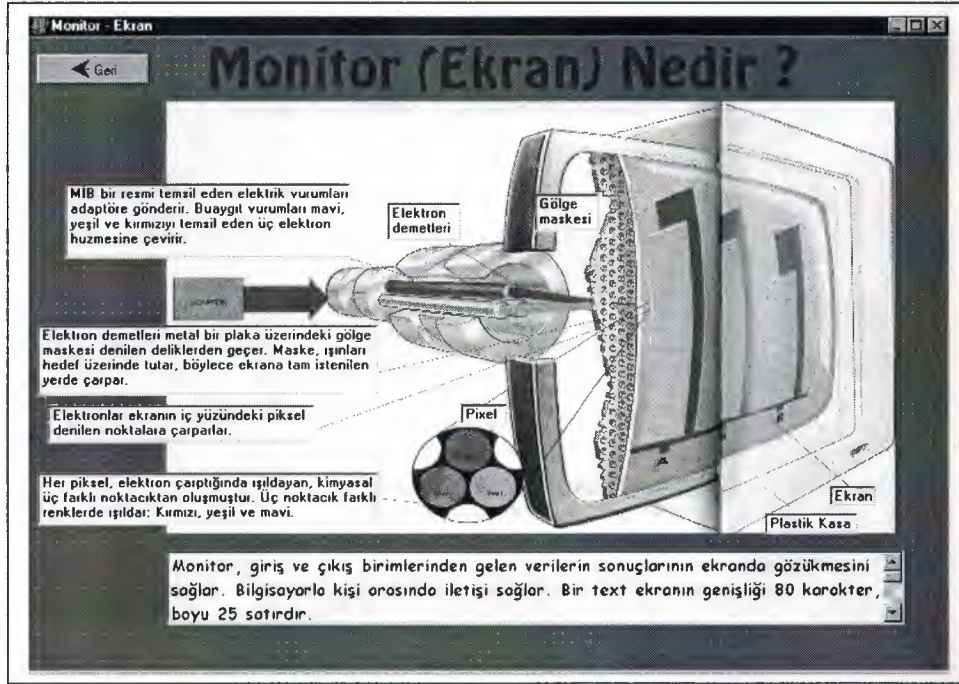


Figure 4.7.a: GUI window showing the “Monitör” page



Figure 4.7.b: GUI window showing the “Printer- Yazıcı” page

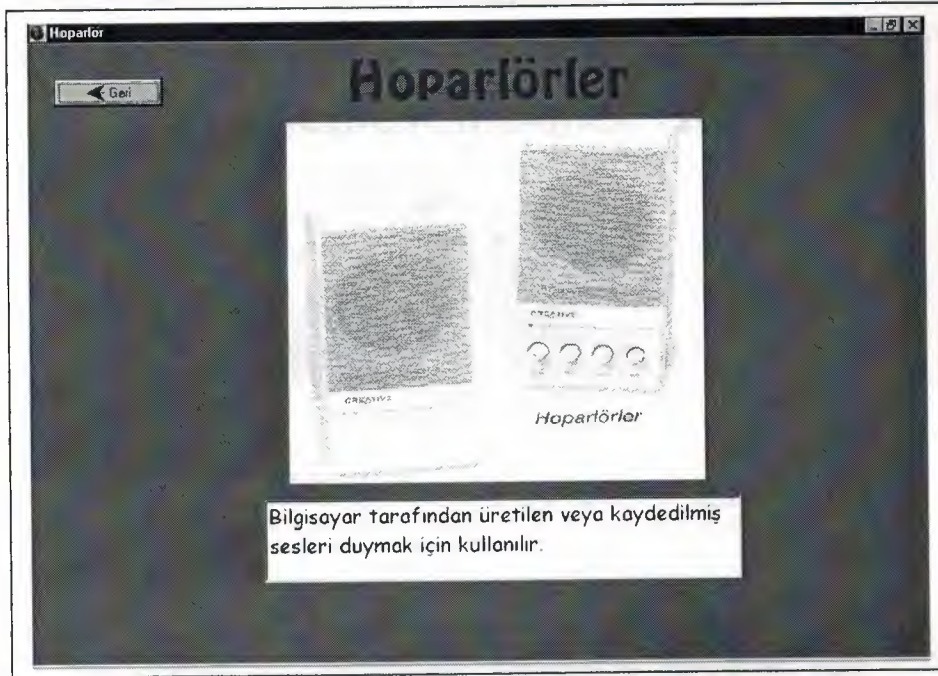


Figure 4.7.c: GUI window showing the “Hoparlör” page

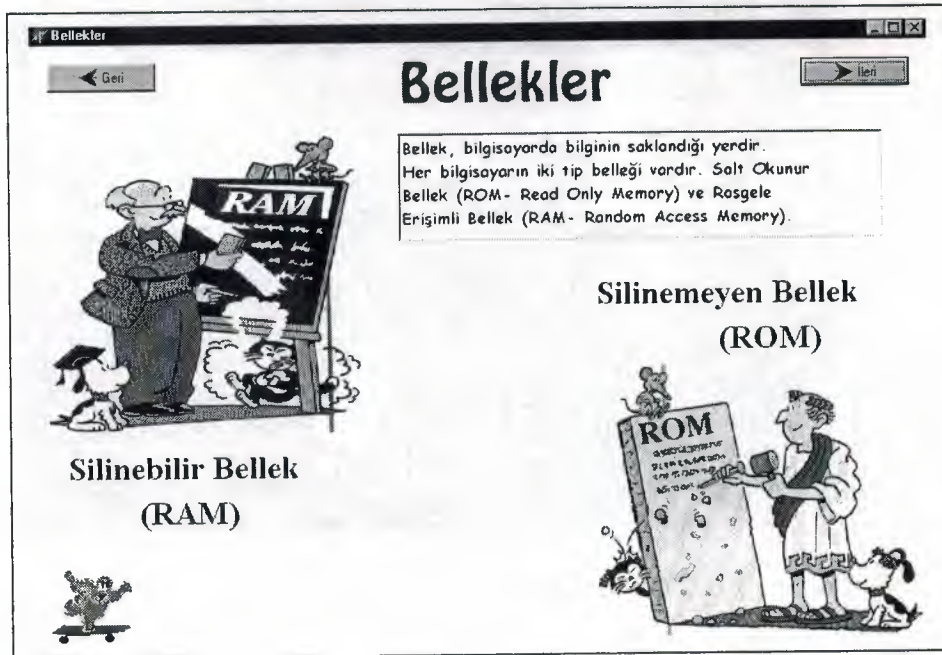


Figure 4.8: GUI window showing the “Bellekler” page



Figure 4.8.a: GUI window showing the "Ram-Rom" page

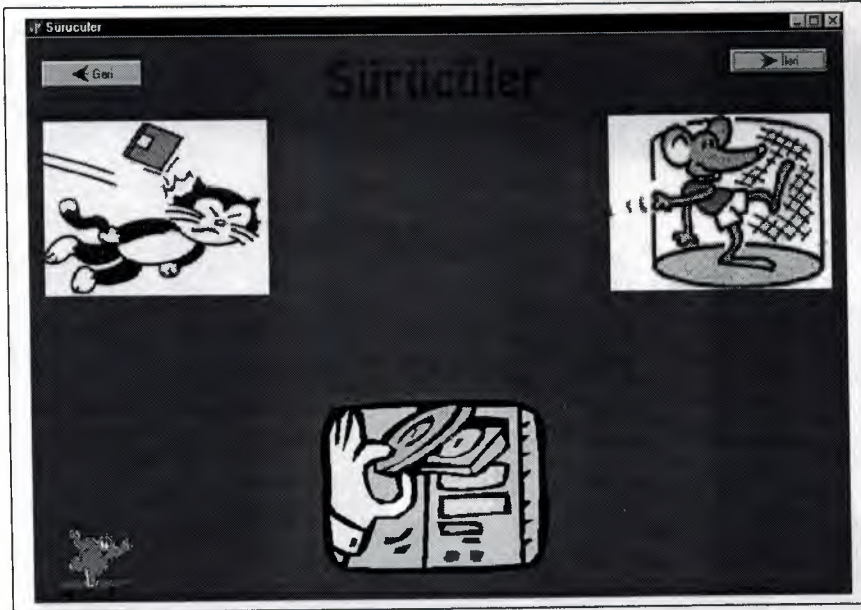


Figure 4.9: GUI window showing the "Sürücüler" page

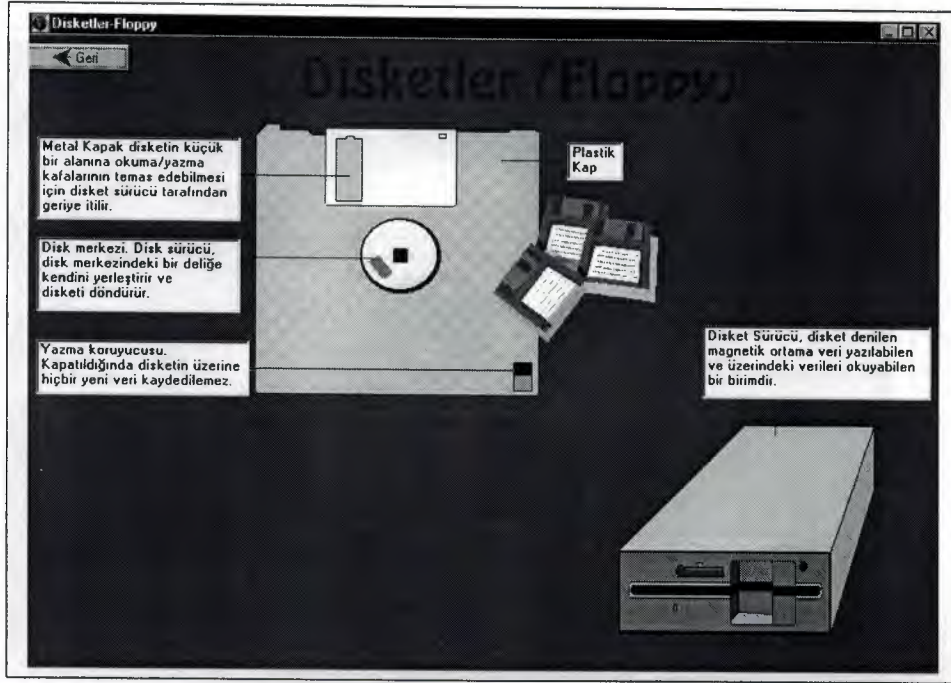


Figure 4.9.a: GUI window showing the “Disketler” page

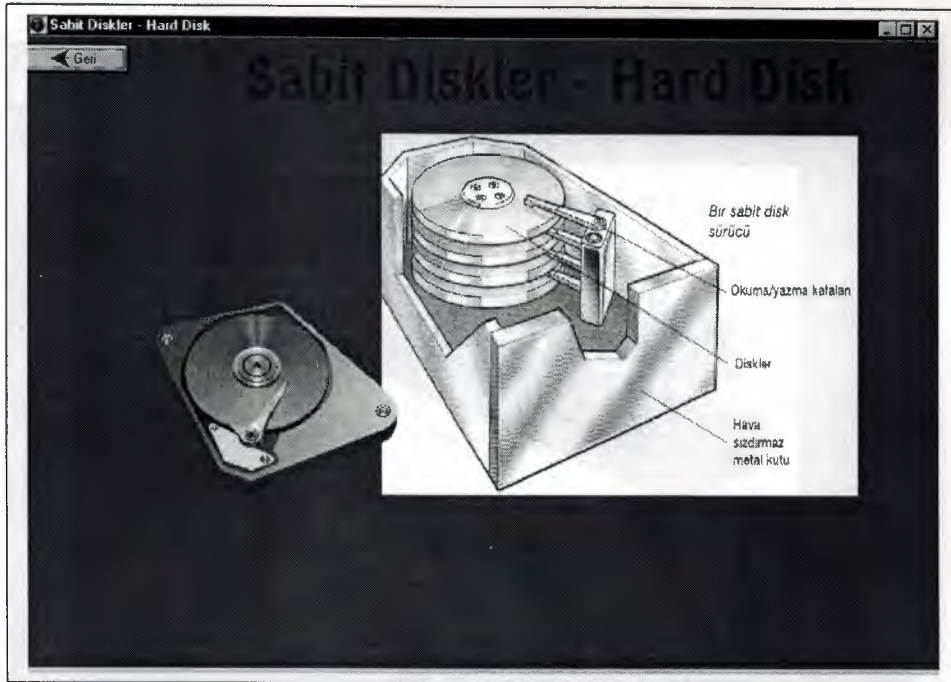


Figure 4.9.b: GUI window showing the “Sabit Diskler” page



Figure 4.9.c: GUI window showing the “CD-DVD Rom” page

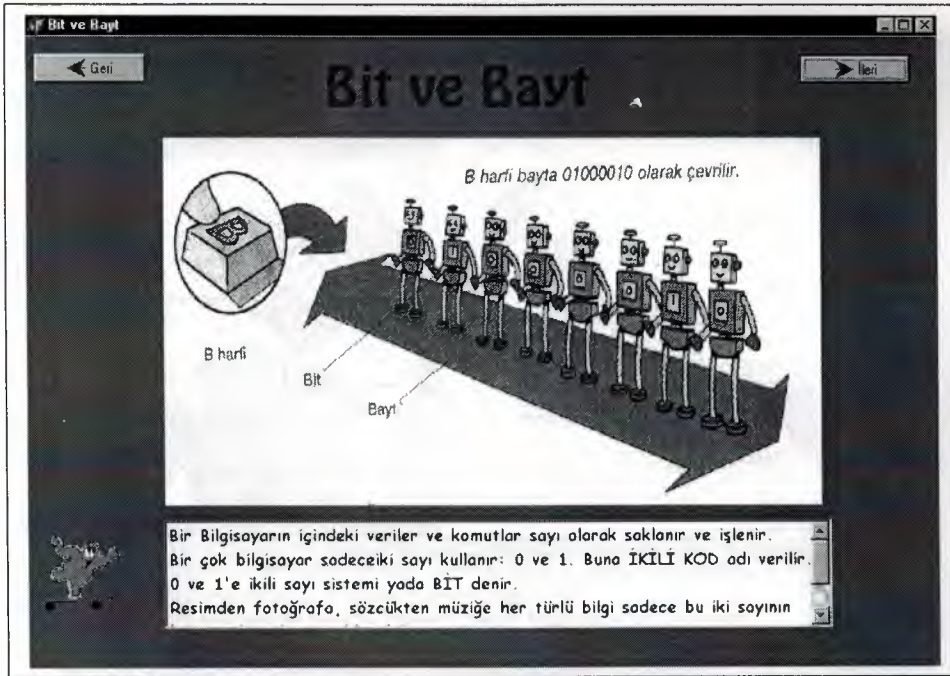


Figure 4.10: GUI window showing the “Bit ve Byte” page

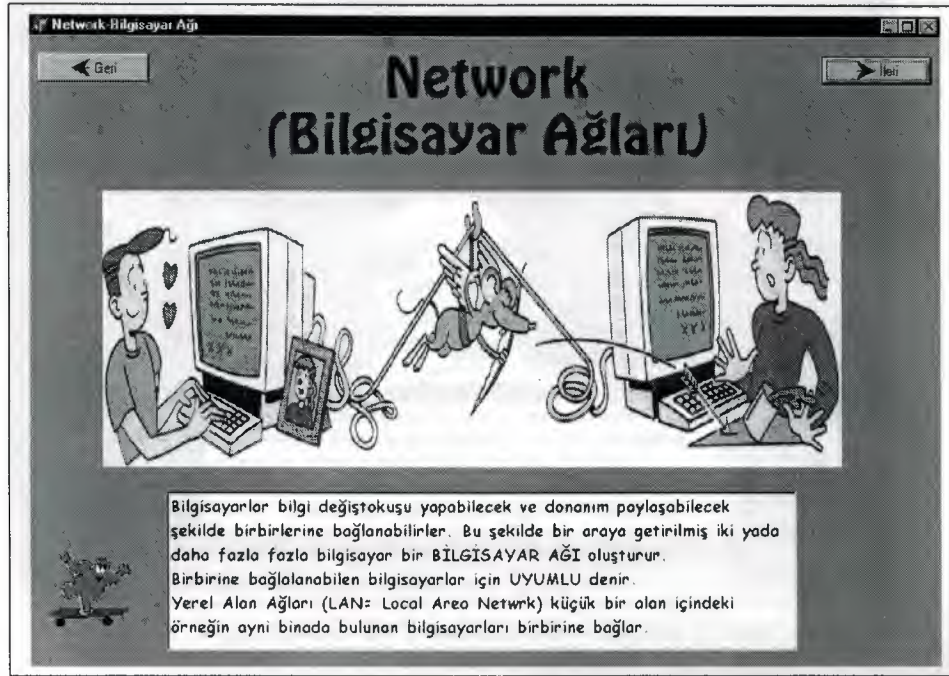


Figure 4.11: GUI window showing the “Network” page

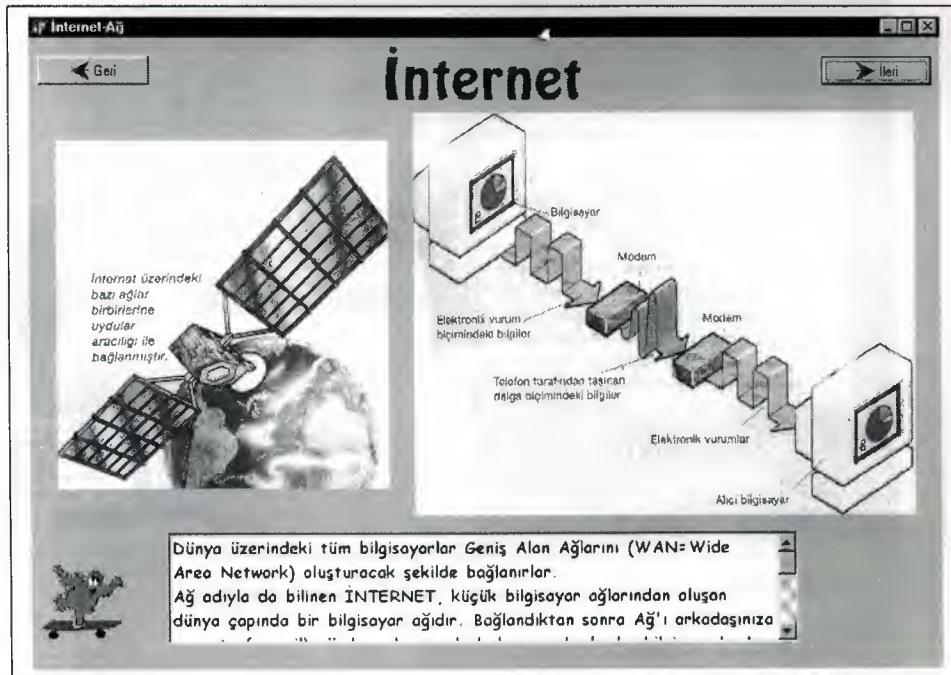


Figure 4.12: GUI window showing the “Internet” page



Figure 4.13: GUI window showing the “Virüs” page



Figure 4.14: GUI window showing the “Sağlık” page

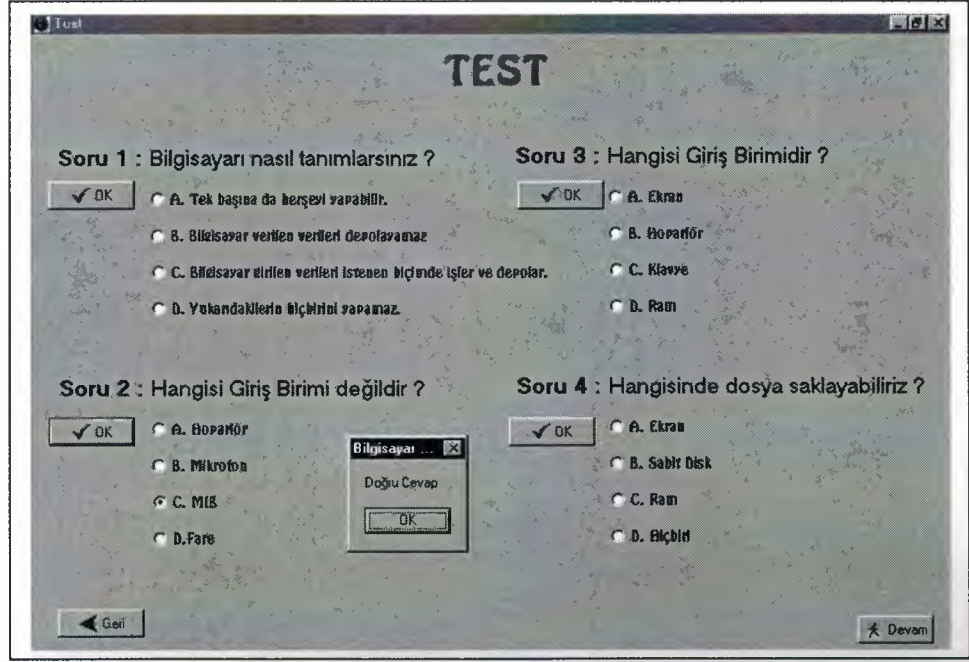


Figure 4.15.a: GUI window showing the “Test” page

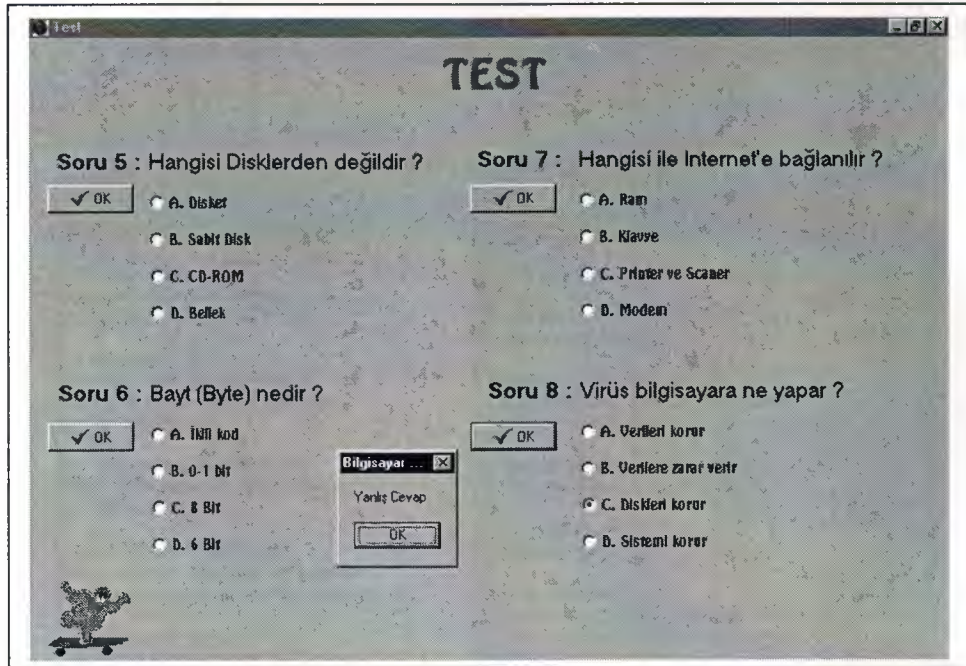


Figure 4.15.b: GUI window showing the “Test” page

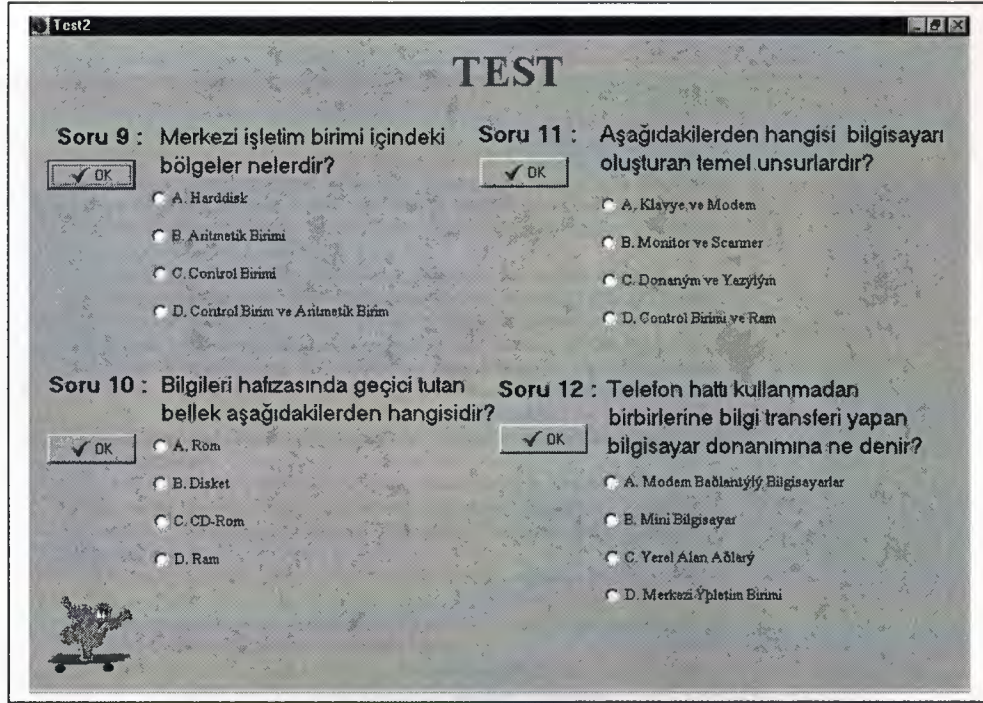


Figure 4.15.c: GUI window showing the “Test” (last) page

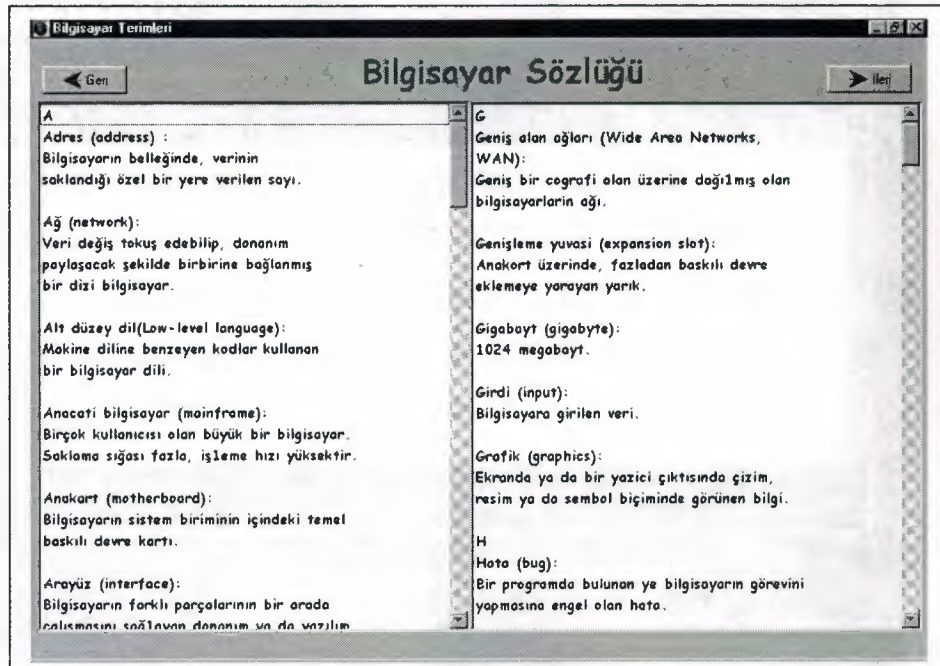


Figure 4.16: GUI window showing the “Terimler” page

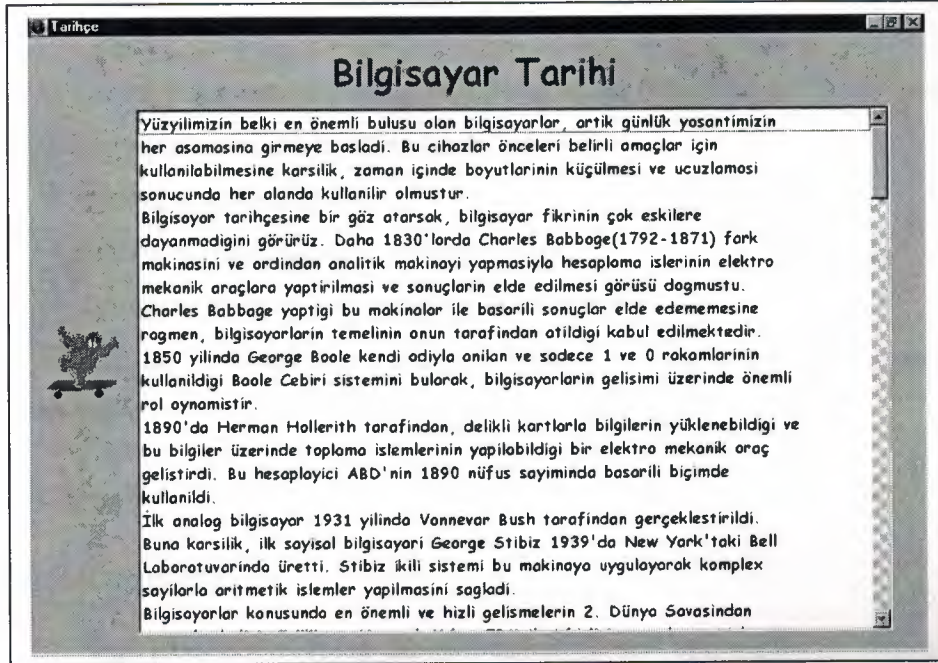


Figure 4.17: GUI window showing the “Tarihçe” page

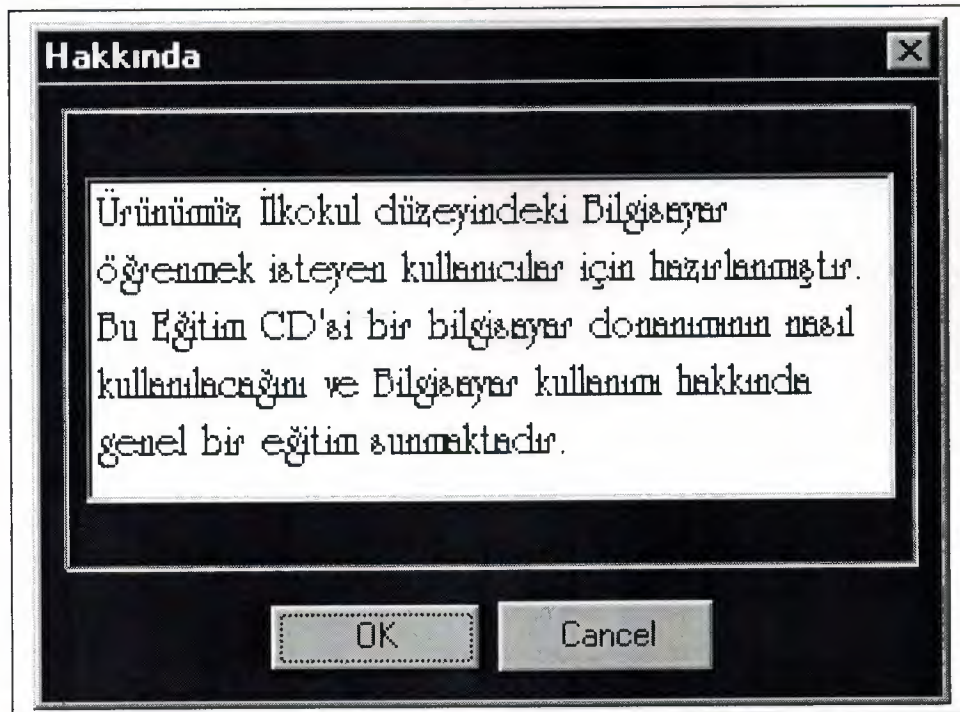


Figure 4.18: GUI window showing the “Yardım” page

4.5 Further & Future Developments

- ⊕ Create web page with using evaluation about this software. Collect new idea from related people or other professionals’ instructors,
- ⊕ Adding to musical effect,
- ⊕ Adding human voice for reading to text,
- ⊕ Adding to moving or animation for texts and pictures,
- ⊕ Creating more advanced software applications targeted at the higher education phases.

4.6 Summary

This chapter presented the realisation of new approaches to computer education throughout the development of an *original computer education software* “*Bilgisayar Öğreniyorum*”, that has been written using *Delphi* programming language. “*Bilgisayar Öğreniyorum*” has been developed for elementary school phase.

CONCLUSIONS

The rapid development in information technology and the common use of computers in our daily lives has had an impact on the methods of computer education. The existing education methods have been improved with the fast developing information technology, extensive use of multimedia software in education processes. Multimedia software that encourages users to spend more time in front of a PC has been developing rapidly. This can be achieved through using colorful displays, animations and different font styles, where such developments in providing information can be used in addressing the problem of delivering robust computer education to various age groups.

The thesis is devoted to the development of multimedia software for computer education. To solve this problem in the thesis the following have been carried out.

The first chapter presented the analysis of Education Methods of Elementary School, Preparatory School, High School, University Level in TRNC.

Pupils learned how to use and understand basic general computer software and hardware environment devices in Elementary School. Students learned how to use hardware equipment and application software in Preparatory School. Hardware and software application subjects included of the Word Processing, Desktop Publishing, Database, Worksheet (Spreadsheets), Graphical Tables and Networks System and worksheet in High School. In university level the student studies the Hardware Equipments inside of the board part and other basics physical devices, their functions, also software products, such as Word Processing, Desktop Publishing, Database and Worksheet (Spreadsheets), Graphical Tables. To these can be included advanced software products, packages for special purposes.

In the research the results of real-life interaction with 30 schools in TRNC, covering the of Lefkosa, Girne, Guzelyurt, Gazi Magusa and Yeni Iskele including the Karpaz area were given. As a result of visit the practical and real feedback and information that helps understanding the current methods of Computer Education in TRNC are obtained. A list of the schools can be found in Appendix I.

Results of analysis of existing computer education techniques at the various education levels in TRNC, and suggestions to further improve them were proposed in chapter two.

The development of a multimedia software using Delphi programming language is presented in chapter three. The developed program (Bilgisayar Öğreniyorum) is aimed at the first level of computer education user group.

The development of a novel software program that provides user-friendly and informative computer education has been successfully achieved. The suggestions on how to further improve existing techniques have also been provided.

REFERENCES

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- [7] Course of Introduction to Information Technology II, NEU, EUL and EMU, TRNC, 2001.
- [8] Khashman A. & Ozarin G., "Computer Education Techniques: Case Analysis", Proceedings of the Electrical, Electronics & Computer Engineering Symposium (NEU-CEE'2001), Nicosia, North Cyprus, Turkey, May 2001.
- [9] Bektaş Ş., Mamedov F. And Khashman A.; "Graduate Studies: A Complete Reference", NEU Press 2001.
- [10] Margaret Stephens & Rebeca Treays, "Computers For Beginners", 2001, Thirteenth Editions, Usborne Publishing Ltd. ISBN: 975-403-145-2.
- [11] Philippa Wingate, "The Internet For Beginners", 2001, Thirteenth Editions, Usborne Publishing Ltd., ISBN: 975-403-121-5.

APPENDIX I

LIST OF VISITED SCHOOLS IN TRNC

1. Lefkoşa Region

- ⊕ Şht. Ertuğrul İlkokulu
- ⊕ Şht. Tuncer İlkokulu
- ⊕ Arabahmet İlkokulu
- ⊕ Gönyeli İlkokulu
- ⊕ Haydarpaşa Ticaret Lisesi
- ⊕ Yakın Doğu Üniversitesi

2. Gazi Mağusa Region

- ⊕ Yeniboğaziçi İlkokulu
- ⊕ Mormenekşe İlkokulu
- ⊕ Alaniçi İlkokulu
- ⊕ Yıldırım İlkokulu
- ⊕ Akova İlkokulu
- ⊕ Canbulat İlkokulu
- ⊕ Doğu Akdeniz Üniversitesi

3. Yeni İskele Region

- ⊕ Şht. İlker Karter İlkokulu (İskele)
- ⊕ Dipkarpaz İlkokulu
- ⊕ Yeni Erenköy İlkokulu
- ⊕ Şht. Zorba İlkokulu (Yeşilköy)
- ⊕ Ziyamet İlkokulu
- ⊕ Kumyalı İlkokulu
- ⊕ Mehmetçik İlkokulu

- ⊕ Çayırova İlkokulu
- ⊕ Büyükkonuk İlkokulu
- ⊕ Yedikonuk İlkokulu

4. Girne Region

- ⊕ 23 Nisan İlkokulu
- ⊕ Alsancak İlkokulu

5. Güzelyurt Region

- ⊕ Kurtuluş İlkokulu
- ⊕ Özgürlük İlkokulu
- ⊕ Barış İlkokulu

APPENDIX II

PUBLISHED PAPERS

- 1- Khashman A. & Ozarin G., "Computer Education Techniques: Case Analysis", Proceedings of the Electrical, Electronics & Computer Engineering Symposium (NEU-CEE'2001), Nicosia, North Cyprus, Turkey, May 2001.
- 2- Khashman A. & Ozarin G., "Computer Education at Elementary Schools", Creating The Future, 2nd FAE International Symposium, Gemikonağı, North Cyprus, November 2002. (Abstract was Accepted)

APPENDIX III

PROGRAM LISTING

Program Listing for Main Page (Figure 4.1, Figure 4.2, Figure 4.3)

This section presents the developed software that produces the main page of the program.

```
unit ana_menu;
interface
uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  StdCtrls, Buttons, ExtCtrls, jpeg;
type
  TAna_Menu_Form = class(TForm)
    Panel1: TPanel;
    Label1: TLabel;
    Image1: TImage;
    Image2: TImage;
    Label2: TLabel;
    Test: TLabel;
    Image3: TImage;
    procedure Label2Click(Sender: TObject);
    procedure Label2MouseMove(Sender: TObject; Shift: TShiftState; X,
      Y: Integer);
    procedure Panel1MouseMove(Sender: TObject; Shift: TShiftState; X,
      Y: Integer);
    procedure TestMouseMove(Sender: TObject; Shift: TShiftState; X,
      Y: Integer);
    procedure Image3Click(Sender: TObject);
    procedure TestClick(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
  private
    { Private declarations }
  public
    { Public declarations }
  end;
var
  Ana_Menu_Form: TAna_Menu_Form;
implementation
uses kon_bilg_pas, Test1_pas, test_pas;
{$R *.DFM}
procedure TAna_Menu_Form.Label2Click(Sender: TObject);
begin
  kon_bilg:=Tkon_bilg.Create(Application);
  kon_bilg.Show;
end;
```

```

procedure TAna_Menu_Form.Label2MouseMove(Sender: TObject; Shift: TShiftState;
X,
  Y: Integer);
begin
image1.visible:=true;
end;
procedure TAna_Menu_Form.Panel1MouseMove(Sender: TObject; Shift: TShiftState;
X,
  Y: Integer);
begin
image1.visible:=false;
image2.visible:=false;
end;
procedure TAna_Menu_Form.TestMouseMove(Sender: TObject; Shift: TShiftState; X,
  Y: Integer);
begin
image2.visible:=true;
end;
procedure TAna_Menu_Form.Image3Click(Sender: TObject);
begin
close;
exit;
Ana_Menu_form.free;

```

Program Listing for Konular and Menues (Figure 4.4, Figure 4.4.a, Figure 4.4.b)

```

unit kon_bilg_pas;

interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  Menus, StdCtrls, ExtCtrls, Buttons;

type
  Tkon_bilg = class(TForm)
    MainMenu1: TMainMenu;
    Konular1: TMenuItem;
    Bilgisayar1: TMenuItem;
    GiriBirimil: TMenuItem;
    letimsistemi1: TMenuItem;
    kBirimil: TMenuItem;
    Bellek1: TMenuItem;
    Ram1: TMenuItem;
    Srcler1: TMenuItem;
    BitveBayt1: TMenuItem;

```



```

Network1: TMenuItem;
Virsl: TMenuItem;
Salk1: TMenuItem;
Test1: TMenuItem;
Grnm1: TMenuItem;
Terimler1: TMenuItem;
Tarihe1: TMenuItem;
Yardm1: TMenuItem;
Hakknda1: TMenuItem;
k2: TMenuItem;
Label1: TLabel;
Image1: TImage;
ListBox1: TListBox;
nternet1: TMenuItem;
procedure AnaMenu2Click(Sender: TObject);
procedure k1Click(Sender: TObject);
procedure GiriBirim1Click(Sender: TObject);
procedure letimsistemi1Click(Sender: TObject);
procedure kBirim1Click(Sender: TObject);
procedure Ram1Click(Sender: TObject);
procedure k2Click(Sender: TObject);
procedure Srcler1Click(Sender: TObject);
procedure BitveBayt1Click(Sender: TObject);
procedure Network1Click(Sender: TObject);
procedure VirslClick(Sender: TObject);
procedure Salk1Click(Sender: TObject);
procedure nternet1Click(Sender: TObject);
procedure Test1Click(Sender: TObject);
procedure Terimler1Click(Sender: TObject);
procedure Tarihe1Click(Sender: TObject);
procedure Hakknda1Click(Sender: TObject);
private
  { Private declarations }
public
  { Public declarations }
end;

var
  kon_bilg: Tkon_bilg;

implementation

uses ana_menu, kon_gir_pas, Isl_sys_pas, kon_sur_pas, kon_cik_pas,
  kon_bel_pas, kon_bitbyte_pas, kon_net_pas, kon_vir_pas, kon_hlt_pas,
  kon_int_pas, test_pas, kon_term_pas, hakkinda, kon_hist_pas;

{$R *.DFM}

procedure Tkon_bilg.AnaMenu2Click(Sender: TObject);

```

```

begin
kon_bilg.hide;
Ana_Menu_form.Show;
end;

procedure Tkon_bilg.k1Click(Sender: TObject);
begin
Close;
end;

procedure Tkon_bilg.GiriBirimi1Click(Sender: TObject);
begin
kon_giris:=Tkon_giris.Create(Application);
kon_giris.ShowModal;
kon_giris.Free;
end;

procedure Tkon_bilg.letimsistemi1Click(Sender: TObject);
begin
Isl_sys_Form:=TIsl_sys_Form.Create(Application);
Isl_sys_Form.ShowModal;
Isl_sys_Form.Free;
end;

procedure Tkon_bilg.kBirimi1Click(Sender: TObject);
begin
kon_output:=Tkon_output.Create(Application);
kon_output.ShowModal;
kon_output.Free;
end;

procedure Tkon_bilg.Ram1Click(Sender: TObject);
begin
bellekler:=Tbellekler.Create(Application);
bellekler.ShowModal;
bellekler.Free;
end;

procedure Tkon_bilg.k2Click(Sender: TObject);
begin
close;
end;

procedure Tkon_bilg.Srcler1Click(Sender: TObject);
begin
kon_sur:=Tkon_sur.Create(Application);
kon_sur.ShowModal;
kon_sur.Free;
end;

```

```

procedure Tkon_bilg.BitveBayt1Click(Sender: TObject);
begin
bit_byte:=Tbit_byte.Create(Application);
    bit_byte.ShowModal;
    bit_byte.Free;
end;

```

```

procedure Tkon_bilg.Network1Click(Sender: TObject);
begin
kon_net:=Tkon_net.Create(Application);
    kon_net.ShowModal;
    kon_net.Free;
end;

```

```

procedure Tkon_bilg.Virs1Click(Sender: TObject);
begin
kon_vir:=Tkon_vir.Create(Application);
    kon_vir.ShowModal;
    kon_vir.Free;
end;

```

```

procedure Tkon_bilg.Salk1Click(Sender: TObject);
begin
kon_hlt:=Tkon_hlt.Create(Application);
    kon_hlt.ShowModal;
    kon_hlt.Free;
end;

```

```

procedure Tkon_bilg.nternet1Click(Sender: TObject);
begin
kon_int:=Tkon_int.Create(Application);
    kon_int.ShowModal;
    kon_int.Free;
end;

```

```

procedure Tkon_bilg.Test1Click(Sender: TObject);
begin
Test0:=TTest0.Create(Application);
    Test0.Show;
end;

```

```

procedure Tkon_bilg.Terimler1Click(Sender: TObject);
begin
term:=Tterm.Create(Application);
    term.ShowModal;
    term.Free;
end;

```



```

procedure Tkon_bilg.Tarihe1Click(Sender: TObject);
begin
kon_hist:=Tkon_hist.Create(Application);
kon_hist.ShowModal;
kon_hist.Free;
end;

procedure Tkon_bilg.Hakknda1Click(Sender: TObject);
begin
OKBottomDlg:=TOKBottomDlg.Create(Application);
OKBottomDlg.ShowModal;
OKBottomDlg.Free;
end;

end.

```

Program Listing for Giriş Birimleri (Figure 4.5)

```

unit kon_gir_pas;

interface

uses
Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
StdCtrls, ExtCtrls, Menus, Buttons, jpeg;

type
Tkon_giris = class(TForm)
BitBtn1: TBitBtn;
BitBtn2: TBitBtn;
Label1: TLabel;
Image3: TImage;
Image1: TImage;
mouse: TListBox;
Image2: TImage;
Image4: TImage;
keyboard: TListBox;
scanner: TListBox;
procedure Image2MouseMove(Sender: TObject; Shift: TShiftState; X,
Y: Integer);
procedure Image1MouseMove(Sender: TObject; Shift: TShiftState; X,
Y: Integer);
procedure Image4MouseMove(Sender: TObject; Shift: TShiftState; X,
Y: Integer);
procedure Image3Click(Sender: TObject);
procedure FormMouseMove(Sender: TObject; Shift: TShiftState; X,
Y: Integer);

```

```

    procedure BitBtn2Click(Sender: TObject);
    procedure k2Click(Sender: TObject);
    procedure letimsistemi1Click(Sender: TObject);
    procedure BitBtn1Click(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
private
    { Private declarations }
public
    { Public declarations }
end;

var
    kon_giris: Tkon_giris;

implementation

uses ana_menu, kon_bilg_pas, Isl_sys_pas;

{$R *.DFM}

procedure Tkon_giris.Image2MouseMove(Sender: TObject; Shift: TShiftState;
    X, Y: Integer);
begin
    keyboard.visible:=true;
    mouse.visible:=false;
end;

procedure Tkon_giris.Image1MouseMove(Sender: TObject; Shift: TShiftState;
    X, Y: Integer);
begin
    mouse.visible:=true;
    keyboard.visible:=false;
    scanner.visible:=false;
end;

procedure Tkon_giris.Image4MouseMove(Sender: TObject; Shift: TShiftState;
    X, Y: Integer);
begin
    scanner.visible:=true;
    mouse.visible:=false;
end;

procedure Tkon_giris.Image3Click(Sender: TObject);
begin
    kon_bilg:=Tkon_bilg.Create(Application);
    kon_bilg.ShowModal;
    kon_bilg.Free;
    kon_giris.close;
end;

```

```

procedure Tkon_giris.FormMouseMove(Sender: TObject; Shift: TShiftState; X,
Y: Integer);
begin
    keyboard.visible:=false;
    mouse.visible:=false;
    scanner.visible:=false;
end;

procedure Tkon_giris.BitBtn2Click(Sender: TObject);
begin
    kon_bilg:=Tkon_bilg.Create(Application);
    kon_bilg.ShowModal;
    kon_bilg.Free;
    kon_giris.close;

end;

procedure Tkon_giris.k2Click(Sender: TObject);
begin
close;
end;

procedure Tkon_giris.letimsistemi1Click(Sender: TObject);
begin
Isl_sys_Form.show;
end;

procedure Tkon_giris.BitBtn1Click(Sender: TObject);
begin
Isl_sys_Form:=TIsl_sys_Form.Create(Application);
    Isl_sys_Form.ShowModal;
    Isl_sys_Form.Free;
    kon_giris.close;
end;

procedure Tkon_giris.FormClose(Sender: TObject; var Action: TCloseAction);
begin
action:=caFree;
kon_giris:=nil;
end;

end.

```


Program Listing for İşletim Sistemi (Figure 4.6)

```
unit Isl_sys_pas;

interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  Menus, StdCtrls, Buttons, ExtCtrls;

type
  TIsl_sys_Form = class(TForm)
    Label1: TLabel;
    Image1: TImage;
    Image3: TImage;
    BitBtn1: TBitBtn;
    BitBtn2: TBitBtn;
    ListBox1: TListBox;
    procedure Image3Click(Sender: TObject);
    procedure BitBtn2Click(Sender: TObject);
    procedure BitBtn1Click(Sender: TObject);
    procedure Ram1Click(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  Isl_sys_Form: TIsl_sys_Form;

implementation

uses kon_gir_pas, kon_cik_pas, kon_bel_pas, kon_bilg_pas;

{$R *.DFM}

procedure TIsl_sys_Form.Image3Click(Sender: TObject);
begin
  kon_bilg:=Tkong_bilg.Create(Application);
  kon_bilg.ShowModal;
  kon_bilg.Free;
  Isl_sys_Form.close;
end;

procedure TIsl_sys_Form.BitBtn2Click(Sender: TObject);
begin
  kon_giris:=Tkong_giris.Create(Application);
```

```

    kon_giris.Show;
    kon_giris.Free;
Isl_sys_Form.close;
end;

procedure TIsl_sys_Form.BitBtn1Click(Sender: TObject);
begin
    kon_output:=Tkon_output.Create(Application);
    kon_output.Show;
    kon_output.Free;
Isl_sys_Form.close;
end;

procedure TIsl_sys_Form.Ram1Click(Sender: TObject);
begin
    bellekler.show;
end;

procedure TIsl_sys_Form.FormClose(Sender: TObject;
    var Action: TCloseAction);
begin
    action:=caFree;
    Isl_sys_Form:=nil;
end;

end.

```

Program Listing for Çıkış Birimleri (Figure 4.7)

```

unit kon_cik_pas;

interface

uses
    Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
    Menus, StdCtrls, Buttons, jpeg, ExtCtrls;

type
    Tkon_output = class(TForm)
        Label1: TLabel;
        Exit: TImage;
        Monitor: TImage;
        BitBtn1: TBitBtn;
        BitBtn2: TBitBtn;
        Printer: TImage;
        Speaker: TImage;

```

```

procedure ExitClick(Sender: TObject);
procedure BitBtn2Click(Sender: TObject);
procedure BitBtn1Click(Sender: TObject);
procedure GiriBirimi1Click(Sender: TObject);
procedure letimsistemi1Click(Sender: TObject);
procedure Ram1Click(Sender: TObject);
procedure k2Click(Sender: TObject);
procedure MonitorClick(Sender: TObject);
procedure PrinterClick(Sender: TObject);
procedure SpeakerClick(Sender: TObject);
procedure FormClose(Sender: TObject; var Action: TCloseAction);
private
    { Private declarations }
public
    { Public declarations }
end;

var
    kon_output: Tkon_output;

implementation

uses Isl_sys_pas, kon_bel_pas, kon_gir_pas, kon_cikmon_pas, kon_cikprn_pas,
    kon_cikhop_pas, kon_bilg_pas;

{$R *.DFM}

procedure Tkon_output.ExitClick(Sender: TObject);
begin
    kon_bilg:=Tkon_bilg.Create(Application);
    kon_bilg.ShowModal;
    kon_bilg.Free;
    kon_output.close;
end;

procedure Tkon_output.BitBtn2Click(Sender: TObject);
begin
    Isl_sys_Form:=TIsl_sys_Form.Create(Application);
    Isl_sys_Form.ShowModal;
    Isl_sys_Form.Free;
    kon_output.close;
end;

procedure Tkon_output.BitBtn1Click(Sender: TObject);
begin
    Bellekler:=TBellekler.Create(Application);
    Bellekler.ShowModal;
    Bellekler.Free;
    kon_output.close;
end;

```


end;

```
procedure Tkon_output.GiriBirimi1Click(Sender: TObject);
begin
kon_output.close;
kon_giris.show;
end;
```

```
procedure Tkon_output.letimsistemi1Click(Sender: TObject);
begin
kon_output.close;
Isl_sys_Form.show;
end;
```

```
procedure Tkon_output.Ram1Click(Sender: TObject);
begin
kon_output.close;
bellekler.show;
```

end;

```
procedure Tkon_output.k2Click(Sender: TObject);
begin
Close;
end;
```

```
procedure Tkon_output.MonitorClick(Sender: TObject);
begin
kon_mon:=Tkon_mon.Create(Application);
kon_mon.ShowModal;
kon_mon.Free;
kon_output.Close;
end;
```

```
procedure Tkon_output.PrinterClick(Sender: TObject);
begin
kon_prn:=Tkon_prn.Create(Application);
kon_prn.ShowModal;
kon_prn.Free;
kon_output.Close;
end;
```

```
procedure Tkon_output.SpeakerClick(Sender: TObject);
begin
kon_hop:=Tkon_hop.Create(Application);
kon_hop.ShowModal;
kon_hop.Free;
kon_output.Close;
end;
```

```

procedure Tkon_output.FormClose(Sender: TObject; var Action: TCloseAction);
begin
  action:=caFree;
  kon_output:=nil;
end;

end.

```

Program Listing for Monitör (Figure 4.7.a)

```

unit kon_cikmon_pas;

interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  Menus, StdCtrls, Buttons, ExtCtrls, jpeg;

type
  Tkon_mon = class(TForm)
    Label1: TLabel;
    Image1: TImage;
    BitBtn2: TBitBtn;
    ListBox1: TListBox;
    ListBox2: TListBox;
    ListBox3: TListBox;
    ListBox4: TListBox;
    ListBox5: TListBox;
    ListBox6: TListBox;
    ListBox7: TListBox;
    ListBox8: TListBox;
    ListBox9: TListBox;
    ListBox10: TListBox;
    procedure BitBtn2Click(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  kon_mon: Tkon_mon;

implementation

```

```

uses kon_cik_pas, kon_cikprn_pas, kon_bilg_pas;

{$R *.DFM}

procedure Tkon_mon.BitBtn2Click(Sender: TObject);
begin
kon_output:=Tkon_output.Create(Application);
  kon_output.ShowModal;
  kon_output.Free;
  kon_mon.close;
end;

procedure Tkon_mon.FormClose(Sender: TObject; var Action: TCloseAction);
begin
action:=caFree;
kon_mon:=nil;
end;

end.

```

Program Listing for Printer (Figure 4.7.b)

```

unit kon_cikprn_pas;

interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  Menus, StdCtrls, Buttons, ExtCtrls;

type
  Tkon_prn = class(TForm)
    Label1: TLabel;
    Dot: TImage;
    Laser: TImage;
    BitBtn2: TBitBtn;
    NoktaVuruslu: TListBox;
    ListBox1: TListBox;
    Inkjet: TImage;
    ListBox2: TListBox;
    procedure BitBtn2Click(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

```



```

    end;

var
    kon_prn: Tkon_prn;

implementation

uses kon_bilg_pas, kon_cikmon_pas, kon_cikhop_pas, kon_cik_pas;

{$R *.DFM}

procedure Tkon_prn.BitBtn2Click(Sender: TObject);
begin
    kon_output:=Tkon_output.Create(Application);
    kon_output.ShowModal;
    kon_output.Free;
    kon_prn.close;
end;

procedure Tkon_prn.FormClose(Sender: TObject; var Action: TCloseAction);
begin
    action:=caFree;
    kon_prn:=nil;
end;
end.

```

Program Listing for Hoparlör (Figure 4.7.c)

```

unit kon_cikhop_pas;

interface

uses
    Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
    Menus, StdCtrls, Buttons, ExtCtrls, jpeg;

type
    Tkon_hop = class(TForm)
        Label1: TLabel;
        Image1: TImage;
        BitBtn2: TBitBtn;
        ListBox1: TListBox;
        procedure BitBtn2Click(Sender: TObject);
        procedure FormClose(Sender: TObject; var Action: TCloseAction);
    private
        { Private declarations }
    public
        { Public declarations }
    end;

```

```

end;

var
  kon_hop: Tkon_hop;

implementation

uses kon_bilg_pas, kon_cik_pas, kon_bel_pas;

{$R *.DFM}
procedure Tkon_hop.BitBtn2Click(Sender: TObject);
begin
  kon_output:=Tkon_output.Create(Application);
  kon_output.ShowModal;
  kon_output.Free;
  kon_hop.close;
end;
procedure Tkon_hop.FormClose(Sender: TObject; var Action: TCloseAction);
begin
  action:=caFree;
  kon_hop:=nil;
end;
end.

```

Program Listing for Bellekler (Figure 4.8)

```

unit kon_bel_pas;

interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  Menus, StdCtrls, Buttons, jpeg, ExtCtrls;

type
  TBellekler = class(TForm)
    Label1: TLabel;
    Exit: TImage;
    Printer: TImage;
    Speaker: TImage;
    BitBtn1: TBitBtn;
    BitBtn2: TBitBtn;
    Label2: TLabel;
    Label3: TLabel;
    Label4: TLabel;
    Label5: TLabel;
    ListBox1: TListBox;

```

```

    procedure BitBtn2Click(Sender: TObject);
    procedure BitBtn1Click(Sender: TObject);
    procedure PrinterClick(Sender: TObject);
    procedure SpeakerClick(Sender: TObject);
    procedure ExitClick(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
private
    { Private declarations }
public
    { Public declarations }
end;

```

```

var
    Bellekler: TBellekler;

```

implementation

```

uses kon_cik_pas, kon_sur_pas, kon_belram_rom_pas, kon_bilg_pas;
{$R *.DFM}

```

```

procedure TBellekler.BitBtn2Click(Sender: TObject);
begin
    kon_output:=Tkon_output.Create(Application);
    kon_output.ShowModal;
    kon_output.Free;
    bellekler.close;
end;

```

```

procedure TBellekler.BitBtn1Click(Sender: TObject);
begin
    kon_sur:=Tkon_sur.Create(Application);
    kon_sur.ShowModal;
    kon_sur.Free;
    bellekler.close;
end;

```

```

procedure TBellekler.PrinterClick(Sender: TObject);
begin
    ram_rom:=Tram_rom.Create(application);
    ram_rom.Show;
end;

```

```

procedure TBellekler.SpeakerClick(Sender: TObject);
begin
    ram_rom:=Tram_rom.Create(application);
    ram_rom.Show;
end;

```



```

procedure TBellekler.ExitClick(Sender: TObject);
begin
  kon_bilg:=Tkon_bilg.Create(Application);
  kon_bilg.ShowModal;
  kon_bilg.Free;
  bellekler.close;
end;

procedure TBellekler.FormClose(Sender: TObject; var Action: TCloseAction);
begin
  action:=caFree;
  bellekler:=nil;
end;

end.

```

Program Listing for Ram-Rom (Figure 4.8.a)

```

unit kon_belram_rom_pas;

interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  Menus, StdCtrls, Buttons, ExtCtrls;

type
  Tram_rom = class(TForm)
    Label1: TLabel;
    Dot: TImage;
    BitBtn2: TBitBtn;
    RamRom: TListBox;
    Label2: TLabel;
    Shape1: TShape;
    Label3: TLabel;
    Label4: TLabel;
    Shape2: TShape;
    procedure DotClick(Sender: TObject);
    procedure BitBtn2Click(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var

```

```

    ram_rom: Tram_rom;

implementation

uses kon_bel_pas, kon_sur_pas, kon_bilg_pas;

{$R *.DFM}

procedure Tram_rom.DotClick(Sender: TObject);
begin
    ram_rom.hide;
    bellekler.show;
end;

procedure Tram_rom.BitBtn2Click(Sender: TObject);
begin
    bellekler:=Tbellekler.Create(Application);
    bellekler.ShowModal;
    bellekler.Free;
    ram_rom.close;
end;

procedure Tram_rom.FormClose(Sender: TObject; var Action: TCloseAction);
begin
    action:=caFree;
    ram_rom:=nil;
end;

end.

```

Program Listing for Sürücüler (Figure 4.9)

```

unit kon_sur_pas;

interface

uses
    Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
    Menus, StdCtrls, Buttons, jpeg, ExtCtrls;

type
    Tkon_sur = class(TForm)
        Labell: TLabel;
        Ana_Menu: TImage;
        HardDisk: TImage;
        Floppy: TImage;

```

```

CDveDVD: TImage;
Previous: TBitBtn;
Geri: TBitBtn;
procedure Ana_MenuClick(Sender: TObject);
procedure FloppyClick(Sender: TObject);
procedure HardDiskClick(Sender: TObject);
procedure GeriClick(Sender: TObject);
procedure PreviousClick(Sender: TObject);
procedure CDveDVDClick(Sender: TObject);
procedure FormClose(Sender: TObject; var Action: TCloseAction);
private
  { Private declarations }
public
  { Public declarations }
end;

var
  kon_sur: Tkon_sur;

implementation
uses kon_bilg_pas, kon_surflop_pas, kon_surhd_pas, kon_belram_rom_pas,
  kon_surcdv_pas, kon_bel_pas, kon_bitbyte_pas;

{$R *.DFM}

procedure Tkon_sur.Ana_MenuClick(Sender: TObject);
begin
  kon_bilg:=Tkon_bilg.Create(Application);
  kon_bilg.ShowModal;
  kon_bilg.Free;
  kon_sur.Close;
end;

procedure Tkon_sur.FloppyClick(Sender: TObject);
begin
  kon_surflop:=Tkon_surflop.Create(Application);
  kon_surflop.ShowModal;
  kon_surflop.Free;
  kon_sur.Close;
end;

procedure Tkon_sur.HardDiskClick(Sender: TObject);
begin
  kon_surhd:=Tkon_surhd.Create(Application);
  kon_surhd.ShowModal;
  kon_surhd.Free;
  kon_sur.close;
end;

```



```

procedure Tkon_sur.GeriClick(Sender: TObject);
begin
  bellekler:=Tbellekler.Create(Application);
  bellekler.ShowModal;
  bellekler.Free;
  kon_sur.close;
end;

procedure Tkon_sur.PreviousClick(Sender: TObject);
begin
  bit_byte:=Tbit_byte.Create(Application);
  bit_byte.ShowModal;
  bit_byte.Free;
  kon_sur.close;
end;

procedure Tkon_sur.CDveDVDClick(Sender: TObject);
begin
  kon_surcdv:=Tkon_surcdv.Create(Application);
  kon_surcdv.ShowModal;
  kon_surcdv.Free;
  kon_sur.Close;
end;

procedure Tkon_sur.FormClose(Sender: TObject; var Action: TCloseAction);
begin
  action:=caFree;
  kon_sur:=nil;
end;
end.

```

Program Listing for Disketler (Figure 4.9.a)

```

unit kon_surflop_pas;

interface
  Tkon_surflop = class(TForm)
    Action: TCloseAction;
  end;

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  Menus, StdCtrls, Buttons, ExtCtrls, CheckLst;

type
  Tkon_surflop = class(TForm)
    Label1: TLabel;
    Disket: TImage;
    BitBtn2: TBitBtn;
    NoktaVuruslu: TListBox;
    Line: TShape;
  end;

```

```

    ListBox3: TListBox;
    Line2: TShape;
    ListBox1: TListBox;
    Shape1: TShape;
    ListBox2: TListBox;
    Shape2: TShape;
    ListBox4: TListBox;
    Image1: TImage;
    Shape3: TShape;
    ListBox5: TListBox;
    Image2: TImage;
    procedure BitBtn2Click(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
private
    { Private declarations }
public
    { Public declarations }
end;

var
    kon_surflop: Tkon_surflop;

implementation

uses kon_sur_pas, kon_surhd_pas;

{$R *.DFM}

procedure Tkon_surflop.BitBtn2Click(Sender: TObject);
begin
    kon_sur:=Tkon_sur.Create(Application);
    kon_sur.ShowModal;
    kon_sur.Free;
    kon_surflop.close;
end;

procedure Tkon_surflop.FormClose(Sender: TObject;
    var Action: TCloseAction);
begin
    action:=caFree;
    kon_surflop:=nil;
end;

end.

```

Program Listing for Sabit Disk (Figure 4.9.b)

```

unit kon_surhd_pas;

```

```

interface
uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  Menus, StdCtrls, Buttons, jpeg, ExtCtrls;

type
  Tkon_surhd = class(TForm)
    Label1: TLabel;
    Disket: TImage;
    BitBtn2: TBitBtn;
    NoktaVuruslu: TListBox;
    Image1: TImage;
    procedure BitBtn2Click(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  kon_surhd: Tkon_surhd;

implementation

uses kon_surflop_pas, kon_bilg_pas, kon_sur_pas, kon_surcdv_pas;

{$R *.DFM}

procedure Tkon_surhd.BitBtn2Click(Sender: TObject);
begin
  kon_sur:=Tkon_sur.Create(Application);
  kon_sur.ShowModal;
  kon_sur.Free;
  kon_surhd.close;
end;

procedure Tkon_surhd.FormClose(Sender: TObject; var Action: TCloseAction);
begin
  action:=caFree;
  kon_surhd:=nil;
end;

end.

```


Program Listing for Cd-Rom (Figure 4.9.c)

```
unit kon_surcdv_pas;

interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  StdCtrls, Buttons, ExtCtrls;

type
  Tkon_surcdv = class(TForm)
    Label1: TLabel;
    CDV: TImage;
    BitBtn2: TBitBtn;
    CDVD: TListBox;
    procedure BitBtn2Click(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  kon_surcdv: Tkon_surcdv;

implementation

uses kon_surhd_pas, kon_bilg_pas, kon_bitbyte_pas, kon_sur_pas;

{$R *.DFM}

procedure Tkon_surcdv.BitBtn2Click(Sender: TObject);
begin
  kon_sur:=Tkon_sur.Create(Application);
  kon_sur.ShowModal;
  kon_sur.Free;
  kon_surcdv.close;
end;

procedure Tkon_surcdv.FormClose(Sender: TObject; var Action: TCloseAction);
begin
  action:=caFree;
  kon_surcdv:=nil;
end;

end.
```

Program Listing for Bit ve Byte (Figure 4.10)

```
unit kon_bitbyte_pas;

interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  StdCtrls, Buttons, jpeg, ExtCtrls;

type
  Tbit_byte = class(TForm)
    Label1: TLabel;
    Ana_Menu: TImage;
    CDV: TImage;
    BitBtn1: TBitBtn;
    BitBtn2: TBitBtn;
    BYTE: TListBox;
    procedure BitBtn2Click(Sender: TObject);
    procedure BitBtn1Click(Sender: TObject);
    procedure Ana_MenuClick(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  bit_byte: Tbit_byte;

implementation

uses kon_sur_pas, kon_net_pas, kon_bilg_pas;

{$R *.DFM}

procedure Tbit_byte.BitBtn2Click(Sender: TObject);
begin
  kon_sur:=Tkon_sur.Create(Application);
  kon_sur.ShowModal;
  kon_sur.Free;
  bit_byte.close;
end;

procedure Tbit_byte.BitBtn1Click(Sender: TObject);
begin
  kon_net:=Tkon_net.Create(Application);
  kon_net.ShowModal;
  kon_net.Free;
```

```

    bit_byte.close;
end;

procedure Tbit_byte.Ana_MenuClick(Sender: TObject);
begin
    kon_bilg:=Tkong_bilg.Create(Application);
    kon_bilg.ShowModal;
    kon_bilg.Free;
    bit_byte.close;
end;

end.

```

Program Listing for Network (Figure 4.11)

```

unit kon_net_pas;

interface

uses
    Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
    StdCtrls, Buttons, jpeg, ExtCtrls;

type
    Tkong_net = class(TForm)
        Label1: TLabel;
        Ana_Menu: TImage;
        network: TImage;
        BitBtn1: TBitBtn;
        BitBtn2: TBitBtn;
        net: TListBox;
        Label2: TLabel;
        procedure Ana_MenuClick(Sender: TObject);
        procedure BitBtn2Click(Sender: TObject);
        procedure BitBtn1Click(Sender: TObject);
    private
        { Private declarations }
    public
        { Public declarations }
    end;

var
    kon_net: Tkong_net;

implementation

uses kon_bilg_pas, kon_bitbyte_pas, kon_int_pas;

```



```

{$R *.DFM}

procedure Tkon_net.Ana_MenuClick(Sender: TObject);
begin
  kon_bilg:=Tkon_bilg.Create(Application);
  kon_bilg.ShowModal;
  kon_bilg.Free;
  kon_net.Close;
end;

procedure Tkon_net.BitBtn2Click(Sender: TObject);
begin
  bit_byte:=Tbit_byte.Create(Application);
  bit_byte.ShowModal;
  bit_byte.Free;
  kon_net.close;
end;

procedure Tkon_net.BitBtn1Click(Sender: TObject);
begin
  kon_int:=Tkon_int.Create(Application);
  kon_int.ShowModal;
  kon_int.Free;
  kon_net.close;
end;

end.

```

Program Listing for Internet (Figure 4.12)

```

unit kon_int_pas;
interface
uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  StdCtrls, Buttons, jpeg, ExtCtrls;

type
  Tkon_int = class(TForm)
    Label1: TLabel;
    Ana_Menu: TImage;
    network: TImage;
    BitBtn1: TBitBtn;
    BitBtn2: TBitBtn;
    inet: TListBox;
    Image1: TImage;
  procedure Ana_MenuClick(Sender: TObject);
  procedure BitBtn2Click(Sender: TObject);
  procedure BitBtn1Click(Sender: TObject);

```

```

private
  { Private declarations }
public
  { Public declarations }
end;

var
  kon_int: Tkon_int;

implementation
  uses kon_bilg_pas, kon_net_pas, kon_vir_pas;

  {$R *.DFM}

  procedure Tkon_int.Ana_MenuClick(Sender: TObject);
  begin
    kon_bilg:=Tkon_bilg.Create(Application);
    kon_bilg.ShowModal;
    kon_bilg.Free;
    kon_int.close;
  end;

  procedure Tkon_int.BitBtn2Click(Sender: TObject);
  begin
    kon_net:=Tkon_net.Create(Application);
    kon_net.ShowModal;
    kon_net.Free;
    kon_int.close;
  end;

  procedure Tkon_int.BitBtn1Click(Sender: TObject);
  begin
    kon_vir:=Tkon_vir.Create(Application);
    kon_vir.ShowModal;
    kon_vir.Free;
    kon_int.close;
  end;
end.

```

Program Listing for Virüs (Figure 4.13)

```

unit kon_vir_pas;

interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,

```

```

StdCtrls, Buttons, jpeg, ExtCtrls;

type
  Tkon_vir = class(TForm)
    Label1: TLabel;
    Ana_Menu: TImage;
    network: TImage;
    Image1: TImage;
    BitBtn1: TBitBtn;
    BitBtn2: TBitBtn;
    virus: TListBox;
    Image2: TImage;
    Image3: TImage;
    Image4: TImage;
    procedure BitBtn2Click(Sender: TObject);
    procedure Ana_MenuClick(Sender: TObject);
    procedure BitBtn1Click(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  kon_vir: Tkon_vir;

implementation

uses kon_int_pas, kon_bilg_pas, kon_hlt_pas;

{$R *.DFM}

procedure Tkon_vir.BitBtn2Click(Sender: TObject);
begin
  kon_int:=Tkon_int.Create(Application);
  kon_int.ShowModal;
  kon_int.Free;
  kon_vir.close;
end;

procedure Tkon_vir.Ana_MenuClick(Sender: TObject);
begin
  kon_bilg:=Tkon_bilg.Create(Application);
  kon_bilg.ShowModal;
  kon_bilg.Free;
  kon_vir.close;
end;

procedure Tkon_vir.BitBtn1Click(Sender: TObject);
begin

```



```

kon_hlt:=Tkon_hlt.Create(Application);
kon_hlt.ShowModal;
kon_hlt.Free;
kon_vir.close;
end;
end.

```

Program Listing for Sağlık (Figure 4.14)

```

unit kon_hlt_pas;

interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  StdCtrls, Buttons, jpeg, ExtCtrls;

type
  Tkon_hlt = class(TForm)
    kon_sag: TLabel;
    Ana_Menu: TImage;
    network: TImage;
    Geri: TBitBtn;
    net: TListBox;
    ListBox1: TListBox;
    ListBox2: TListBox;
    ListBox3: TListBox;
    ListBox4: TListBox;
    ListBox5: TListBox;
    ListBox6: TListBox;
    BitBtn1: TBitBtn;
    procedure GeriClick(Sender: TObject);
    procedure BitBtn1Click(Sender: TObject);
    procedure Ana_MenuClick(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  kon_hlt: Tkon_hlt;

implementation

uses kon_vir_pas, test_pas, kon_bilg_pas;

```

```
{SR *.DFM}
```

```
procedure Tkon_hlt.GeriClick(Sender: TObject);  
begin  
  kon_vir:=Tkon_vir.Create(Application);  
  kon_vir.ShowModal;  
  kon_vir.Free;  
  kon_hlt.close;  
end;
```

```
procedure Tkon_hlt.BitBtn1Click(Sender: TObject);  
begin  
  test0:=Ttest0.Create(Application);  
  test0.Show;  
  kon_hlt.close;  
  
end;
```

```
procedure Tkon_hlt.Ana_MenuClick(Sender: TObject);  
begin  
  kon_bilg:=Tkon_bilg.Create(Application);  
  kon_bilg.ShowModal;  
  kon_bilg.Free;  
  kon_hlt.close;  
end;  
  
end.
```

Program Listing for Test (Figure 4.15.a)

```
unit test_pas;  
  
interface  
  
uses  
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,  
  StdCtrls, Buttons, ExtCtrls;  
  
type  
  TTest0 = class(TForm)  
    Label1: TLabel;  
    Label2: TLabel;  
    Label3: TLabel;  
    Label4: TLabel;  
    Label5: TLabel;  
    Label6: TLabel;  
    Label7: TLabel;
```

```

Label8: TLabel;
Label9: TLabel;
S1_RB1: TRadioButton;
S1_RB2: TRadioButton;
S1_RB3: TRadioButton;
S1_RB4: TRadioButton;
s2_rb1: TRadioButton;
s2_rb2: TRadioButton;
s2_rb3: TRadioButton;
s2_rb4: TRadioButton;
s3_rb1: TRadioButton;
s3_rb2: TRadioButton;
s3_rb3: TRadioButton;
s3_rb4: TRadioButton;
s4_rb1: TRadioButton;
s4_rb2: TRadioButton;
s4_rb3: TRadioButton;
s4_rb4: TRadioButton;
Ileri: TBitBtn;
S2onay: TBitBtn;
S3onay: TBitBtn;
S4onay: TBitBtn;
Test_Geri: TBitBtn;
S1Onay: TBitBtn;
procedure s1onayClick(Sender: TObject);
procedure S3onayClick(Sender: TObject);
procedure S4onayClick(Sender: TObject);
procedure Test_GeriClick(Sender: TObject);
procedure S1OkayClick(Sender: TObject);
procedure S2onayClick(Sender: TObject);
private
  { Private declarations }
public
  { Public declarations }
end;

var
  Test0: TTest0;

implementation

uses Test1_pas, kon_hlt_pas;

{$R *.DFM}

procedure TTest0.s1onayClick(Sender: TObject);
begin
  Test1:=TTest1.Create(Application);
  Test1.Show;

```



```

Test0.close;
end;

procedure TTest0.S3onayClick(Sender: TObject);
begin
if S3_RB3.checked=true then
  showmessage('Doğru Cevap')
else
  showmessage('Yanlış Cevap');
end;

procedure TTest0.S4onayClick(Sender: TObject);
begin
if S4_RB2.checked=true then
  showmessage('Doğru Cevap')
else
  showmessage('Yanlış Cevap');
end;

procedure TTest0.Test_GeriClick(Sender: TObject);
begin
kon_hlt:=Tkon_hlt.Create(Application);
  kon_hlt.Show;
  Test0.close;
end;

procedure TTest0.S1OkayClick(Sender: TObject);
begin
if S1_RB3.checked=true then
  showmessage('Doğru Cevap')
else
  showmessage('Yanlış Cevap');
end;

procedure TTest0.S2onayClick(Sender: TObject);
begin
if S2_RB3.checked=true then
  showmessage('Doğru Cevap')
else
  showmessage('Yanlış Cevap');
end;

end.

```

Program Listing for Test (Figure 4.15.b)

```

unit Test1_pas;

interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  StdCtrls, Buttons, ExtCtrls;

type
  TTest1 = class(TForm)
    Label1: TLabel;
    Label2: TLabel;
    Label3: TLabel;
    Label4: TLabel;
    Label5: TLabel;
    Label6: TLabel;
    Label7: TLabel;
    Label8: TLabel;
    Label9: TLabel;
    Image3: TImage;
    s5_rb1: TRadioButton;
    s5_rb2: TRadioButton;
    s5_rb3: TRadioButton;
    s5_rb4: TRadioButton;
    s6_rb1: TRadioButton;
    s6_rb2: TRadioButton;
    s6_rb3: TRadioButton;
    RadioButton4: TRadioButton;
    s7_rb1: TRadioButton;
    s7_rb2: TRadioButton;
    s7_rb3: TRadioButton;
    s7_rb4: TRadioButton;
    s8_rb1: TRadioButton;
    s8_rb2: TRadioButton;
    s8_rb3: TRadioButton;
    s8_rb4: TRadioButton;
    S5onay: TBitBtn;
    S7onay: TBitBtn;
    S6onay: TBitBtn;
    S8onay: TBitBtn;
    procedure Image3Click(Sender: TObject);
    procedure S5onayClick(Sender: TObject);
    procedure S7onayClick(Sender: TObject);
    procedure S6onayClick(Sender: TObject);
    procedure S8onayClick(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

```

```

    end;

var
    Test1: TTest1;

implementation
    uses ana_menu, test_pas;

    {$R *.DFM}

    procedure TTest1.Image3Click(Sender: TObject);
    begin
        test1.Close;
        Ana_Menu_form.show;
    end;

    procedure TTest1.S5onayClick(Sender: TObject);
    begin
        if S5_RB4.checked=true then
            showmessage('Doğru Cevap')
        else
            showmessage('Yanlış Cevap');
    end;

    procedure TTest1.S7onayClick(Sender: TObject);
    begin
        if S7_RB4.checked=true then
            showmessage('Doğru Cevap')
        else
            showmessage('Yanlış Cevap');
    end;

    procedure TTest1.S6onayClick(Sender: TObject);
    begin
        if S6_RB3.checked=true then
            showmessage('Doğru Cevap')
        else
            showmessage('Yanlış Cevap');
    end;

    procedure TTest1.S8onayClick(Sender: TObject);
    begin
        if S8_RB2.checked=true then
            showmessage('Doğru Cevap')
        else

```



```

showmessage('Yanlış Cevap');
end;

end.

```

Program Listing for Test (Figure 4.15.c)

```

unit Test2;
interface
uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  MPlayer, StdCtrls, Buttons, ExtCtrls;

type
  TfrmTest2 = class(TForm)
    Label1: TLabel;
    Label2: TLabel;
    Label3: TLabel;
    Label4: TLabel;
    Label5: TLabel;
    Label6: TLabel;
    Label7: TLabel;
    Label8: TLabel;
    Label9: TLabel;
    Image3: TImage;
    s9_rb1: TRadioButton;
    s9_rb2: TRadioButton;
    s9_rb3: TRadioButton;
    s9_rb4: TRadioButton;
    s10_rb1: TRadioButton;
    s10_rb2: TRadioButton;
    s10_rb3: TRadioButton;
    s10_rb4: TRadioButton;
    s11_rb1: TRadioButton;
    s11_rb2: TRadioButton;
    s11_rb3: TRadioButton;
    s11_rb4: TRadioButton;
    s12_rb1: TRadioButton;
    s12_rb2: TRadioButton;
    s12_rb3: TRadioButton;
    s12_rb4: TRadioButton;
    S9onay: TBitBtn;
    S11onay: TBitBtn;
    S10onay: TBitBtn;
    S12onay: TBitBtn;
    Error1_MediaPlayer: TMediaPlayer;
    True1_MediaPlayer: TMediaPlayer;
    Label10: TLabel;

```

```

Label11: TLabel;
Label12: TLabel;
Label13: TLabel;
Label14: TLabel;
procedure S9onayClick(Sender: TObject);
procedure S10onayClick(Sender: TObject);
procedure S11onayClick(Sender: TObject);
procedure S12onayClick(Sender: TObject);
procedure Image3Click(Sender: TObject);
private
  { Private declarations }
public
  { Public declarations }
end;

var
  frmTest2: TfrmTest2;

implementation

{$R *.DFM}

procedure TfrmTest2.S9onayClick(Sender: TObject);
begin
  if S9_RB4.checked=True then
  begin
    True1_MediaPlayer.Play;
    showmessage('Doğru Cevap')
  end;
  if not S9_RB4.checked=True then
  begin
    Error1_MediaPlayer.Play;
    showmessage('Yanlış Cevap');
  end;
end;

procedure TfrmTest2.S10onayClick(Sender: TObject);
begin
  if S10_RB4.checked=True then
  begin
    True1_MediaPlayer.Play;
    showmessage('Doğru Cevap')
  end;
  if not S10_RB4.checked=True then
  begin
    Error1_MediaPlayer.Play;
    showmessage('Yanlış Cevap');
  end;
end;

```

```

end;

procedure TfrmTest2.S11onayClick(Sender: TObject);
begin
if S11_RB3.checked=True then
begin
True1_MediaPlayer.Play;
showmessage('Doğru Cevap')
end;
if not S11_RB3.checked=True then
begin
Error1_MediaPlayer.Play;
showmessage('Yanlış Cevap');
end;
end;

end;

procedure TfrmTest2.S12onayClick(Sender: TObject);
begin
if S12_RB3.checked=True then
begin
True1_MediaPlayer.Play;
showmessage('Doğru Cevap')
end;
if not S12_RB3.checked=True then
begin
Error1_MediaPlayer.Play;
showmessage('Yanlış Cevap');
end;
end;

end;

procedure TfrmTest2.Image3Click(Sender: TObject);
begin
Error1_MediaPlayer.Free;
True1_MediaPlayer.Free;
Close;
end;

end.

```

Program Listing for Terimler (Figure 4.16)

```

unit kon_term_pas;

```

```

interface

```



```

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  StdCtrls, Buttons, ExtCtrls;

type
  Tterm = class(TForm)
    Baslik: TLabel;
    Ana_Menu: TImage;
    kon_ter: TListBox;
    kon_ter1: TListBox;
    BitBtn1: TBitBtn;
    BitBtn2: TBitBtn;
    procedure Ana_MenuClick(Sender: TObject);
    procedure BitBtn1Click(Sender: TObject);
    procedure BitBtn2Click(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  term: Tterm;

implementation

uses kon_bilg_pas, kon_hist_pas;

{$R *.DFM}

procedure Tterm.Ana_MenuClick(Sender: TObject);
begin
  kon_bilg:=Tkong_bilg.Create(Application);
  kon_bilg.ShowModal;
  kon_bilg.Free;
  term.close;
end;

procedure Tterm.BitBtn1Click(Sender: TObject);
begin
  kon_bilg:=Tkong_bilg.Create(Application);
  kon_bilg.Show;
  term.close;
end;

procedure Tterm.BitBtn2Click(Sender: TObject);
begin
  kon_hist:=Tkong_hist.Create(Application);
  kon_hist.Show;

```

```
term.close;
end;
```

```
end.
```

Program Listing for Tarihçe (Figure 4.17)

```
unit kon_hist_pas;
interface
uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  StdCtrls, ExtCtrls;
type
  Tkon_hist = class(TForm)
    ListBox1: TListBox;
    Ana_Menu: TImage;
    Label1: TLabel;
    procedure Ana_MenuClick(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  kon_hist: Tkon_hist;
implementation
uses kon_bilg_pas;
{$R *.DFM}
procedure Tkon_hist.Ana_MenuClick(Sender: TObject);
begin
  kon_bilg:=Tkon_bilg.Create(Application);
  kon_bilg.ShowModal;
  kon_bilg.Free;
  kon_hist.close;
end;
end.
```

Program Listing for Yardım (Figure 4.18)

```
unit hakkında;
```

```
interface
```

```
uses Windows, SysUtils, Classes, Graphics, Forms, Controls, StdCtrls,
  Buttons, ExtCtrls;
```

```

type
  TOKBottomDlg = class(TForm)
    OKBtn: TButton;
    CancelBtn: TButton;
    Bevel1: TBevel;
    ListBox1: TListBox;
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  OKBottomDlg: TOKBottomDlg;

implementation

{$R *.DFM}

end.

```