

NEAR EAST UNIVERSITY



Faculty of Engineering

Department of Computer Engineering

ARCHIVE PROGRAMMING SYSTEM WITH DELPHI

**Graduation Project
COM400**

Student: Yahya Göksay (20021174)

Supervisor: Mr. Rahib ABİYEB

Lefkoşa-2006

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TABLE OF CONTENTS	
TABLE OF CONTENTS	I
ABSTRACT	III
INTRODUCTION	IV
CHAPTER 1: DELPHI	1
1.1 Introduction to Delphi	1
1.2 Asynchronous Interaction	3
1.3 Anonimity	6
1.4 Moderation And Facilitation	9
1.5 Structure	11
1.5.1 The Policy Delphi	12
1.5.2 The Trend Model	14
1.6 Analysis	17
1.6.1 Scaling Method	18
1.6.2 Structured Modeling	21
1.7 Delphi, Expert Systems, Gdss, And Collaborative Systems	23
1.7.1 The Deductive Level of Disagreements	26
1.7.2 The Inductive Level of Disagreements	26
1.7.3 Goal and Value Disagreements	27
1.8 About Delphi	28
CHAPTER 2 MYSQL	31
2.1 Introduction to MySQL	31
2.2 What Is the MySQL?	31
2.2.1 Definition	31
2.3 Why Choose MySQL?	32
2.4 Preparing The Windows Mysql Environment	33
2.5 Starting The Server For The First Time	34
2.6 Connecting To And Disconnecting From The Server	36
2.7 Entering Queries	37
CHAPTER 3 ARCHIVE SYSTEM	42
3.1 Basic Concepts And Principles Of Archives And Records Management	42
3.1.1 The Inter-relatedness of Records	42
3.1.2 The central importance of context	42
3.1.3 The Function of Record as Evidence	43

3.1.3.1 Recordness requires that records are	43
3.1.3.1.1 Complete	43
3.1.3.1.2 Fixed	43
3.1.3.1.3 Organic	44
3.1.3.1.4 Contextual	44
3.1.3.1.5 Authoritative/'Official'	44
3.1.3.1.6 Unique	45
3.1.3.1.6.1 The Principle of Provenance	45
3.1.3.1.6.2 The Principle of Original Order	46
3.1.3.1.6.3 The Chain of Responsible Custody	46
3.2 What Goes On In The Archives?	47
3.2.1 Cadss	47
3.2.2 Control	47
3.3 Accessibility	49
3.4 Disposal	51
3.5 Storage	52
3.6 Sustain	55
3.7 Recordkeeping Regimes	57
3.8 Where We Work: The Recordkeeping Context	57
3.8.1 Public Sector Placements	57
3.8.2 Private Sector Placements	58
3.9. Type and Functional Emphasis	58
3.10 Recordkeeping Reward	62
3.11 Recordkeeping and Related Professions	62
3.12 What Is The Difference?	62
3.13 Recordkeeping and Specialist Recordkeepers	63
CHAPTER 4 USER'S MANUAL	64
CONCLUSION	75
APPENDIX	76
ACKNOWLEDGMENTS	85

ABSTRACT

Data, gathered around us as a collection of facts, is of no use unless it is organized and represented in some meaningful form. Data represented in some meaningful form like, tables, charts, or graphs become information, which can be easily processed. The collection of data, usually referred to as the database, contains information about one particular enterprise. These days databases are used by a variety of users and organizations, which are important tools in processing DBMS, which are designed to manage large amount of data.

This project has as its goal to develop software, processing information about activities of a computer-part sales company. Software developed in this project contains both employee information, and information associated with sales and purchase of computer parts. The project can be developed by improving the software for processing all activities of the company.

INTRODUCTION

Nowadays the technology is developed a lot and started to use by anyone in the world no matter who he/she is. Because of the technology is entered to every platform of our life human needed to combine both software and hardware. Without software the machines are nothing. They need software to operate.

The automation is also became a part of our lives. The people operate with automation systems in everywhere. My project is Archive Program System. This Automation is used to keep the information about the receiving, coming and going documents.

Archive System is used in primary schools, high school and universities to coming documents, going documents, to storage databases and folders.

In my project the main point is making the user's job easy. It lets to the manager to documents, book information easily. And we he/she can get the data report specific date, type who receiving documents.

CHAPTER 1

DELPHI

1.1 INTRODUCTION TO DELPHI

The name "Delphi" was never a term with which either Olaf Helmer or Norman Dalkey (the founders of the method) were particular happy. Since many of the early Delphi studies focused on utilizing the technique to make forecasts of future occurrences, the name was first applied by some others at Rand as a joke. However, the name stuck. The resulting image of a priestess, sitting on a stool over a crack in the earth, inhaling sulfur fumes, and making vague and jumbled statements that could be interpreted in many different ways, did not exactly inspire confidence in the method.

The straightforward nature of utilizing an iterative survey to gather information "sounds" so easy to do that many people have done "one" Delphi, but never a second. Since the name gives no obvious insight into the method and since the number of unsuccessful Delphi studies probably exceeds the successful ones, there has been a long history of diverse definitions and opinions about the method. Some of these misconceptions are expressed in statements such as the following that one finds in the literature:

It is a method for predicting future events.

It is a method for generating a quick consensus by a group.

It is the use of a survey to collect information.

It is the use of anonymity on the part of the participants.

It is the use of voting to reduce the need for long discussions.

It is a method for quantifying human judgement in a group setting.

Some of these statements are sometimes true; a few (e.g. consensus) are actually contrary to the purpose of a Delphi. Delphi is a communication structure aimed at producing detailed critical examination and discussion, not at forcing a quick

compromise. Certainly quantification is a property, but only to serve the goal of quickly identifying agreement and disagreement in order to focus attention. It is often very common, even today, for people to come to a view of the Delphi method that reflects a particular application with which they are familiar. In 1975 Linstone and Turoff proposed a view of the Delphi method that they felt best summarized both the technique and its objective:

"Delphi may be characterized as a method for structuring a group communication process, so that the process is effective in allowing a group of individuals, as a whole, to deal with complex problems." (page 3)

The essence of Delphi is structuring of the group communication process. Given that there had been much earlier work on how to facilitate and structure face-to-face meetings, the other important distinction was that Delphi was commonly applied utilizing a paper and pencil communication process among groups in which the members were dispersed in space and time. Also, Delphis were commonly applied to groups of a size (30 to 100 individuals) that could not function well in a face-to-face environment, even if they could find a time when they all could get together.

Additional opportunity has been added by the introduction of Computer Mediated Communication Systems (Hiltz and Turoff, 1978; Rice and Associates, 1984; Turoff, 1989; Turoff, 1991). These are computer systems that support group communications in either a synchronous (Group Decision Support Systems, Desanctis et. al., 1987) or an asynchronous manner (Computer Conferencing). Techniques that were developed and refined in the evolution of the Delphi Method (e.g. anonymity, voting) have been incorporated as basic facilities or tools in many of these computer based systems. As a result, any of these systems can be used to carry out some form of a Delphi process or Nominal Group Technique (Delbecq, et. al., 1975).

The result, however, is not merely confusion due to different names to describe the same things; but a basic lack of knowledge by many people working in these areas as to what was learned in the studies of the Delphi Method about how to properly employ these techniques and their impact on the communication process. There seems to be a great deal of "rediscovery" and repeating of earlier misconceptions and difficulties.

Given this situation, the primary objective of this chapter is to review the specific properties and methods employed in the design and execution of Delphi Exercises and to examine how they may best be translated into a computer based environment.

1.2 ASYNCHRONOUS INTERACTION

Perhaps the most important and least understood property of the Delphi method is the ability of members of a group to participate in an asynchronous manner. This property of asynchronous interaction has two characteristics:

A person may choose to participate in the group communication process when they feel they want to.

A person may choose to contribute to that aspect of the problem to which they feel best able to contribute.

It does not matter what time of the day or night Delphi participants think of good ideas to include in their response. They can fill out a Delphi survey when they wish to, or they can go to a computer terminal to contribute when they wish to. This can be done at whatever point in time the individual feels he or she has thought of significant things to include in response to the issues involved. Participants can revise and add to their responses over time, before sending them to the group monitor for dissemination to the others.

A good Delphi survey attempts to tackle the problem from many different perspectives. Sometimes this is referred to as including questions in the Delphi survey which approach the problem both from the "bottom-up" and from the "top-down" perspectives. This allows different individuals in the group to focus on the approach to problem solving with which they feel most comfortable.

In a normal face-to-face group process, and in the environment characterized by face-to-face Group Decision Support Systems, all the members of the group are forced into a lockstep treatment of a problem. When the group is considering the subject of "goals," those who have difficulty dealing with "abstraction" may feel at a disadvantage, because

they do not have as much to contribute. Conversely, when focusing on specific solution approaches, those who deal better with "abstraction" may not feel they are contributing.

One of the specific advantages of groups is to allow individuals with differing perspectives and/or differing cognitive abilities to contribute to those parts of a complex problem for which they have both the appropriate knowledge and appropriate problem solving skills. A typical model for a group problem solving process is:

Recognition of the problem

Defining the problem

Changing the representation of the problem

Developing the goals associated with solving the problem

Determining the strategy for generating the possible solutions

Choosing a strategy

Generating the evaluation criteria to be applied to solutions

Evaluating the solution criteria

Generating the solutions

Evaluating the solutions

The literature on cognitive abilities and human problem solving does confirm that individuals differ considerably, based upon their cognitive abilities (Benbasat and Taylor, 1982; Streitz, 1987), in their ability to deal with different aspects of a problem solving situation. This depends upon such psychological dimensions as their ability to deal with Abstraction - No Abstraction, Search - No Search, Data Driven - Conceptually Driven, and Deductive - Inductive cognitive processes.

In most face-to-face approaches, the group is forced as a whole to take a sequential path through a group problem solving process. In the Delphi process, we try to design a

communication structure that allows any individual to choose the sequence in which to examine and contribute to the problem solving process. This is the single most important criterion by which we should evaluate the design of a Delphi oriented communication structure. Does it allow the individual to exercise personal judgement about what part of the problem to deal with at any time in the group problem solving process?

It is actually easier to accomplish this using a computer system than it has been with paper and pencil based Delphi studies. The "round" structure and the need to limit the physical size of any paper and pencil survey places severe constraints on the degree to which one can carry out the above approach. Hence, paper and pencil Delphis are usually limited by the "top-down/bottom-up" dichotomy rather than allowing more complete parallel entry to any aspect of the problem. For example, in a single Delphi one might explore on the first round "goals" (a top view) and specific "consequences" (a bottom view). Relating goals to consequences requires developing the relationships inherent in alternative actions and states of nature. These would be put off to a later round. In the computerized environment individuals could be free to tackle any aspect of the problem according to personal preferences.

This particular objective of Delphi design is also characterized by two other practices commonly applied to Delphi studies. First, it should be clear to the respondents that they do not have to respond to every question, but can decide to take a "no judgement" view. Secondly, one usually solicits the respondent's confidence in their judgements, particularly when they are quantified judgements. This has been found to improve the quality of the estimates made in Delphi exercises (Dalkey, 1970). This allows the respondents to estimate their own degree of expertise on the judgements they are supplying. The fact that contributions can be made anonymously also means a person does not have to feel embarrassment if he or she does not feel able to confidently contribute to a specific aspect of the problem.

This advantage for the Delphi approach comes at an obvious price. With material being supplied in parallel, it is clear that the need to structure and organize it in a manner that it makes sense to the group is a primary requirement (Turoff, 1974, 1991; Hiltz and Turoff, 1985). The need to carefully define the total communication structure and put it

into a framework that produces both a group view and a synchronization of the group process is the most difficult part of a good Delphi design. We will treat this in following sections. In paper and pencil Delphis, this is the effort that must be undertaken by the design team in processing the results of each round and producing a proper summary. In a computer based Delphi process, this has a somewhat different connotation in that the round structure disappears, replaced by a continuous feedback process which may or may not involve human intervention for the processing.

The most significant observation resulting from the above considerations, is that most of the attempts to understand the group problem solving process in the computer based environment are still based upon models that were developed from studying face-to-face groups. Thus, what are often thought of as being "ideal" group problem solving structures are based upon the "sequential" treatment of a problem by a group (Turoff, 1991). There has been little work to date to develop models of the group problem solving process that are based upon parallel and asynchronous activities by the individuals within the group. There is need for a model which integrates the individual problem solving process with the group process. It is only within the context of such a model that we can come to a deeper understanding of the design process that goes beyond the trial and error evolution of the method that has occurred to date.

1.3 ANONYMITY

Perhaps the property that most characterizes the Delphi method in the mind of most people is the use of anonymity. Typically, in paper and pencil Delphis there is no identification of who contributed specific material or who made a particular evaluative judgment about it. This property is not one that should be considered a hard and fast rule for all aspects of a Delphi. Moreover, the computer makes possible variations in anonymity not possible in a paper and pencil environment. Before we explore these, we should look at the primary reasons for anonymity:

Individuals should not have to commit themselves to initial expressions of an idea that may not turn out to be suitable.

If an idea turns out to be unsuitable, no one loses face from having been the individual to introduce it.

Persons of high status are reluctant to produce questionable ideas.

Committing one's name to a concept makes it harder to reject it or change one's mind about it.

Votes are more frequently changed when the identity of a given voter is not available to the group.

The consideration of an idea or concept may be biased by who introduced it.

When ideas are introduced within a group where severe conflicts exist in either "interests" or "values," the consideration of an idea may be biased by knowing it is produced by someone with whom the individual agrees or disagrees.

The high social status of an individual contributor may influence others in the group to accept the given concept or idea.

Conversely, lower status individuals may not introduce ideas, for fear that the idea will be rejected outright.

In essence, the objective of anonymity is to allow the introduction and evaluation of ideas and concepts by removing some of the common biases normally occurring in the face-to-face group process. Sometimes the use of anonymity has been carried too far. For example, it is important that the members of a Delphi exercise believe that they are communicating with a peer group. An individual participant must feel that the other members of the group will be able to contribute valuable insight about the problem being examined. This is a primary factor in motivating participation. It is usual to inform the participants about who is actually involved in the group of Delphi respondents. Only when there are strong antagonisms among group members would one consider not doing this.

Delphi panelists are motivated to participate actively only if they feel they will obtain value from the information they receive as a result of the process. This value received

needs to be at least equal, in their minds, to the effort expended to contribute information. This is one reason why blanket invitations to participate in a Delphi that do not specify who will be involved and what the feedback will be to the group members often result in very low participation rates.

When one introduces the concept of conducting a Delphi through a Computer Mediated Communication System, there are more options available for handling the process of anonymity. First, one can easily incorporate the use of pen-names (Hiltz, Turoff, and Johnson, 1989). While this does not identify who a person is, it does allow a person to be identified with a set of related contributions. This allows the other members of a group to obtain more understanding of why specific individuals are agreeing or disagreeing with certain concepts. For example, knowing all the arguments a person has made about accepting or rejecting a given position allows people to better tailor what needs to be said to perhaps change an individual's viewpoint. It also allows the expression of more complex individual viewpoints. This coherency is hard to observe or utilize when everything is anonymous.

As a result, it is probably desirable in most computer based Delphis to impose the default use of pen-names rather than anonymity on qualitative type statements made in the discussion. In some cases it is also possible to provide the privilege of allowing the respondents to choose when they wish to use pen-names and when they wish to use their real name. The more the individuals know one another and have a history as a "social" group, the more likely that good results will result from allowing participants to freely choose to use their real names, pen-names, or anonymity on qualitative type information.

There have been studies of computer based message systems which have attempted to conclude that the use of anonymity leads to "flaming" and antagonism (Kiesler, Siegel, and McGuire, 1984). Most of these observations have been based upon studying student groups who have no prior history or knowledge about one another. Flaming and disinhibition have not been problems among groups that already have a social history or social structure. When utilizing a computer based system with groups who are not familiar with one another, it may be important to provide a separate conference devoted to socializing among the group members. This would serve the same purpose as coffee

breaks serve for co-located groups that work together. In the computer based communication environment, it has been observed that social-emotional exchanges are helpful in facilitating consensus development and eliminating potential misunderstanding (Hiltz, Johnson, and Turoff, 1986).

Anonymity for voting and estimates of subjective quantitative information is probably desirable to maintain in most circumstances. However, it is desirable that the coordinator for a Delphi exercise on the computer system be able to identify people with extreme votes or estimates. A Delphi coordinator should have no vested interest in the outcome and should be in a facilitation role. The facilitator may feel it is desirable to encourage individuals with extreme positions to explain them. Sometimes the observation that one is in a minority position can negatively affect participation unless there is such encouragement.

In some cases it may be desirable to allow voter identification. For example, in the final steps of a budget allocation task, it could be felt that everyone should assume final accountability for the recommended decision. Even in face-to-face committees, committee reports where no identified individuals assume responsibility have sometimes led to a lack of group commitment when it comes to implementing the results. Also, when no one is accountable, one can sometimes get more risky recommendations than would otherwise result. This decision must be based upon the nature of the application and the group. In any case, the identification of a member's voting position should only apply to the final evaluation phase of a group process.

1.4 MODERATION AND FACILITATION

In Computer Mediated Communication Systems, aside from message systems, if one wants to conduct group oriented communications, there is still a basic need for moderation and facilitation, just as in face-to-face meetings. However, the nature of leadership in the online environment is different from that in the face to face environment.

In the online environment it is much easier to separate the role of process facilitation from that of content leadership. It is also quite easy to develop a number of different leaders for different areas of a problem.

In the paper and pencil Delphi every contribution first goes to the coordinator of the exercise and then is integrated into a single summary provided to all of the participants. Clearly, in the computer based environment, this is not necessary. Whether or not given contributions need to be screened ahead of time is a function of the application and the nature of a particular contribution. Since the individual members can update themselves on what is new before making a contribution, the amount of duplication is minimized in a computer based Delphi.

For example, it may be desirable to hold certain types of contributions until the group is at a point in the deliberations where they are ready to deal with them. Also, information such as voting results should not be provided until a sufficient number of votes about an item have been accumulated. In situations dealing with very strong controversies, it may be necessary to screen and edit the wording of certain contributions to try to minimize emotional biases and tactics such as name calling and insulting remarks.

While a lot of material in an online Delphi can be delivered directly to the group, the specific decisions on this still need to be made by the person or team in control of the Delphi process. In Computer Mediated Communications, the activity level and actions of a conference moderator can be quite critical to the success of an asynchronous conference and specific guidelines for moderators can be found in the literature (Hiltz, 1984).

There have been many Delphis where the material is summarized based upon the breakdown of the respondents into various specialized expert subgroups or differing interests and perspectives. In the computer based environment it becomes possible to consider multiple group environments. This is where there are separate communication structures or separation of the respondents into separate Delphi groups. On top of this structure would be a higher level one that synthesizes or filters out the reduced set of information necessary to pass between the groups. This does lead to the possibility of very large populations of respondents engaged in common task objectives. A practical

example of this is multiple industrial standards groups which must be informed of what is arising from other groups that impacts on their considerations, but do not need to be involved in details of the subgroup deliberations in other areas.

There are many Delphi applications where respondents actually engage in taking on roles (e.g Stakeholder Analysis, Linstone, 1984) to deal with certain situations. This requires moderator supervision and direction. Associated with role playing is the employment of gaming situations where there may be groups in competition with one another and communication is regulated by the "game director" (Hsu, 1989). In the area of policy analysis it could be very productive to allow the subgroups that have agreement about a given resolution to have a private open conference where they can discuss the best possible responses to the material in the main Delphi as a private subgroup. It is also clear that subgroups could be formulated dynamically based upon the content of what is taking place.

Multiple group Delphis in a computer environment is a relatively new potential and there are no hard and fast rules for setting up communication structures in this area. As group oriented Computer Mediated Communication Systems become more widely used, there will be much opportunity to experiment with this relatively new opportunity for structuring communications at both the inter and intra group level.

1.5 STRUCTURE

The heart of a Delphi is the structure that relates all the contributions made by the individuals in the group and which produces a group view or perspective. In a computer based Delphi, the structure is one that reflects continuous operation and contributions. This is somewhat different than the paper and pencil mode where the structure must be divided into three or more discrete rounds. As an example, we will describe potential transformations of two simple structures that have often been utilized in paper Delphis, for use in a computerized environment.

1.5.1 The Policy Delphi

The first example is the Policy Delphi (Turoff, 1970). This is an interesting Delphi structure in that its objective is not to produce a consensus, but to expose the strongest pro and con arguments about differing resolutions of a policy issue. It is a form of policy analysis that provides a decision maker the strongest arguments on each side of the issue. Usually one utilizes as respondents individuals who have the strongest opposing views.

The structure of a Policy Delphi is very simple.

Policy Delphi Structure		
TYPE OF ITEM	VOTING SCALES	RELATIONSHIPS
Resolution	Desirability Feasibility	Alternatives
Argument	Importance Validity	Pro or con to a given resolution Opposing to other arguments

In the above structure any respondent in the Delphi is free to add a possible resolution (solution) to the basic policy issue, or to make a pro or con argument about one or more of the listed possible resolutions. He or she can do this at any time. Also, the respondent can vote at any time on the two types of voting scales associated with either of the item types. Individuals may also choose to change their vote on a given item at any time. In this structure the two scales are needed to highlight situations where policy resolutions might be rated in such categories as desirable but infeasible, and arguments may be rated as important but invalid (others might believe it). When making additions of a

qualitative nature, participants must also indicate how that addition is related to the existing items.

The computer's role in the above process is to organize everything so that the individual can follow what is going on and obtain a group view:

Provide each member with new items that they have not yet seen.

Tally the votes and make the vote distribution viewable when sufficient votes are accumulated.

Organize a pro list and a con list of arguments about any resolution.

Allow the individual to view lists of arguments according to the results of the different voting scales (e.g. most valid to least valid arguments).

Allow the individual to compare opposing arguments.

Provide status information on how many respondents have dealt with a given resolution or list of arguments.

The role of the Delphi Coordinator or human facilitator is very minimum in such a well defined structure. The software powers or special privileges that such an individual needs are:

Being able to freeze a given list when it is felt there are sufficient entries to halt contributions, so as to focus energies on evaluation of the items entered to that point in time.

Being able to edit entries to eliminate or minimize duplications of resolutions or arguments.

Being able to call for final voting on a given item or set of items.

Being able to modify linkages between items when appropriate.

Reviewing data on participation so as to encourage participation via private messages.

It is possible to also develop rules to allow the computer to handle some of the above functions. But in terms of today's technology, these functions are still better handled by a human. A group using this structure for the first time should go through a training exercise. The Policy Delphi structure can be designed to be fairly easy to learn and utilize. The use of graphics to support visualization of the structure of the discussion can also be helpful.

The Policy Delphi structure was first implemented in paper and pencil in 1970 and was later implemented in two separate computer versions (Turoff, 1972; Conklin and Begeman, 1987). It should be noted that the structure of relating items in a Policy Delphi may also be viewed as a representation of a specialized or tailored Hypertext system (Conklin, 1987; Nelson, 1965). Most Delphi designs, when translated to a computer environment, do depend upon semantic relationships among items being established and are utilized for browsing and presenting content oriented groupings of the material. A generalized approach to supporting Delphi relationships within a Hypertext environment may be found in the literature (Rao & Turoff, 1991; Turoff, Rao, and Hiltz, 1991).

Most Delphi structures can be considered to be types of items (i.e. nodes) which have various relationships (i.e. links) to one another. Therefore, it is possible to view a specific Delphi as a particular instance of a Hypertext system. Hypertext is the view of text fragments in a computer as the nodes within a graph or web of relationships making up a body of knowledge. Hypertext functionality is therefore useful for the support of automated Delphi processes.

1.5.2 The Trend Model

This Delphi involves first choosing a specific trend of concern to the group. For example, this might be deaths from AIDS or the amount of life extension expected from a particular treatment. One might include in a single study a set of related trend variables. For the purpose of this explanation we will focus on one trend.

The individual respondents are asked first to make a projection of where they think the time curve will go in the next five years. Then they are asked to list the assumptions they are making and any uncertainties they have. Assumptions are things they think will

occur over that time frame and which impact on determining this trend. Uncertainties are things they do not think will occur, but if they did, they would cause changes in estimates of where the trend will go.

Since some peoples' uncertainties are other's assumptions, these are compiled into a list of "possible" assumptions and every individual is asked to vote on each possible assumption according to validity. To accomplish this validity estimation the group may be provided with an anchored interval scale which varies, for example, from "definitely true" to "definitely false," with a mid-point of "maybe." The resulting list of assumptions is automatically reordered by the group validity judgement. The ones the group agrees on as valid or invalid are set aside, and the subsequent discussion focuses on the assumptions that have an average vote of "maybe". The analysis of the voting has to point out which "maybe" votes result from true uncertainty on the part of the respondents, and which result from wide differences in beliefs between subgroups of respondents.

Clearly in the computer environment, this process of listing, voting, and discussing the assumptions can take place on a continuous basis. The voting serves to quickly eliminate from the discussion those items on which the group agrees. The remaining uncertain items usually are divided into two types: 1) those which can be influenced (e.g. improvements in knowledge about the proper use of condoms), 2) those that cannot be influenced (e.g. hospital facilities in the short term).

In the final stage, after the list has been completed and evaluated, the participants are asked to re-estimate their earlier trend estimate. One could observe that a statistical regression analysis might have produced a similar trend curve. However, the application of such a mathematical technique will not produce the qualitative model that represents the collective judgement of all the experts involved. It is that model which is important to understanding the projection and what actions can be taken to influence changes in the trend or in understanding the variation in the projection of the trend.

There is practically no planning task where the above trend analysis structure is not applicable. In the medical field, for example, considering examining trend curves for the occurrences of certain medical problems and the impact of various treatments is rather

broadly applicable. This particular structure has been utilized in a significant number of corporate planning exercises. With graphic capabilities on workstations, it would be quite easy to implement in a computerized version. A similar structure may be applied to qualitative trends made up of a time series of related discrete events. An example would be AIDS cases triggering specific legal rulings and particular ethical dilemmas.

The above two examples were chosen because they are fairly simple and straightforward. However, there are literally tens of different Delphi structures that have been demonstrated in the paper and pencil environment (Linstone and Turoff, 1975) and are quite transferable to the computer based environment. Many of these require the ability to utilize graphics to view the complexity of relationships among concepts. Others require extended facilities to utilize generalized Hypertext structures. However, one of the most significant potentials for the automation of Delphi is the incorporation of real time analysis aids for the interpretation and presentation of the subjective information produced in a Delphi exercise. This will be treated in a following section.

It should also be clear from the above examples that there are certain fundamental tools that apply across a wide range of Delphi structures. The ability of a group to contribute to building a specific list, to be able to apply specific voting capabilities, and to be able to sort the list by voting results, represents a set of general tool capabilities. This is the approach we have taken in the development of the EIES 2 system (Turoff, 1991) at NJIT to support a wide variety of applications such as Group Decision Support, Delphi Design, Project Management, and Education (Hiltz, 1986, 1990).

EIES 2 is a general purpose Computer Mediated Communication System that provides many features whereby an individual moderating a specific conference can tailor the group process. The moderator of a given conference can create, at any point in the discussion, an "activity" that may be attached to a comment. These activities accomplish different specialized functions such as list collection and voting. However, the interface to all these activities is the same in the sense that the same basic generic commands apply to any activity. For example, one may "Do" the activity to make changes to it or "View" the results of the activity, regardless of what type of activity it is. The conference moderator has the authority to introduce these activities whenever he or she

feels they fit within the current discussion. Also, the moderator may choose to allow or not allow the facilities of anonymity for a given activity or conference.

EIES 2 also provides a general notifications capability that can be tailored to notify the participants in a group process whenever any action occurs of which they need to be made aware. For example, a notification may let the members of a Delphi know when the votes on a specific item are sufficient to allow viewing of the resulting distribution. EIES 2 is constructed so that any programs or analysis routines developed in any language within the context of the UNIX operating system or a TCP/IP network can be integrated or made available through the EIES 2 interface. The major facility to allow a Computer Mediated Communication System to enhance Delphi processes is to provide alternative structures in the form of a collection of group support tools. The system must also include the privileges for a facilitator or group leader to decide on the dynamic incorporation of these tools in the group process.

1.6 ANALYSIS

A principal contribution to the improvement of the quality of the results in a paper and pencil Delphi study is the analysis that the design and coordination team can perform on the results of each round. This analysis has a number of specific objectives:

Improve the understanding of the participants through analysis of subjective judgements to produce a clear presentation of the range of views and considerations.

Detect hidden disagreements and judgmental biases that should be exposed for further clarification.

Detect missing information or cases of ambiguity in interpretation by different participants.

Allow the examination of very complex situations that can only be summarized by analysis procedures.

Detect patterns of information and of sub-group positions.

Detect critical items that need to be focused upon.

To accomplish the above, there are a host of analysis approaches that come from many different fields. Many of these are amenable to implementation as real time computer based support to a continuous Delphi process conducted via a Computer Mediated Conferencing System. We will briefly address here some of the most significant types of these methods for supporting Delphi applications.

1.6.1 Scaling Methods

Scaling is the science of determining measuring instruments for human judgement. Clearly, one needs to make use of appropriate scaling methods to aid in improving the accuracy of subjective estimation and voting procedures. While most of these methods were originally developed to measure human judgement, they are easily adaptable, in many cases, to providing feedback to a Delphi group on the consequences of the judgements being made by the individuals.

For example, in many cases the appropriate judgement we wish to solicit from an individual is a ranking (i.e. ordinal scale measurement) of individual items. It is comparatively more accurate to ask individuals to rank order items, such as objectives or goals, than to ask for interval or ratio measures. A person can estimate that a particular goal is more important than another one; however, how much more important it is much more difficult to estimate consistently among a group of individuals. However, a scaling method such as Thurstone's Law of Comparative Judgement (Torgenson, 1958) can transform individual ranking judgements and produce analytically a group result which is an interval scale rather than a rank ordered scale. Providing the group the results in terms of this interval scale allows the individuals to detect in a much more reliable manner the extent to which certain objectives are clearly distinct from other objectives, and which are considered in closer proximity. Merely providing an averaging of the ranking scale does not contribute this added insight to the group as a whole. Furthermore, standard averaging approaches can lead to inconsistencies in group judgements (i.e. Arrow's Paradox). This can occur when there are disagreements underlying the averaging and when there is a lack of appropriate "anchoring" of the scales.

Standard correlation analysis approaches can be utilized to determine if there are subgroups or patterns of agreement and disagreement that exist across different issues or judgements made in the Delphi exercise. Do the people who feel a certain way about an issue feel the same way about another issue? This type of analysis should, in most cases, be provided first to the facilitator, and that person should decide which relationships need to be passed back to the group. In many Delphis, there are identified sub-groups. A Delphi might comprise people from different disciplines. Do the administrators, researchers, lawyers, insurers, and practitioners have differences in viewpoint that are based upon the perspective they take on a new medical treatment? The utility of these insights needs to be evaluated by the facilitator in the context of the application. With groups that work together over a long term, it might be desirable to provide such an analysis in terms of direct feedback without facilitator intervention.

Scaling methods span a wide range of techniques, from fairly simple and straightforward to fairly sophisticated. An example of a sophisticated approach is Multi-Dimensional Scaling (Carroll and Wish, 1975). MDS allows subjective estimates of similarity between any two objects to be translated into a relative position in a Euclidean space. It provides, in essence, N dimensional interval scaling of similarity estimates. The number of meaningful dimensions found suggests the number of independent dimensional factors underlying the way both the individuals and the group are viewing the similarity among objects. By looking at the alternative two dimensional projections, it is possible to arrive at an understanding of what the dimensional factors are.

The process by which one would use MDS in a Delphi would be to ask for the similarities and provide back the graphical layouts of the alternative dimensions. The respondents would then be asked to try to determine what these dimensions mean or represent. The result is a very powerful technique for potentially exposing the hidden factors a group is using to make judgements about similarities. The question of similarity is one that can be applied to a very wide range of object types, e.g. goals, products, countries, relationships, jobs, criteria, etc. MDS may also be viewed as a form of Cluster Analysis, and many methods in Cluster Analysis (Anderberg, 1973) can also be usefully applied to analyzing the subjective comparison judgements made by Delphi respondents.

When a group is using voting and estimation structures over a long period so that they make judgements about a growing number of similar situations, it is possible to consider the introduction of "scoring" methods (Dalkey, 1977), into the Delphi process. Given later feedback upon the accuracy of estimates or the quality or success of a given judgement, it is possible to consider feedback to estimators on their degrees of "accuracy" or possible biases due to factors such as conservatism. At the point where there are individuals utilizing Delphi techniques on a continuous basis, it will be possible to conduct the sorts of investigations needed to develop this particular area as a decision aid.

Designing a Delphi, whether via paper and pencil or on the computer, does include the process of designing a survey. As such, all the guidelines on good survey design and all the analysis methods that have been developed for analyzing survey data are potentially applicable to a Delphi. There is, however, a fundamental difference in objectives, which determines how one employs a given method, and whether it is applicable in a given situation.

Most scaling methods were evolved to aid in making an assessment of a human judgement with the premise that one is measuring a stable and constant quantity. One's intelligence or personality would not be affected or changed as a part of the measurement process. The goal is to discover biases and inconsistencies and to produce more accurate measurements. In the Delphi process, however, we are interested in informing the respondents about what they are really saying, and how it compares to the group as a whole. We are also interested in promoting changes in viewpoints and the other items we measure, if it will promote reaching a superior group view of the situation. We are also interested in detecting and exposing hidden factors or relationships of which the group may not be completely aware. With this in mind, one has to take special care that the use of these analysis methods does not convey a false impression of finalization in a group view.

Related to scaling is the area of Social Choice Theory, which provides alternative methods for the summarization of voting processes (Hogarth, 1977). The use of multiple methods of viewing the summarization of a given voting process can be useful in preventing a group from placing an over emphasis on a single voting result.

Probably the most important single consideration in the past that has prevented the incorporation of many of the approaches discussed here is the difficulty of educating the respondent in the interpretation of the method when the respondent is involved in only one short term Delphi process. With the potential that Computer Mediated Communications offers for long term continuous use by groups, it is now possible to consider incremental training for individuals to gain an understanding of the more sophisticated methods.

With the appropriate use of scaling methods it becomes possible to establish that individuals will mean the same thing when they use terms like: desirable, very desirable, likely, unlikely, agree, strongly agree, etc. It becomes possible to determine which alternatives are truly similar and which are distinctly different. Scaling methods, in essence, serve the objective of eliminating ambiguity in the judgmental and estimation process of a group.

1.6.2 Structural Modeling

The term Structural Modeling (Lendaris, 1980; Geoffrion, 1987) has come to represent a host of specific methods that have the objective of allowing an individual to express a large set of independent relationships and judgements which the given method utilizes to produce a "whole" model of the "system" being described. In computer terms, these are methods that allow a user to build a model of a situation without having to program or go through the use of experts in modeling and simulation. These methods vary from ones that provide a simple static relationship model (e.g. Interpretive Structural Modeling, Warfield, 1974), to more dynamic probabilistic and time varying models (e.g. Cross Impact, Time Series Regression, etc.). Just about any technique that organizes data into some sort of framework is a candidate for falling under the rubric of Structural Modeling. This includes Decision Trees and Payoff Matrices.

The objective of these approaches is to allow participants as individuals or as part of a group, to contribute pieces of a complex situation and to be provided a composite model. For example, in Interpretive Structural Modeling the individual is asked only to make a series of judgements about each two components of a model (such as two goals)

with respect to whether they are related. The resulting complex network of relations is analyzed to collapse the network to a hierarchy of levels utilizing the existence of cycles within the network to make that simplification. The result for the individual or group is a set of levels or clusters of the objects which infer a relationship of higher to lower levels. This provides a graphical representation of the binary judgements made about each set of objects, taken two at a time.

The Cross Impact type model allows individuals to express probabilities of occurrence for a series of events, and conditional probabilities based upon assumptions as to which events will or will not occur. This is used to construct a quasi-causal model that allows participants to then vary the original estimates of individual events and see the consequences on the whole event set.

An excellent example of structural modeling to determine the important relationships and impacts on changes in medical care policies may be found in a recent article by Vennix et. al. (1990). This particular example is based upon the specification of negative and positive feedback loops. The development of the model was arrived at through the joint use of a paper and pencil Delphi and follow up face-to-face meetings.

All these techniques may be used in a Delphi process to help a group to develop a collaborative model of a complex situation. This is one area where the merger of the Delphi process and the computer presents a unique opportunity for dealing with situations of unusual complexity. More often than not, the individual experts who can contribute to building a complex model are geographically dispersed, and the effort to derive and improve such models is one that needs to take place over an extended period of time. In other words, improvement of the model has to be based upon feedback from its performance and incremental refinement.

A recent experiment (Hopkins, 1987) produced the very significant finding that it was possible to distinguish the degree of expertise an individual had about a complex situation by the measured richness of the models that were specified by each individual. This finding suggests the possibility of incorporating automated procedures for rating potential quality or inferred confidence in the contributions made by various

individuals. This possibility deserves further investigation, as it would obviously provide improved models with a reduced communication load requirement.

Developing all the structural relationships in models of symptoms, tests, diagnosis, and treatment is an obvious area for the application of structural modeling. Appropriate techniques can be utilized on the computer to allow individuals to visualize the structures resulting from their contributed relationships and examine that structure for consistency. At the group level the same methods can be used to examine composite models for consistency and feed back inconsistencies for further refinement. Individuals are good at estimating individual relationships, but they are not always able to maintain consistency in developing complex models. The problem is compounded for group efforts.

A group can improve the nature of a model only by first seeing the results and consequences of the current design. Model building is a long term incremental process. The proper integration of Delphi methods, Computer Mediated Communications and Structural Modeling methods makes possible effective large scale modeling efforts not otherwise currently doable.

1.7 DELPHI, EXPERT SYSTEMS, GDSS, AND COLLABORATIVE SYSTEMS

The concept of an Expert System is to somehow capture the knowledge of a group of experts and store it in a computer for utilization by non-experts. The incorporation of the Delphi method in computer environments makes possible a number of significant refinements of this objective and some fundamental possible changes to the nature of Expert Systems.

The common approach to the development of an expert system is to achieve agreement among all involved experts before the actual coding of the knowledge base is performed. At present this is accomplished by a knowledge engineer or team of knowledge engineers, who must interface to a team of domain experts. Besides being time consuming, the fundamental flaw in this approach is that even within scientific and/or engineering fields, there is incomplete agreement among experts. Furthermore,

agreement and disagreement are evolving properties that change dynamically over time. The Delphi method may be viewed as an alternative approach to collecting and synthesizing expert knowledge. In fact, within the current terminology, the design of a Delphi is in fact the design of a knowledge base or structure for putting the collected information together. It has also been an important objective of Delphi design to capture disagreements as well as agreements.

Another potential problem area is that experts concerned with a common problem can be in conflict. For example, design, production, and marketing professionals can have severe conflicts about the properties of a potential new product. Different medical researchers have different views about the most promising directions for research. Some of the problems addressed here have been investigated in the work on "Multi Expert Knowledge Systems (MKS) (LeClair, 1985, 1989). LeClair's work represents one of the few in depth approaches to incorporating the knowledge of disagreeing experts into the same system. However, this work still assumes the final system no longer incorporates the humans, but only their knowledge.

On the other hand, the view that we believe is the most promising is an objective for "Collaborative Expert Systems," where the experts are provided a knowledge structure (a Delphi Design) that allows them to dynamically contribute their knowledge to the system and to modify and evolve the system, over time. Clearly, such a system is one which the experts must desire to use for themselves as well as a tool for others who need their knowledge. This is the situation where the experts are both the creators and the users of the resulting expert system.

Without the above form of expert systems, the only feasible systems are those that restrict themselves to well established rules and agreements. In our view, the future of expert systems lies in their ultimate ability to be utilized by working groups of experts as a tool for collecting and assessing their collective knowledge about their work.

The current approach to expert systems through the use of knowledge engineers has been recognized as the chief bottleneck to the creation of these systems (Welbank, 1983; Waterman, 1986) for four main reasons:

Human expertise is usually complex, undocumented and consists of many different types and levels of knowledge (e.g. casual knowledge, common sense, meta knowledge, etc.)

Different experts may solve the problem differently and therefore may argue or even criticize one another on the method used.

There often exists a communication barrier between the knowledge engineer and the experts. The knowledge engineer is not an expert on the area and many experts do not understand their own problem solving process. As a result, many details and complications of the reasoning process may be ignored or obscured.

Motivation for the expert is often lacking because the results are often delayed or are not intended to benefit the expert.

Many of these problems can be overcome if one can develop collaborative design systems that focus on allowing a group of experts to develop their own expert system in an evolutionary manner and as a group oriented aid to their own work. The evolving system could also be tapped by non-experts for use. In that mode it would be considered by the experts as an aid to disseminating needed information to a wider circle of users and freeing the time of the experts for more difficult problems.

A collaborative expert system has to deal with at least four types of knowledge:

Deductive reasoning as represented by rule based models.

Inductive and intuitive reasoning representing experience on the part of experts.

Objectives, Goals, and Vested Interests which are viewpoints of experts in given circumstances.

Values and Beliefs which often underlie judgements about viewpoints.

The first two types have been typical of current expert systems. The other two areas have largely been the domain of Group Decision Support Systems, Delphi and Nominal Group Techniques, decision and utility theory, and psychological measurement

methods. All four of these types of knowledge in a collaborative expert system must handle disagreement among the participants.

1.7.1 The Deductive Level of Disagreements

At the predicate logic level, experts may disagree about both the predicates to use and the rules that are valid in the real world. A well designed knowledge acquisition and expert environment should permit experts to "speak their mind" and not limit them to a preconceived vocabulary. It is therefore necessary that the accumulation of the vocabulary for specification of the rules be an integral part of the collaborative process.

Even if experts agree on a basic vocabulary, they often disagree about subtle details of a representation. This problem occurs whenever there are several possible reference frames, a situation which is well documented in the literature (e.g. Sondheimer, 1976). Unfortunately, at the current state of the art, two relations with different numbers of arguments are treated by logic programming environments as being two completely different entities.

One approach to this problem is to allow each member of a collaborative group to construct and tailor their own knowledge base and then to superimpose an analysis system for determining various types of agreement and disagreement. There are various weighted voting procedures (Shapley and Grofman, 1985) and scaling methods (Torgerson, 1958) that are promising for analysis of this situation. Weights have been used in some expert systems (e.g. Reboh, 1983). When such information is being accumulated over time then there are various "scoring" approaches (Dalkey, 1977) that may also be employed and coupled with "explanation based learning" approaches (Pazzani, 1988). Early work with the Delphi method indicated that even experts in a given area differ in expertise in various sub-domains and that the greatest improvement in accuracy of estimates was obtained by weighing estimates by this type of difference (Dalkey, 1970).

1.7.2 The Inductive Level of Disagreements

One of the major problems in designing knowledge representations that reflect common sense models of the world is that the world is not a discrete and well specified place. In

fact, the world is quite vague and ambiguous. Ambiguity is the key property that most people have to deal with in reaching conclusions and decisions (Daft and Lengel, 1986). Ambiguity results from differences in concepts (e.g. "expensive") among different people and, in this context, from the collaborative process itself. In many cases the problem of ambiguity can be structured as the degree to which an object "more or less belongs" to a class. Fuzzy sets (Zadeh, 1965; Klir, 1988) are a generalization of standard sets that allows for degrees of membership. One approach to this problem is to utilize fuzzy set theory to represent the types of ambiguity that result from intuitive thinking.

The major research issue in this area is to develop methods for accurately combining multiple judgements and resolving disagreements about estimates of degrees of membership in fuzzy set relations (Stephanou and Sage, 1987). In this instance, scaling methods seem particularly appropriate. Humans are good at ranking (object A belongs more than object B) but not good at direct estimates of correlation factors needed for fuzzy set relationships. However, various scaling methods can be used to convert a collaborative set of ranking measures to interval or ratio scales.

Another approach is to incorporate multivalent and fuzzy logic (Dubois and Prade, 1980) into any model framework where the expert group is building the relationships. An example of degrees of truth and the resulting treatment of logical inference from a fuzzy perspective may be found in Baldwin (1981).

In essence, the problem is the recognition that models that capture intuition have to capture the structure of disagreements. A result is no longer true or false, but possibly a little of both. Rather than a group process being dedicated to eliminating disagreement, the objective is to capture it, quantify it, and integrate it into the collective model. There has always been a bias that disagreement has no place in the result of a scientific process. Because of this we can become blind to the forcing of unwarranted consensus. It would be a far more realistic view of the world to recognize the necessity for disagreements and "fuzzy" relationships as a fundamental part of any model meant to reflect the collective intuitions of a group of experts.

1.7.3 Goal and Value Disagreements

This is the area that is typically included in applications of Group Decision Support Systems. While there are certain specific approaches (e.g. Stakeholder analysis) for eliciting this type of information, the current state of the art is largely the use of human facilitators to guide the group process for the treatment of this type of knowledge. The fundamental issue of how far one can go in the process of substituting computer facilitation for human facilitation is very much an open issue. Earlier experiments in this area (Turoff & Hiltz, 1982; Hiltz et. al., 1986, 1987) showed that under some circumstances computer facilitation can degrade the performance of the group.

The approach that seems to be the most promising is to evolve a collaborative expert system that would be used to guide the meta group process. This would suggest to the group at what points in the activity they should shift the nature of what they are doing. However, such a facility would also be tailorable by the group so that it can gradually adapt to the preferred group process. Such a system would have to employ "default reasoning" approaches (Post, 1990).

As can be seen, there is no fixed dividing line between such areas as Delphi, Computer Mediated Communications, Group Decision Support Systems, and now Expert Systems. The concept of "collaborative expert systems" is really based upon the foundations established in each of these other areas. Subjective estimation, collaborative judgement formulation, and voting are strongly related support areas that also contribute to the potential for design in this area.

1.8 ABOUT DELPHI

Delphi, as a tool, has reached a stage of maturity in that it is used fairly extensively in organizational settings in either the paper and pencil mode or in combination with face-to-face meetings and Nominal Group Techniques. Since most of these exercises are proprietary in nature there is not much of this activity reported in the open literature. The one exception to this is the applications in the medical field which are in fact actively reported and documented (Fink, Kosecoff, Chassin, and Brook, 1984). This clearly is a result of the growing need to formulate collaborative judgements about

complex issues that are associated with the production of guidelines on medical practice and decisions.

Computer Mediated Communications has also seen some very significant applications in the medical field with respect to the formulation of collaborative judgements. One of the most significant to be reported in the literature was the use of leading researchers in Viral Hepatitis to review the research literature and update guidelines for practitioners (Siegel, 1980). While this was not run in an anonymous mode, it had all the other aspects of structure necessary for a dozen experts to deal with some five thousand documents and reach complete consensus on the resulting guidelines.

Another CMC application that had Delphi like structuring with Anonymity was a Group Therapy process to aid individuals in the cessation of smoking (Schneider, 1986; Schneider and Tooley, 1986). A general review of CMC applications in the medical field can be found in Lerch (1988).

However, there is yet to be a true merger of Delphi with Computer Mediated Communications. It is only now that the technology is becoming generally available to support the high degree of tailoring necessary to dynamically structure communications within a single conferencing system (Turoff, 1991). Most conference systems, to date, have only represented single design structures with very little control available to facilitators and moderators of discussions. Also, the general lack of graphics has placed a considerable limitation on just what Delphi techniques could be adapted to the computer environment. The merger of Delphi and Computer Mediated Communications potentially offers far more than the sum of the two methods.

Long before the concept of Expert Systems it was known that statistical factor models (Dalkey, 1977) applied to a large sample of expert judgements could produce performance that was consistently in the upper quarter of the performance distribution curve. Such models did not suffer from "regression to the mean" and could result in matching the best decisions by the best experts in the group. Expert Systems is really the emergence of tools to allow this to be done on a fairly wide scale. However, the results of Expert System approaches, as currently practiced, are never going to do better than the best experts.

The merger of the Delphi Method, Computer Mediated Communications and the tools that we have discussed opens the possibility for performance of human groups that exceeds the composite performance curve. We have termed this phenomenon "collective intelligence" (Hiltz and Turoff, 1978). This is the ability of a group to produce a result that is of better quality than any single individual in the group could achieve acting alone. This rarely occurs in face-to-face groups.

A recent experiment in utilizing human judgement in conjunction with the types of models that are used in Expert Systems confirms that this is in fact possible (Blattberg and Hoch, 1990). There has been too much attention in recent years to utilizing computer technology to replace humans and far too little effort devoted to the potential for directly improving the performance of human groups. This can be achieved through integration of computer based methods and the concept of structured communications at the heart of the Delphi Method.

CHAPTER 2

MYSQL

2.1 INTRODUCTION TO MYSQL

This chapter provides a tutorial introduction to MySQL by showing how to use the mysql client program to create and use a simple database. mysql (sometimes referred to as the "terminal monitor" or just "monitor") is an interactive program that allows you to connect to a MySQL server, run queries, and view the results. mysql may also be used in batch mode: you place your queries in a file beforehand, then tell mysql to execute the contents of the file. Both ways of using mysql are covered here.

To see a list of options provided by mysql, invoke it with the --help option:

```
shell> mysql --help
```

This chapter assumes that mysql is installed on your machine and that a MySQL server is available to which you can connect. If this is not true, contact your MySQL administrator. (If *you* are the administrator, you will need to consult other sections of this manual.)

This chapter describes the entire process of setting up and using a database. If you are interested only in accessing an already-existing database, you may want to skip over the sections that describe how to create the database and the tables it contains.

Because this chapter is tutorial in nature, many details are necessarily left out. Consult the relevant sections of the manual for more information on the topics covered here.

2.2 WHAT IS MYSQL?

2.2.1 Definition

MySQL is an open source software relational database management system (RDBMS) which

uses a SQL (Structured Query Language)

SQL is the standard language used for interacting with databases.

2.3 WHY CHOOSE MYSQL?

There are many relational databases available to use, so why choose MySQL?

We are specifically interested in databases which PHP supports; these include Oracle, IBM's DB2 and Microsoft's SQL Server (all of which cost money).

The two main open source (free) alternatives to these are PostgreSQL and MySQL.

PostgreSQL is arguably the better of the two, but MySQL is better supported on Windows, and is a popular choice among Web hosts that provide support for PHP.

Here are some of MySQL's advantages

- It's fast
- It's free to use, and commercial licenses are reasonable
- It's easy to use
- It is cross platform
- There is a wide community of technical support
- It's secure
- It supports large databases
- It is designed specifically for web base applications and hence works very well

partnered with PHP

2.4 PREPARING THE WINDOWS MYSQL ENVIRONMENT

Starting with MySQL 3.23.38, the Windows distribution includes both the normal and the MySQL- Max server binaries. Here is a list of the different MySQL servers you can use:

mysqld	Compiled with full debugging and automatic memory allocation checking, symbolic links, InnoDB and DBD tables.
mysqld-opt	Optimized binary with no support for transactional tables.
mysqld-nt	Optimized binary for NT with support for named pipes. You can run this version on Win98, but in this case no named pipes are created and you must have TCP/IP installed.
mysqld-max	Optimized binary with support for symbolic links, InnoDB and DBD tables.
mysqld-max-nt	Like mysqld-max, but compiled with support for named pipes.

All of the above binaries are optimized for the Pentium Pro processor but should work on any Intel processor $\geq i386$

In the following circumstance, you will need to use the MySQL configuration file:

- The install/data directories are different than the default 'c:\mysql' and 'c:\mysql\data'.
- If you want to use one of these servers:
 - mysqld.exe
 - mysqld-max.exe
 - mysqld-max-nt.exe
- If you need to tune the server settings.

There are two configuration files with the same function: 'my.cnf' and 'my.ini' file, however, only one of these can/should be used. Both files are plain text. The 'my.cnf' file

should be created in the root directory of drive C and the 'my.ini' file in the WinDir directory e.g.: C:\WINDOWS or C:\WINNT. If your PC uses a boot loader where the C drive isn't the boot drive, then your only option is to use the 'my.ini' file. Also note that if you use the WinMySQLAdmin tool, only the

'my.ini' file is used. The 'mysql\bin' directory contains a help file with instructions for using this tool.

Using Notepad, create the configuration file and edit the base section and keys:

```
[mysqld]
```

```
basedir = the_install_path # e.g. 'c:\mysql'
```

```
datadir = the_data_path # e.g. 'c:\mysql\data' or 'd:\mydata\data'
```

If the data directory is other than the default 'c:\mysql\data', you must cut the whole

'\data\mysql' directory and paste it on the your option new directory, e.g. 'd:\mydata\mysql'.

If you want to use the InnoDB transaction tables, you need to manually create two new directories to hold the InnoDB data and log files, e.g. 'c:\ibdata' and 'c:\iblogs'. You will also need to create some extra lines to the configuration file.

If you don't want to use, add the skip-innodb option to the configuration file.

Now you are ready to test starting the server.

2.5 STARTING THE SERVER FOR THE FIRST TIME

Testing from a DOS command prompt is the best thing to do because the server prints messages, so if something is wrong with your configuration, you will see a more accurate error message which will make it easier to identify and fix any problems.

Make sure you're in the right directory (C:\>cd \mysql\bin),

To install mysqld as a standalone program, enter:

```
C:\mysql\bin> mysqld-max --standalone
```

You should see the below print messages:

```
InnoDB: The first specified data file c:\ibdata\ibdata1 did not exist:
InnoDB: a new database to be created!
InnoDB: Setting file c:\ibdata\ibdata1 size to 209715200
InnoDB: Database physically writes the file full: wait...
InnoDB: Log file c:\iblogs\ib_logfile0 did not exist: new to be created
InnoDB: Setting log file c:\iblogs\ib_logfile0 size to 31457280
InnoDB: Log file c:\iblogs\ib_logfile1 did not exist: new to be created
InnoDB: Setting log file c:\iblogs\ib_logfile1 size to 31457280
InnoDB: Log file c:\iblogs\ib_logfile2 did not exist: new to be created
InnoDB: Setting log file c:\iblogs\ib_logfile2 size to 31457280
InnoDB: Doublewrite buffer not found: creating new
InnoDB: Doublewrite buffer created
InnoDB: creating foreign key constraint system tables
InnoDB: foreign key constraint system tables created
011024 10:58:25 InnoDB: Started
```

To install mysql as a service (Windows 2000), enter:

```
C:\mysql\bin> mysqld-nt --install
```

Now you can start and stop mysql as follows:

```
C:\>NET START MySQL C:\>NET STOP MySQL
```

```
C:\>NET START MySQL
```

To start the MySQL Monitor, enter:

The MySql service is starting.

The MySQL service was started successfully.

```
C:\>cd \mysql
```

```
C:\mysql>bin\mysql
```

Welcome to the MySQL Monitor. Commands end with ; or \g. Your MySQL connection id is 1 to server version 3.23.49-nt Type 'help;' or '\h' for help. Type '\c' to clear the buffer.

```
mysql> (enter a command or enter 'QUIT' to quit)
```



```
mysql> QUIT Bye
```

```
C:\mysql>NET STOP MySQL The MySQL service is stopping.
```

The MySQL service was stopped successfully.

```
C:\mysql>
```

2.6 CONNECTING TO AND DISCONNECTING FROM THE SERVER

To connect to the server, you'll usually need to provide a MySQL user name when you invoke `mysql` and, most likely, a password. If the server runs on a machine other than the one where you log in, you'll also need to specify a hostname. Contact your administrator to find out what connection parameters you should use to connect (that is, what host, user name, and password to use). Once you know the proper parameters, you should be able to connect like this:

```
shell> mysql -h host -u user -p
```

```
Enter password: *****
```

The `*****` represents your password; enter it when `mysql` displays the Enter password: prompt.

If that works, you should see some introductory information followed by a `mysql>` prompt:

```
shell> mysql -h host -u user -p
```

```
Enter password: *****
```

Welcome to the MySQL monitor. Commands end with ; or \g. Your MySQL connection id is 459 to server version: 3.22.20a-log

Type 'help' for help.

```
mysql>
```

The prompt tells you that mysql is ready for you to enter commands.

Some MySQL installations allow users to connect as the anonymous (unnamed) user to the server running on the local host. If this is the case on your machine, you should be able to connect to that server by invoking mysql without any options:

```
shell> mysql
```

After you have connected successfully, you can disconnect any time by typing QUIT at the mysql>

```
prompt: mysql> QUIT Bye
```

You can also disconnect by pressing Control-D.

Most examples in the following sections assume you are connected to the server. They indicate this by the mysql> prompt.

2.7 ENTERING QUERIES

Make sure you are connected to the server, as discussed in the previous section. Doing so will not in itself select any database to work with, but that's okay. At this point, it's more important to find out a little about how to issue queries than to jump right in creating tables, loading data into them, and retrieving data from them. This section describes the basic principles of entering commands, using several queries you can try out to familiarize yourself with how mysql works.

Here's a simple command that asks the server to tell you its version number and the current date. Type it in as shown below following the mysql> prompt and hit the RETURN key:

```
mysql> SELECT VERSION(), CURRENT_DATE;
```

version()	CURRENT_DATE
3.22.20a-log	1999-03-19

row in set (0.01 sec)

mysql>

This query illustrates several things about mysql:

A command normally consists of a SQL statement followed by a semicolon. (There are some exceptions where a semicolon is not needed. QUIT, mentioned earlier, is one of them. We'll get to others later.)

When you issue a command, mysql sends it to the server for execution and displays the results, then prints another mysql> to indicate that it is ready for another command.

Mysql displays query output as a table (rows and columns). The first row contains labels for the columns. The rows following are the query results. Normally, column labels are the names of the columns you fetch from database tables. If you're retrieving the value of an expression rather than a table column (as in the example just shown), mysql labels the column using the expression itself.

Mysql shows how many rows were returned and how long the query took to execute, which gives you a rough idea of server performance. These values are imprecise because they represent wall clock time (not CPU or machine time), and because they are affected by factors such as server load and network latency. (For brevity, the "rows in set" line is not shown in the remaining examples in this chapter.)

Keywords may be entered in any lettercase. The following queries are equivalent:

```
mysql> SELECT VERSION(), CURRENT_DATE; mysql> select version(), current_date;
mysql> SELECT VERSION(), current_DATE;
mysql> SELECT SIN(PI()/4), (4+1)*5;
```

The commands shown thus far have been relatively short, single-line statements. You can even enter multiple statements on a single line. Just end each one with a semicolon:

```
mysql> SELECT VERSION(); SELECT NOW();
```


A command need not be given all on a single line, so lengthy commands that require several lines are not a problem. mysql determines where your statement ends by looking for the terminating semicolon, not by looking for the end of the input line. (In other words, mysql accepts free-format input: it collects input lines but does not execute them until it sees the semicolon.)

Here's a simple multiple-line statement:

```
mysql> SELECT USER(),CURRENT_DATE;
```

USER()	CURRENT_DATE
joesmith@localhost	1999-03-18

In this example, notice how the prompt changes from mysql> to -> after you enter the first line of a multiple-line query. This is how mysql indicates that it hasn't seen a complete statement and is waiting for the rest. The prompt is your friend, because it provides valuable feedback. If you use that feedback, you will always be aware of what mysql is waiting for.

If you decide you don't want to execute a command that you are in the process of entering, cancel it by typing \c:

```
mysql> SELECT USER() \c mysql>
```

Here, too, notice the prompt. It switches back to mysql> after you type \c, providing feedback to indicate that mysql is ready for a new command.

The following table shows each of the prompts you may see and summarizes what they mean about the state that mysql is in:

Prompt	Meaning
mysql>	Ready for new command.
->	Waiting for next line of multiple-line command.
'>	Waiting for next line, collecting a string that begins with a single quote ('').
">	Waiting for next line, collecting a string that begins with a double quote (").

Multiple-line statements commonly occur by accident when you intend to issue a command on a single line, but forget the terminating semicolon. In this case, mysql waits for more input:

```
mysql> SELECT USER()  
->
```

If this happens to you (you think you've entered a statement but the only response is a -> prompt), most likely mysql is waiting for the semicolon. If you don't notice what the prompt is telling you, you might sit there for a while before realizing what you need to do. Enter a semicolon to complete the statement, and mysql will execute it:

```
mysql> SELECT USER()  
-> ;  
  
USER()  
joesmith@localhost
```

The '>' and '>' prompts occur during string collection. In MySQL, you can write strings surrounded by either '"' or "'" characters (for example, 'hello' or "goodbye"), and mysql lets you enter strings that span multiple lines. When you see a '>' or '>' prompt, it means that you've entered a line containing a string that begins with a '"' or "'" quote character, but have not yet entered the matching quote that terminates the string. That's fine if you really are entering a multiple-line string, but how likely is that? Not very. More often, the '>' and '>' prompts indicate that you've inadvertently left out a quote character. For example:

```
mysql> SELECT * FROM my_table WHERE name = "Smith AND age < 30;  
">
```

If you enter this SELECT statement, then hit RETURN and wait for the result, nothing will happen. Instead of wondering why this query takes so long, notice the clue provided by the ">" prompt. It tells you that mysql expects to see the rest of an unterminated string. (Do you see the error in the statement? The string "Smith is missing the second quote.)

At this point, what do you do? The simplest thing is to cancel the command. However, you cannot just type `\c` in this case, because mysql interprets it as part of the string that it is collecting! Instead, enter the closing quote character (so mysql knows you've finished the string), then type

```
\c:mysql> SELECT * FROM my_table WHERE name = "Smith AND age < 30;  
"> "\c mysql>
```

The prompt changes back to `mysql>`, indicating that mysql is ready for a new command.

It's important to know what the `'>` and `">` prompts signify, because if you mistakenly enter an unterminated string, any further lines you type will appear to be ignored by mysql -- including a line containing QUIT! This can be quite confusing, especially if you don't know that you need to supply the terminating quote before you can cancel the current command.

CHAPTER 3

ARCHIVE SYSTEM

An introduction to principles of organization and description used in archives

A first step towards acquiring the knowledge and skills needed to provide access to the rich cultural heritage information in archival collections.

Links to additional resources for further archival training such as workshops, readings, professional organizations, archival education programs and conferences.

3.1 BASIC CONCEPTS AND PRINCIPLES OF ARCHIVES AND RECORDS MANAGEMENT

Through the centuries, the following THREE FACTORS have shaped the concepts, principles and techniques which records/archives managers use to carry out their responsibilities:

3.1.1 The Inter-relatedness of records

Because records are the documentary by-products of work or life processes, they are, like individual frames of motion picture film, organic bodies of related material which cannot be used in isolation or separation from one another without loss of integrity and meaning. They are unselfconscious in that they are naturally occurring contemporaneous and candid documents, as opposed to individual documents created intentionally for the purpose of 'history'.

3.1.2 The central importance of context

Records draw their significance from their context. That is, they are valued or useful only in groups and only in relation to the activities and purposes for which they were created and used. Thus records/archives managers must accurately identify and explain both the context of origin/creation and the context of use/custody and maintain the records in a way that preserves their original character and relationships as 'bounded entities comprising content, structure and context'.



Figure 3.1

Records rescued from past neglect often come to the archives in a disordered mess. Archivists must spend time carefully examining material to identify and restore its original provenance and order before it can be used by researchers.

3.1.3 The function of records as evidence

As we have seen, records represent or stand for human experiences, transactions, activities or accomplishments. The records designated as the 'official' or 'record copies' of documents have been selected to endure as unique testaments, all other duplicates, whether exact copies and different formats having been destroyed. They provide objective 'proof' that something has happened or been agreed to by consenting parties and as such have an integrity that must be protected and preserved by responsible and continuous custody and properly authenticated if that chain of responsible management is questioned.

Essential characteristics of recordness

What distinguishes records from other information entities is summed up in the term 'recordness'- an elusive quality usually represented by the six characteristics described below.

3.1.3.1 Recordness requires that records are:

3.1.3.1.1 Complete

A record is considered complete when it is a finished, bounded entity comprising structure, content and context and when it has the following elements: date(time and place of creation, transmission and/or receipt); originating address, an author/compiler, an addressee/recipient, title or subject accompanying its content/message.

3.1.3.1.2 'Fixed'

Records must be managed and accessible within an archive so that their provenance, original order, and chain of responsible custody is established and maintained kept separate and inviolate. It must not be intermingled with records of other 'parentage'. Records from the same origin came to be known as 'fonds' and the principle as *Respect des fonds*, reflecting its French popularisation and as *provenienzprinzip* in German. The thinking behind this principle reasons that for records to serve as evidence, they must be traceable to their source and be shown to reflect their contexts of origin/creation and initial or primary use.

Practically speaking, this principle was adopted to preserve the chain of accountability within the ever-growing number of records documenting similar functions and activities produced by growing bureaucracies. It was important to know who was initially responsible in each transaction and to maintain an authoritative custodial lineage

3.1.3.1.6.2 The principle of original order

The Prussian (later German) archivists of the mid-19th century expanded the influence of the office of origin by developing and establishing the related Principle of Original Order or *Registratorprinzip* in German. This maxim stipulates that records are to be maintained in records/archives repositories in the same scheme of order and with the same designations they received in the course of the business of their office of origin and primary use. Again, the emphasis was on establishing the authenticity and integrity of the record as evidence of work processes and activities in context.

3.1.3.1.6.3. The chain of responsible custody

Completing the trilogy of context and process oriented principles for records/archives management, we come to the Principle of Continuous Custody. Articulated and popularised by the English archivist, Sir Hilary Jenkinson, this principle focuses upon the role of records/archives as evidence and maintains that evidential integrity can only be ensured when we can trace 'an unblemished line of responsible custodians'. By responsible, Jenkinson means committed to the 'physical and moral defence' of the archives. These phrases embody the responsible manager's obligation to ensure both the physical security and the intellectual integrity of the records as evidence. This faultless lineage is, in Jenkinson's view, a reasonable guarantee that the records have been kept without damage, alienation, improper or unauthorised alteration or destruction.

Protection of the essential role of records as evidence is the wellspring from which all concepts, theories, principles, policies and practices of sound recordkeeping arise. Any new approach or technique for managing records must adhere to them or acknowledge their centrality and fully justify any modification or proposed departure from them.

3.2 WHAT GOES ON IN THE ARCHIVES?

Because of the power and importance of records as a resource, managing records over time is a necessity. Management means imposing a regime which influences the control, accessibility, disposal, and storage of this irreplaceable evidence and which manages itself effectively.

Regimes adhering to these core functions ensure that reliable records of the highest quality and integrity are available in a timely fashion for authorised use at the right price. These processes further guarantee that the best of the records continue to be available effectively and efficiently as part of our cultural knowledge base.

3.2.1 Cadss

The functions embodied in the acronym CADSS (for Control, Accessibility, Disposal, Storage and Sustain) make up the core of all information management activities.

3.2.2 Control

The CADSS management model begins with C symbolising the function of Control. Whilst the word 'Control' also conveys the overall goal of records/archives management, Control as a discrete function includes all recordkeeping activities required to:

- bring a record into existence as complete, integrated entity that can serve as reliable evidence of the acts to which it attests;

- identify the physical and intellectual attributes of a record's content, structure and context;

- devise/identify and assign a physical 'address' for the record so that the record can be safely stored and efficiently retrieved;

- articulate/represent and document the attributes and 'address' above as an integral part of the record and of the information systems controlling access and retrieval of the record and/or of information about the record



Figure 3.3

Machine-readable records such as video and audio tapes are more complex to describe than paper-based materials because understanding and accessing them needs special machinery. Documenting how these records were made and what technologies were used in their making is an integral part of the 'Control' function of record keepers.

In this photo, an archivist makes notes about the content of an oral history tape, relating it to numbers as registered by a counter on the tape recorder. Future listeners should be able to find particular content without listening to the whole oral history.

In creating/custodial offices, Control would include all tasks associated with creating and/or receiving and organising records physically and intellectually for initial use. If there is a centralised or coordinating entity such as central registry, records management and/or information services with this responsibility, there is a chance for cohesion and continuity.

However, the likelihood that these entities have been discarded or ignored in the technologically driven decentralisation of management and concurrent elimination of clerical support (more chiefs, less indians) means that there may be no records system-wide coordination over such critical factors as file content, structure, titling or indexing/access points, nor would any given record necessarily have an inviolable, integral link with its context of creation.

You never know what you might encounter in a body of records. Ham sandwiches, cockroaches, peanuts, well chewed gum, even mummified birds have been uncovered when arranging and describing abandoned masses of files.

However in this case, the lollypop is not detritus, but an integral part of the record. This special circular was sent to employees by a trade union seeking members support against the company.

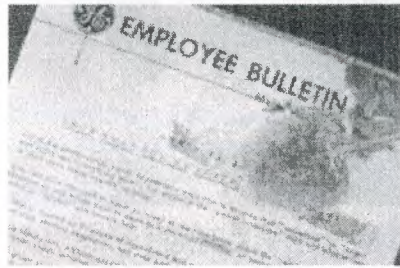


Figure 3.4

In traditional archival repositories, Control embraces a range of activities known as accessioning and arrangement and description. These processes document the nature and origins of the material and explain them to prospective researchers.

In many cases archivists must conduct extensive research to recover or re-construct information needed to explain records that was lost long ago. In this work, they may employ investigative principles and techniques similar to those used by archaeologists.

3.3 ACCESSIBILITY

The function of Accessibility covers all activities associated with determining, administering and facilitating access to and use of records/archives. Accessibility may involve the acquisition or design and operation of specialist facilities, services, expertise and information sources to ensure that:

laws, regulations, conditions and terms of access to records/archives are suitable, authoritative, documented, disseminated and properly administered;

information about the records/archives, about obtaining access to them and about using them effectively is accurate, understandable, timely and readily available to authorised users;

prospective users and their uses are appropriate, authorised and documented;

the records/archives are retrieved, used and returned to safe custody in a timely manner.



Figure 3.5

Providing access to images can be difficult as pictures do not translate well into words and producing full size photographs of images is costly. One solution which achieves access and preservation objectives is to copy the most important images, creating a security negative for preservation and a miniature contact print to include with the finding aid in bound form or in a loose card file as shown here.

With the advent of computers and scanning technologies, many of these manual files can be scanned and made accessible electronically. Image databases can provide digital access to important photo collections either on site or over the Internet

In creating/custodial offices, Accessibility is represented by the systems and practices that govern which staff may see and use records and the mechanisms for controlling and documenting authorised access and use. Common activities include checking passwords and clearances, monitoring record movements documentation and auditing use.

In traditional archives, the activities of Accessibility are called 'reference services' and centre around a designated reading or research room facility.

Accessibility may also involve the creation of more detailed or subject oriented finding aids such as indexes or special guides or lists. These tools create additional points of access (by subject, name of participant, date, type of record, geographic location) which complement the basic structural finding aids based upon provenance.

Client-oriented training and education to promote the use of archives or to develop research skills is also included in the accessibility function



Figure 3.6

Providing a suitable environment for research work is a continuing challenge. This supervised reference facility is spacious, quiet and well furnished for comfort and efficiency.

In the public sector, both archives repositories and creating/custodial offices also have a general responsibility to make information and/or records available to the public under such legislation as Freedom of Information, Privacy and Archives or Public Records Acts.

Popular finding aids, such as this one, are paying a high price from overuse. Part of reference management is to prevent such occurrences.



Figure 3.7

3.4 DISPOSAL

The Disposal function incorporates all activities involved in: identifying and documenting/surveying organised activities and records making/keeping systems within a designated universe of records keeping responsibility;

determining what documentation reflecting organised activity within a designated record making/keeping system should be retained and, conversely, what should be destroyed;

authorising when, where, how and by whom these decisions will be implemented and documented;

providing advice, mechanisms, facilities and documentation for systematic, secure and accountable disposal processes and outcomes.



Figure 3.8

Properly designed disposal instructions inform employees of how and when to close files, of where and how long to store them, and ultimately, whether they are to be destroyed or preserved indefinitely as archives.

In creating/custodial offices, Disposal embraces activities such as:

conducting records use/location/activity audits;

providing information about records use/location/activity for disposal decision-making;

drafting or responding to proposed disposal decisions and recommendations;

approving, implementing and reporting disposal actions.

In traditional archives, the Disposal function is generally manifest in activities to identify and select or appraise/evaluate records of enduring value, but may also include the disposal and de-accessioning of unwanted material following appraisal or subsequent re-appraisal.

3.5 STORAGE

The Storage function is largely concerned with the physical preservation and care of records and archives through the use of archivally sound and/or appropriate :

recording technology and media, packaging components/supplies, storage equipment, facilities, macro- and micro-environments;

handling procedures during retrieval/refile, use, copying, display, transfer and transport;

macro-preservation actions including:

- risk assessment and minimisation;
- preventative and protective intervention activities;
- disaster response and recovery planning;
- collection and environmental stability monitoring; and
- informational copying/media migration;

micro-conservation treatments to stabilise, repair, strengthen and/or protect individual documents or series

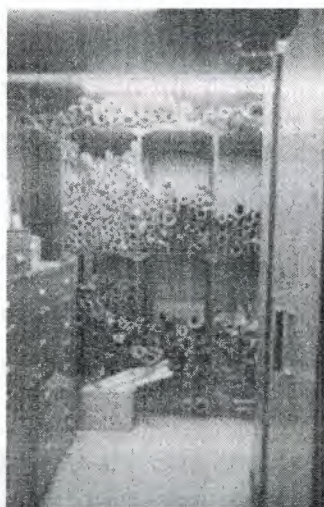


Figure 3.9

Training programs to educate record creators and support staff in the proper care of long-term records can help eliminate destructive practices such as those evident in this nightmare storage room.

What threats to record preservation and integrity can you see in this picture?

Check Answer

Once cleaned and de-acidified, single, oversized items such as plans, posters, prints, and drawings are ideally stored inside clear polyester 'envelopes', easily constructed from conservator-approved materials as shown in this photo. Known as encapsulation, this procedure protects items from dust and handling



Figure 3.10

Within creating/custodial offices, Storage can be badly fragmented. Decisions affecting the choice of record making technology, media, components/supplies and equipment are frequently divided among the Information Systems or IT services section, purchasing, central records/registry (if it exists) and individual office managers of decentralised records systems.

Standards and procedures for records and file maintenance and handling can be chaotic if no central policy or coordinating responsibility exists.

In traditional archival repositories, the Storage function may be shared between two organisational entities- program administration which frequently manages the plant/facilities and technical and/or preservation services, which may also include centralised microfilming, photographic and electrostatic copying.



Figure 3.11

Specialist forms of records require appropriate packaging to facilitate access and ensure preservation. Here, audio tapes are boxed in acid free cartons to protect them from dust

3.6 SUSTAIN

The final CADSS letter represents Sustain, which is used here as a synonym for management - the function that sustains the recordkeeping regime as a viable and effective component of its host organisation.

Whether a particular operation is large or small, all professional recordkeepers must fulfil their management responsibilities to acquire and deploy valuable resources and to get work done productively, effectively, harmoniously. Know what ensuring essential evidence through effective recordkeeping requires and how it can be achieved in various contexts.

Set realistic written objectives which complement and support the overall purpose and strategies of your host organisation.

Identify others who require essential evidence in their work and involve them meaningfully and appropriately in the process of setting and achieving these objectives.

Acquire and deploy resources (staff, facilities, funds) to meet these objectives.

Use the agreed upon objectives and distributed work tasks as the focus to encourage cooperation/collaboration and achieve productivity (management by objectives).

Assess the quality and quantity of progress and end results (evaluate performance).

Obtain and disseminate essential knowledge, skills, techniques, attitudes on a continuing basis.



Figure 3.12

Recordkeeping staff are essential to the smooth running of an organisation and require appropriate training and resources to effectively fulfill their roles.

Because recordkeeping regimes must establish and operate effectively across the whole organisation, it is essential that recordkeeping professionals understand and learn to

enhance the influence and, thereby, the effectiveness of their recordkeeping regimes. The pathway to success is smoother when one or more of the following conditions exists or can be created:

A workplace culture that fosters productive, professional relationships and welcomes diversity.

A constituency (or at least those members which are themselves powerful or close to power) which knows/ understands/ appreciates the function of recordkeeping.

A host body which itself employs the regime for a full ranges of recordkeeping services, including protection of its own records with enduring value or archives.

An integrated archives/records management program which provides services to meet the host business, regulatory and cultural/historical recordkeeping needs.

An administrative placement and structures that facilitate ready access to key decisionmakers; are linked to powerful units with authority across organisation and/or are not too far down the chain of hierarchy.

A host body with a cohesive focus on recordkeeping, not just on administering a 'heritage' or 'culture'. For example, archival collections may be administered as cultural heritage, along with a museum, art gallery and/or library materials. When archives are administered strictly as cultural objects split off from the recordkeeping regimes that generated them, those powerful organic relationships that link them to ongoing management effectiveness and regulatory accountability are broken. In such cases, archives may appear restrictive and mundane in comparison with more accessible, visual, understandable and, therefore, sexier, more exploitable art and museum material.

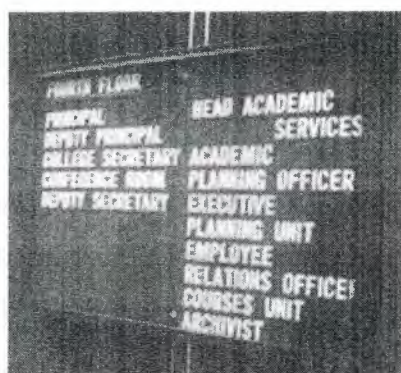


Figure 3.13

Visibility and networking are crucial to recordkeeping effectiveness. As the sign attests, the archivist of this college has positioned the archive for optimum contact with the powerful.

3.7 RECORDKEEPING REGIMES

The professionally managed recordkeeping regime = A rewarding investment

Global diversity and complexity is placing greater and greater emphasis upon recordkeeping systems. Good recordkeeping doesn't happen automatically. The design and operation of recordkeeping regimes ie. the programs for making and managing records, requires specialist professional knowledge and skill. And, as with all worthwhile enterprises, you must invest appropriate resources to achieve effective results.

3.8 WHERE WE WORK: THE RECORDKEEPING CONTEXT

As stated earlier, everyone needs and keeps records, though some do it more extensively and formally than others. Generally, recordkeeping specialists do their work within public or private sector organisations as part of work units bearing some variation of the title: Archives and Records Management Services.

3.8.1 Public sector placements

A public recordkeeping authority that oversees the capture and maintenance of evidence on behalf of 'the people' performs a duty of care that requires objectivity. Thus it may be established as an independent body, or, provided regulations protecting its integrity are present, it may be part of a larger agency administering centralised management or heritage responsibilities.

Independent Body - Statutory authority or corporate entity, often with an advisory board composed of public 'watchdogs', industry experts and stakeholders.

Part of larger agency - recordkeeping regime reports to:

Multi functional cultural or heritage department

Administrative services department

Library or historical society or museum

Department of State or 'secretariat' equivalent

Office of Chief Executive

3.8.2. Private sector placements

Generally recordkeeping regimes in private enterprises are established to serve the mission of that host body and serve business and regulatory requirements as their first priority. However, most private enterprises now recognise corporate good citizenship as a vital and fragile business asset. As a result, many are relying more on their recordkeeping regimes, particularly their archives, to provide long-term evidence of their societal contributions. Mirroring their organisation's primary evidential concerns, most recordkeeping regimes in the private sector are 'headquartered' in one of the following areas:

Multi functional administrative services

Legal department

Secretariat

Public relations/Advertising

Research and development

Corporate information services, including information systems and information technology

Whether public or private, effective recordkeeping regimes must always be centrally designed and coordinated, but may be decentralised in their implementation and daily operations.

3.9 TYPE AND FUNCTIONAL EMPHASIS

The tangible features of the program itself reflect the enterprise that hosts the recordkeeping program. Looking at the categories of human activity below, it is clear that there would be considerable differences in each sector's requirements and use of records. For example, private sector mining is less records intensive than medical services or social welfare.

Categories of human enterprise

Social quality sector enterprises - may be public or private or both.

The recordkeeping program of a fast food company will differ from that of a church; a school will have different records and emphases that a bank and so on.

Some programs serve a single organisation; others collect materials from many different sources. Those who manage the records of a host organisation are referred to as *in-house* or *institutional* recordkeeping regimes. Those that receive the inactive records/archives of a number of different bodies are known as *collecting* archives. Some programs may combine elements of both collecting and in-house work and are characterised as *comprehensive* recordkeeping regimes.

Increasingly *in-house* and *comprehensive* programs are utilising the Records Continuum regime management model to manage records from conception to ultimate disposition; whereas *collecting* programs are more historically orientated and offer repository services exclusively for archival materials. Regardless of whether the type of regime is *institutional/in-house*, *collecting* or *comprehensive*, each one will emphasise different functional aspects of recordkeeping. For example, an institutional regime may be more focussed upon recordkeeping to achieve ongoing business objectives; another might be intent upon addressing legislative and regulatory requirements; a third, usually a collecting regime, might be designed more or less exclusively to recover and preserve evidence of the past. However, it is not unusual for a comprehensive program to be involved in all three, in varying degrees.

Researchers from Monash University's Records Continuum Research Group have developed a checklist of features that characterise a fully competent and effective recordkeeping program.

So far the Group has concluded that the components of accountable recordkeeping include:

Independent recordkeeping authority with powers adequate to its purpose

Professional standards and best practice promulgated and accepted by society.

Compliant recordkeeping systems at micro level.

Beneficial alliances with other accountability players and relationships of trust with accountability stakeholders

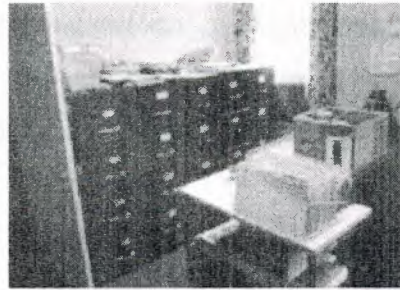


Figure 3.14

Recordkeeping in this small office creates records supporting its daily business on the left side of the room (just out of the picture) and files its completed business records in the cabinets shown on the right, where they are still accessible, but out of the way. To safeguard their vital records and accommodate their statutory retention requirements, the managers utilise the longer term and security storage services of their public records repository.

Facts, figures and encouragements for good recordkeeping

Authority, responsibility and powers

It is vital that the top level of decision making understand and approve the recordkeeping regime, its functions and powers; without such recognition, the regime will be unable to fulfil its organisation-wide responsibilities for ensuring evidence and will thus expose the organisation to unacceptable levels of managerial and regulatory risk. The need for **AUTHORITY**, **RESPONSIBILITY** and **POWER** can be articulated in the following way:

One of the most critical tools that a professional recordkeeper can possess is sufficient **AUTHORITY** to obtain compliance with his/her regime's policies and procedures. This authority to manage/control is granted by the ultimate decision-making entity within an organisation or bureaucratic system and is normally embodied in legislation(public sector) or in executive /administrative orders at the highest level (private sector).

The allocation of regime **RESPONSIBILITY** is twofold involving (i) Functional or operational responsibility to vest full responsibility and control over all aspects of records making, using and keeping within the organisation's entire scope of operations in the recordkeeping regime and (ii) Managerial authority which involves giving the recordkeeping professional the authority for

developing/implementing/revising/enforcing *requirements, standards and guidelines* (policies, procedures) for all activities/resources which influence the *quality* and quantity of *records* throughout the entire management continuum of records making and keeping.

The POWER to carry out recordkeeping responsibility is embodied in regulations/administrative arrangements, standards, policies and guidelines issued by the recordkeeping regime acting on behalf of the highest authority. These documents specify what can and cannot be done across all activities which comprising and affecting the capture, preservation and accessibility of essential evidence as records. Ideally, all proposed actions impacting upon the quality or quantity of records media, file components, file housings, records creation, records storage areas, records creating/processing/storing technology, reprographics, records and files identification, documentation, maintenance and handling, records access & retrieval systems, automation, disposal, destruction, surveys, vital records protection, etc. should be subject to a coordinated approval and review process.

Unfortunately 1 and 2 in some settings are treated as if they were separate matters, rather than the two halves of the management whole. In such cases, an early and strong effort must be made to reunite and balance them; otherwise your regime cannot not be effective.

In addition to the powers Ketelaar recommends, there are other measures that can facilitate recordkeeping effectiveness - see Powers assisting recordkeeping effectiveness.

Counting and accounting: Communicating the 'value' of recordkeeping

One of the difficulties alluded to by many recordkeepers is communicating the value of recordkeeping to non-specialist stakeholders, particularly to those who pay the bills and expect results and value for money. The challenge is to measure the impact of recordkeeping activity BEFORE and AFTER an interval and then express the outcomes in terms that the target audience values.

Creating and capturing the information embodied in records represents a considerable investment. One has only to look at the salaries of those responsible for preparing and analysing high level management documents and reports to see that these items have cost a bundle. In addition, there are those vital databases of client information, product inventories, design specifications and plans, If these were lost or could only be

found with a great amount of time and effort, the resulting cost in terms of delay would be huge.

3.10 RECORDKEEPING REWARDS

It is no surprise that progressive public and private organisations are realising that ONLY a well-managed recordkeeping program or regime provides the full, accurate and trustworthy evidence needed for optimum rewards such as:

1. Management decision support
2. Compliance with legislative/regulatory requirements
3. Risk management, litigation protection and support
4. Organisational continuity, efficiency and productivity
5. Corporate knowledge base quality control and vital asset protection
6. Fountainhead of societal conscience and memory

3.11 RECORDKEEPING AND RELATED PROFESSIONS

While recordkeeping institutions are responsible for capturing and maintaining the documentary evidence important to society, they share the overall role of knowledge preservation and cultural transfer with other heritage management institutions including libraries and museums.

3.12 WHAT'S THE DIFFERENCE?

Chart 1: The institutions and their holdings compares the traditional professional responsibilities of registries, archives, libraries and museums

Chart 2: Access to facilities and holdings compares the institutions differing levels of user access.

Chart 3: Professional staff and issues compares the qualifications and professional concerns of staff at registries, archives, libraries and museums.

Most people base their expectations of original sources and archival research on early experiences at school and their use of local public libraries.

Many are surprised that they cannot 'browse' the shelves and borrow originals of records for use at home. They soon understand the need to protect irreplaceable materials by using facsimile copies.



Figure 3.15

3.13 RECORDKEEPING AND SPECIALIST RECORDKEEPERS

The activities of fully mature recordkeeping regimes document the present and reconstruct the past; they serve business and culture equally through work in offices and in repositories. Overall, the professionally educated recordkeeping specialists working in them are competent to perform the Duties of a recordkeeping specialist.

As we have seen almost every process people undertake in the world generates or involves some form of record and EVERYBODY, not just specialists, is involved. We are all *de facto* recordkeepers, though few of us may be aware of our role as such. However, in this segment, we concentrate on those who undertake the design and management of recordkeeping systems and service regimes as paid professional work. Recordkeeping specialists *oversee the infrastructure* - the principles, standards, policies, plans, guidelines and technologies - and *provide the advice and support* that enables people in different contexts to have the documentation required to meet their personal, business, regulatory and cultural obligations.

CHAPTER 4

When you run the program the program will meet with entry page.(Figure 4.1)

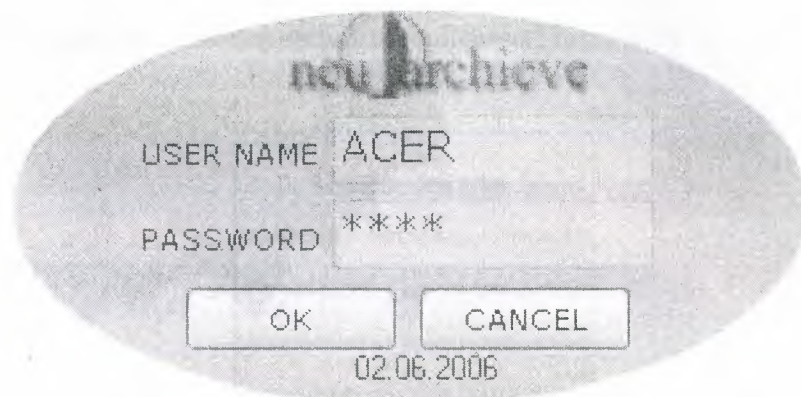


Figure 4.1

This page verify the user name and password after the entering the user name and password correctly, its going to main menu (Figure 4.2)



Figure 4.2

By the way on the first page there is three administrator level.

If you are an admin,all of the menus are enable

If you are only user,the password settings are disable(Figure 4.3)

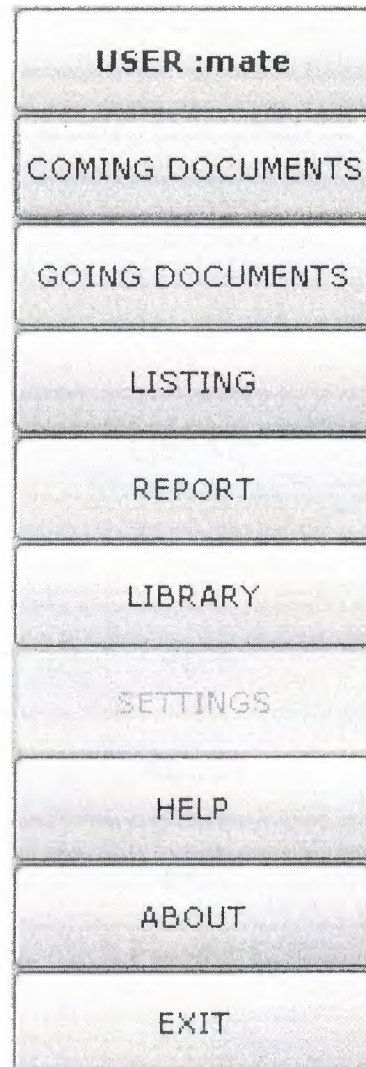


Figure 4.3

If you are a person, the password settings, reports and entering information is disabled. (Figure 4.4)

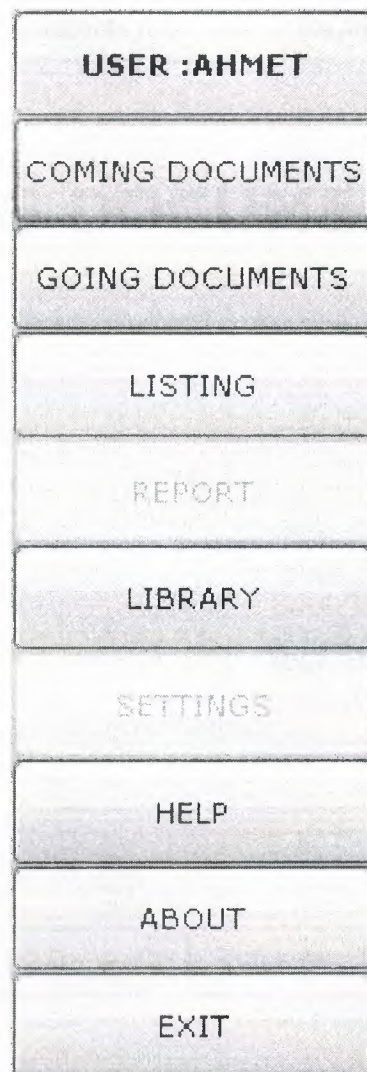


Figure 4.4

When you click the coming documents new form is loaded and seems as below

COMING DOCUMENTS MAIN MENU

NO

DATE

FROM TO

MATTER TYPE ▼

ENVELOPE

WORD

EXCEL

PDF

WEB_PAGE

TITLE

EXPLANATION

SAVE SEARCH DELETE SHOW

neu archive

COMING DOCUMENTS

Figure 4.5

This page is save to database the scanned files information, call the this information from the database, delete this information and update this information and when you click the show button it shows the original document.(Figure 4.5)

When you click the coming documents new form is loaded and seems as below

The screenshot shows a web form titled "GOING DOCUMENTS" in large, bold, black letters. In the top right corner, there is a button labeled "MAIN MENU". The form contains several input fields and labels: "NO" with the value "Neu", "DATE" with the value "02.06.2006", "FROM" with the value "Computer Engineering", "TO" with the value "Machine Engineering", "MATTER" with the value "Structure", and "TYPE" with a dropdown menu showing "WORD". Below these, there is a "TITLE" field with the value "Structure Substance" and an "EXPLANATION" field with the value "New Structures". At the bottom of the form, there are four buttons: "SAVE", "SEARCH", "DELETE", and "SHOW". In the bottom right corner, there is a logo for "neu archive". The text "GOING DOCUMENTS" is also visible in the bottom left corner of the form area.

Figure 4.6

This page is save to database the scanned files information, call the this information from the database, delete this information and update this information and when you click the show button it shows the original document.(Figure 4.6)

when you click the report on the main menu the report form is loaded and seems like below

The screenshot shows a web interface titled "REPORTS" with a "MAIN MENU" button in the top right corner. The interface is divided into two main sections: "COMING" on the left and "GOING" on the right. Each section contains a "DATE" field with two dropdown menus, both currently showing "27.05.2006". Below the date fields is a "TYPE" section with four checkboxes: "ENVELOPE", "PDF", "WORD", and "EXCEL". In the "COMING" section, all four checkboxes are checked. In the "GOING" section, "ENVELOPE", "PDF", and "WORD" are checked, while "EXCEL" is unchecked. Below the type checkboxes are "FROM" and "TO" fields, each with a dropdown menu. At the bottom of each section is a button: "COMING REPORT" for the left and "GOING REPORT" for the right. The "newarchieve" logo is in the bottom right corner, and the word "REPORTS" is in the bottom left corner.

Section	Field	Value
COMING	DATE 1	27.05.2006
	DATE 2	27.05.2006
	TYPE	<input checked="" type="checkbox"/> ENVELOPE, <input checked="" type="checkbox"/> PDF, <input checked="" type="checkbox"/> WORD, <input checked="" type="checkbox"/> EXCEL
	FROM	[Empty]
GOING	DATE 1	27.05.2006
	DATE 2	27.05.2006
	TYPE	<input checked="" type="checkbox"/> ENVELOPE, <input checked="" type="checkbox"/> PDF, <input checked="" type="checkbox"/> WORD, <input type="checkbox"/> EXCEL
	FROM	[Empty]

Figure 4.7

the report from is mainly includes two part which are coming report and the other one is going report. if you want to report the comings you want to select in three selection which are according to date according to type and according to which comes from

Lets we come to library.when you click the library button on the main menu the new form is loaded. When it is opened as you see below there are page controls.first of them is shown below

02.06.2006

LIBRARY OF FACULTY

MAIN MENU

BOOK ID BOOK FOLLOWING ID REPORT FOLLOWING REPORT

ISDN 23456578

BOOK NAME Çiçekler

AUTHOR NAME Gül Çiçek

PUBLISHING HOUSE Jan Jan

SAVE DELETE RENAME

neu archive

Figure 4.8

when it is clicked you can delete,save and update books according to its ISDN.(Figure 4.8)

02.06.2006

LIBRARY OF FACULTY

MAIN MENU

BOOK ID

BOOK FOLLOWING

ID REPORT

FOLLOWING REPORT

ISBN

235342123

BOOK NAME

çöekler

WHO TAKE

ali osman

START DATE

12.12.2005

END DATE

12.12.2006

SAVE

DELETE

UPDATE




Figure 4.9

When the clicking the second of them we are follow the book.who takes the book?(Figure 4.9) When he brings the book?

Questions is answered.the page control three are able to report to the according to ISDN and the last one report of the page control two (Figure 4.10, 4.11)

02.06.2006

LIBRARY OF FACULTY

MAIN MENU

BOOK ID

BOOK FOLLOWING

ID REPORT

FOLLOWING REPORT

ISDN

BOOK NAME

AUTHOR NAME

REPORT




Figure 4.10

02.06.2006

LIBRARY OF FACULTY

MAIN MENU

BOOK ID

BOOK FOLLOWING

ID REPORT

FOLLOWING REPORT

ISBN

234254365

BOOK NAME

çiçek

WHO TAKE

rahit

START DATE

END DATE

REPORT

new archive

Figure 4.11

The other form is setting.by clicking it you enter the new form as shown below.

USER NAME: ADDRESS:

PASSWORD: E MAIL:

NAME: TEL:

SURNAME: STATU:

name	surname	password	user_name	ad
RAŞİT	TÜRK	2420	MATE	İST
▶ ACER	ACER	ACER	ACER	MA
AHMET	KAYABAŞ	AHMET	AHMET	FE

Figure 4.12

As I said that before the setting form is only readable for administrator. The admin can see, change, delete the users. (Figure 4.12)

CONCLUSION

A Delphi survey has been conducted to provide expert opinion on the life of components in buildings. Thirty different components were surveyed with a range of materials, coatings, environments and failure considered. The survey was conducted in two stages. After the first stage, approximately 80% of questions had a consistent answer from the survey group. In Stage 2, 10% of questions were further investigated, with 75% of these remaining questions then having a consistent answer.

Examination of the data for internal consistency and comparisons with externally available data indicates that the Delphi study appears reliable. However, the study was difficult to carry out owing to difficulties in obtaining answers from possible respondents. Thus, if a larger survey is to be undertaken to include all building components, it is recommended that committed respondents be obtained before devising the survey.

APPENDIX

PROGRAM CODE

FORM 1

```
procedure TForm1.Button2Click(Sender: TObject);
begin
halt;
end;

procedure TForm1.FormCreate(Sender: TObject);
var
region: HRgn;

begin
A:=0;
label3.Caption:=datetostr(date);
animatewindow(handle,500,AW_center);
region:=CreateEllipticRgn(1,1,300,150);
SetWindowRgn(handle, region, true);

end;

procedure TForm1.Button1Click(Sender: TObject);
begin
IF (FORM1.Edit1.Text<>") OR (FORM1.Edit2.Text<>") THEN
BEGIN
FORM1.ADOQuery1.SQL.Text:='select * from users where
user_name='+#39+form1.Edit1.Text+#39+' and
password='+#39+form1.Edit2.Text+#39;
form1.ADOQuery1.Open;
if (A<>3) and (form1.ADOQuery1.RecordCount<>0) then
begin
if form1.ADOQuery1['statu']='ADMIN' THEN
BEGIN
form1.Hide;
Application.CreateForm(TForm2, Form2);
form2.Show;
Form2.Button9.Caption:='USER :'+Form1.Edit1.Text;
END
ELSE IF FORM1.ADOQuery1['statu']='USER' THEN
BEGIN
Application.CreateForm(TForm2, Form2);
FORM2.Button10.Enabled:=FALSE;
form1.Hide;
form2.Show;
Form2.Button9.Caption:='USER :'+Form1.Edit1.Text;
```



```

END
ELSE IF FORM1.ADOQuery1['statu']='PERSON' THEN
BEGIN

    Application.CreateForm(TForm2, Form2);
    FORM2.Button10.Enabled:=FALSE;
    FORM2.Button4.Enabled:=FALSE;
    FORM4.Button1.Enabled:=FALSE;
    FORM4.Button4.Enabled:=FALSE;
    FORM5.Button1.Enabled:=FALSE;
    FORM5.Button4.Enabled:=FALSE;
    form1.Hide;
    form2.Show;
    Form2.Button9.Caption:='USER :'+Form1.Edit1.Text;
END
end
ELSE if (form1.ADOQuery1.RecordCount=0) AND (A=3) THEN
begin
    BEEP;
    showmessage('YOU ENTERED WRONG PASSWORD'+#13+'THE PROGRAM
WILL TERMINATE');
    FORM1.Close;
END
else if form1.ADOQuery1.RecordCount=0 then
begin
    beep;
    showmessage('WRONG USER NAME OR PASSWORD');
END;

END
ELSE
BEGIN
    BEEP;
    SHOWMESSAGE('EMPTY USER NAME OR PASSWORD');
END;
A:=A+1;
end;

procedure TForm1.FormMouseDown(Sender: TObject; Button: TMouseButton;
Shift: TShiftState; X, Y: Integer);

begin
if Button = mbLeft then
begin
    ReleaseCapture;
    SendMessage(Handle,WM_SYSCOMMAND,SC_MOVE+1,0);
end;
end;

procedure TForm1.Edit2Change(Sender: TObject);

```

```
begin  
end;
```

```
End.
```

FORM 2

```
procedure TForm2.Button8Click(Sender: TObject);  
begin  
Halt;  
end;
```

```
procedure TForm2.Button7Click(Sender: TObject);  
begin  
form2.Hide;  
form3.Show;  
end;
```

```
procedure TForm2.Button1Click(Sender: TObject);  
begin  
form4.Show;  
end;
```

```
procedure TForm2.Button2Click(Sender: TObject);  
begin  
Form5.Show;  
end;
```

```
procedure TForm2.Button3Click(Sender: TObject);  
begin  
form6.show;  
end;
```

```
procedure TForm2.Button4Click(Sender: TObject);  
begin  
form7.show;  
end;
```

```
procedure TForm2.Button5Click(Sender: TObject);  
begin  
Application.CreateForm(TForm8, Form8);  
if form1.ADOQuery1['statu']='PERSON' THEN  
BEGIN
```

```
FORM8.Button1.Enabled:=FALSE;  
FORM8.Button2.Enabled:=FALSE;  
FORM8.Button3.Enabled:=FALSE;  
FORM8.Button4.Enabled:=FALSE;  
FORM8.Button5.Enabled:=FALSE;  
FORM8.Button6.Enabled:=FALSE;
```

```

    FORM8.Button7.Enabled:=FALSE;
    FORM8.Button8.Enabled:=FALSE;
END;
form8.show;
end;

procedure TForm2.Button10Click(Sender: TObject);
begin
    setting.show;
end;

procedure TForm2.FormCreate(Sender: TObject);
begin
    form2.Button9.Font.Style:=[fsbold];
end;

end.

```

FORM 4

```

procedure TForm4.Button2Click(Sender: TObject);
begin
    Form4.Hide;
    Form2.Show;
end;

procedure TForm4.Button1Click(Sender: TObject);
begin
    form4.ADOQuery1.SQL.Text:='select evrak_no from glnevrk where
evrak_no='+#39+form4.Edit5.Text+#39;
    form4.ADOQuery1.Open;
    if form4.ADOQuery1['evrak_no']<>form4.edit5.text then
    begin
        if form4.Edit5.Text<>" then
        begin
            form4.ADOQuery1.SQL.Text:='insert into glnevrk
(evrak_no,date,fromt,tot,matter,typet,titlet,explanation) values
('#39+form4.Edit5.Text+#39+', '#39+form4.MaskEdit1.EditText+#39+', '#39+form4.e
dit2.text+#39+', '#39+form4.edit3.text+#39+', '#39+form4.edit4.text+#39+', '#39+for
m4.ComboBox1.text+#39+', '#39+Edit1.text+#39+', '#39+form4.memo1.text+#39+')';
            form4.ADOQuery1.ExecSQL;
            showmessage('kaydoldu');
            form4.Edit1.Clear;
            form4.Edit2.Clear;
            form4.Edit3.Clear;
            form4.Edit4.Clear;
            form4.Edit5.Clear;
            form4.ComboBox1.Text:=";
            form4.memo1.Clear;

```



```

form4.FocusControl(edit5);

form4.MaskEdit1.Text:=datetostr(date);
end
else
  MessageBeep(MB_ICONHAND);
  showmessage('Enter NO');
end
else
  MessageBeep(MB_ICONEXCLAMATION);
  showmessage('bu evrak numarası sistemde kayıtlıdır');

end;

procedure TForm4.FormClose(Sender: TObject; var Action: TCloseAction);
begin
  form1.Close;
end;

procedure TForm4.FormCreate(Sender: TObject);
begin
  MaskEdit1.EditMask:='99/99/9999';
  form4.MaskEdit1.Text:=datetostr(date);
end;

procedure TForm4.Button3Click(Sender: TObject);
begin
  form4.ADOQuery1.SQL.Text:='SELECT * FROM glnevrk where
evrak_no='+#39+form4.edit5.Text+#39";
  form4.ADOQuery1.Open;
  form4.edit2.Text:=form4.ADOQuery1['fromt'];
  form4.edit3.Text:=form4.ADOQuery1['tot'];
  form4.edit4.Text:=form4.ADOQuery1['matter'];
  form4.Memo1.Text:=form4.ADOQuery1['explanation'];
  form4.maskedit1.Text:=form4.ADOQuery1['date'];
  form4.combobox1.Text:=form4.ADOQuery1['typet'];
  form4.Edit1.Text:=Form4.ADOQuery1['titlet'];
end;

procedure TForm4.Button4Click(Sender: TObject);
begin
  form4.ADOQuery1.SQL.Text:=' DELETE FROM glnevrk where
evrak_no='+#39+form4.Edit5.Text+#39;
  form4.ADOQuery1.ExecSQL;
  form4.Edit5.Clear;
  form4.Edit1.Clear;
  form4.Edit2.Clear;
  form4.Edit3.Clear;
  form4.Edit4.Clear;
  form4.Edit5.Clear;

```

```

form4.ComboBox1.Text:="";
form4.memo1.Clear;
end;

procedure TForm4.Button5Click(Sender: TObject);
var
  acword,acexcel,acenvolope,acpdf,acweb:pchar;
  wordicin,excelicin,envolopeicin,pdficin,webicin:string;
begin
  wordicin:='C:\Program Files\Microsoft Office\OFFICE11\winword.exe
c:\going\'+'edit5.text+'.doc';
  excelicin:='C:\Program Files\Microsoft Office\OFFICE11\excel.exe
c:\going\'+'edit5.text+'.xls';
  envolopeicin:='C:\WINDOWS\system32\mspaint.exe c:\going\'+'edit5.text+'.jpg';
  pdficin:='C:\Program Files\Foxit Software\Foxit Reader\Foxit Reader.exe
c:\going\'+'edit5.text+'.pdf';
  webicin:='C:\Program Files\Internet Explorer\iexplore.exe c:\going\'+'edit5.text+'.htm';

  acword:=pchar(wordicin);
  acexcel:=pchar(excelicin);
  acenvolope:=pchar(envolopeicin);
  acpdf:=pchar(pdficin);
  acweb:=pchar(webicin);

  if combobox1.Text='WORD' then
    begin
      WinExec(acword,SW_SHOW)
    end;

  if combobox1.Text='EXCEL' then
    begin
      WinExec(acexcel,SW_SHOW);
    end;

  if combobox1.Text='PDF' then
    begin
      WinExec(acpdf,SW_SHOW);
    end;

  if combobox1.Text='ENVELOPE' then
    begin
      WinExec(acenvolope,SW_SHOW);
    end;

  if combobox1.Text='WEB_PAGE' then
    begin
      WinExec(acweb,SW_SHOW);
    end;
end;

```

```

procedure TForm4.FormMouseDown(Sender: TObject; Button: TMouseButton;
  Shift: TShiftState; X, Y: Integer);
begin
  if Button = mbLeft then
  begin
    ReleaseCapture;
    SendMessage(Handle, WM_SYSCOMMAND, SC_MOVE+1, 0);
  end;
end;

procedure TForm4.SpeedButton1Click(Sender: TObject);
var
  dosya:pchar;
  wordicin:string;
begin
  edit2.Text:='C:\Program Files\Microsoft Office\OFFICE11\winword.exe c:\going\';
  wordicin:=edit2.text+edit1.text+'.doc';
  dosya:=pchar(wordicin);
  WinExec(dosya,SW_SHOW);
end;

end.

```

FORM 7

```

procedure TForm7.FormMouseDown(Sender: TObject; Button: TMouseButton;
  Shift: TShiftState; X, Y: Integer);
begin
  if Button = mbLeft then
  begin
    ReleaseCapture;
    SendMessage(Handle, WM_SYSCOMMAND, SC_MOVE+1, 0);
  end;
end;

//coming reports.....
procedure TForm7.Button1Click(Sender: TObject);
begin
  frm.ADOTable1.IndexFieldNames:='date';

  // form7.ADOQuery1.SQL.text:='SELECT * FROM glnevrk';
  //form7.ADOQuery1.Open;
  //form7.ComboBox1.Items.Add(form7.ADOQuery1['fromt']);

```



```

form10.ADOTable1.Filter:='Date>='+ quotedstr(datetostr(DateTimePicker1.Date ))+'
and Date<='+ quotedstr(datetostr(DateTimePicker2.Date ));
form10.ADOTable1.Filtered:=true;

```

```

//frm.ADOTable1.Filter:='fromt='+QuotedStr(ComboBox1.text);
//frm.ADOTable1.Filtered:=true;

```

```

if frm.ADOTable1.RecordCount=0 then
  showmessage('No Record Found in That Date Period')
else
  frm.QuickRep1.Preview;
end;

```

```

procedure TForm7.Button2Click(Sender: TObject);

```

```

begin

```

```

  form10.ADOTable1.Filter:='Date>='+ quotedstr(datetostr(DateTimePicker3.Date ))+'
and Date<='+ quotedstr(datetostr(DateTimePicker4.Date ));
  form10.ADOTable1.Filtered:=true;

```

```

if form10.ADOTable1.RecordCount=0 then
  showmessage('No Record Found in That Date Period')
else
  form10.QuickRep1.Preview;
end;

```

```

procedure TForm7.Button3Click(Sender: TObject);

```

```

begin
  Form7.Hide;
  Form2.Show;

```

```

end;

```

```

procedure TForm7.FormCreate(Sender: TObject);

```

```

begin

```

```

  while not form7.ADOTable2.eof do begin
    if ComboBox3.Items.IndexOf(form7.ADOTable2['fromt'])<0 then
      ComboBox3.Items.Add(form7.ADOTable2['fromt']);
    form7.ADOTable2.Next;
  end;

```

```

end;

```

```

end.

```

FORM 8

```

procedure TForm8.FormMouseDown(Sender: TObject; Button: TMouseButton;

```

```

Shift: TShiftState; X, Y: Integer);
begin
if Button = mbLeft then
begin
ReleaseCapture;
SendMessage(Handle,WM_SYSCOMMAND,SC_MOVE+1,0);
end;
end;

```

```

procedure TForm8.Button1Click(Sender: TObject);
begin
form8.ADOQuery1.SQL.Text:='select * from bookid where
isdn='+#39+form8.Edit1.Text+#39;
form8.ADOQuery1.Open;
if form8.ADOQuery1['isdn']<>form8.edit1.text then
begin
if form8.Edit1.Text<>" then
begin
form8.ADOQuery1.SQL.Text:='insert into bookid (isdn,book,author,publish) values
('#39+form8.Edit1.Text+#39+', '#39+form8.Edit2.Text+#39+', '#39+form8.Edit3.Text
+#39+', '#39+form8.Edit17.Text+#39+')';
form8.ADOQuery1.ExecSQL;
showmessage('kaydoldu');
form8.Edit1.Clear;
form8.Edit2.Clear;
form8.Edit3.Clear;
form8.Edit17.Clear;
form8.FocusControl(edit1);
end
else
MessageBeep(MB_ICONHAND);
showmessage('Enter NO');
end
else
MessageBeep(MB_ICONEXCLAMATION);
showmessage('bu evrak numarası sistemde kayıtlıdır');
end;

```

```

procedure TForm8.FormCreate(Sender: TObject);
begin
form8.label19.Caption:=datetostr(date);
end;

```

```

procedure TForm8.Button9Click(Sender: TObject);
begin
Form8.Hide;
Form2.Show;
end;

```

```

end.

```

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