# HUMAN RESOURCE DEPARTMENT AUTOMATION

## PROJECT REPORT

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE AWARD OF THE DEGREE OF

**M.Sc (APPLIED SCIENCE - COMPUTER TECHNOLOGY)**

OF BHARATHIAR UNIVERSITY

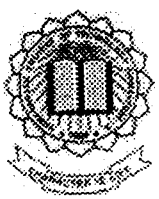



**Submitted by**

**V.Kannan**
**Reg. No – 0137Q0038**

**Guided by**

**Ms. S.Devaki, B.E., M.S., Assistant Professor**



**Department of Computer Science and Engineering**

**Kumaraguru College of Technology**
(Affiliated to Bharathiar University)

**Coimbatore – 641 006**

**APRIL 2003**

# KUMARAGURU COLLEGE OF TECHNOLOGY

**(Affiliated to Bharathiar University)**
**Department of Computer Science and Engineering**

**Coimbatore – 641006**

## CERTIFICATE

**This is to certify that the project work entitled**

# "HUMAN RESOURCE DEPARTMENT AUTOMATION"

**Done by**

**V.Kannan**
**Reg. No – 0137Q0038**

**Submitted in partial fulfillment of the requirement for the award of the degree of M.Sc (Applied science - Computer Technology) of Bharathiar University.**

**Professor and HOD**

**Internal Guide**

**Submitted to University Examination held on** 10-05-2003

**Internal Examiner** (10.5.03)

**External Examiner**

# DECLARATION

I here by declare that the project work entitled
"HUMAN RESOURCE DEPARTMENT AUTOMATION"

done at

**DEXTERITY BUSINESS ANALYSTS (P) LIMITED**
**CHENNAI**

and submitted to

**KUMARAGURU COLLEGE OF TECHNOLOGY**
(Affiliated to Bharathiar University)

in partial fulfillment of the requirement for the award of the degree of

**M.Sc (APPLIED SCIENCE - COMPUTER TECHNOLGY)**

is a report of work done by me during my period of study in
Kumaraguru College of Technology, Coimbatore – 641 006.

**Under the supervision of**
**Ms. S.Devaki, B.E., M.S., Assistant Professor, Dept. of CSE**

| Name of the candidate | Register Number | Signature of the candidate |
|---|---|---|
| V.KANNAN | 0137Q0038 | V. Kannan |

Date : 22/04/03

# Dexterity Business Analysts (P) Ltd.

ng Software
s worldwide

ISO 9001 Registered KPMG

Accredited by the Dutch Cou for Certificatio

March 27, 2003

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that **Mr. Kannan. V** currently pursuing his M.Sc (Applied Science – Computer Technology) at Kumaraguru College of Technology was involved in the project titled "Human Resource Department Automation" from December 2002 to March 2003.

The technical environment for this project was Visual Basic 6.0 and Oracle8i. Ms. Sumathi. K.C (Project Leader) was the technical guide on behalf of Dexterity Business Analysts (P) Ltd.

During this period, we found Kannan to be technically sound, hardworking and committed. The project has been efficiently completed to our satisfaction.

**For Dexterity Business Analysts (P) Ltd.**

K. Palanivel

**K.Palanivel**
**MD & CEO**

# ACKNOWLEDGEMENT

# ACKNOWLEDGEMENT

I would like to express my gratitude to our beloved Principal **Dr.K.K.Padmanabhan**, Ph.D., Kumaraguru College of Technology, Coimbatore, for his Constant encouragement throughout my course.

I wish to thank **Dr.S.Thangasamy**, Ph.D., Head, Department of Computer Science & Engineering, Kumaraguru College of Technology, Coimbatore, for his invaluable guidance and suggestions that encouraged me to complete this project successfully.

I admit my heart full thanks to my project guide **Ms.S.Devaki, B.E., M.S.,** Assistant Professor, and our course coordinator **Mr.R.Dinesh**, M.S, Assistant Professor, Department of Computer Science, Kumaraguru College of Technology, Coimbatore, for being supportive throughout the tenure of my project.

I express my profound gratitude to **Mr. K.Palanivel,** Managing Director & CEO, Dexterity Business Analysts (P) Ltd., Chennai, for providing me a key project in their firm and for his complete co-operation.

I am especially thankful to **Ms.K.C.Sumathi,** Project Leader, Dexterity Business Analysts (P) Ltd., for providing me guidance and suggestions throughout the tenure of my Project.

I also take this opportunity to extend my sense of gratitude to all the faculty members, non-teaching staffs of the Computer science Department, K.C.T, Coimbatore, for their guidance and co-operation rendered throughout my course.

# SYNOPSIS

# SYNOPSIS

Our mission has a system of generating and monitoring various data and reports that are very relevant for smooth functioning of the organization. The objective of this system is to develop an application for automating the Human Resource Department. The existing system is a manual process with HR Department reporting to the person-in-charge, verbally or through e-mails/telephone calls.

This application program is built to automate information retrieval and reports that are useful for various functions of the HR Department. One of the main advantage of this system is to reduce the manual operation & time of the software professional. During the payroll preparation, leave taken by the associative will be automatically generated from leave database. For Resource Recruitment, HR Department can easily search for the associative through the resume automation. During appraisal, associative can fill appraisal form from their system itself and send to their corresponding appraiser. Through this application, candidates who have taken up their tests can know their results immediately. The users are associatives of DBA (Dexterity Business Analysts) & candidates under going aptitude & technical test. The user can select the appropriate forms through the menus.

It contains an application package that was developed using Visual Basic 6.0 as front end tool & Oracle 8i as back end tool.

# CONTENTS

# INTRODUCTION

## 1.2 Organization Profile

Dexterity Business Analysts (P) Ltd. was incorporated in 1999 with corporate headquarters located in Chennai, India. An experienced management founded the company with rich international experience in building business application software. With a focus on the European market and domain expertise on Market research, Logistics, Transportation and Retail sectors, the company soon grew three-fold in the first two years of operations, expanding globally with its international offices in Germany and USA. Dexterity has earned recognition as a leading technology company providing a wide range of services to the Market Research, Logistics, Retail, Manufacturing and Health Care segments not only in Europe & USA but also in Japan, Thailand, UAE and Malaysia.

### Nature of services

The Company provides timely, cost effective and comprehensive information technology solutions to its customers by integrating the latest techniques and tools with the domain expertise of its professionals. The services set standards in customer satisfaction, service-level commitments, time to market and end-to-end solutions.

DBA possesses multi-lingual capabilities, catering to the US, European and South-East Asian markets. Its emphasis on quality and strict adherence to quality standards has made it an ISO 9001:2000 company. All the processes are documented and the entire software development life cycle is documented, reviewed and tracked. The company follows strict security and confidentiality procedures in all its operations, thus maintaining a high-level of ethics and values.

### Expertise

DBA offers solutions to its clients by providing a wide range of services in Market Research, Logistics, Health Care, IT, Consultancy, Manufacturing and so on. Those services include customized software development, software enhancement and maintenance, re-engineering, conversion/migration projects, production support and

general consulting services. DBA has its disposal a dedicated team of professionals with expertise in Java, C, C++, Visual Basic, Delphi, Power Builder, Oracle, SQL server, Informix, IIS, Java Beans, EJB and Web logic.

Clients

The company has clients such as

- ABIS AG, Germany
- ACNielsen, Germany, Switzerland, UK, Italy
- Bangna Tapioca Flour Co. Ltd., Bangkok, Thailand
- Bangna Engineering and Construction Co. Ltd., Bangkok, Thailand
- Getwell Pediatrics, NewYork, USA
- Kombi Verkehr GmbH, Germany
- Hermelin, Sweden
- Ocean World Lines, Germany
- Spac Tapioca Products, India
- Trans Temp Cargo Co. Ltd., Thailand

# 2. SYSTEM STUDY AND ANALYSIS

## 2.1 Existing System:

The current system is a manual processing with which the HR Department should report to the person-in-charge, verbally or through e-mails/telephone calls. For taking leave, associatives want to fill the leave application form and get approval from their PM/PL/Higher Level person. After getting approval, it should return to HR Department. The HR Department collects all the leave application form and hand it over to the Administrative Department for payroll preparation. Leave application forms are available at HR Department. HR persons may be busy in conducting the interviews or engaged with some other work. Therefore, the associatives cannot disturb the HR persons immediately. Here, associatives should wait for a time to get form, and after filling the form associatives should get approval, so that they cannot approach immediately. In the same way, candidates who undergo technical and aptitude test should wait for a time to get their test results. In resume maintenance, now they are maintaining the resumes in hard copy. In search of an associative, HR Department should search all the resumes; here some good candidate could be missed while searching manually.

### Disadvantage of the Existing System

The main disadvantage of the existing system is the time taking process with the HR Department. Also maintaining the entire resumes will be a complicated one. While preparing payroll, they have to calculate the leave data manually.

## 2.2 Proposed System:

Considering the above drawbacks of the existing system, the proposed system will be made automated to reduce the time taken and processing of HR Formats. In online test, results will be generated automatically. In resume automation, resumes are converted to database & retrieved during recruitment and for interview.

### Objectives of the Proposed System

- This application provides the easy way to keep the resume database.
- It also provides easy way of short-listing the resume based on the Resource Recruitment.
- It reduces the workload of HR Department to conduct test and maintain time duration of the test.
- Aptitude and Technical tests correction are computerized.
- Effective way to keep leave database.
- To generate the Performance Appraisal among the Employee.

## 2.3 General Description

### Product Functions

The system consists of the following modules

- Resume Automation
- Online Tests
- HR Formats
  - Leave Application
  - Performance Appraisal
  - Resource Requisition

**Resume Automation**

In resume automation, Resumes from mails are dragged & dropped to certain folder. From that folder, selected resumes are converted to the databank by separating all fields. Some reference resumes will be in hard copy, for that we have to manually input the data to the databank. According to the company requirements, based on the years of experience and the skill set, the candidate is selected and allowed to write the online test.

**Online Test**

When HR conducts an aptitude test or technical test, HR Department want to arrange all necessary needs and have to strictly watch time. So HR Department work may be disturbed. Therefore, if the process is made online, HR Department time will be saved. The test result is also generated immediately. If the candidate has gone through the aptitude test, then the candidate can continue the technical test.

**HR Formats**

Leave Application

When the associatives take leave, they have to get the application from HR and to fill that application, they have to get approval from PM/PL and then handover to HR Department. This process is made simple by making it as a mechanism. Associatives can apply leave from their system and can send to PM/PL for approval. After approval, it will be sent to HR Department. This will be automatically updated in the database to help in payroll preparation.

Performance Appraisal

The process of Performance Appraisal is simple by making it online that are to be used at the time of appraisal. This will be a separate process for the appraiser person and for the appraise. Each associative has to fill up this form and submit. After this process the Project Leader will fill up his part and then submit it to HR person. We also maintain a database that will help in future to view about the person.

Resource Requisition

At the time of Man Power Planning & Recruitment, HR wants to give a form to the Project Leaders/Team Leaders. According to their needs they have to fill the form and then return to HR person. With that, HR person will search for the recruitment.

## 2.4 Methodology Used

List of Transaction

1. Resume Automation
2. Online test
3. HR Formats
    I. Performance Appraisal

II. Resource Requisition Form

III. Leave Application Form

Analysis of Each Transaction

Transaction 1 - Resume Automation

a) Entities identified

1. Candidate Resume
2. HR Department
3. Mail from Internet

b) Functional Logic

1. Information from incoming resume (hard/soft copy) is stored in the database, by using Text Object Model; (i.e) soft copies of the resume are converted to database.
2. Referrals (resumes) are also updated in resume database manually.

c) User Level Restrictions

HR Department

1. HR Department is allowed to input the data.
2. Short-list the resume on selected item.

d) Input into this Transaction

1. Candidates sent resume to HR Department.
2. HR Department short lists the resume on selected criteria.

e) Transaction Branching

None

f) Validations

Input from mail for the resume automation must be in standard format.

g) Output from this Transaction

The details in the resumes are stored in the database for later retrieval.

h) Interface to other modules/screens/process

None

i) Partial Processing

In short-listing the resume, Experience, Qualification, etc., act as the partial processing for the search of Resource requisition.

Transaction 2 – Online Test

a) Entities identified

1. Question Database
2. Candidate
3. HR Department

b) Functional Logic

1. Candidate is asked to answer the Aptitude test first.
2. If the candidate passes the Aptitude tests, then Technical session will be conducted as candidate chooses his field.
3. Result will be produced.
4. Updating of Questions.

c) User Level Restrictions

HR Department

HR Dept. is allowed to produce the result & Update the Questions

d) Input into this Transaction

Questions from the database are taken.

e) Transaction Branching

None

f) Validations

1. Candidate may move to the next question after finishing the current question.
2. Limited time will be allowed.
3. Negative marks will be calculated for wrong answers.

g) Output from this Transaction

Test results.

h) Interface to other modules/screens/process

None

i) Partial Processing

None

Transaction 3.1 –Performance Appraisal

a) Entities identified

1. Employee.
2. Higher Authority.
3. HR Department.

b) Functional Logic

1. HR Department asks the employee for the performance Appraisal.
2. Employee will produce the performance Appraisal to the PM/PL/Higher Levels.
3. PM/PL/Higher Levels will comment to that and submit to the HR Department.

c) User Level Restrictions

HR Department

1. HR Dept. is allowed to access the Performance Appraisal.
2. Produce report on the performance Appraisal.

PM/PL/Higher Levels

1. PM/PL/Higher Levels comment on the performance appraisal produced by the team members.
2. Submit to the HR Department.

Employee

1. Have to fill the performance Appraisal, when HR Department requests.

d) Input into this Transaction

1. Employee must fill the performance Appraisal form produce by the HR Department
2. PM/Pl/Higher Levels must comment to the performance appraisal sent by the team members.

e) Transaction Branching

None

f) Validations

None

g) Output from this Transaction

Report of the appraisal.

h) Interface to other modules/screens/process

None

i) Partial Processing

None

Transaction 3.2 – Resource Requisition

a) Entities identified

1. PM/Pl/Higher Levels
2. HR Department.

b) Functional Logic

1. HR Department asks the PM/PL/Higher levels for the Resource Requisition.
2. PM/PL/Higher Levels produce the Resource Requisition Form to the HR Department.

c) User Level Restrictions

HR Department

1. HR Dept. is allowed to access the Resource Requisition.

PM/PL/Higher Levels

1. PM/PL/Higher Levels Allow filling the Resource Requisition form.

2. Submit to the HR Department.

d) Input into this Transaction

None

e) Transaction Branching

None

f) Validations

None

g) Output from this Transaction

Report of the Resource Requisition.

h) Interface to other modules/screens/process

None

i) Partial Processing

For Recruitment search, Experience & Qualification will be optional.

Transaction 3.3 – Leave Application

a) Entities identified

1. PM/Pl/Higher Level persons
2. HR Department.
3. DBA Associative
4. Apply/Cancel Leave

b) Functional Logic

1. Employee will fill the application and sent to the Higher persons for approval.
2. Higher Persons may approve/reject the leave request.
3. If leave is approved, then sent to HR Department.
4. HR Department will update the leave database.

c) User Level Restrictions

HR Department

1. HR Dept. is allowed to update the leave database.

PM/PL/Higher Levels

1. PM/PL/Higher Levels persons are allowed to approve/reject the leave request given by the team members.

Employee

1. Allow to applying/canceling his leave.

d) Input into this Transaction

1. For cancellation, data are taken from leave database.

e) Transaction Branching

None

f) Validations

1. If (CL/SL/COMP OFF) has over; Loss of pay must be indicated to the user.
2. Cancellation of leave can be on (or) before the leave date.

g) Output from this Transaction

Leave is updated in leave database.

h) Interface to other modules/screens/process

None

i) Partial Processing

None

# PROGRAMMING ENVIRONMENT

# 3. PROGRAMMING ENVIRONMENT

## 3.1 Hardware Requirements

| | | | |
|---|---|---|---|
| 1. | Processor Type | : | Pentium III |
| 2. | Processor Speed | : | 800 MHZ |
| 3. | Memory | : | 64 MB RAM |
| 4. | Hard Disk Capacity | : | 20 GB |
| 5. | Monitor | : | SVGA Monitor |
| 6. | Mouse | : | Logitech Mouse |
| 7. | Keyboard | : | Acer 101 Keys |

## 3.2 Software Requirements

| | | | |
|---|---|---|---|
| 1. | Operating System | : | Windows 98 |
| 2. | Front - End Tool | : | Visual Basic 6.0 |
| 3. | Back - End Tool | : | Oracle8i |

## 3.3 Software Description

### MS Visual Basic:

The "Visual" part of the Visual Basic refers to the method used to create the Graphical User Interface (GUI). Rather than writing numerous lines of code to describe the appearance and location of interface elements, you can simply add pre-built objects to place on the screen. If you have ever used a drawing program such as Paint, you already have most of skills necessary to create an effective user interface.

The "Basic" part refers to the BASIC (Beginners All-Purpose Symbolic Instruction Code) language, a language used by more programmers than any other language in the history of computing. Visual Basic has evolved from the original basic language and now contains several hundred statements, functions, and keywords, many of which relate directly to the Windows GUI. Beginners can create useful applications by learning just a few of the keywords, yet the power of the language allows professionals to accomplish anything that can that can be accomplished using any other Windows Programming language.

The Visual basic programming language is not unique to Visual Basic. The Visual Basic programming system, Application Edition included in Microsoft Excel, Microsoft Access, and many other windows applications uses the same language. The Visual Basic Scripting Edition (VB Script) is a widely used scripting language and a subset of the Visual Basic language. The investment you make in learning Visual Basic will carry over to these other areas.

Whether your goal is to create a small utility for yourself or your work group, a large enterprise-wide system, or even distributed applications spanning the globe via the Internet, Visual Basic has the tools you need.

- Data access features allow you to create databases, front-end applications, and scalable server-side components for most popular database formats, including Microsoft SQL Server and other enterprise-level database.
- ActiveX™ technologies allow you to use the functionality provided by other applications, such as Microsoft Word Processor, Microsoft Excel spreadsheet, and other windows applications. You can even automate applications and objects created using the Professional or enterprise editions of Visual basic.
- Internet capabilities make it easy to provide access to documents and applications across the Internet or Intranet from within your application, or to create Internet server applications.

- Your finished application is a true .exe file that uses a Visual Basic Virtual Machine that you can freely distribute.

The Visual Basic Enterprise edition contains all of the features included with the Visual Basic Professional Edition and the Visual Basic Learning Edition. In addition, it contains the following features, available in the Enterprise Edition only.

Application Performance Explorer

This tool enables you to test the run-time performance and resource load characteristics of various enterprise application design scenarios you are considering.

Internet Information Services

Internet Information Services are a platform for a new generation of World Wide Web applications that must interact with other BackOffice components and applications.

Microsoft Transaction server 2.0

Microsoft Transaction server (MTS) is a component-based transaction processing system for developing, deploying, and managing high-performance, scalable, and robust enterprise, Internet, and Intranet server applications.

Remote Data Control

The Remote Data Control implements data access by using RDO, the Microsoft Remote Data Objects.

## Text Object Model

The Text Object Model (TOM) defines a substantial set of text manipulation interfaces. Text solutions such as Microsoft Word and rich edit controls support the TOM feature set. TOM was generally influenced by WordBasic (the programming language used for Word) and it is easy to use from Microsoft Visual Basic for Applications (VBA). This compatibility has several advantages:

- ☑ Code can migrate easily from one solution to another.
- ☑ One language can be used to share information between different text engines.
- ☑ It reduces the need for documentation and code compared to the separate low-level COM and VBA interfaces.

However, it can be less efficient for C/C++ purposes than the use of more general lower level COM interfaces.

TOM is a straightforward set of interfaces to implement for its primary text solutions; Microsoft Word and rich edit controls. However, for applications that place minor emphasis on text, it is better to provide TOM interfaces by transferring the text to an edit control that supports TOM. Since rich edit controls ship with Microsoft operating systems, they are the standard means of obtaining TOM functionality.

About Text Object Model

The top-level TOM object is defined by the *ITextDocument* Interfaces, which has methods for creating and retrieving objects lower in the object hierarchy. For simple, plain text processing, you can obtain an *ITextRange* object from an *ITextDocument* object. If you need to add rich-text formatting, you can obtain *ITextFont* and *ITextPara* objects from an *ITextRange* Object.

- ☙ *ITextFont* provides the programming equivalent of the Microsoft Word Font Dialog box.

☙ *ITextPara* provides the equivalent of the Microsoft Paragraph dialog box.

In addition to these three lower-level objects, TOM has a selection object *ITextSelection*, which is just an *ITextRange* objects with selection highlighting and additional UI-oriented methods. The range and selection objects include screen-oriented methods that enable programs to examine text on the screen or text that could be scrolled onto the screen.

A *story* is a contiguous range of text. An *ITextDocument* object describes one or more stories. In Microsoft word, a story contains one of the various parts of a document, such as the main text of a document, headers and footers, footnotes, or annotations. In rich edit controls; there is only one story per document, although a client can use multiple documents to represent multiple stories.

An *ITextRange* object is defined by its start and end character position (cp) offsets and a story object. As such, it does not exist independently of its parent story object, although its text can be copied to the Clipboard or to other targets. A text range object is different from spreadsheet and other range objects, which are defined by other kinds of offsets, like row/column or graphics position (x, y). A *ITextRange* object can:

- ☑ Modify it in various ways.
- ☑ Return a duplicate of it.
- ☑ Copy its start and end character positions and its story pointer .

Note that an explicit story object is not needed, since an *ITextRange* object can always be created to represent any given story. In particular, the *ITextDocument* object can create an *ITextStoryRanges* object to enumerate the stories in the document in terms of ranges with start and end cp values that describe complete stories.

## Oracle 8i

### Introducing Oracle 8i

Oracle8i, the database for Internet computing, changes the way information is managed and accessed to meet the demands of the Internet age, while providing significant new features for traditional online transaction processing (OLTP) and data warehouse applications. It provides advanced tools to manage all types of data in Web sites, but it also delivers the performance, scalability, and availability needed to support very large database (VLDB) and mission-critical applications.

Oracle8i is much more than just a simple relational data store. It introduces Internet File System (IFS) that allows users to easily move all of their data into an Oracle8i database where it can be stored and managed more efficiently in an integrated fashion. A new option, Oracle8i *inter*Media, allows businesses to manage and access multi-media data, including image, text, audio, video, and spatial (locator) data. The *inter*Media Clipboard and Web Agent work together to web-enable *inter*Media. WebDB is a new HTML-based development tool for building HTML Web pages with content based on data stored in Oracle database.

Oracle8i introduces new support for java by including a robust, integrated, and scalable Java Virtual machine within the server. This expands Oracle's support for java into all tires of applications, allowing Java programs to be developed where they perform best-in the client, server, or middle tier-without recompiling or modifying the Java code.

Oracle 8i introduces database resource management where the DBA now has the ability to control the processing resources allocated to a user or group of users. Two new partitioning methods, hash and composite, complement the established range partitioning method to provide a rich set of partitioning methods from which the DBA may choose the best method to fit an application's profile and workload.

The Oracle Parallel Server features a new architecture in Oracle8i. Cache fusion is a new "diskless" ping architecture that greatly improves inter-instance communication. New networking features improve the ease of use for OPS and system administration is made easier through the enhancement of Oracle Parallel Server Management, the new Oracle Universal Installer, and the Oracle Database Configuration Assistant.

Oracle8i extends the functionality of advanced replication, focusing on mass-deployment applications. Data can be replicated to servers that are closer to users and have only the data those users need, providing better performance. Security has been improved. The replication manager has been rewritten in Java and is no longer constrained to run on a Windows-based machine.

In summary, Oracle8i is designed to access and manage all your data using the style and infrastructure of the Internet. Oracle8i is the most complete and comprehensive platform for building, deploying and managing Internet and traditional applications.

- ❖ It simplifies the development of applications
- ❖ It simplifies the management of Internet content
- ❖ It simplifies the deployment of applications
- ❖ Oracle8i provides the lowest cost platform for developing and deploying applications on the Internet.

A Family of Database Products

- ❖ Oracle8i is also referred to as the standard edition of Oracle8i, is the basic version and includes core features for most Windows NT and Unix applications.
- ❖ Oracle8i Enterprise Edition adds several high-end features and options for mission-critical OLTP and data warehousing applications.

- Oracle8i Workstation is a single-user development database for Windows NT, Windows95, or Windows98 that now includes all Enterprise Edition options and features.
- Oracle8i Lite is a lightweight mobile Java database that easily synchronizes laptops and hand held devices with corporate databases. It is not discussed in this book.

# SYSTEM DESIGN

# 4. SYSTEM DESIGN

## 4.1 Physical Design

Functional Requirements

The functional requirements for the different activities are classified as follows,

1. **Logon:**

   The user can first logon to enter the application.

   **Input**

   The input is Username (Employee Id), and password

   **Output**

   When the username and password is correct, the appropriate module will be displayed. If the username and password does not match, Error message specified wrong password or invalid username.

2. **Change Password:**

   Any user of the application (User, HR Dept, PM/PL) should be able to change his password.

   **Input**

   The user has to give his old password and new password. Then retype the new password to confirmation.

   **Output**

   Checking the old password (whether it is the valid password for that user), and check whether the two instances of the new password match. If it success, a confirmation message is displayed indicating that the password has been changed. If it failed on any case, Error message is displayed. In addition, ask the user to try again to change his password.

3. **Leave apply/cancellation**

- ❖ The user should able to apply leave or cancel his leave.
- ❖ The PM/PL may approve or reject the leave applied by the team members.

**Input**

- ❖ When user successfully login, user allowed applying for leave/cancellation of leave.
- ❖ When the user submits his leave form, PM/PL have rights to approve/cancellation of leave.

**Output**

The leave will be updated in the leave database for the payroll preparation.

4. **Online Test**

This function is to computerize the test conduct by HR department.

**Input**

The candidate must answer for the aptitude test first, after get through in the aptitude test; the candidate may pass to Technical test.

**Output**

After finishing the tests, the result is produced and the negative marks are calculated for wrong answers.

5. **Updating of Question**

This is to update the question bank and also to add the new questions.

**Input**

The HR department can update the question bank for aptitude and technical test with the corresponding answers.

**Output**

The questions are updated in the question bank.

**6. Updating of Users**

This functional requirement deals with the following functions of the

- Adding a new user
- Modifying the name of the existing user

**Input**

- The following should be provided as inputs: Username (Emp. ID), Employee name.
- The user should select the username to be modified, and then carries out the required modifications to the employee name.

**Output**

- The new user is added with the details specified. A confirmation message is displayed.
- The modifications made to the existing user are saved and a corresponding confirmation message appears.

**7. Performance Appraisal Form**

Performance appraisal should be filled and submit to HR department.

**Input**

The user has to fill the form and submit to PM/PL for their comments.

**Output**

After commenting PM/PL/Higher Levels has to submit it to HR Department. The HR has the rights for producing reports.

**8. Resource Requisition Form**

The HR department requests the PM/PL for Resource Recruitment.

**Input**

PM/PL should send the Resource Requisition to HR Department.

**Output**

With the Resource Requisition form, HR Department has to search for the required work force.

9. **Resume Automation**

Resumes from the mail or the text file are converted to data.

**Input**

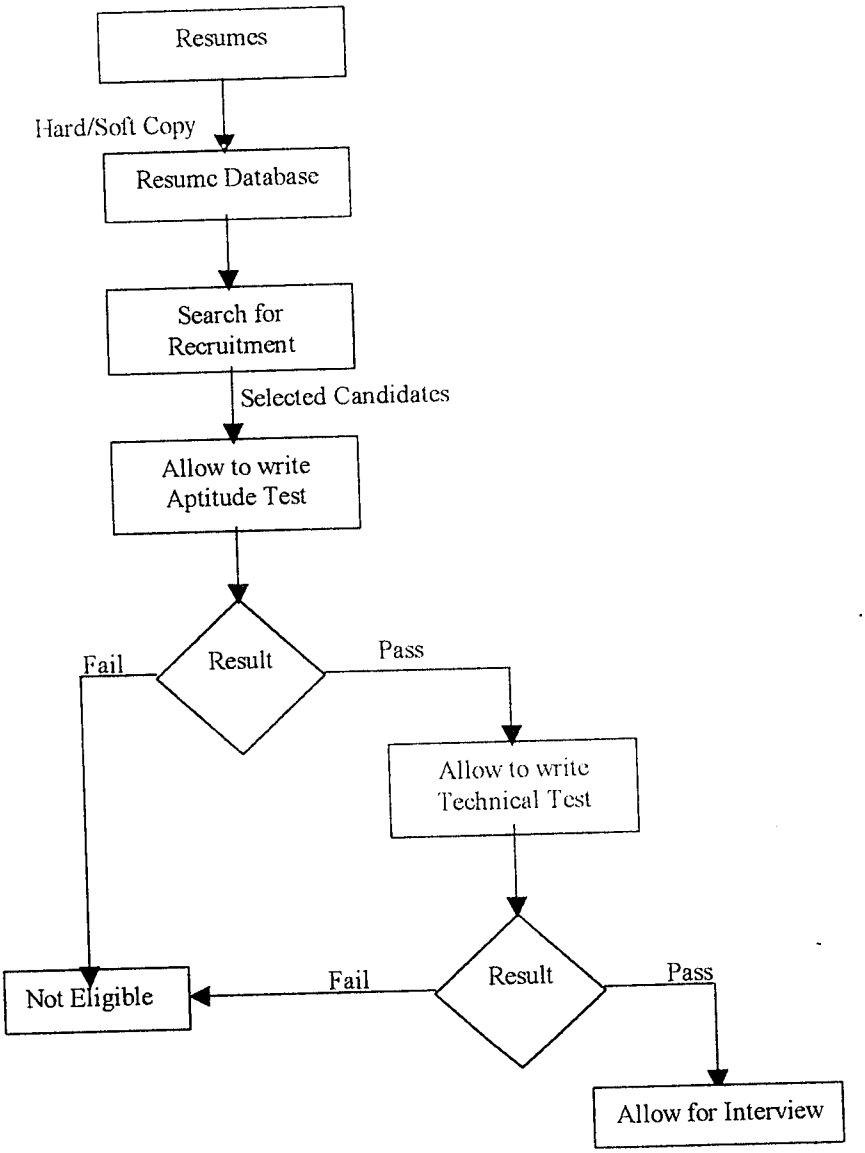
Text file from the mail acts as the input to the resume Database.

**Output**

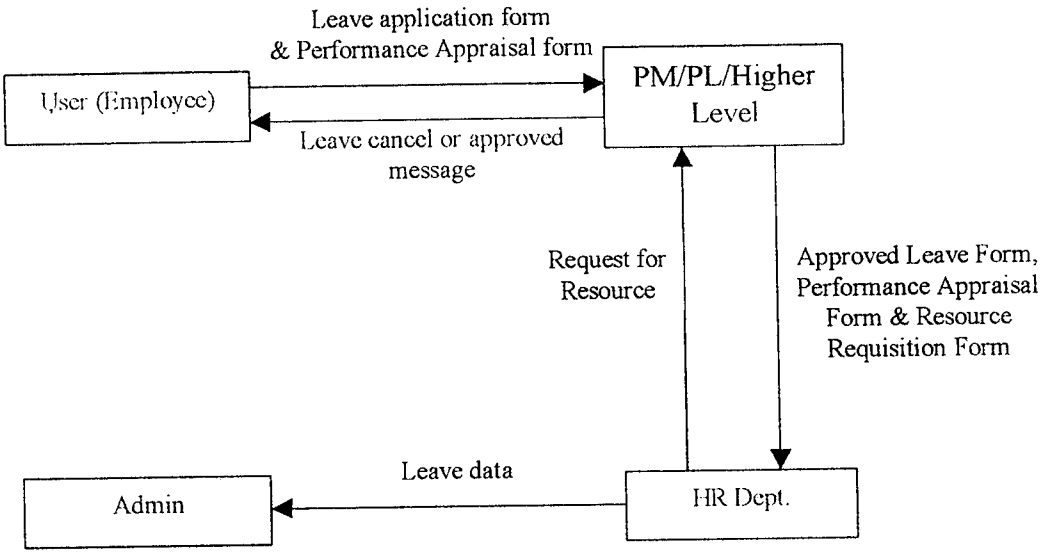
Resume from the text file are separated by Text Object Model (TOM) and put it in the database with the corresponding fields.

## 4.2 Process Design

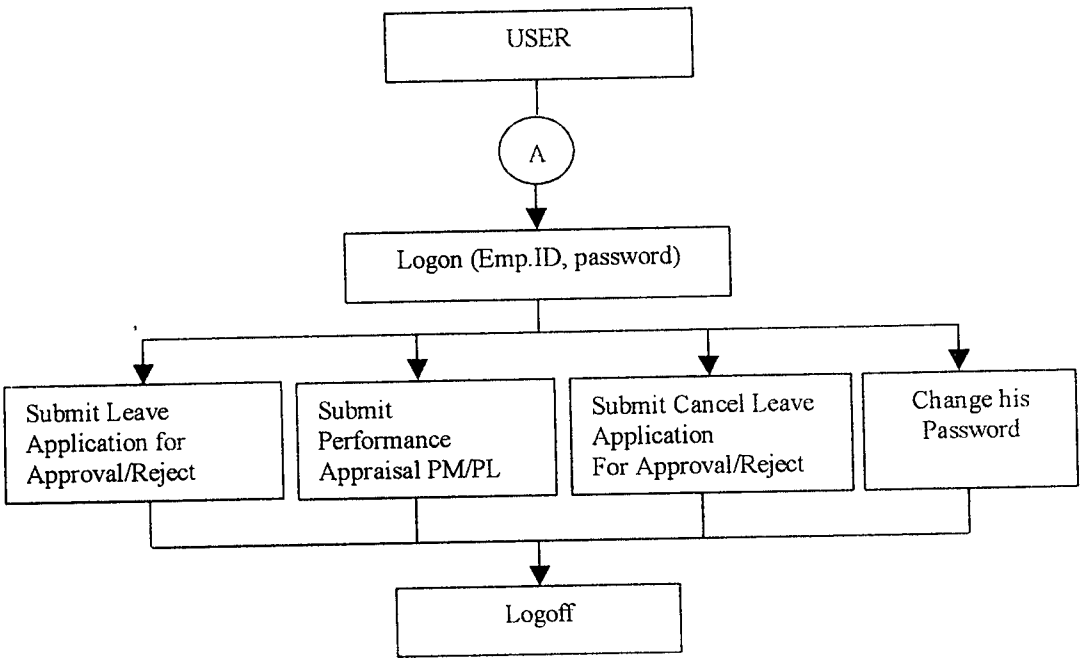
Dataflow Diagram – Resume Automation & Online Test



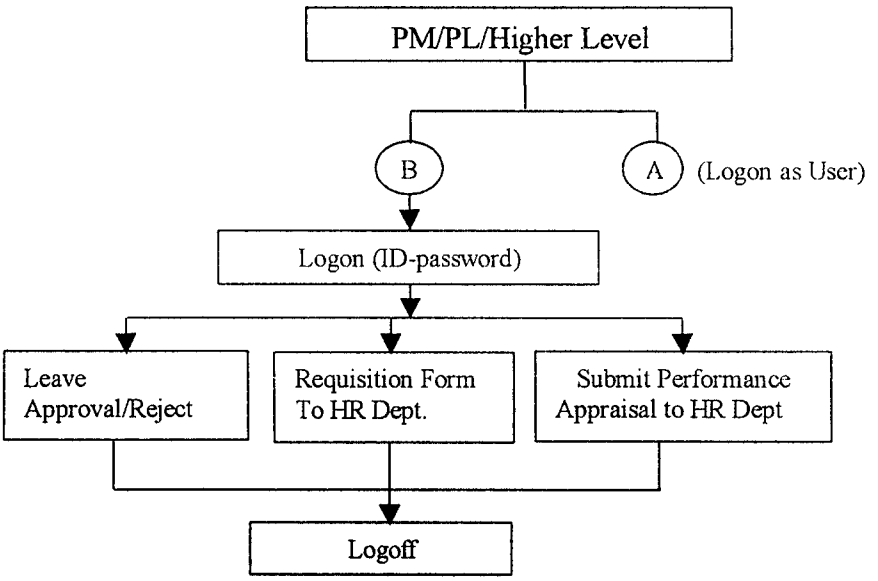
Dataflow Diagram – HR Formats



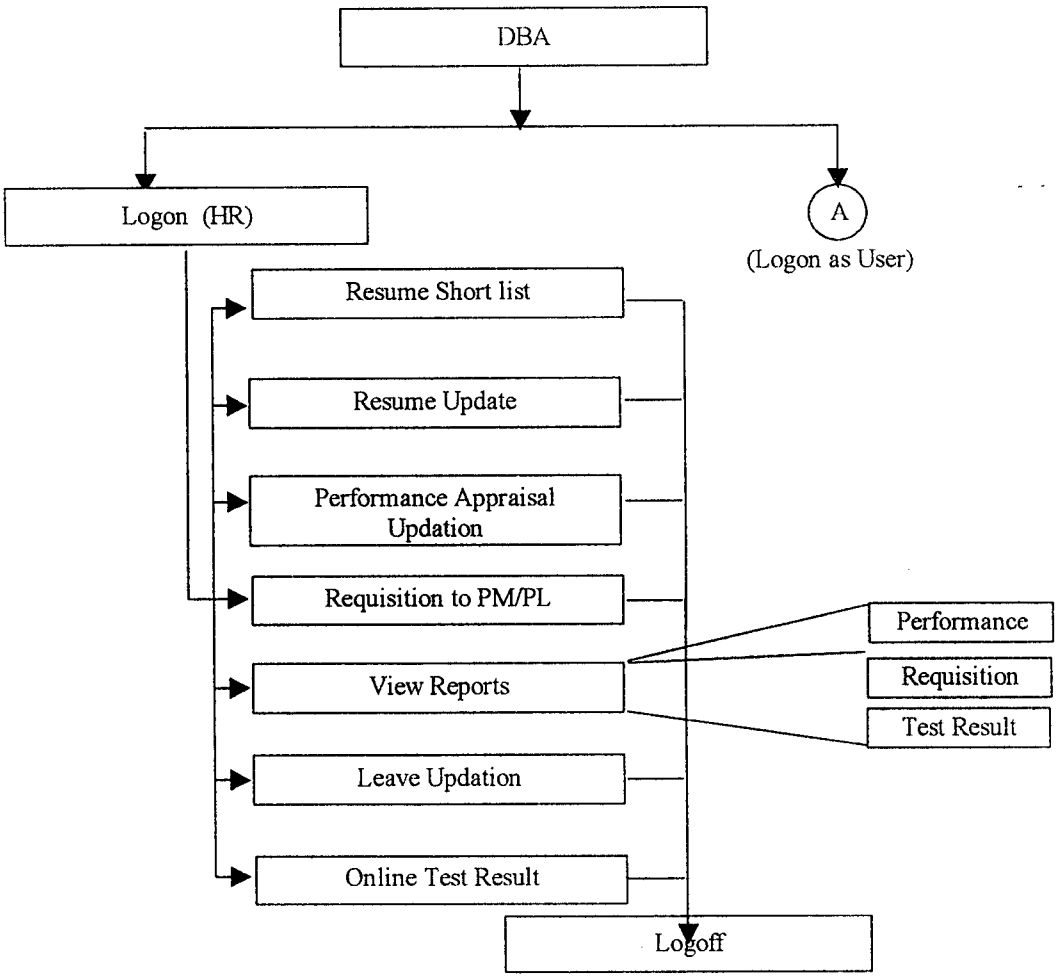
Process Diagram – User (Associative)



Process Diagram – Project Manager/Project Leader/Higher Levels



Process Diagram – Human Resource Department



## 4.3 Database Design

### USER

| FIELD NAME | DATA TYPE | DESCRIPTION |
|---|---|---|
| USER_ID | VARCHAR2(30) | Primary Key |
| PASSWORD | VARCHAR2(30) | |

### RESUME

| FIELD NAME | DATA TYPE | DESCRIPTION |
|---|---|---|
| RESUME CODE | VARCHAR2(5) | Primary Key |
| NAME | VARCHAR2(30) | |
| QUALIFICATION | VARCHAR2(10) | |
| SKILL SET | VARCHAR2(30) | |
| COMPANY NAME | VARCHAR2(15) | |
| DESIGNATION | VARCHAR2(15) | |
| YRS OF EXP | NUMBER(2) | |
| D.O.B | DATE | |
| ADDRESS | VARCHAR2(100) | |
| PHONE NO | NUMBER(15) | |
| EMAIL | VARCHAR2(30) | |

## QUESTION

| FIELD NAME | DATA TYPE | DESCRIPTION |
|---|---|---|
| QUESTION NO | VARCHAR2(5) | Primary Key |
| QUESTION | VARCHAR2(100) | |
| OPTION A | VARCHAR2(50) | |
| OPTION B | VARCHAR2(50) | |
| OPTION C | VARCHAR2(50) | |
| OPTION D | VARCHAR2(50) | |
| CORRECT OPTION | CHAR(1) | |
| ENTERED OPTION | CHAR(1) | |

## RESULT

| FIELD NAME | DATA TYPE | DESCRIPTION |
|---|---|---|
| RESUME CODE | VARCHAR2(5) | Foreign Key |
| NAME | VARCHAR2(30) | |
| SCORE | NUMBER(5) | |

## TOTAL LEAVE

| FIELD NAME | DATA TYPE | DESCRIPTION |
|---|---|---|
| USER_ID | VARCHAR2(30) | Foreign Key |
| TOTAL CL | NUMBER(2) | |
| TOTAL SL | NUMBER(2) | |

## LEAVE TAKEN

| FIELD NAME | DATA TYPE | DESCRIPTION |
|---|---|---|
| USER_ID | VARCHAR2(30) | Foreign Key |
| CL TAKEN | NUMBER(2) | |
| SL TAKEN | NUMBER(2) | |

## LEAVE

| FIELD NAME | DATA TYPE | DESCRIPTION |
|---|---|---|
| USER_ID | VARCHAR2(30) | Foreign Key |
| NAME | VARCHAR2(30) | |
| APPROVAL_ID | VARCHAR2(30) | Foreign Key |
| DATE OF APPLY | DATE | |
| FROM DATE | DATE | |
| TO DATE | DATE | |
| NO OF DAYS | NUMBER(2) | |
| LEAVE TYPE | VARCHAR2(10) | |
| REASONS | VARCHAR2(50) | |

## RESOURCE REQUISITION

| FIELD NAME | DATA TYPE | DESCRIPTION |
|---|---|---|
| USER_ID | VARCHAR2(30) | Foreign Key |
| NAME | VARCHAR2(30) | |
| DATE | DATE | |
| REQ. SKILL SET | VARCHAR2(15) | |
| REQ. YRS OF EXP | NUMBER(2) | |
| REQ. QUALIFICATION | VARCHAR2(15) | |
| NO OF POSITIONS | NUMBER(2) | |

## PERFORMANCE APPRAISAL

| FIELD NAME | DATA TYPE | DESCRIPTION |
|---|---|---|
| USER_ID | VARCHAR2(30) | Foreign Key |
| NAME | VARCHAR2(30) | |
| DESIGNATION | VARCHAR2(15) | |
| DATE OF JOINING | DATE | |
| DATE OF FILLING | DATE | |
| APPRAISING PERIOD | NUMBER(2) | |

## PERFORMANCE

| FIELD NAME | DATA TYPE | DESCRIPTION |
|---|---|---|
| USER_ID | VARCHAR2(30) | Foreign Key |
| APPROVAL_ID | VARCHAR2(30) | Foreign Key |
| OVERALL RATING | VARCHAR2(30) | |
| COMMENTS | VARCHAR2(5) | |

# SYSTEM TESTING AND IMPLEMENTATION

# 5. SYSTEM TESTING AND IMPLEMENTATION

## 5.1 System Testing

The process of testing reveals error. Testing is an individual process and the different types of test vary as much as the different development approaches. The modern design techniques are helpful to reduce the number of initial errors that are inherent in the code. System testing is a series of different tests whose primary purpose is to fully excrete the Computer-based system. Although each test has a different purpose, to verify that all system elements should be properly integrated and perform allocated function.

### Introduction

Implementation is the final and important phase. It involves user training, system testing and successful running of the developed proposed system. The user tests the developments and changes are made according to their needs. The testing phase involves the testing of developed system using various kinds of data.

An elaborate testing of data is prepared and the system is tested using the test data. While testing, errors are noted and corrections are made. The users are trained to operate the developed system. Both hardware and software securities are made to run the developed system successfully in the future.

### Testing

System testing is the stage of implementation, which is aimed at ensuring that the system works accurately and efficiently before live operation commences. Testing is vital to the success of the system. System testing makes a logical assumption that if the parts of the system are correct the goal will be successfully achieved. The candidate system is subjected to a variety of tests: online response, volume, stress, recovery & security and usability tests. A series of testing are performed for this proposed system before the system ready for user acceptance testing.

The testing steps are:

- ❖ Unit testing
- ❖ Integration testing
- ❖ Output testing

Unit Testing

Unit testing focuses verification efforts on the smallest unit of the software design, the module. This is also known as "MODULE TESTING". The modules are tested separately. This testing is carried out during the programming stage itself. In this testing step, each module is found to be working satisfactorily as regard to the expected output from the module.

Integration Testing

Data can be lost across an interface; one module can have an adverse effort on another; sub functions, when combined, may not produce the desired major functions. Integration testing is a systematic testing for constructing the program structure, while at the same time conducting test to uncover errors associated with in the interface. The objective is to take unit tested modules and build a program structure. All the modules are combined and tested as a whole. Here correction is difficult because the vast expenses of the entire program complicate the isolation of the process.

Output testing

After performing the validation testing, next step is the output testing of the proposed system. The outputs generated are displayed by the system under consideration and are tested based on the format required by the users. Here, the output format is considered in two ways: one is on screen and other is printed format.

The output format on the screen is found to be correct as the format was designed in the system design phase according to the user needs. For the hard copy also, the output comes out as the specified requirements by the users. Hence, output testing does not result in correction in the system.

## Types of testing done

System Testing is the process of checking if the developed system is working according to the original objectives and requirements. Initially, the system should be tested experimentally with tested data to ensure that the software works according to the required specifications and in the way the user expects it to.

The philosophy behind testing is to find errors. The common view of testing is that it is performed to prove that there are no errors in a program. When it is bound to be working in the right manner then actual data is fed and the system is tested to check for its performance.

### Testing Strategies

There are general strategies for testing software. They are,

- Code Testing
- Specification Testing

### Code Testing

It examines the logic of the program. To follow this test, cases are developed such that every path of the program is tested.

### Specification Testing

Specification Testing examines the specification stating what the program should do and how it should perform under various conditions. The test cases are developed for processing. The testing will be done by first entering data into the different tables using the forms, which capture the table details. Master tables will be populated with the data in such a way that forms in which less validation are done will be entered first. All the forms will be run through the menu to see if the proper sequence is maintained. Whenever an error is encountered, an informative error message will be displayed which informs the user what error is. After the completion of forms testing, the batch programs will be tested. Reports will be made after receiving feedback from the users.

## 5.2 System Implementation

### Implementation plan

System implementation is the process of making the newly designed system operational and consistent in performance. After the initial design, the system is published on the Internet and the end user can do demonstration. Various combinations of test data are fed. Each process's accuracy/reliability checking is made. After the approval of the system, it is implemented in the user department.

The implementation of documentation process is often viewed as the total sum of the software documentation process. In a well-defined software development environment, the implementation of documents is essentially an interactive process that synthesis and recognizes document items that were produced during the analysis and design phase for the presentation to user. The following are the three types of implementation documents

- Conversion documents
- User guide
- Operation guide

Conversation guide

The conversion guide phases of the implementation process the tasks that are required to place the system into an operation mode. They amplify the conversion lane that was defined during the internal design phase and define file conversion, file creation and data entry requirements.

User guide

The system application and operation functions describe the overall performance capabilities of the system and define procedures the user must follow to operate the system. In the realm of information system, the content of a user guide must be developed to coincide with criteria that define the characteristics of one of the following methods of data processing.

to coincide with criteria that define the characteristics of one of the following methods of data processing.

- Off-line processing
- Direct access processing

Operation guide

The function of an operation is to define the control requirements of a system and provide instruction for initiating, running and terminating the system. The items contained in an operation guide may be grouped as follows

- General information
- System overviews
- Run description

## Implementation

Implementation is the process of converting a new received system designed into an operational one. It is the key stage in achieving a successful new system because; usually it involves a lot of upheaval in the user department. It must therefore be carefully planned and controlled. Apart from planning the two major tasks of preparing for implementation are education and training of users and testing of the system. Education of users should really take place much earlier in the project i.e. when they are involved in the investigation and design work. Training has to be given to the staff regarding the new system. Once staff has been trained, the system can be tested.

## 5.3 Security

Every user system must provide built in features for security and integrity of data. Without safeguards against unauthorized access, fraud, embezzlement, fire and natural disasters, a system could be analyzed to provide protection. Every user of the application has the user_id & the password, so others are unable to enter in to the application. In addition, backup copies of database and recovery restart procedures must be available when needed. The amount of protection depends on the sensitivity of the data, the reliability of the user and the complexity of the system.

# 6. CONCLUSION

The Human Resources Department Automation is developed to reduce the time of the DBA Associative. It also maintains the data regarding Resume, Leave Application, and Performance Appraisal and Resource Requisition. It is easy to conduct aptitude and technical tests. Moreover, it corrects and produces the result automatically. It also ranks the resume based on the test and the interviews. On Resource Requisition, it is easy to search for the candidate during recruitment.

The project report describes in detail about the software developed for the system. The system is user friendly and has been validated at a number of checkpoints. The various reports generated by this system have proved to be quite useful.

# 7. SCOPE FOR FUTURE DEVELOPMENT

Human Resources Department Automation shall be further extended to incorporate additional features. It is designed in such a way to accommodate new additions or updating of system to provide customized services. Human Resources Department Automation shall be extended for calculating the payroll preparation, which is made manually by administration at present. The online test can also be extended, similar to G.R.E exams that are conducted.

# 8. BIBLIOGRAPHY:

1. Eric A. Smith, Hank Marquis, Valor Whisler, "Visual Basic 6 Bible", IDG Books Worldwide Publications, 1998.

2. John W. Franckowiak, "Visual Basic 6 Database Programming", Hungry Minds, Incorporated Publications, 1998.

3. Rob Thayer, "Visual Basic 6 Unleashed", Sams Publisher, 1998.

4. Kevin Loney, George Koch, "Oracle 8i ; Complete Reference", Osbare Mc Graw Hill Publisher, 2000.

5. McCullough-Dieter, "Oracle8i Bible", IDG Books Worldwide Publications, 1998.

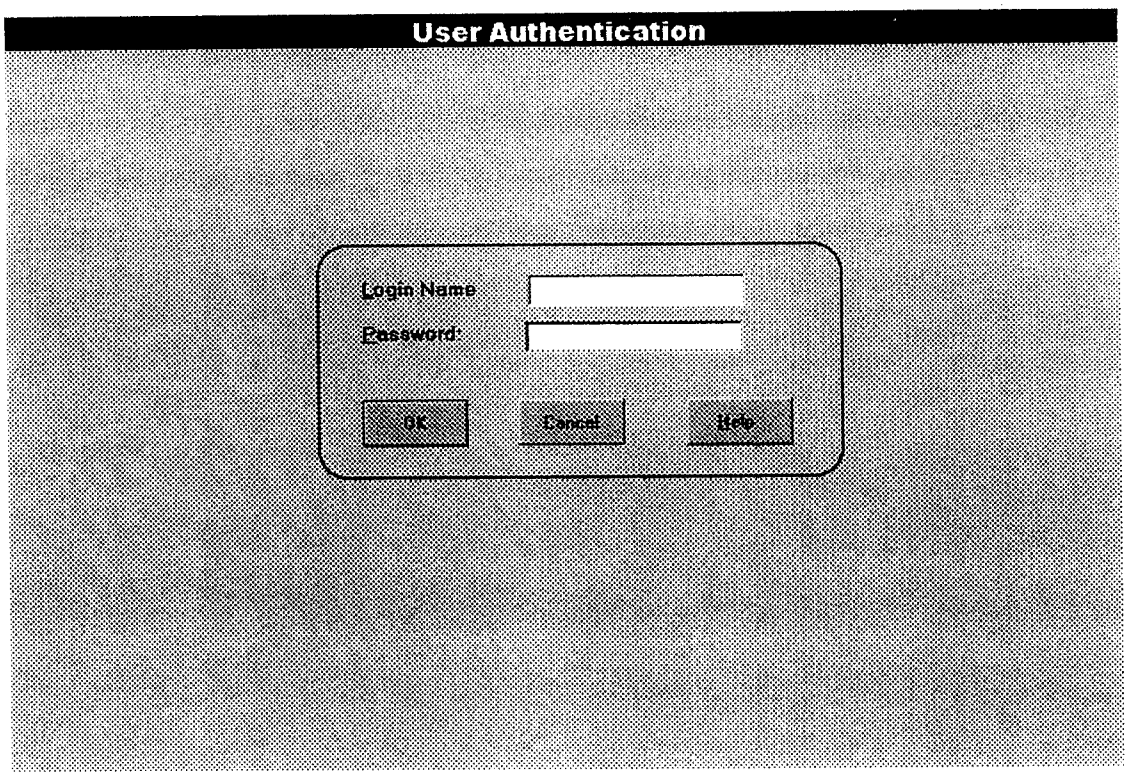
# APPENDIX

# 9. APPENDIX

## 9.1 Sample Screens

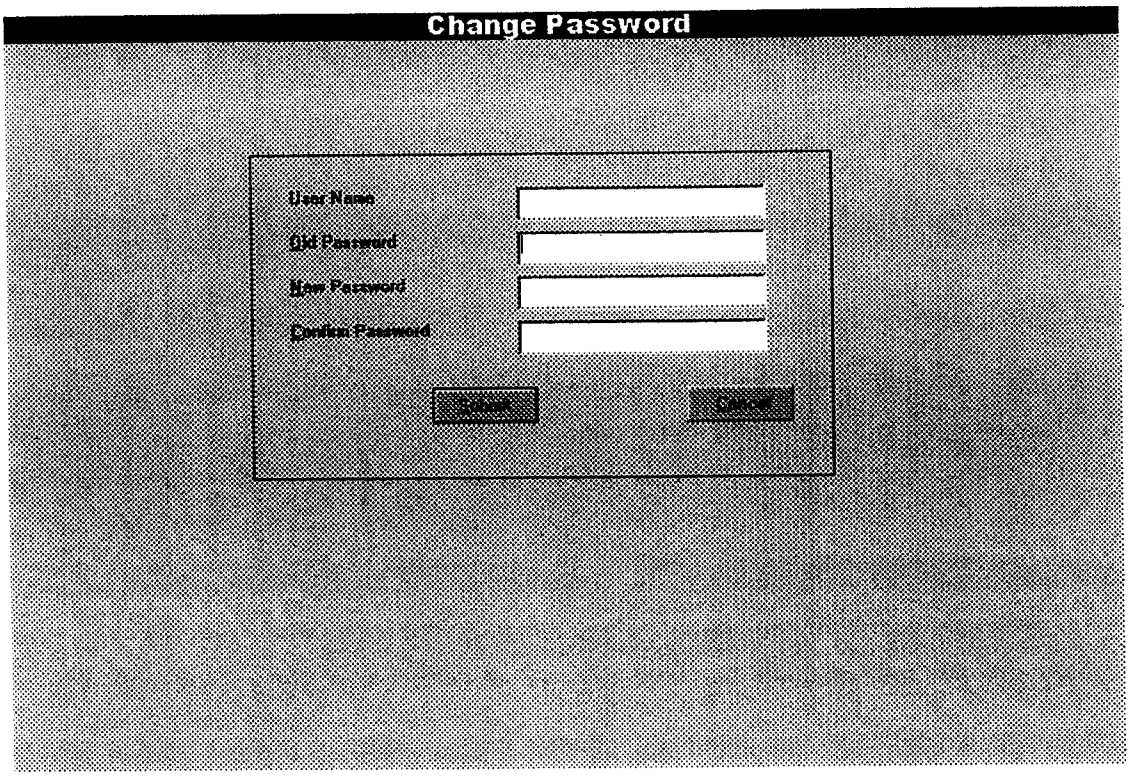
**LOGON SCREEN**

*Dexterity Business Analysts (P) Ltd.,*



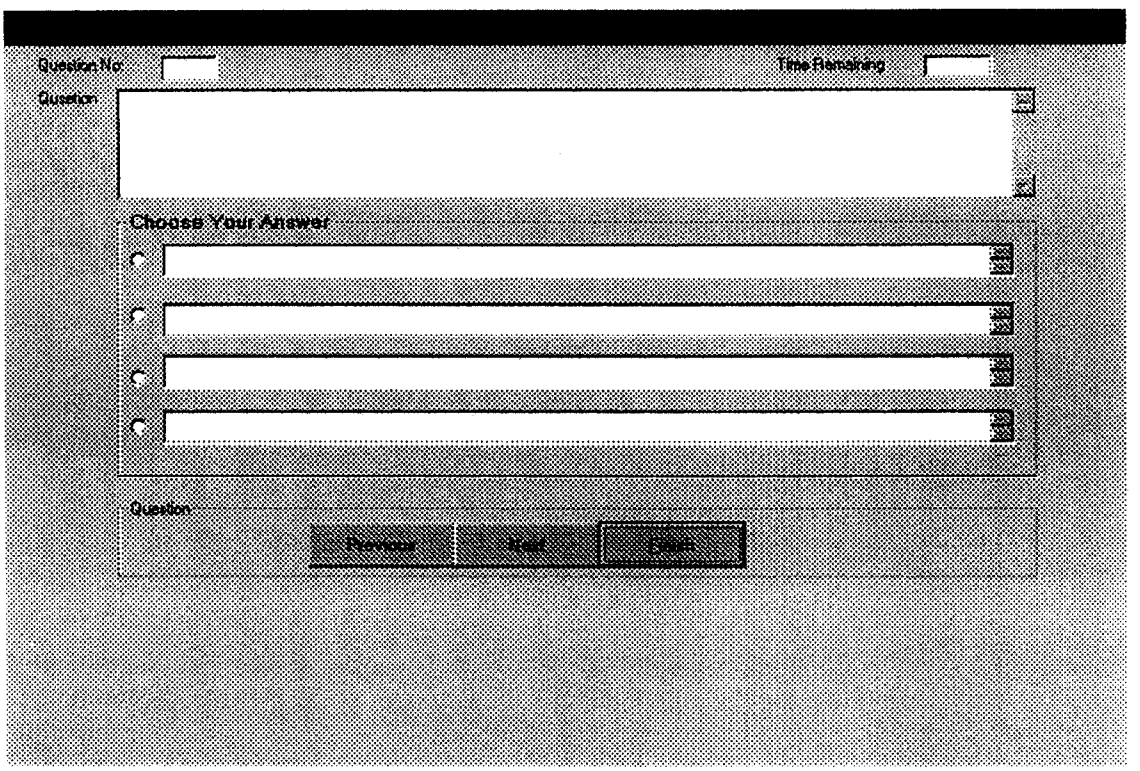
## CHANGE PASSWORD SCREEN

*Dexterity Business Analysts (P) Ltd.,*

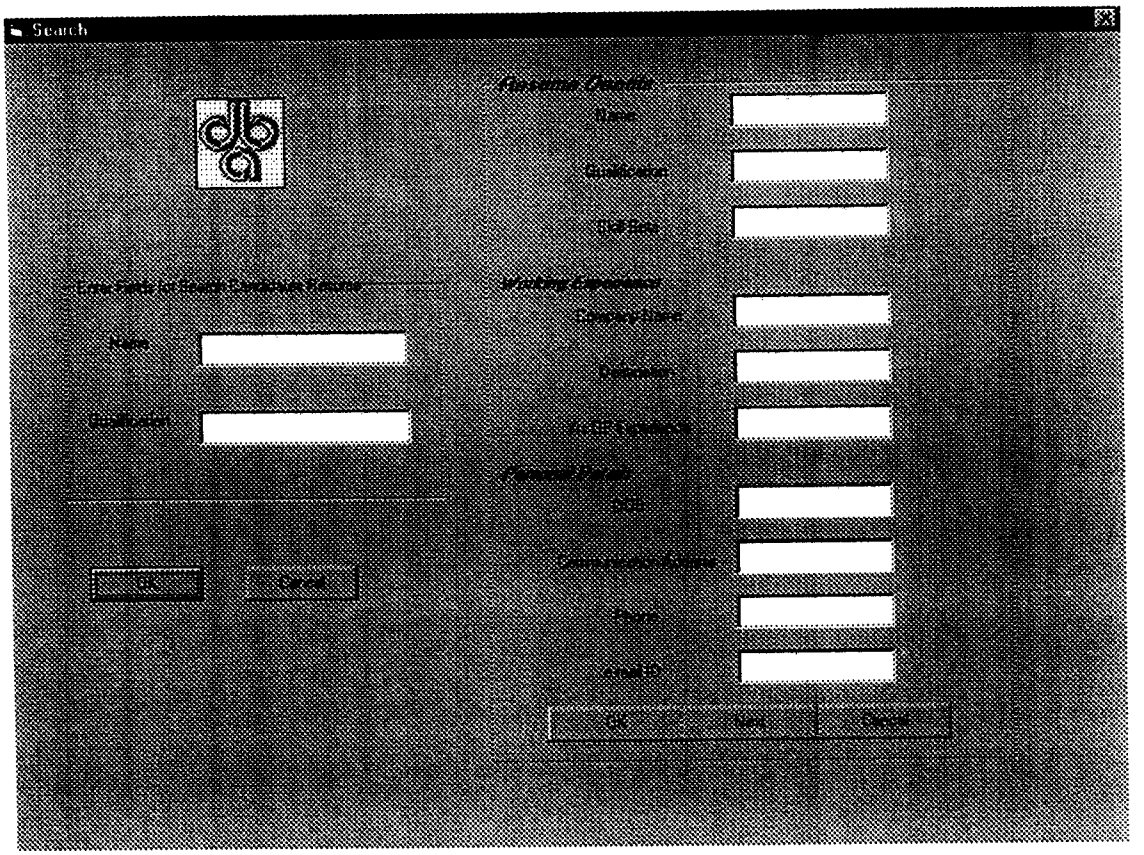


## ONLINE TEST SCREEN

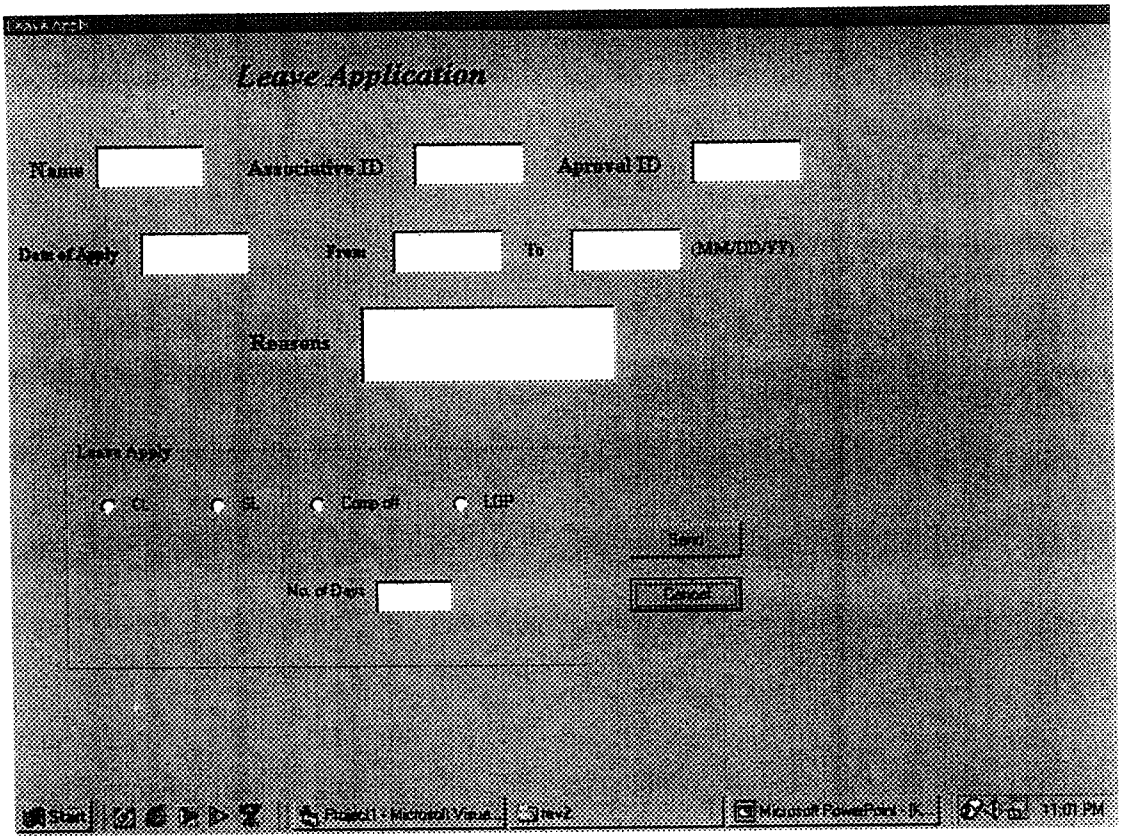
*Dexterity Business Analysts (P) Ltd.,*



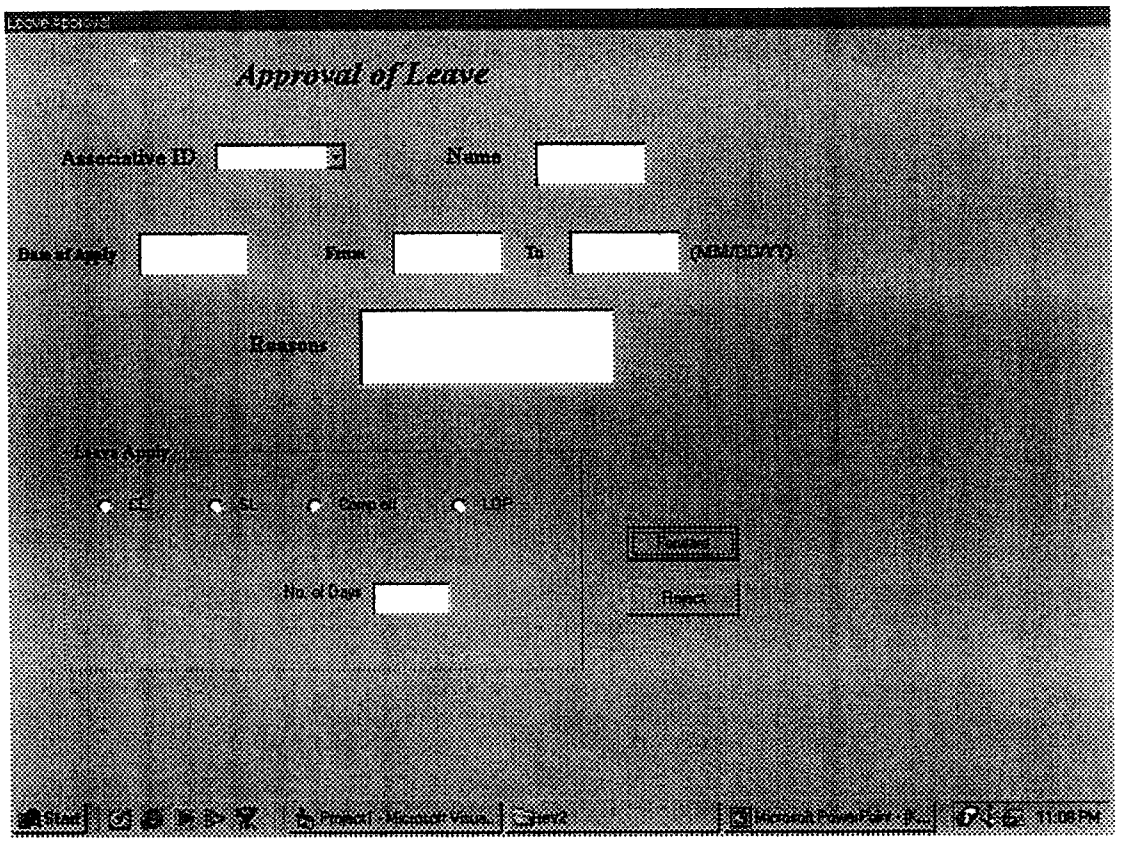
## RESUME SEARCH SCREEN



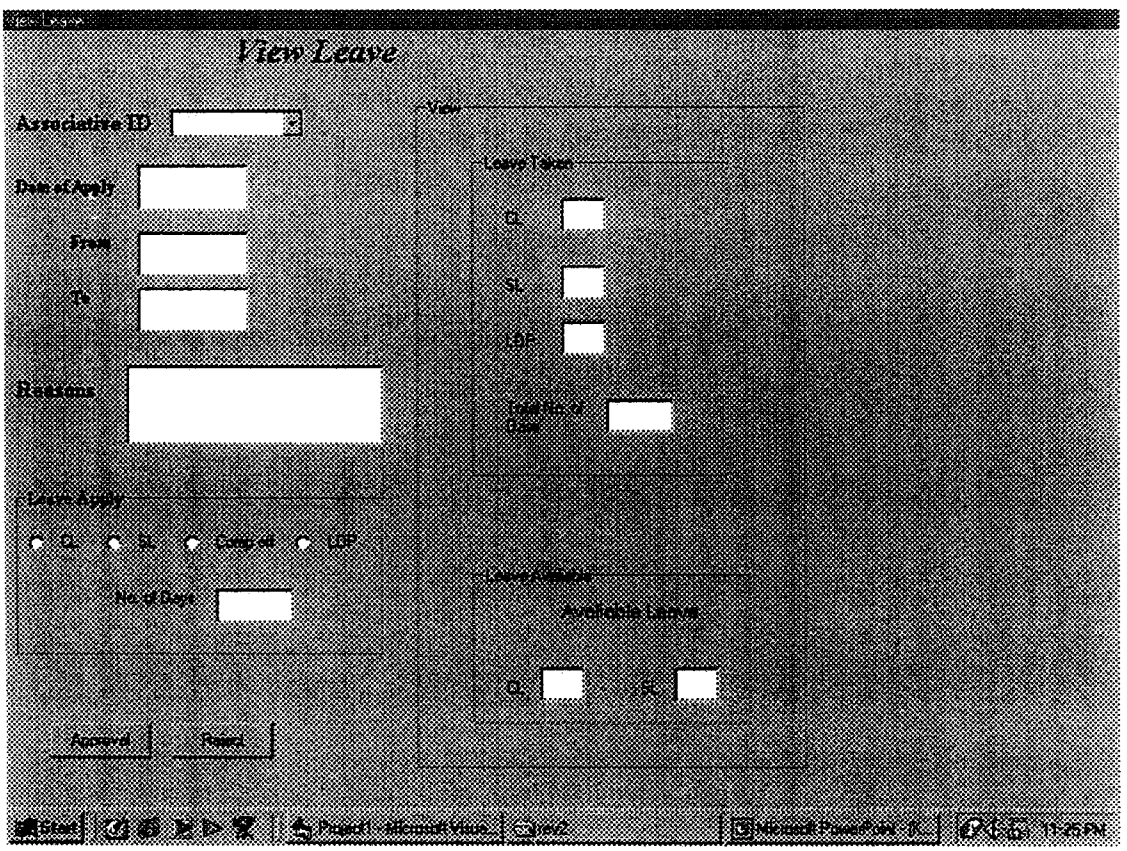
# LEAVE APPLICATION



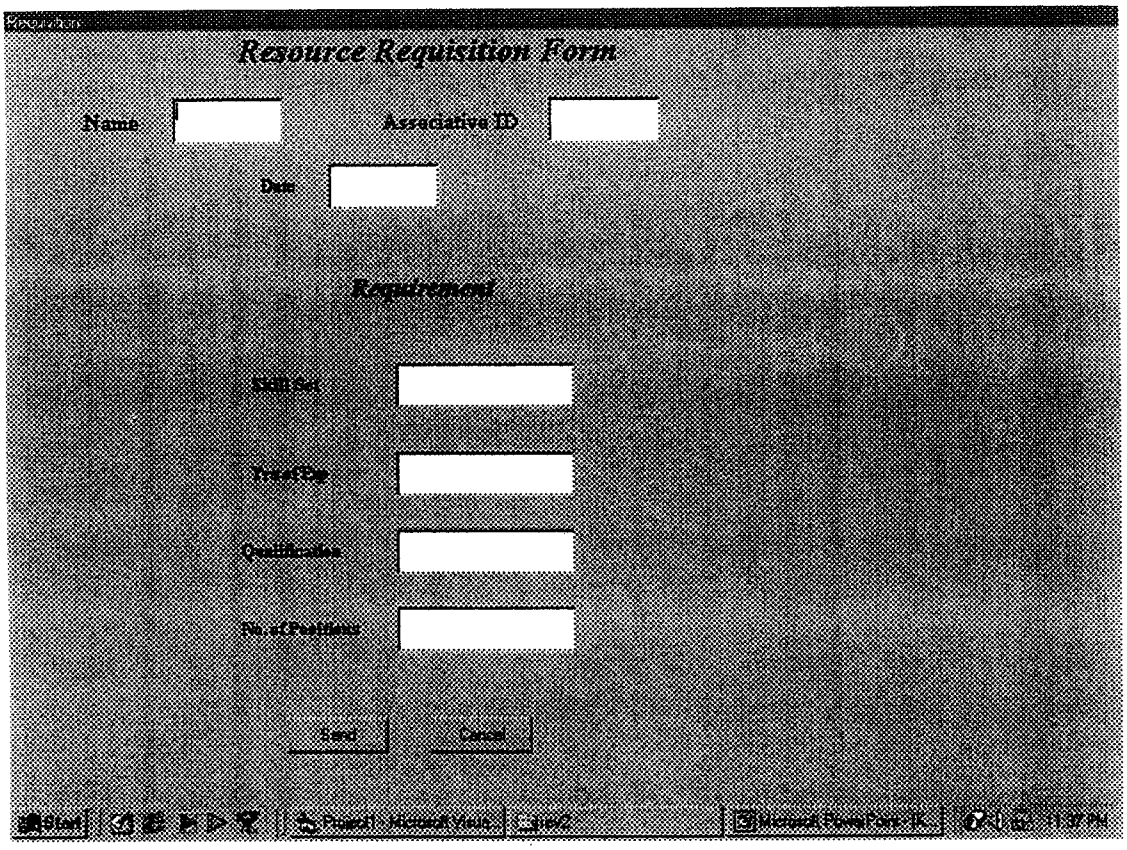
## LEAVE APPROVAL



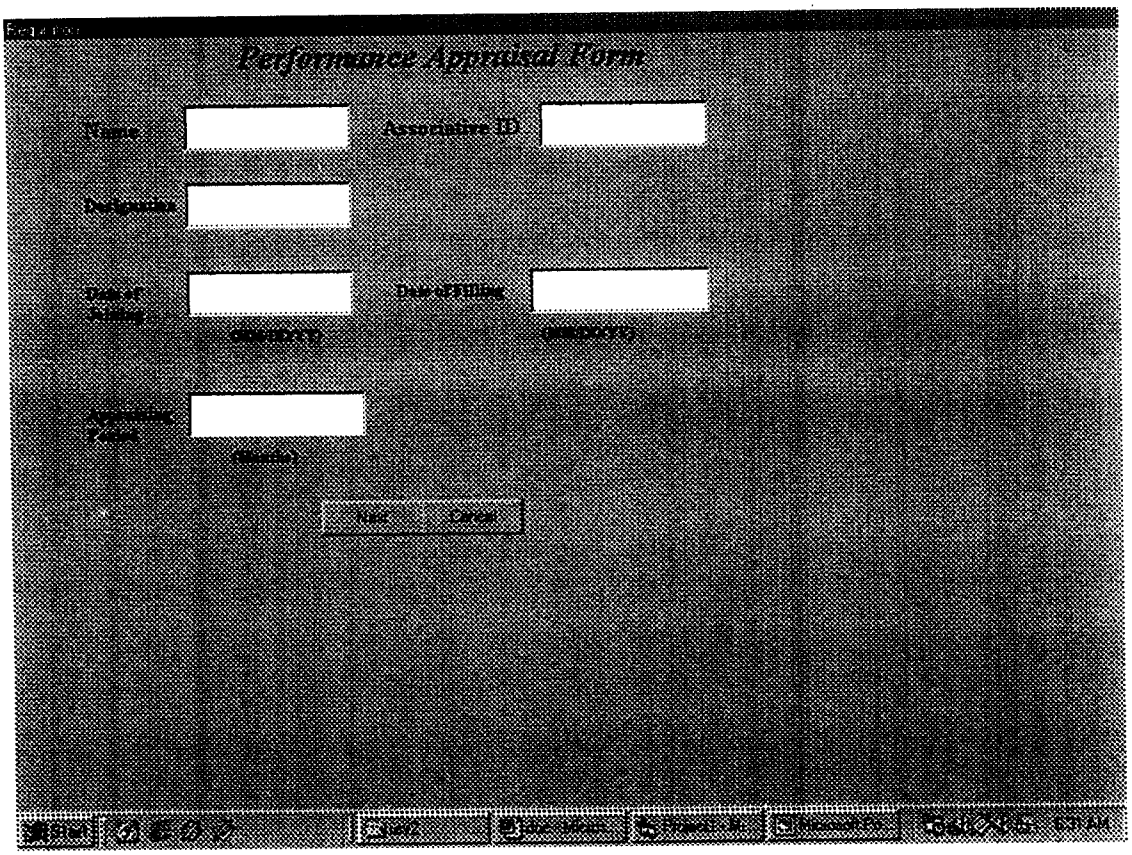
## VIEW LEAVE


View Leave
Associative ID
Date of Apply
From
To
Reasons
Leave Apply
CL
SL
Comp-off
LOP
No of Days
Approved
Reject
View
Leave Taken
CL
SL
LOP
Total No of Days
Leave Balance
Available Leaves
CL
SL
Start
Project1 - Microsoft Visua...
Doc2
Microsoft PowerPoint ...
11:26 PM

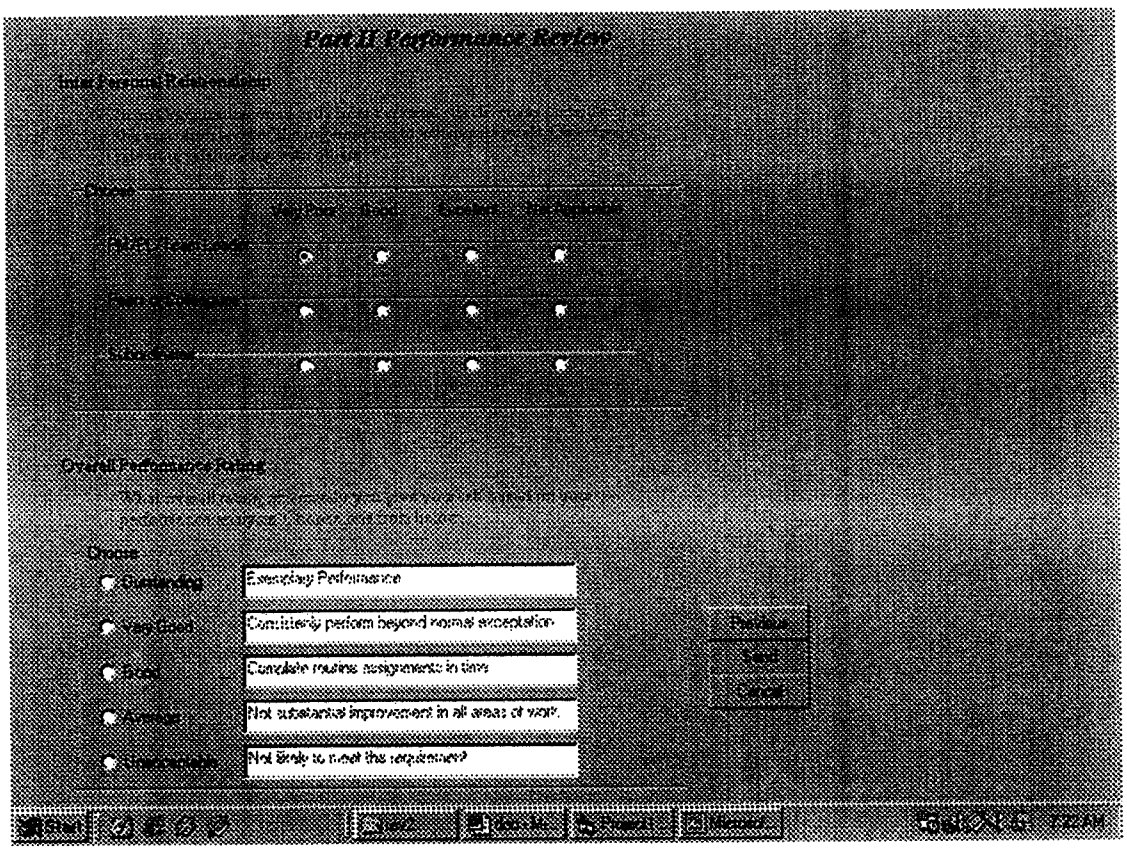
## RESOURCE REQUISITION



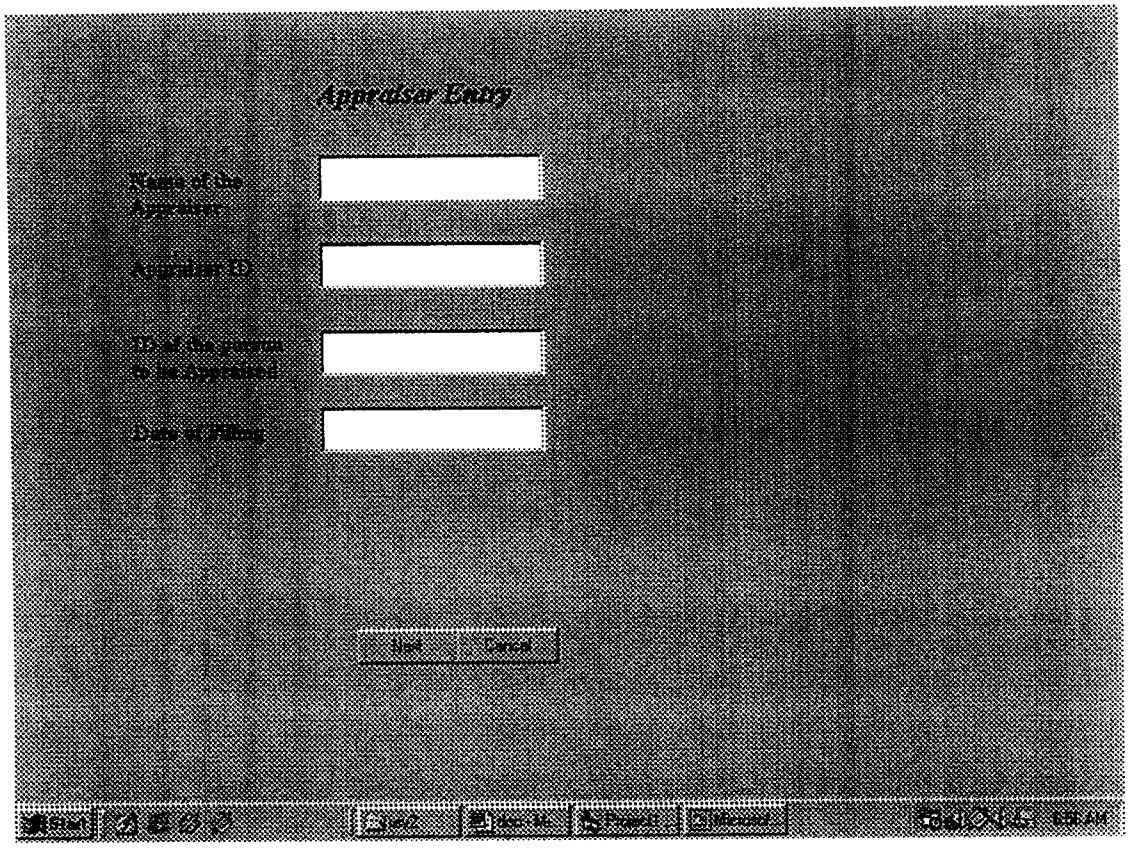
## PERFORMANCE APPRAISAL



## PERFORMANCE REVIEW



# PERFORMANCE APPRAISER ENTRY



## PERFORMANCE RATING