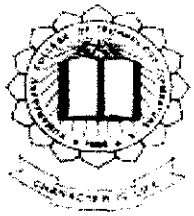
P-1730



HUMAN RESOURCE MANAGEMENT SYSYTEM

By

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Reg No: 71203621026

Of

Kumaraguru College of Technology

Coimbatore

(Affiliated to Anna University)

A PROJECT REPORT

Submitted to the

FACULTY OF INFORMATION AND COMMUNICATION ENGINEERING

In partial fulfillment of the requirements
for the award of the degree

of

MASTER OF COMPUTER APPLICATIONS

June, 2006

Kumaraguru College of Technology

Coimbatore - 641006

Department of Computer Applications

Bonafide Certificate

Certified that this project report titled **HUMAN RESOURCE MANAGEMENT SYSTEM** is the bonafide work of **Mr.M.Murugaraj (Reg No.71203621026)** who carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

PROJECT GUIDE **HEAD OF THE DEPARTMENT**

Submitted for the University Examination Held on 29/6/06

29/6/06 29/06/2006

Internal Examiner **External Examiner**

ADRIAN TECHNOLOGIES
New No 45 , f - 4a , Kandaa's Chamber ,Nelson Manikam Raod ,Chennai - 29

Date: 9/6/06

PROJECT COMPLETION CERTIFICATE

This is to certificate that **Mr.M.MURUGARAJ, Reg no: 71203621026**, final year M.C.A. Kumaraguru College of Technology Coimbatore, has completed his project in this organization. He did the project entitled "**HUMAN RESOURCE MANAGEMENT SYSTEM**" in Mainframe form January 2006 to June 2006 at our organization in partial fulfillment of the requirements for the award of M.C.A. Anna University. His work was timely from the company's perception and useful to the company.

As part of the company's policy we don't let out any sort of coding or pseudo code out of the company's premises in printed or in electronic media.

Best regards,

V.uma

Mr.V.UMA BE.,
PROJECT MANAGER
ADRIAN TECHNOLOGIES.

ABSTRACT

The HRM System automates the workflow of the HR department of an organization and provides sufficient information to the management about the resource requirements, performance of employees and other related activities and managerial functions.

The HRD's work involves recruiting various skilled professional to fulfill the requirement of the company, fixing the pay structure, assigning designation and responsibilities for them. Revising the salary annually, initiating and advising accounts department for various matter about the employees, interacting with PF department, ESI department and insurance companies. The system will assist the HRD in decision-making and on all the above operations.

Other functions like employee project allocation, promotion, demotion, and retirement details are maintained in a similar fashion. Errors do occur and data does get duplicated as per the functioning of the current system.

The system shall reduce paper work, shall provide an efficient way to allocate employees to projects, and deal with all other functions like payroll, promotion and demotion to simplify the processes involved in the Human Resource Department at Adrian systems.

The HRM System interacts with other systems which are currently under development at Adrian Systems. These systems include the Attendance system and the monitoring system. The attendance system maintains the day to day attendance of employees which is useful in the payroll subsystem of HRM.

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I wish to express my sincere thanks to **Dr.Joseph V Thanikal Ph.D.,** principal, and also to our former principal **Dr.K.K.Padmanaban Ph.D.**, Kumaraguru College of Technology, Coimbatore, for permitting me to undertake this project.

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I express my sincere thanks to **Mr.N.MohanaSundaram MBA.,** Managing Director, **ADRIAN Technologies**, Chennai for giving me the opportunity to do the project work in their concern. My deepest acknowledgement to **Mr.V.Uma BE., MBA.,** Project Manager, **ADRIAN Technologies**, Chennai for his support and assistance at various levels of my project work.

I wish to thanks all my staff members for their timely help and guidance to complete the project successfully.Finally, my heartful thanks to almighty god for helping me throughout the course of the project work.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 ABOUT THE PROJECT

Mainframe is one of the most powerful tools ever designed by man to solve problems that involve computing or processing of data. It can manipulate and transform all kinds of data at a tremendous speed without a flow. It is used to process data of voluminous and repetitive nature. Now a day's computer has manifold applications in office for administration, controlling and manufacturing. The main characteristics of a computer are speed accuracy, storage, versatility, automation and diligence.

Today, Mainframe has conquered the entire horizon because of its speed, reliability, accuracy, etc. Thus performing tasks which man had been dreaming in the past. By computerization job's stress on man is reduced to a great extent. As a result man performs with greater enthusiasm and less mental stress.

There are 5 main features in this system were:

- Proper security feature.
- Sharable data without redundancy.
- Up-to-date information.
- Proper validation checks for avoiding loss of data entry Errors.
- Clearly defined user responsibility.
- Easier keyboard functions.

The system will overcome all the manual drawbacks and provide an integrated system. Thus this project work is to establish the warehouse. I have presented whole process, which was taking place in the system and have developed the system as per the requirement of the users.

The HRM System interacts with other systems which are currently under development at Adrian Systems. These systems include the Attendance system and the monitoring system. The attendance system maintains the day to day attendance of employees which is useful in the payroll subsystem of HRM. Also the monitoring system provides grade of fresh employees at Adrian depending on their performance in the training program conducted. These details shall help in allocation of fresh employees to different projects.

Other functions like employee project allocation, promotion, demotion, and retirement details are maintained in a similar fashion. Errors do occur and data does get duplicated as per the functioning of the current system. The proposed automated system shall reduce paper work, shall provide an efficient way to allocate employees to projects, and deal with all other functions like payroll, promotion and demotion to simplify the processes involved in the Human Resource Department at Adrian systems. The HRM System interacts with other systems which are currently under development at Adrian Systems. These systems include the Attendance system and the monitoring system. The attendance system maintains the day to day attendance of employees which is useful in the payroll subsystem of HRM.

Also the monitoring system provides grade of fresh employees at Adrian depending on their performance in the training program conducted. These details shall help in allocation of fresh employees to different projects.

1.2 GOALS OF THE SYSTEM

The proposed automated system reduces paper work, provides an efficient way to allocate employees to projects, and deals with other functions like payroll, promotion and demotion to simplify the processes involved in the Human Resource Department at Adrian systems.

- Reduce the workload of End users and Management
- User Friendliness
- Simplified query management tool
- Simplified data entry features
- Avoids data redundancy, data integrity, and data privacy
- Maximum security from unauthorized users
- Provides good performance
- Provides access rights

CHAPTER 2

SYSTEM STUDY

This chapter provides the system requirement and specification, hardware and software requirement, software overview used for the completion of the project.

2.1 SOFTWARE REQUIREMENT SPECIFICATION

The purpose of this System Requirement Specification is to define the user requirements for the configuration/Customization of the HRM system. This document would therefore lay down the foundation for the proposed system. The target audience for this document is the staff and management of Adrian Technologies.

This SRS endeavors to provide a comprehensive coverage of User Requirements. It does not represent the automation boundary of the HRM system. In other words, while the SRS describes all the functional requirements, it should not be considered as a document specifying the extent of functional coverage in the system. It is not intended to communicate any information related to the design of the proposed system through the SRS. The presence of such information, if any, may be considered to be purely incidental and this will not impact the eventual design in any way whatsoever.

The HRM System interacts with other systems which are currently under development at Adrian Systems. These systems include the Attendance system and the monitoring system. The attendance system maintains the day to day attendance of employees which is useful in the payroll subsystem of HRM. Also the monitoring system provides grade of fresh employees at Adrian depending on their performance in the training program conducted. These details shall help in allocation of fresh employees to different projects.

The system provides/accepts the following set of services to the other subsystems of the larger system. HRM accepts services from the Attendance Automation System for the generation of basic pay which is based on the attendance of an employee for a given month.

HRM system provides details of Employees to the Attendance and the Monitoring system by means of specific interfaces. HRM also accepts services from the monitoring system for calculation of payroll for fresh graduates in the company. It also makes use of this information to allocate them to projects. Strengths of fresh graduates are captured from the Monitoring system and updated into the employee information database.

HRM provides the following set of functions:

- Computerized entry of Employee information.
- Maintain performance criteria.
- Maintain employee performance information.
- Allocate employees to projects based on the employee strength and experience levels.
- Maintain payroll configuration data.
- Calculate employee pay details based on their attendance.

- Maintain log records.
- Maintain promotion and demotion details.
- Provide online view of data with respect to the login permissions of the user.
- Provide features for backing up data and restoring them as and when needed.

Desirable properties of a Software Requirements Specification:

- Correct
- Complete
- Consistent
- *Unambiguous*
- Functional
- Verifiable
- Traceable

2.2 HARDWARE SPECIFICATION

Server	:	IBM Mainframes with 1200 users connected
Client	:	CARRYSYS
Processor	:	Pentium IV
RAM	:	256 MB
Hard disk	:	40 GB

2.3 SOFTWARE SPECIFICATION

Operating System	:	Z/OS with MVS facility.
Main Storage	:	DASD
Job Control	:	OS/JCL
Time Sharing	:	TSO/ISPF
Access Methods	:	VS/VSAM
Database	:	IMS/DB2
Datacom	:	CICS/VS
Job Scheduler	:	JES2/JES3

2.4 SOFTWARE OVERVIEW

2.4.1 MAINFRAME

Mainframe computers are large systems that can process several million-program instructions per second. Large organizations rely on these to handle large programs with lots of data. Insurance companies, banks, airline and railway reservation systems, etc mainly use mainframes.

Mainly IBM Corporation now manufactures mainframes. Some examples of IBM mainframes are IBM 3090, ES/9000, S/390, and Z800.

The OS of a mainframe is different from ordinary PC OS. Some examples of mainframe OS are OS/390 and Z/OS. Some characteristics of *mainframe OS are:*

1. Virtual Storage
2. Multiprogramming
3. **SPOOLing**-Simultaneous Peripheral Operation OnLine
4. *Batch processing*
5. Time-sharing

The software elements used in mainframe are:

- VS COBOL II
- CICS
- DB2
- JCL

2.4.2 VS COBOL – II

COBOL was developed in 1959 by CODASYL (Conference on Data System Languages) Committee. It is a high-level language mostly used in file-based applications. The COBOL used on mainframes is called VS COBOL-II. This is the IBM licensed version of COBOL.

VS COBOL-II offers structured programming and modular approach to coding. In VS COBOL–II, structured programming is important to the successful completion of this process.

Another feature important to VS COBOL-II is 31-bit addressing, which allows you to execute much larger programs under MVS/XA, MVS/ESA, and VM/XA.

The basic step of developing an application in VS COBOL-II involves the following steps:

- Design - Plan your program, using structured documentation.
- Code the program logic – Create a source module by entering your program into a file.
- Code the file processing – Define files necessary to read and write information.
- Compile – Convert the source module into an object module.
- Link-edit – Process the object code into load modules for execution.
- Execute – Run your program and test and debug the results.

2.4.3 CICS

CICS (Customer Information and Control System) is Data Base/Data Communication (DB/DC) system developed by IBM. CICS forms a layer in between the application programs and the operating system and acts as an interface between the two. CICS provides the user interface (UI) for our application.

Pre-generated systems to speed up and simplify the generation of the CICS system. Pre-compiled sample programs to help verify that the system has been correctly installed. Control tables to make the system flexible. Helps in defining the terminals, files and applications running under CICS system.

Security facilities to help prevent unauthorized access to information. Recovery functions to assist recovery from a variety of error conditions.

CICS System Services:

- Data-Communication Functions
- Data communication functions, provides an interface between CICS terminals or other systems. The following services are offered.
- To interface with telecommunication access methods like VTAM.
- To make the application programs independent of terminal hardware through Basic Mapping Support (BMS) which provides device and format independence.
- To provide Multi Region Operation (MRO) through which more than one CICS region in a system can communicate.
- To provide Inter System Communication (ISC) through which a CICS region in a system can communicate.

Data-Handling Functions

The component of data handling functions provides an interface between CICS and data. The following CICS services are offered.

- To interface with Data Access Method such as VSAM and BDAM.
- To interface with database access methods such as DB2,SQL/DS and DL/I
- To maintain data integrity by
- Control of simultaneous record updates.
- Protection of data at abnormal termination of tasks.
- Protection of data at system (CICS or OS) failures.

Application Program Services

The component of application program services provides an interface between CICS and application programs. The following services are offered.

- To interface with COBOL, PL/I, Assembler programs
- Command Level Translator
- Execution Diagnostic Facility (EDF)
- Command Interpreter (CECI)
- Screen Definition Facility (SDF)

2.4.4 DB2

DB2 is an abbreviation for 'IBM DATABASE 2'. It is a relational database management system for the MVS operating system. It is a system that allows the MVS users to build, access and maintain relational databases, using the well-known relational language SQL or structured query language. DB2 (IBM Database 2) is a relational database management system for MVS operating system. It supports SQL, structured query language, for manipulating and creating tables, database, etc.

More than one user can use the DB2 at a time. The major components of DB2 are System Services Component, Locking Services Component, Database Services Component and Distributed Data Facility Component.

The interactive interface of DB2 is called 'DB2I' or 'DB2 Interactive'. Thus SQL is both an interactive query language and a database programming language. This applies to any SQL statement, which means that any SQL statement that can be entered at the terminal in interactive mode can be embedded in the program also.

Benefits of DB2

DB2's increasing popularity can be attributed to the real benefits it provides. Some of these benefits are those of any relational database system and some are directly due to DB2's particular design and implementation. DB2's ease of use is one of its major advantages. With DB2, users only specify what they want, how to get it. This is called automatic navigation.

Another advantage to DB2 is its interactive facilities, which make testing, debugging and application development easier for you the programmer. Because we use the same language, with minor adjustments for both interactive database access and access from programs.

2.4.5 JCL

JCL (Job Control Language) acts as an interface between operating system and application program. JCL submits jobs (programs) to JES (Job Entry Subsystem). JCL facilitates in the batch processing of programs. It submits the jobs to the operating system via JES for execution. Each job is put in a queue and waits for its turn for processor time.

JCL is the way of telling the computer what programs the user want to run, what datasets these programs will use what is the disposition of the datasets when the program execution ends. Unlike the Pcs the Mainframes are not designed to listen your requests to execute programs one at a time. We use the TSO to talk to the system.

TSO is a program executed by MVS to get your programs and JCL into machine code. TSO is just a messenger to MVS and JCL is the only way we can talk to MVS. Programs are sequences of logical instructions. The user write the programs in a high level language like COBOL and then they are converted into machine code and are stored in datasets called a load module library or *'loadlib'*.

So to run a program one must copy the load module from the library to the memory, hook it up with the input and output files it will use and ask the computer to run the program. This will happen by submitting a JCL.

CHAPTER 3

SYSTEM ANALYSIS

The need of the system analysis is to know about the project, to know the purpose of the project within the system, the main objectives of the system in the organization. System Analysis is the reduction of an entire system by studying the various operations performed and their relationships within the system, an examination of a business activity with a view to identifying the problem areas and recommending the alternative solutions. One aspect of analysis is to define the boundaries of the system and determining whether or not a candidate system should consider other related systems.

3.1 EXISTING SYSTEM

All the processes implemented in the HR department is manual. The Number of employees in the company is constantly on the rise and as a result the current system makes it tedious to maintain and process all information. A better system is needed to cater to the growing demand.

The system deals with the automation of all Employee related functions at Adrian Systems. Adrian systems record the employee attendance, payroll details, and performance details of employees in various log books. These log books are written manually and an excel system is used to make certain computations on the salary and performance ratings provided to the employees.

Other functions like employee project allocation, promotion, demotion, and retirement details are maintained in a similar fashion. Errors do occur and data does get duplicated as per the functioning of the current system.

- Excessive amount of time and days are taken to complete the process.
- Only Administrator responsible.
- User cannot interact with their details.

3.2 PROPOSED SYSTEM

The HRM System interacts with other systems which are currently under development at Adrian Systems. These systems include the Attendance system and the monitoring system. The attendance system maintains the day to day attendance of employees which is useful in the payroll subsystem of HRM.

Also the monitoring system provides grade of fresh employees at Adrian depending on their performance in the training program conducted. These details shall help in allocation of fresh employees to different projects.

The system provides/accepts the following set of services to the other subsystems of the larger system:-

i. HRM accepts services from the Attendance Automation System for the generation of basic pay which is based on the attendance of an employee for a given month.
ii. HRM system provides details of Employees to the Attendance and the Monitoring system by means of specific interfaces.
iii. HRM also accepts services from the monitoring system for calculation of payroll for fresh graduates in the company. It also makes use of this information to allocate them to projects.
iv. Strengths of fresh graduates are captured from the Monitoring system and updated into the employee information database.

3.3 MODULE FUNCTIONALITIES

The proposed system consists of six modules. They are

- Administrative
- Personnel Management
- Project Maintenance
- Payroll Processing
- Performance appraisal

Administrative Module

The concerned staff has to enter details of Employees into the System through the entry screens provided. The administrator has to enter these details into the system or has to assign permissions to responsible users.

Personnel Management

Details about ongoing projects are to be configured using this function. top level executive of the management has to configure the project, its type and the nature of the project. Also details about the kind of quality, experience and qualification is to be configured by the user.

Project Maintenance

Employees can be allocated to projects using this function. The employee id has to be configured with the project id. A top level management executive has to make the corresponding entries using this function.

Payroll processing

Basic details about the common allowances provided to employees are to be concentrated upon in this function. This is dependent on the company policy for Salary allocation. The managers are responsible for providing this data and the administrators grant permissions to the appropriate users to update the data. Payroll is generated monthly on a concerned date. The user has to enter the period for which the payroll has to be generated. The payroll is generated and stored in a separate table in the database. This table can be used to later print the details onto paper.

Performance appraisal

Promotions and demotion details are entered by the concerned users as and when they occur. System also alerts the HR based on a points generation formulae which brings out a promotion list as a report. This is purely based on the performance of employees and it is up to the discretion of the management whether or not to provide the promotion. The system automatically updates the employee database on the retirement date of the person after calculating his age. No manual entry is required to achieve this purpose.

Report module

Reports are generated based on inputs from the users. Various ad-hoc reports can be generated. Periodic reports also exist and can either be automatically generated by the system or on demand.

CHAPTER 4

SYSTEM DESIGN

4.1 INPUT DESIGN

Inputs are expected to be fed in by the administrator or the concerned staff for employee and other configuration data mentioned earlier. Also inputs from the Attendance system and monitoring system are pulled in by means of interfaces used in either system. Administrator is authorized to make change to all data available in the system, add users, remove users and assign permissions to each user. Administrator is a staff with a superior rank. The administrator can change the overall appearance of the system.

Management users can view statistical reports, employee details and other information which would aid them in the decision making process of the company. They can also set goals for their subordinates.

Project managers can use the system to search for employees with skill sets related to his/her project. He can also set goals for his subordinates. They can also update details related to their performance for evaluation by superiors. Module leaders and Software engineers can also set and view goals.

Validations shall be performed on the inputs provided by users and other systems for maintaining data integrity. Error handling shall be performed to make the system stable and keep it from crashing when abnormal conditions occur.

The common inputs to the reporting system are employee id, dates, performance parameters etc. These parameters shall aid in the generation of reports. The initial login function would serve to identify what reports are available to a user.

4.2 OUTPUT DESIGN

Outputs generated are made available to users online when they issue the query to the reports of their interest. Outputs can also be made available in the form of a hard copy printed on paper.

Computer output is the most important and direct information source to the user. Output design is a process that involves designing necessary outputs in the form of reports that should be given to the users according to the requirements.

Efficient, intelligent output design should improve the systems relationship with the user and help indecision making. Since, the management for decisions directly refers and to draw conclusions they must be simple, descriptive and clear to use.

4.3 DATABASE DESIGN

4.3.1 TABLE NAME: ADMINISTRATIVE_LOGIN

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
User_Id	Char(20)	Primary key	User identification
Designation	Char(10)		Designation
Password	Char(10)		Password
Ass_per	Boolean		Assign permission

4.3.2 TABLE NAME: FRESH_DETAIL

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Eid	Integer	Primary key	Employee ID
Ename	Char(20)	Candidate key	Employee name
Sex	Char(6)		Sex
Address	Char(20)		Employee address
City	Char(20)		City
Pincode	Integer		Pincode
Phone_no	Integer		Phone number
Email_id	Char(20)		Email id
Dob	Date		Date of birth
L known	Char(20)		Languages known
Department	Char(10)		Department
Join date	Date		Joining date
Grade_id	Integer	Foreign key	Grade identification
Specalization	Char(20)		Specialization
B_code	Integer		Branch code
Desig_ code	Integer		Designation code

4.3.3 TABLE NAME: GRADE_MOD

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Grade id	Integer	Foreign key	Grade identification
Grade name	Char(2)		Grade name

4.3.4 TABLE NAME: EXP_PLAT_DETAIL

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Eid	Integer	Primary key	Employee ID
Plat_n	Char(20)		Platform name
No_yrs_ex	Integer		Years of experience

4.3.5 TABLE NAME: PROJ_DETAIL

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Project_id	Integer	Primary key	Project identification
Project name	Char(30)		Project name
Platform id	Integer		Platform identification
Language	Char(15)		Language
Tools	Char(15)		Tools
Db	Char(10)		Database
T_s	Integer		Team size
D_o_p	Integer		Duration of the Project
C_id	Integer		Contract identification

4.3.6 TABLE NAME: CONTRACT_DETAIL

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
C_id	Integer	Foreign_key	Contract identification
C_title	Char(15)		Contract title
Description	Char(30)		Description
C_s_d	Date		Contract start date
C_e_d	Date		Contract end date
C_a	integer		Contract amount

4.3.7 TABLE NAME: PROJ_PLATFORM

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Project_id	Integer	Primary key	Project identification
Platform id	Integer		Platform identification

4.3.8 TABLE NAME: PROJ_ ALLOCATION

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Project_id	Integer	Foreign key	Project identification
Eid	Integer	Primary key	Employee id
T_t_s	Integer		Total team size
S_d	Date		Start date
E_d	Date		End date
D_o_p	Integer		Duration of project

4.3.9 TABLE NAME: TRANS_DETAIL

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Eid	Integer	Primary key	Employee id
Loc	Char(15)		Location
D_t	Date		Date of transfer
C_pid	integer		Current project id

4.3.10 TABLE NAME: SALARY_MASTER

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Eid	Integer	Primary key	Employee ID
Cid	Integer	Foreign key	Category ID
B_pay	Integer		Basic pay
Hra	Integer		House rent allowance
Da	Integer		Dearness allowance
Ma	Integer		Medical allowance
Special_al	Integer		Special allowance
Tour_al	Integer		Tour allowance
Perf_ince	Integer		Performance incentive
City_com	Integer		City compensatory allow.
Tech_jour	Integer		Technical journal
G_pay	Integer		Gross pay
Tot_ded	Integer		Total deduction
Lo_leave	Integer		Loss of pay by leave
N_pay	Integer		Net pay
Sign	Char(20)		Signature

4.3.11 TABLE NAME: CATEGORY_MASTER

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Cid	Integer	Foreign key	Category ID
Name	Char(20)		Category name
F_s	Date		From salary
T_s	Date		To salary
I_d	Date		Implemented date

4.3.12 TABLE NAME: LOAN_ MASTER

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Loan_id	Integer	Primary key	Loan ID
Loan_t	Char(20)		Loan type
Description	Char(30)		Description
L_a_u	Integer		Loan amount upto
I_d	Date		Introduction date
I_p	Integer		Interest percent

4.3.13 TABLE NAME: POLICY_MASTER

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Policy_id	Integer	Primary key	Policy ID
Policy_t	Char(20)		Policy type
Description	Char(30)		Description
P_a_u	Integer		Policy amount upto
I_d	Date		Introduction date
I_p	Integer		Interest percent

4.3.14 TABLE NAME: PERFORM_DET:

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Eid	Integer	Primary key	Employee ID
T_p	Integer		Total points
F_m	Date		From month
T_m	Date		To month

4.3.15 TABLE NAME: PROM_ELIG

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Eid	Integer	Primary key	Employee ID
N_d	Char(20)		Next designation
Experience	Integer		Experience
D_o_p	Date		Date of promotion

4.3.16 TABLE NAME: DEMOTION_DET

FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Eid	Integer	Primary key	Employee ID
Ename	Char(20)		Employee name
Egrade	Char(2)		Employee grade
Tot_d	Integer		Total duration
Sal_r	Integer		Salary refund

4.3.17 TABLE NAME: RETIREMENT_DET

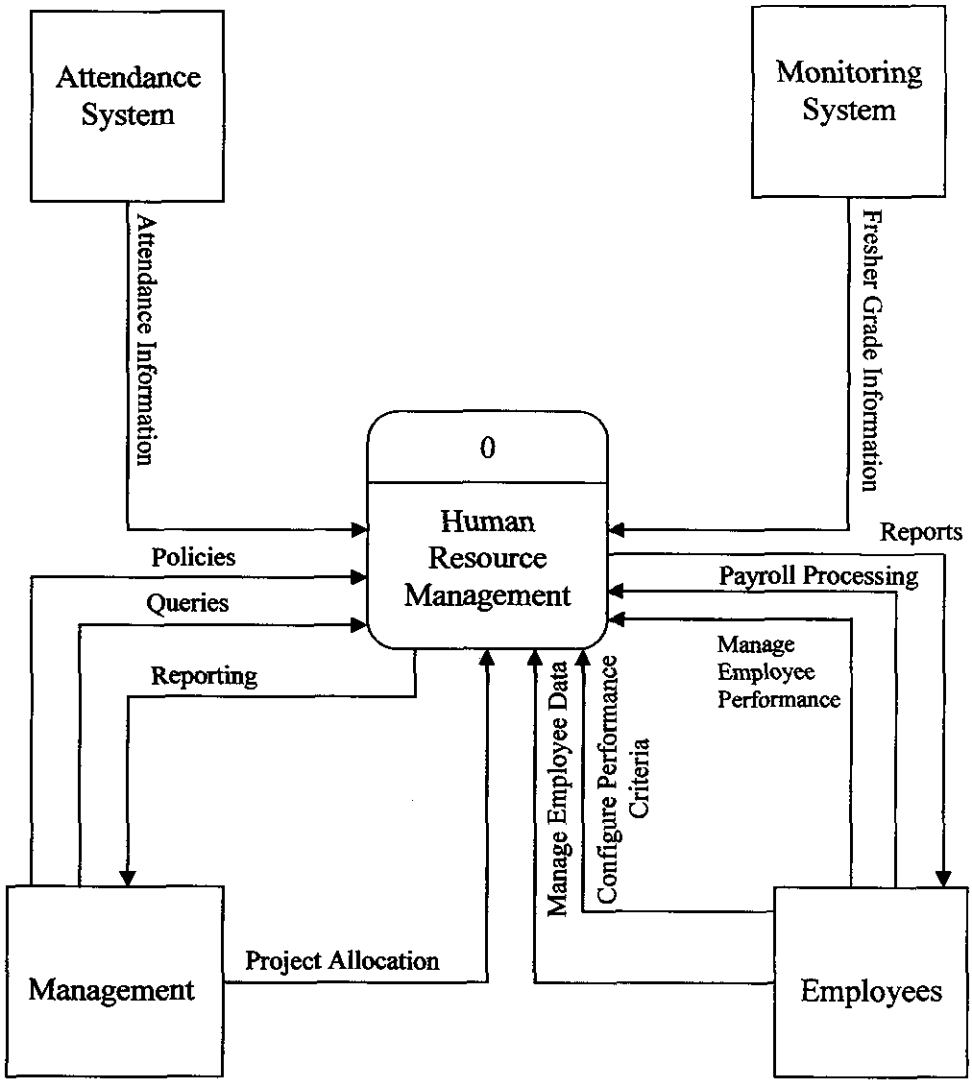
FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Eid	Integer	Primary key	Employee ID
T_e	Integer		Total experience
D_oj	Date		Date of join
D_rt	Date		Date of retirement
S_r	Integer		Salary refunded

4.3.18 TABLE NAME: EXTENSION_DET

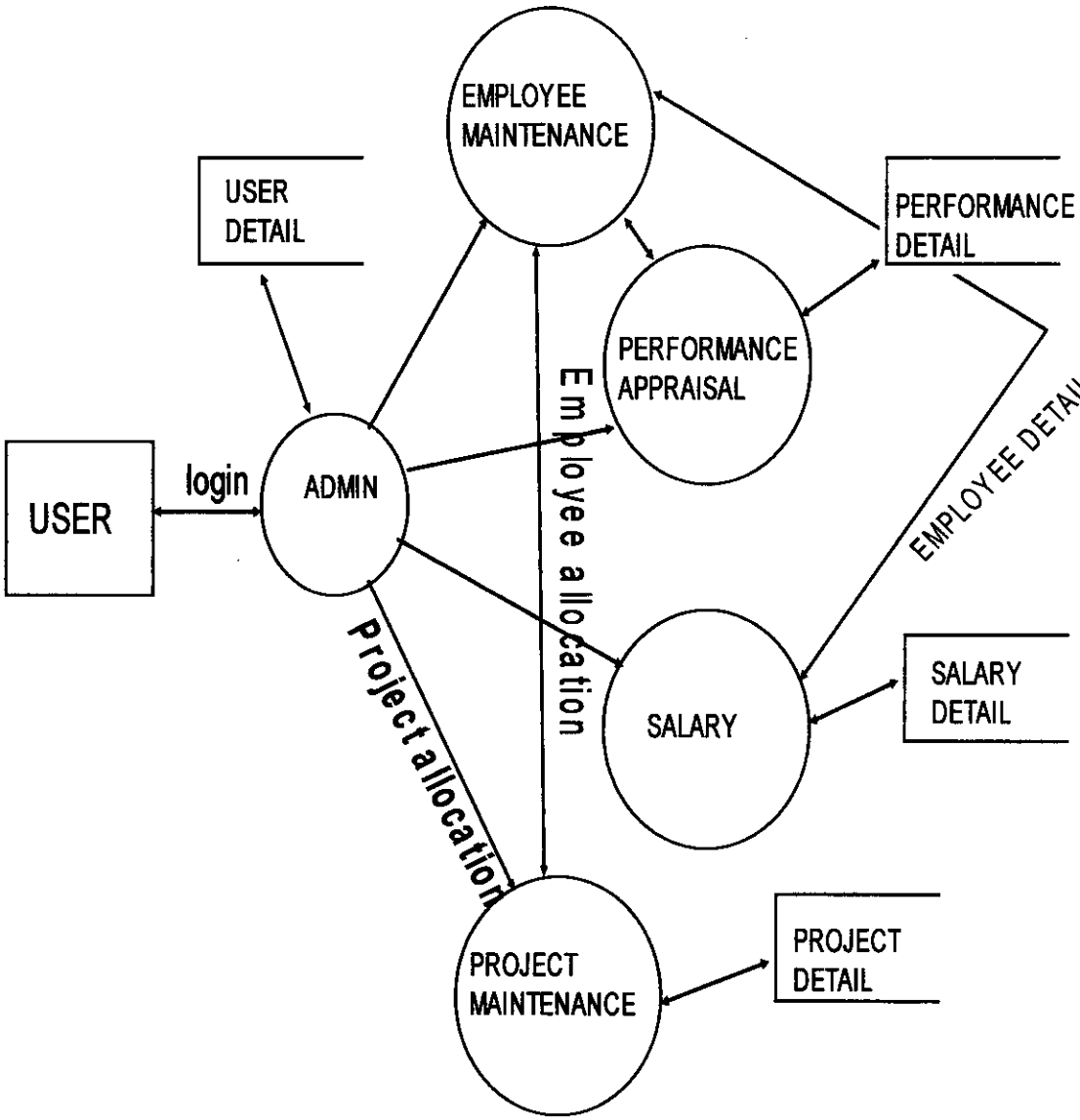
FIELD NAME	DATA TYPE	KEY	DESCRIPTION
Eid	Integer	Primary key	Employee ID
R_d_ext	Date		Retirement extended

4.4 DATA FLOW DIAGRAM

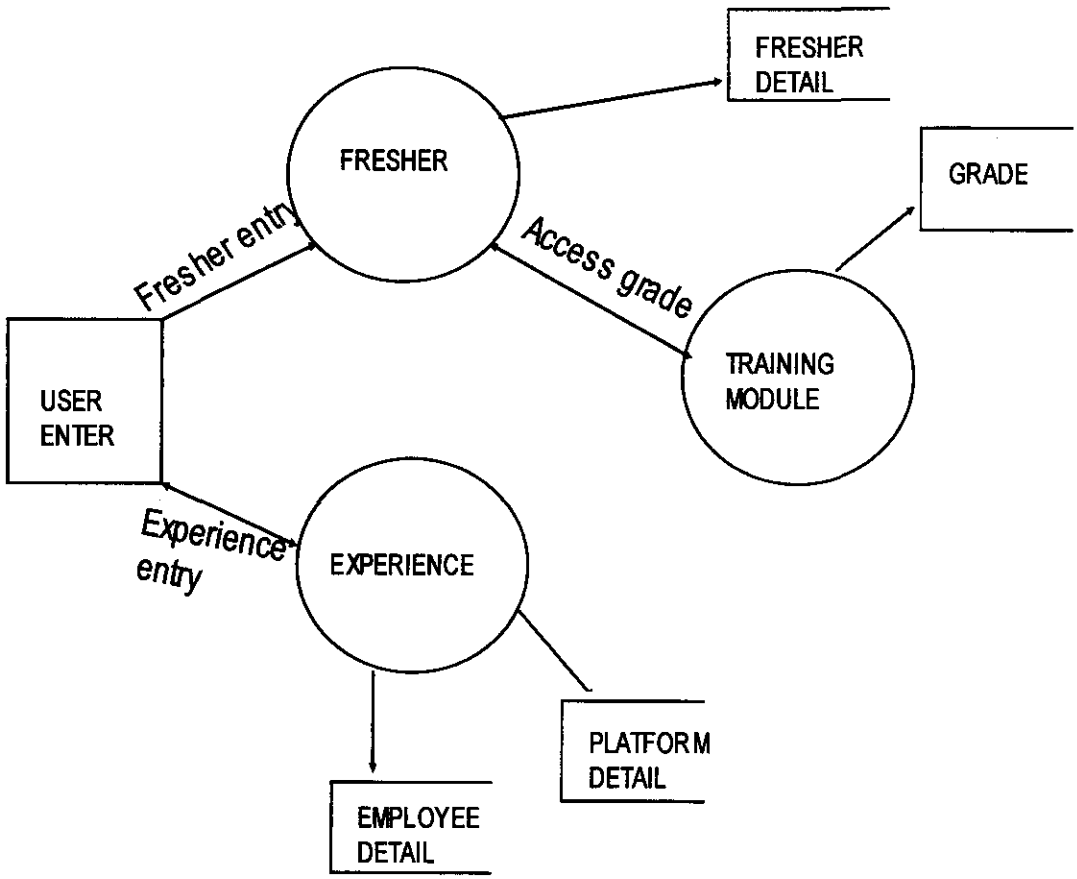
4.4.1 LEVEL 0: HUMAN RESOURCE MANAGEMENT SYSTEM



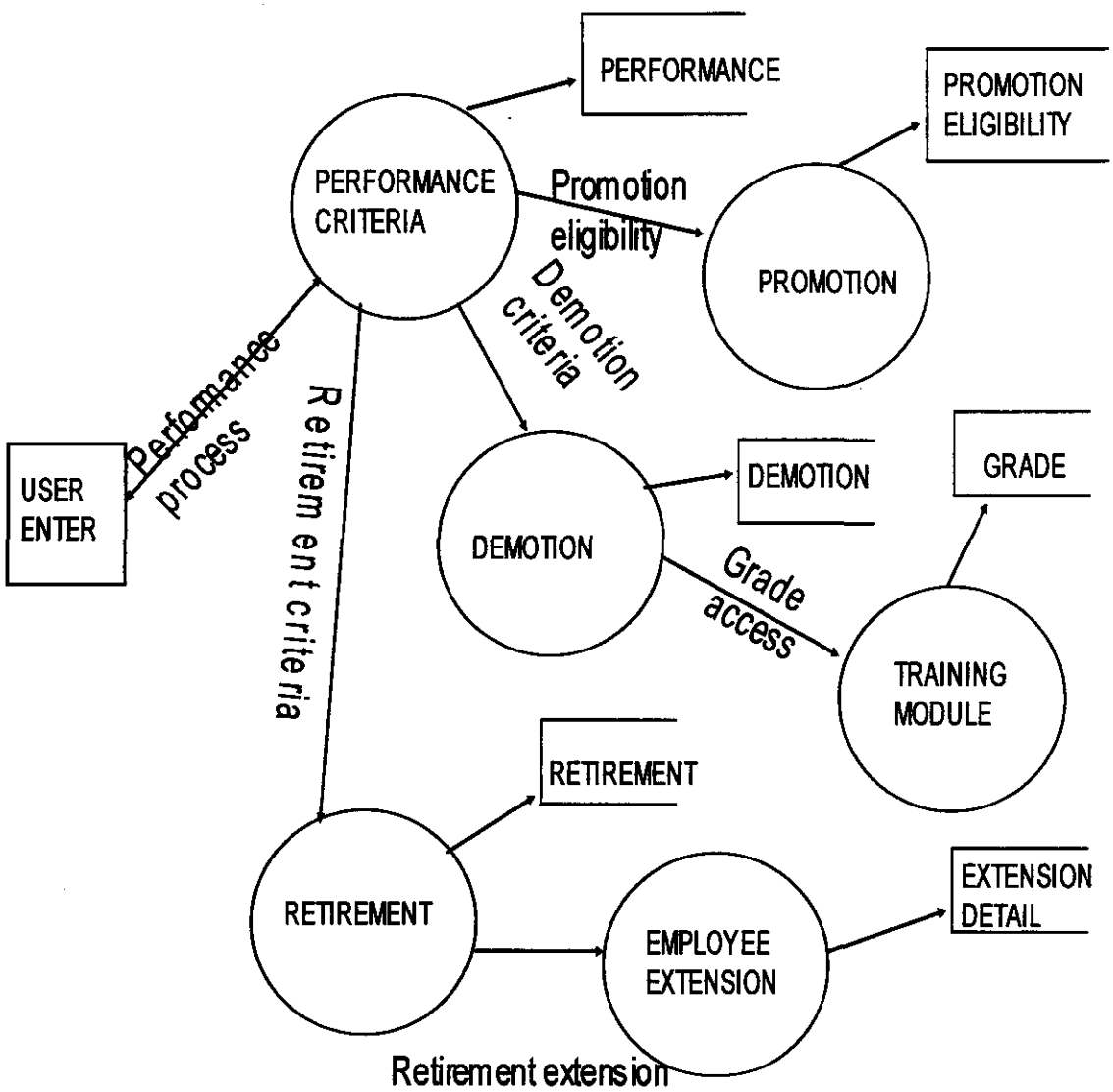
4.4.2 LEVEL 1: HUMAN RESOURCE MANAGEMENT DFD



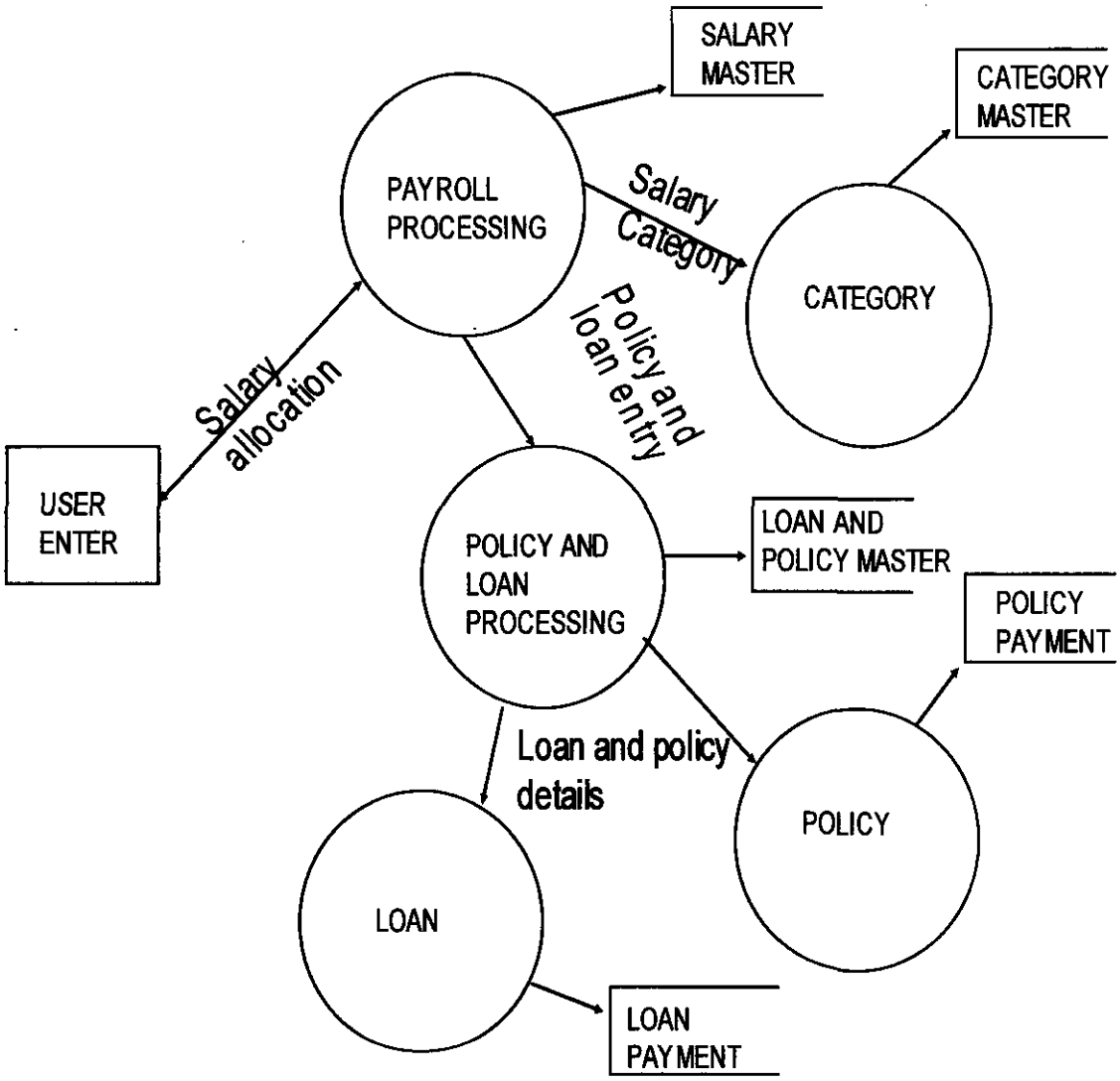
4.4.3 LEVEL 2: PERSONNEL MANAGEMENT DFD



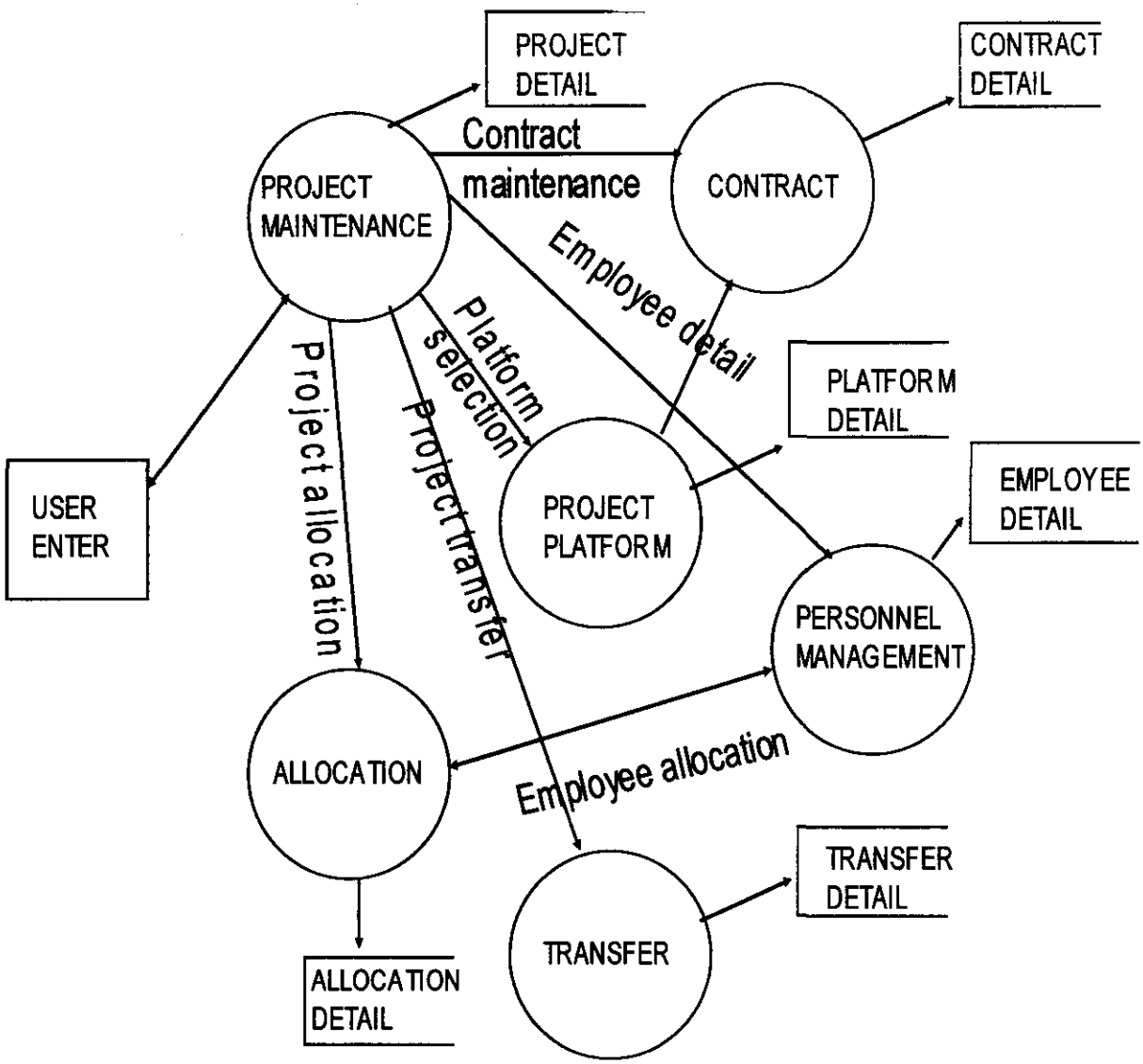
4.4.4 LEVEL 2: PERFORMANCE APPRAISAL DFD



4.4.5 LEVEL 2: PAYROLL PROCESSING DFD



4.4.6 LEVEL 2: PROJECT MAINTENANCE DFD



CHAPTER 5

SOFTWARE TESTING

5.1 UNIT TESTING

Unit testing is done between each module to have better flow of data and make manipulation in the payroll and performance modules.

5.2 CODE TESTING

The source code is initially checked with dummy data to examine the logic of the program and possible path in the entire project has been tested to examine any bugs in the source code.

5.3 SYSTEM TESTING

The system is tested in user environment and sees whether it provides correct outputs. A variety of tests are conducted to ensure proper functioning of the modules. The system also checked with multiple users's to access with database and find any overload occurs and time consuming.

5.4 REGRESSION TESTING

Each time a new requirement added and changes are made in the module like payroll processing and Performance appraisal. These changes may cause problems with functions. So regression testing is done and the re execution of some subset of tests that have already been conducted to ensure that changes have not propagated unintended side effects.

CHAPTER 6

IMPLEMENTATION

Implementation is one of the most important tasks in project. Implementation is the phase, in which one has to be cautions, because all the efforts undertaken during the project will be fruitful only if the software is properly implemented according to plans made. The Implementation phase is less creative than system design. It is primarily concerned with user training, site preparation and file conversion. When the manager's system is linked to terminals on remote sites.

Depending on the nature of the system, extensive user training may be required. Programming itself is a design work. Programming provides a reality test for the Assumptions made by the analyst System Testing checks the readiness and accuracy of the system to access update and retrieve data from new files. Once the programs become available, the test data read into the computer and processed. In most conventions, parallel run was conducted to establish the efficiency of the system. Implementation is used here to mean the process of Converting a new or a revised system design into an operational one.

CHAPTER 7

CONCLUSION AND FUTURE DEVELOPMENT

Even though Mainframe projects are very expensive it is still widely used on all larger Software companies, banks, airline reservation systems etc. The biggest asset of the Mainframe Projects is their reliability in Storage and Retrieval, Time Sharing Option, and Multi-programming, Mainframe gives solidarity in a view that data's are stored in safety manner and the speed at which it communicates with the user.

The system can be further enhanced by providing for the following:-

1. Analysis can be done at a general level and the system can be converted to a product and marketed.
2. Data warehousing concepts can be included into the system.

APPENDICS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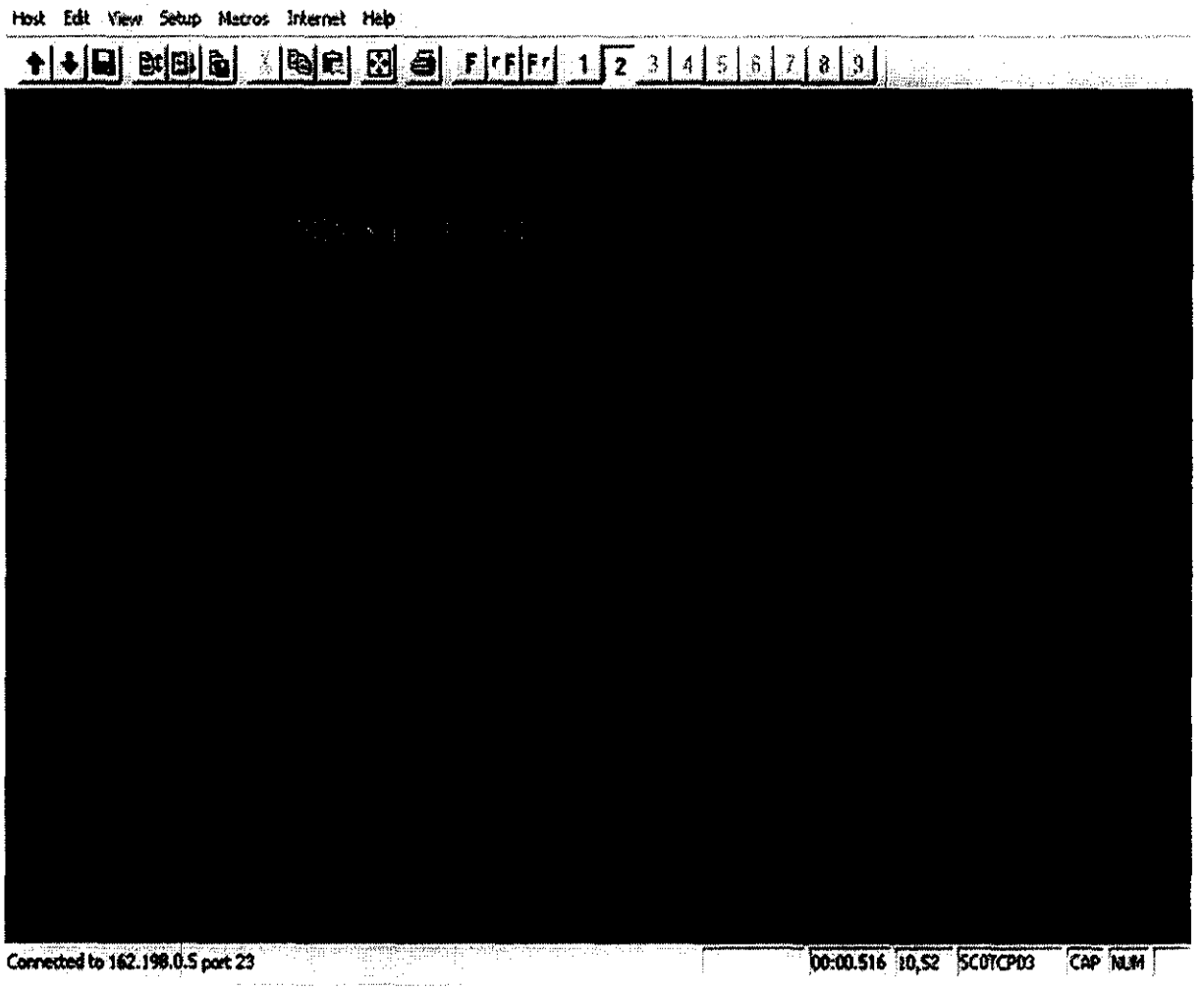
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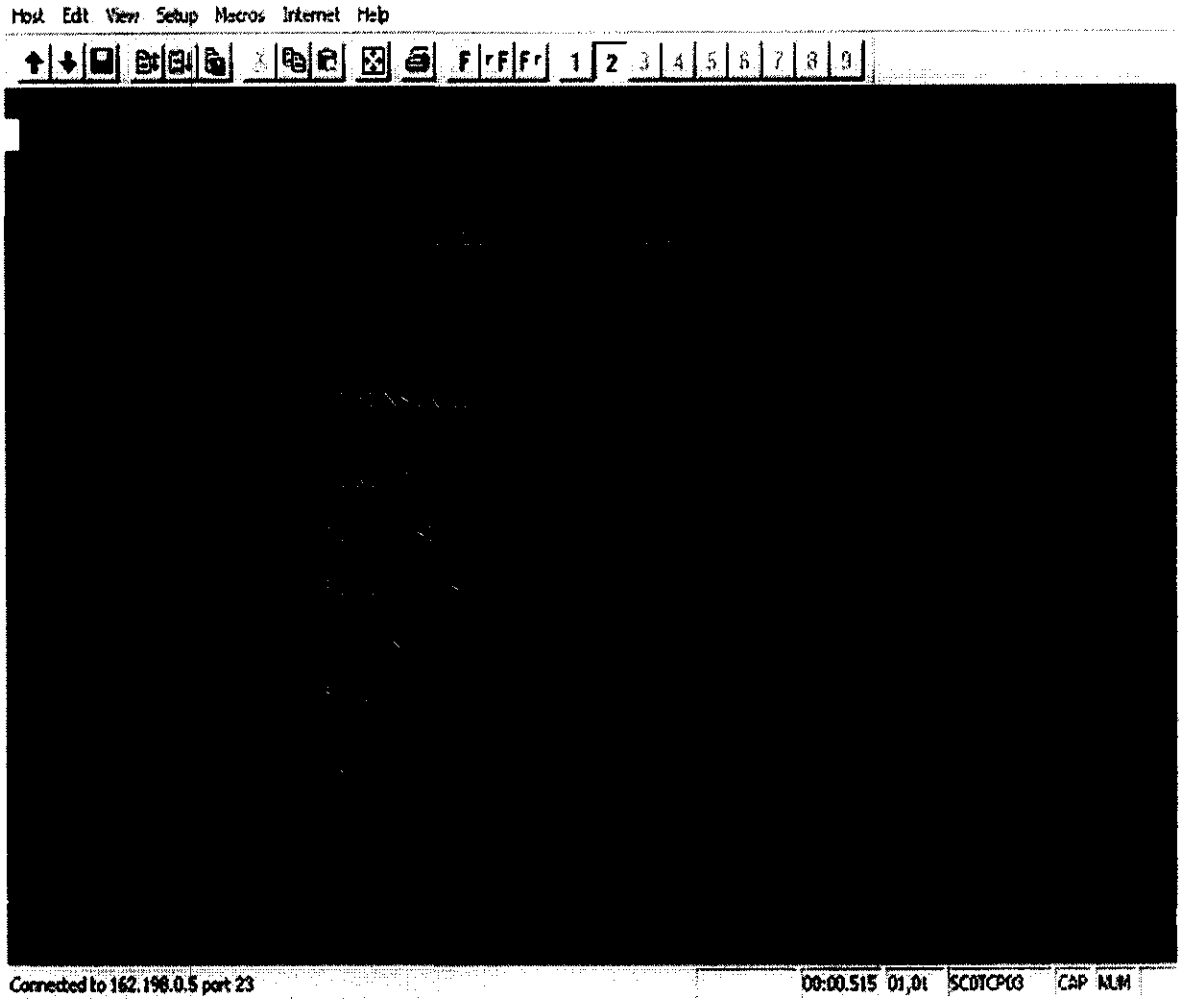
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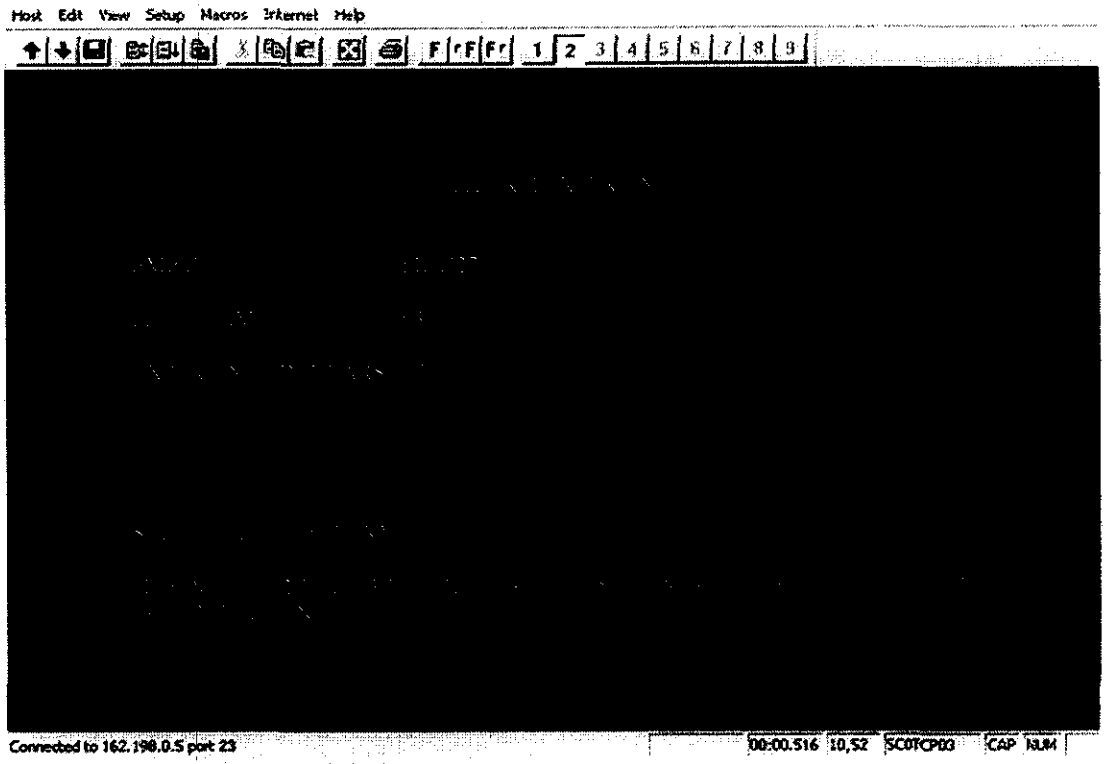
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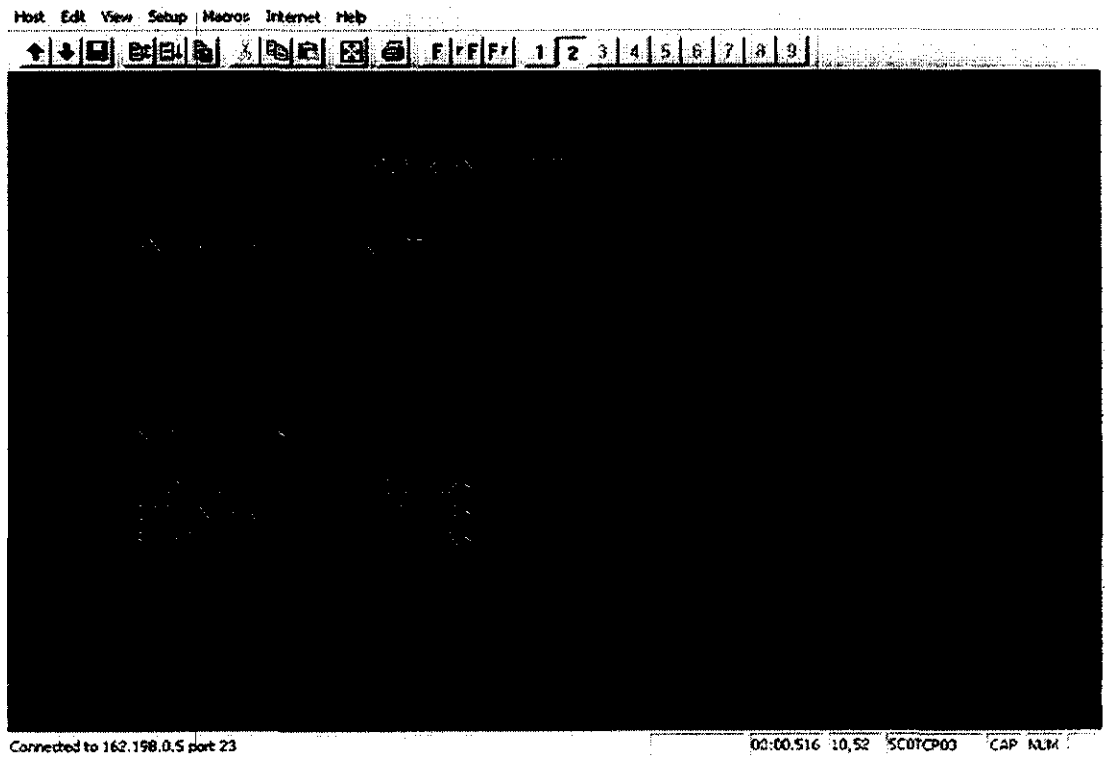
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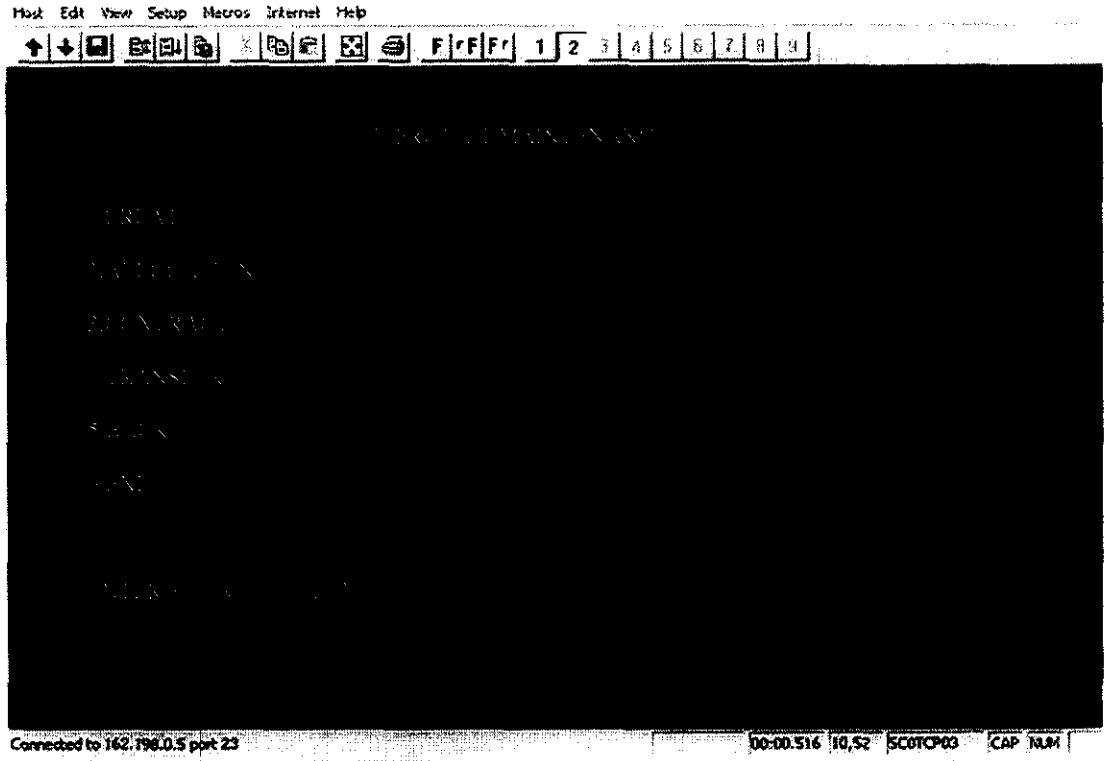
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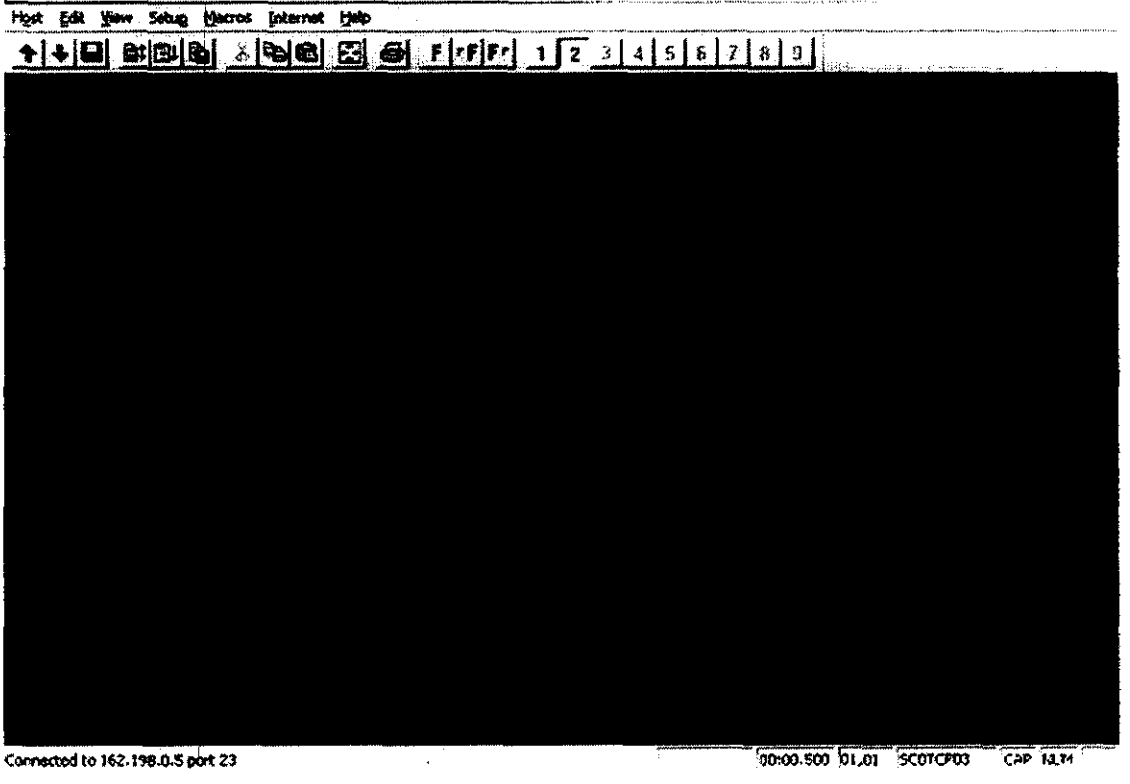
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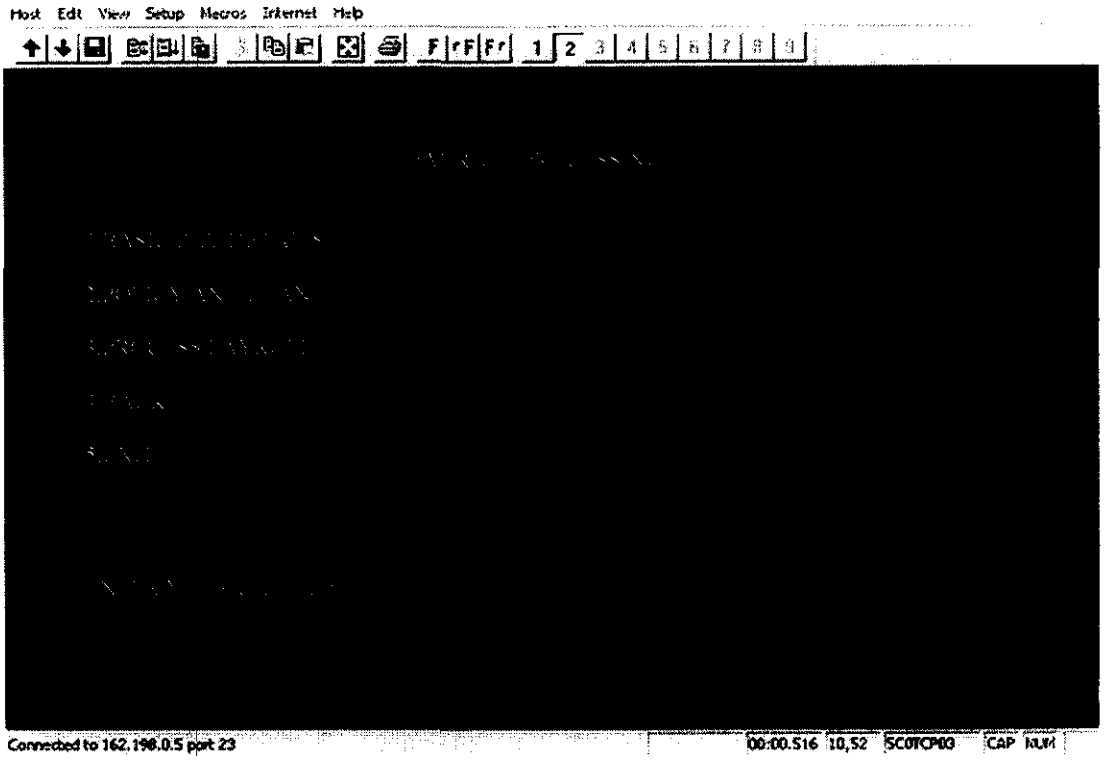
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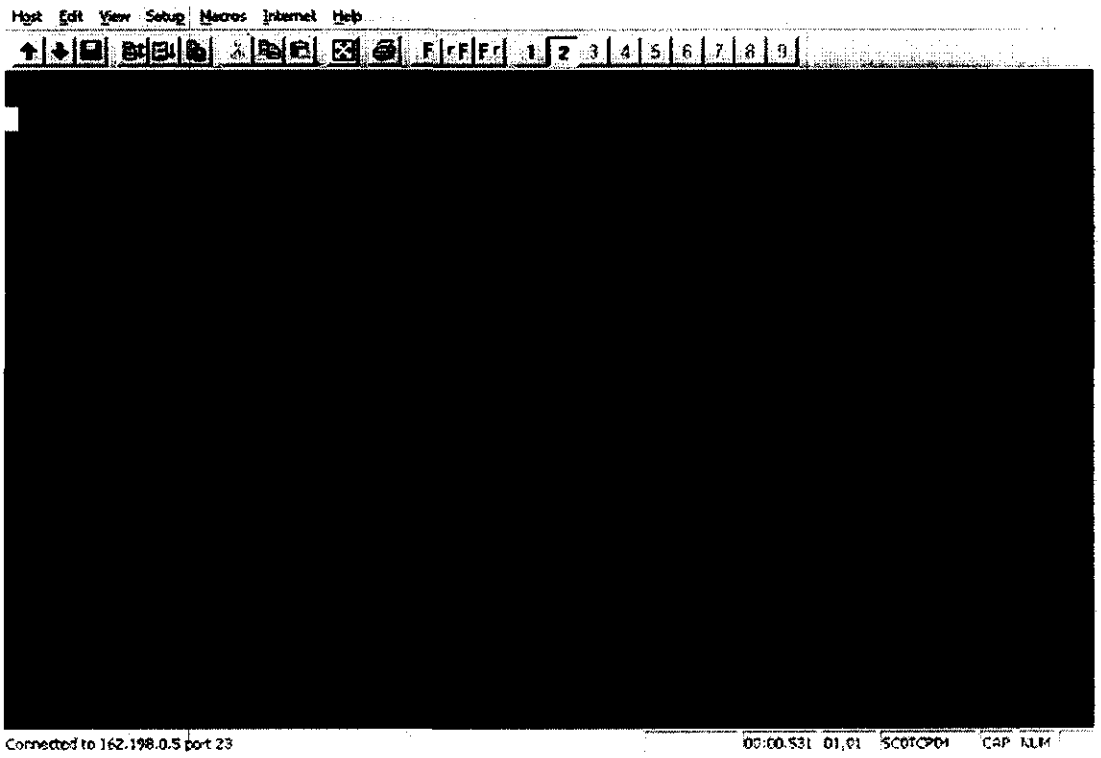
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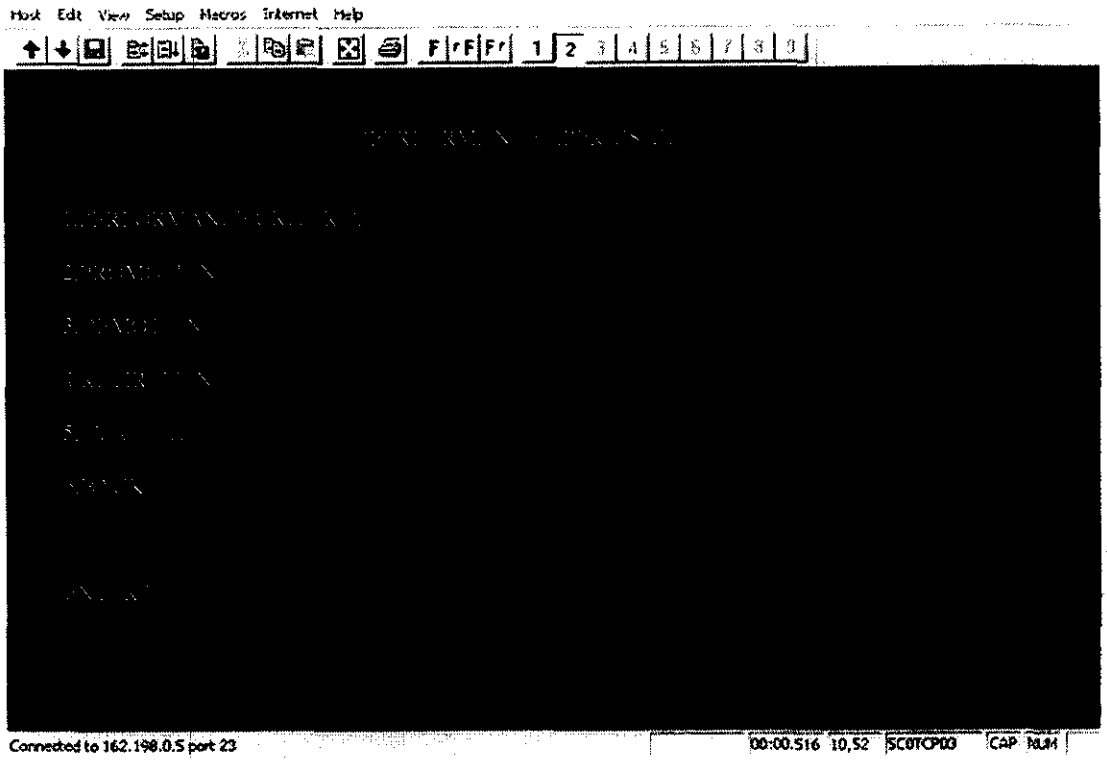
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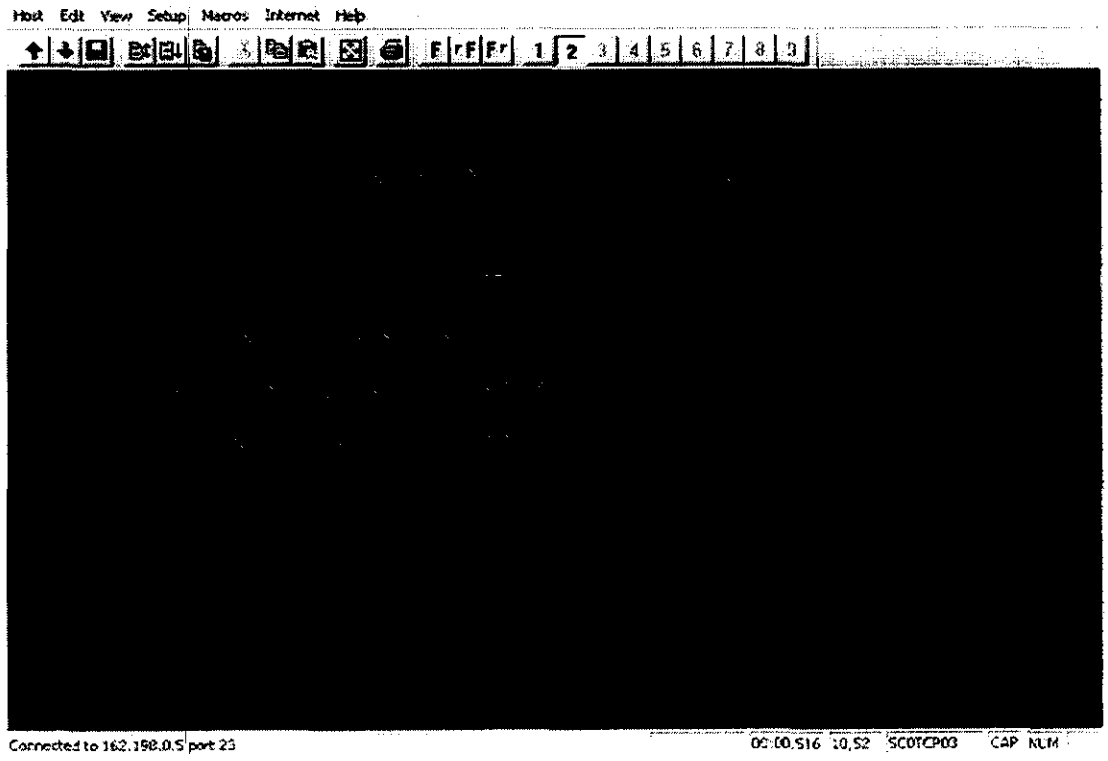
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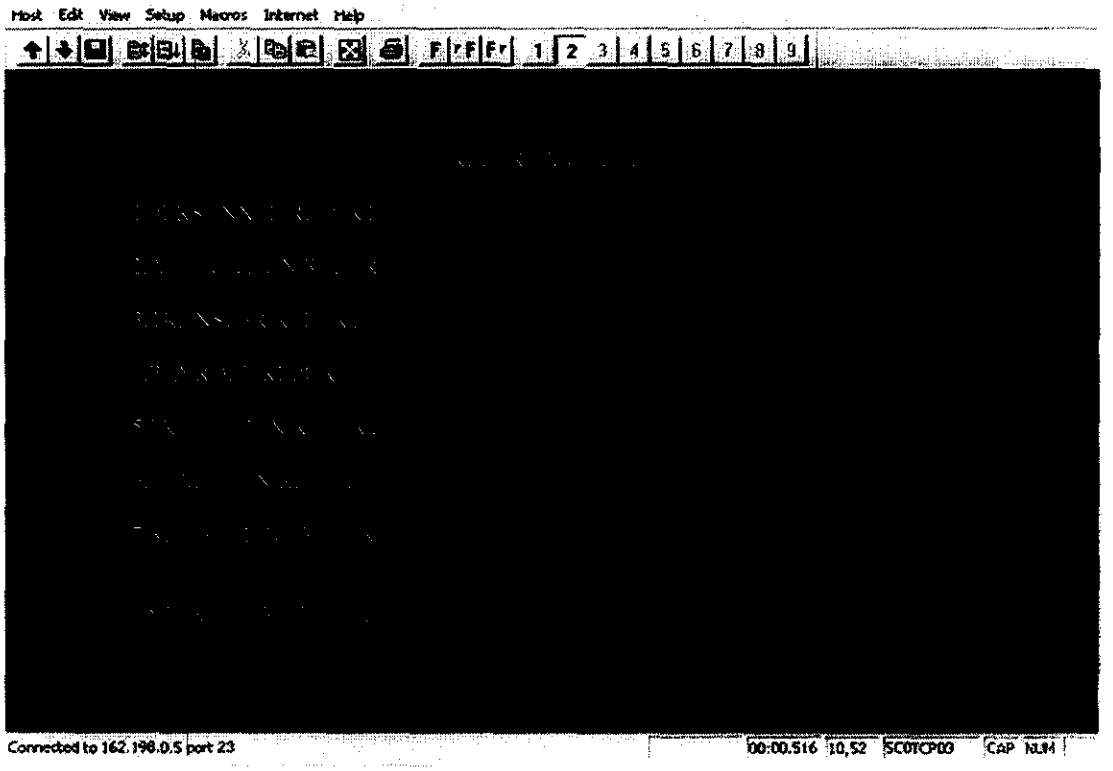
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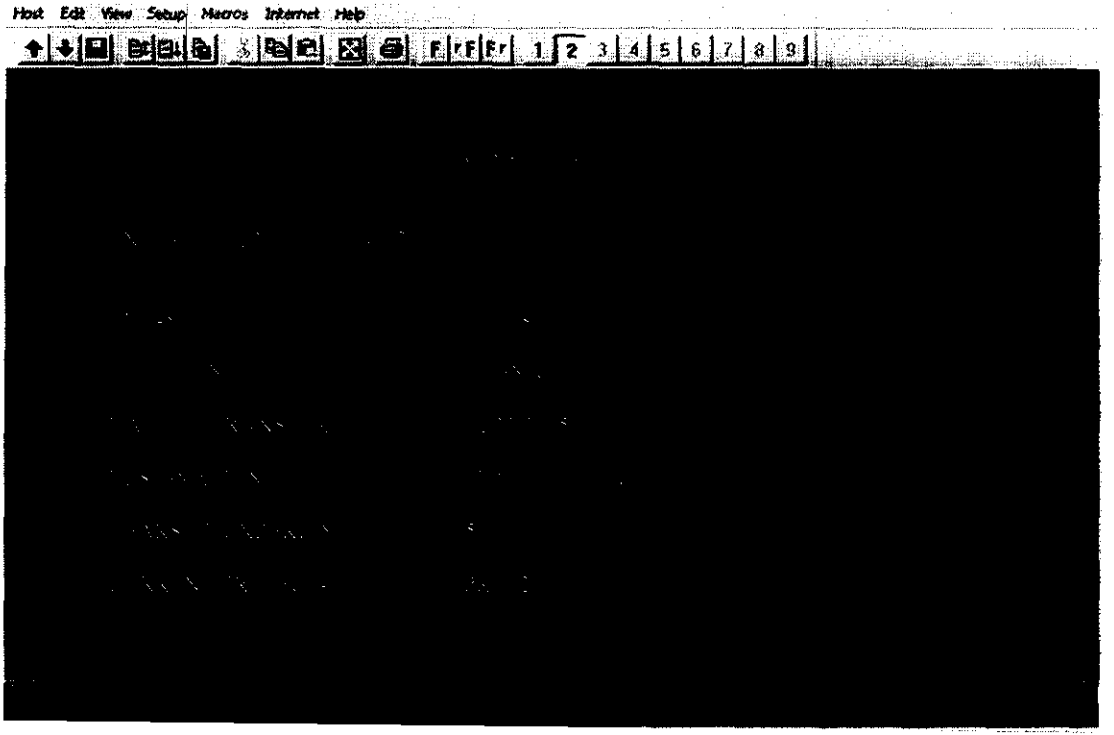
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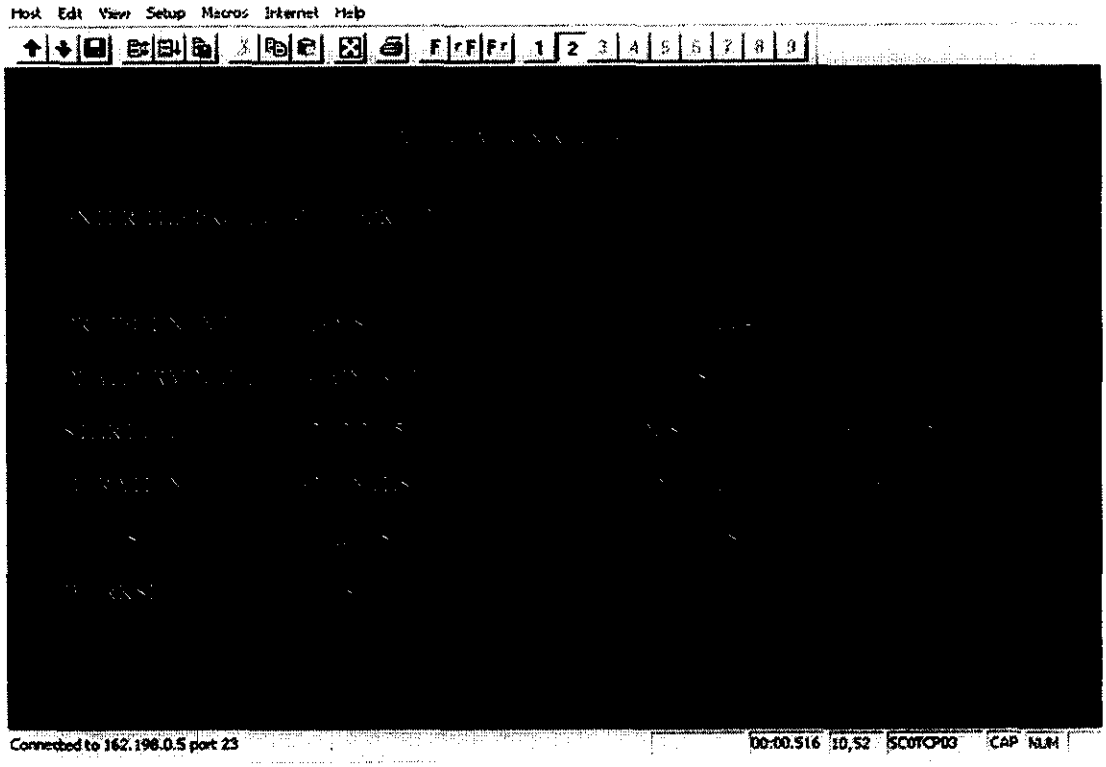
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