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**LABORATORY INVENTORY SYSTEM OF
F.G. GIRLS HIGH SCHOOL TARIQABAD RAWALPINDI**



SUBMITTED BY

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ISLAMABAD
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A dissertation submitted for the partial fulfillment on the requirements for the degree of
POST GRADUATE DIPLOMA IN COMPUTER SCIENCES

**QUAID-I-AZAM UNIVERSITY
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FINAL APPROVAL

Certified that we have read thesis submitted by ZAHIDA KAUSAR and SHAZIA MUKHTAR and found it of sufficient standard to warrant its acceptance by the Quaid-i-Azam University, Islamabad for the 'POST GRADUATE DIPLOMA IN COMPUTER SCIENCES:

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*In the name of Allah the most Gracious, the
most Merciful.*

*Read! In the name of your Lord who has
created (all that exists). He has created man
from a clot. Read! And your Lord is the Most
Generous. Who has taught (the writing) by
the pen. He has taught man that which he
knew not.*

*AL-ALAQ
Verses 1-5*

Countless salutations be up the HOLY PROPHET

*MUHAMMAD (PBUH) the city of Knowledge, who
has guided his UMMAH to Seek Knowledge from Cradle to
grave.*

DEDICATED TO

**My Loving Mother
Who is love
Who is life**

**Who pray for me every moment for my
success and Prosperity.**

**My Honorable Father
To whom I owe all that is mine
And for his deep love and
encouragement**

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Zahid Kausar

Shazia Mukhtar

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STRUCTURE OF LAB INVENTORY SYSTEM

ERD

FLOWCHART

FORMS

REPORTS

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CHAPTER - 1

INTRODUCTION TO THE
INSTITUTION AND PROJECT

INTRODUCTION TO THE INSTITUTION AND PROJECT

1.1 INTRODUCTION

F.G. Girls High School Tariqabad Rawalpindi is an old educational institution since 1942. Now a days it is working under the command of Directorate F.G.E. | C/G Rawalpindi i.e. Directorate of Federal Government Educational Institutions Cantt and Garrison Rawalpindi.

The school is from class one to class ten. The primary classes are in second shift while the students of middle classes and high classes gain the knowledge in first shift.

In primary level each class is divided into three sections, in middle level each class has four sections while the high classes divided into five sections due to more strength. First three sections section A, Section B, Section C are allotted to science students, while the last two sections i.e. section D, and section E are for Arts students. There are approximately 300 science students per year, which belong to class nine plus class ten.

The students do the practical in Lab in shape of groups. As there are six sections of science students i.e. three sections of class nine and three sections of class ten, and each section further divided into two groups, there is no clash between these groups in practical time table. The school administration is responsible to provide the same Laboratory facilities to each group. These facilities include time and items from physics, chemistry and Biology. Disciplines, record maintenance of the items contain in the Lab is becoming a major problem for the management as well as for students because the lab

is combine for Physics, Chemistry and Biology, but the school administration handle it technically and in good manners.

1.2. AIMS, OBJECTIVES AND GOALS OF INSTITUTION

- Provide the education to new generation in the basis of new technology.
- Co-curriculum activities also play to create the discipline and improve the mental and physical skill power of students.
- Trained the students to spend the life according to Islamic rules and dutiful citizen.

For this purpose an efficient and active team (teaching staff) playing a vital role in respective fields. Now it was felt that make these goals more active and to achieve them in efficient way by computerize system

1.3 ROLE OF COMPUTER IN AN EDUCATIONAL INSTITUTION

It is well known fact that the level of education in all developed countries is very high. This is partially due to the application of computers in their educational environment. In education computer can be used in a variety of ways. Three broad areas use of computer in education are as follows:

- Computer Education
- Computer Aided Education
- Administrative uses of computer

1.3.1 COMPUTER EDUCATION

Computer education means the particular knowledge about computer. How the main parts of this machine interact to each other and how they function

separately? Main Memory, Central Processor Unit (CPU), Hard Disk, Arithmetic Logical Unit (ALU) and other devices discussed under this education i.e. computer education environment.

1.3.2 COMPUTER AIDED EDUCATION

In addition to computer education computer can also help in other disciplines. Hence it is used as a tool. Much of the educational processes, a student may be done by using computer, even if actual teaching is not done by computer. For example collection of educational material for a relevant subject by web pages, or any other information about the particular field.

1.3.3 ADMINISTRATIVE USES OF COMPUTER

There are some administrative tasks that must be performed routinely. One of these tasks is record keeping. Computer can be used efficiently for this purpose. Like any other business, schools, colleges must keep various records also, such as:-

- To process teacher and administrative pay roll
- To maintain student attendance record
- To maintain exam record
- To fill out grade cards
- To maintain library record
- To maintain Laboratory record

1.4. SCOPE OF THE PROJECT

There exists a wide range of applications of computer in education. How ever our project is concerned with ;the computerization of Laboratory Inventory system of F.G.

Girls High School Tariqabad Rawalpindi. Presently school has one laboratory, in which, items from three disciplines Biology, Physics and Chemistry are maintained. Record of these items is maintained manually and retrieval of information about different items is quite cumbersome and time consuming. In view of such problems it was felt that computerization of Lab inventory system may solve many problems.

For this purpose, a database using Oracle is developed. Inputs from different sources and different forms will be entered into the database. The process of input will be comprehensive in checks and verifications. To accomplish this, a series of databases will be consulted. If a particular piece of information falls outside the range of acceptable values of a database then the information will be rejected by the system and correction requested. Variety of items have been stored into this database is providing variety of queries and generating different reports.

It is hoped that it would provide efficient means of storage and retrieval. As it would be a multi user system, it would also implement security by assigning passwords to different users.

CHAPTER - 2

EXISTING SYSTEM

EXISTING SYSTEM

2.1 INTRODUCTION

A reliable and efficient system can not be designed without a through study of existing system. The process to see how it operates and where improvements can be made are necessary for the design and development of the system.

2.2 SCOPE OF WORK

Since the Lab is combine for Physics, Chemistry and Biology. Therefore in one time only one group can do practical.

2.3 OVER VIEW OF PURCHASE AND ACCOUNTS

The institution is responsible for all kinds of orders.

- First of all three diff quotations are collected from scientific stores according to the requirement of the school Lab.
- The last rate quotation is accepted.
- If the bill is less than Rs. 2500/- than paid by the head of the institution. But if the bill is more than Rs. 2500/- then it is sanctioned by GSO1 and then dues are paid.
- Scientific items are purchased from the dues collected from science fee, plus student fund. Since science fee is low i.e. only one Rupee per

student; therefore, very limited amount is collected and remaining amount is used from student fund.

- The equipment's purchased as per quarterly basis.

2.4 THE EXISTING INVENTORY SYSTEM

The existing inventory system is totally manual and all the records are on the stock registers and different type of books such as issue book, stock register etc.

The function of inventory system is:

- To take action when some of the items are not available.
- To minimize delay in supply course by the lack of items.

Of course there can be disadvantage in holding either too much or too little inventory. Inventory control is preliminary concerned with obtaining the correct balance or compromise between the extremes.

2.5 PROBLEMS IN EXISTING SYSTEM

- In all inventories, all the work is handled by hand. There is no immediate information available to indicate the average use of each item average supplier delivery time, and average minimum and maximum requirement.
- As all the informations are stored manually, a lot of calculation and updating, different type of registers are involved which is a way of wastage of time and labour.
- Searching information about a particular item is quite time consuming. For example the concerning person first searches the item name in the list,

then opens the appropriate register, where information about that item is stored.

- The system have not validation checks.
- There is no screen in existing system.
- Since all the work is done by hand, therefore the chance of duplicating entries are considerable.
- It is neither an efficient nor user friendly system

CHAPTER - 3

PROPOSED SYSTEM

PROPOSED SYSTEM

3.1 INTRODUCTION

Every new system whether manual or computerized that replaces the previous system brings about some changes to overcome the shortcomings and tends to lead towards betterment. These changes may be in documents or in procedure. Therefore modified and new procedures have to be introduced. In case of this project existing system manual Laboratory Inventory system is replaced by a computerized system.

The new system will cater the information and maintain the data and information more efficiently keeping in view the Graphical User Interface (GUI) for data entry and retrieval that would increase the efficiency manifold. The users will have the facility of using the keyboard.

3.2 OBJECTIVES OF THE PROPOSED SYSTEM

These objectives listed below are taken into account while designing the system.

3.2.1 EFFICIENT AND RELIABLE

Contrary to the current manual system where there are many registers for the keep record of Laboratory Inventory system i.e. stock register, issue book etc.

Whenever a report is needed, the user have to scan several registers for preparing a report, which is very time consuming process. Now the

proposed system strives for efficiency as it caters all the requirements, in the illuminating data entry, retrieval deletion etc.

Similarly it should tends to give reliable results both from the user as well as the system's point of view.

3.2.2 GRAPHICAL USER INTERFACE

The system should provide an easy interface so that maximum work could be acquired with the minimum key strokes.

3.2.3 SEARCHING

As one of the most important objective of the proposed system, system querying facility would be implemented such that at any time system would be ready to answer any question raised by user like the searching of total consumed quality, information about damage quantity etc.

3.2.4 EFFICIENT STORAGE AND FAST RETRIEVAL

Efficient use of space will be implemented in new system. It provide reports and results within reasonable time.

3.2.5 PROPER HANDLING OF ERRORS

As the data that is being inserted or deleted or retrieval should be correct and give an error free manipulation hence in the system there will be proper handling of human errors (e.g. invalid data entry, type mismatch etc) and general errors (e.g a particular value should be in a particular range) would be done.

3.2.6 COMPATIBILITY

The front end Application system (Developer 2000) is compatible to access any Back end database through ODBC (Open Database Connectivity). So it is reliable to use Oracle RDBMS.

3.2.7 DATA SECURITY

Data required for decision making is highly valuable therefore, reliability of the proposed system is secured by giving a regular and guaranteed services to the user. A unique password is allocated to each user of the system.

3.2.8 ACCURACY

The system will provide the accurate information needed for decision making, it will also ensure efficient and accurate record keeping.

3.2.9 FLEXIBILITY

The system will be capable of making changes and enhancement in accordance with future needs of the management.

3.2.10 REPORT GENERATION

One major purpose of establishing the database is to retrieve information quickly and efficiently. The user is not bothered with the internal working of the system. Automatic generation of reports would be done in the new system according to the user's requirement. These reports will be reliable and will also be more helpful for the management of the Lab inventory system.

3.3 FEATURES OF PROPOSED SYSTEM

3.3.1 CODE

Codes are required to reduce the storage and number of the typing strokes. To avoid any error, code should be small and simple and understandable.

3.3.2 USER INTERFACE

For efficient use interaction screens will be designed to keep data entry updating and deletion simply and easily for the user. These screens will clearly tell the user what to do and how to perform the particular function. Data will be accepted in similar manner as it is done manually.

3.3.3 ON-LINE HELP

The system would be designed in a manner so that it should provide complete on-line help to the users to make it user friendly. The system should provide proper messages on wrong input or on some other error.

3.3.4 UPDATION

Any mistake detected or any other necessary updating can easily be made through updating operations. User may change any field or any label or file having special privileges for updation. If a record or row does not exist in the database, then the system should display a message "Record does not exist".

3.3.5 DELETION

Facility of deletion of particular records from database is also provided, if so required. Different SQL queries would provide deletion facility. Only the responsible person would have the privilege for deletion records, which are necessary

3.3.6 CHECKS

Various checks would be provided in the data entry, updation and deletion modules to ensure appropriate actions. Checks would also be made so that any user tries to enter duplicate records then system will give an error message of duplicate key. Range checks would also be applied on some data files to check whether they fall in the required range.

3.3.7 SPECIFICATION OF INPUT

There are various types of inputs, which are classified according to their mode of entry in the database, some inputs remain constant during the working system e.g. claim id, student Roll No. these inputs are called constant inputs

Some inputs can be changed, throughout the program. These types of input are called variable inputs. For example date, amount, rate etc.

Some variable inputs depend upon some conditions. For example if a supplier is not involved in a transaction then there is no need to fill these fields. These inputs are classified as conditional inputs.

3.4 SOFTWARE SELECTION

The choice of software is very important and depends upon the problems which the existing system is facing. After lot of consideration and keeping in view the institutional requirement. Oracle 7.3 Developer/2000 (Form 5.0) has been selected for our project because it has been considered appropriate for the development and maintenance of inventory system.

The main features of Oracle and Developer 2000 are as follows:

- It has powerful database development tool.
- It has security features
- It provides client server facility.
- It is portable
- It has facilities which assist the strong Form and Report generation.
- Developer/2000 is more secure and efficient.
- It contains all the features of DBMS i.e. relation like insertion, deletion etc. Data integrity, consistency crash recovery and 4th GL tools.
- It is manual driven WinWord user interface.
- It contains rich library commands and functions which simplify a programming task.
- Every unite in Oracle works like an independent engine and they start independently. Its engines are:-
 - SQL * Plus

- Developer/2000 * Form
- Developer/2000 * Reports



One engine can run another. Database is created in SQL *Plus. Entry program, modification, deletion etc. are made in developer 2000 Form 5.0 reports are made in Developer 2000 reports (report builder).

3.5 HARD WARE SELECTION

The hardware and operating system requirements for proposed system are as follows:

- A Pentium Processor 300 MHz
- Hard disk having capacity of 10 GB
- Main Memory of 64 MB
- SVGA Color Monitor
- Window 98 operating system
- A Printer

3.6 STRUCTURE OF LAB INVENTORY SYSTEM

In proposed system Lab inventory system divided into four sections. Each section further divided into some parts according to its own criteria.

The sketch of Lab inventory system is given in appendix.

CHAPTER - 4

SYSTEM DESIGN

SYSTEM DESIGN

4.1 INTRODUCTION

System design is the major part in the project development life cycle and bridges the gap between the problem and solution domain. Development phase and implementation phase is initiated by this phase. Initiating of this phase means to move in order to achieve all the goals and requirements.

4.2 DESIGN PRINCIPLES

Following main principals are kept in view while designing the system

4.2.1 PROBLEM PARTITIONING

Main problems are divided into small and understandable modules and then designed. This introduce the concept of modular design.

4.2.2 ABSTRACTION

Starting at some level of problem and going on solving till the final desired results are obtained or a solution of a problem is designed.

4.2.3 DESIGNING STRATEGIES

There are basically three design strategies as below:

Top down strategy

Bottom up Strategy

Mixed Strategy

4.2.3.1 TOP DOWN STRATEGY

Starting from first level of abstraction and go to lower levels down the tree.

This strategy is used to solve complex designing problems.

4.2.3.2 BOTTOM UP STRATEGY

Starting from lowest levels of abstraction and move upper levels. This strategy is mostly used in system integration.

4.2.3.3 MIXED STRATEGY

Using both top down strategy and bottom up strategy collectively is called mixed strategy.

4.2.3.3 DESIGN STRATEGY ADOPTED IN THE PROJECT

Top down strategy keeping in view the natural requirements of Lab inventory system the abstraction is made in Top down manner.

4.3 SYSTEM DESIGN

System design consists of following three steps.

- Input designing
- Output designing
- File designing

4.3.1 INPUT DESIGNING

Input designing is the process of converting user oriented input to computer based format. Input are designed from multiple points of view.

Inputs are placed carefully because of time effort and cost involved, converting raw data to usable information because time constrain on input and variation in input volume is effected by design description.

- Data needed for new management system was determined and formatted to the useful produce desired outputs.
- All inputs were discussed with user and management to ensure the acceptance.

Designing of input involves the following steps.

- Code designing
- Form designing

4.3.1.1 CODE DESIGNING

Code provides an efficient means of storing information, which is repeated and takes extra space. Codes are used to minimize both the storage wastage and data entry time. They also provide faster and efficient retrieval information. The codes to the following entities have been assigned in the laboratory inventory system.

- Supplier
- Section (Section of Lab)
- Item
- Serial
- Type

4.3.1.2 FORM DESIGNING

Since an input plays a a very important role in data entry phase, so these forms should be easy to understand and use. Keeping all this in view the forms related to our project have been designed. They have the following features to facilitate and ease the user.

PASSWORD

The Lab Inventory system checks the password before entering into the project, the purpose is to allow only authorized persons in the system

UPDATE

User can update the desired record.

DELETE

User can delete a record

SEARCH

User can search a specific record using this option

SORTING

User can sort the displayed records at some criteria

LIST OF VALUES

User can select the values from the list of values instead of input it.

HELP

User can help about the function keys as well as about the buttons like iconic buttons.

VALIDATION CHECKS

Various checks, of uniqueness, avoid of duplication of primary key and date validation have been imposed in the Lab inventory system's forms.

4.3.2 OUTPUT DESIGNING

User's need should be clean in the design of the output. User can often be quite specific as to what he want to use in front of them. Initial output consideration in discussion with the user include what output information is needed, how it should be present.

Output from a system can be in the form of queries and reports. In designing outputs the following factors should be kept in mind.

- Output should be good looking
- Output should be easy to understand
- Unnecessary information should be avoided.
- Purpose of output should be clearly mentioned.

The reports are in the form of as below:

- Item and issue report
- Item and consume report
- Item and required report
- Student and Damage report

In above topics the minimum and maximum of sum and average can be findout.

LOGICAL DESIGN

SUPPLIER (1)

SP-ID	NAME	ADDR	TEL.NO.
-------	------	------	---------

SECTION (2)

SEC-ID	NAME
--------	------

TYPE (3)

T-ID	T-NAME
------	--------

STUDENT (4)

R.NO.	NAME	CLASS
-------	------	-------

BILL (5) (1)

BILL NO.	DT1	SP-ID
----------	-----	-------

ITEM (6) (3) (2)

ITEM-ID	NAME	T.QTY	UNIT	U-PRICE	T-ID	SEC-ID	ORD-EUL
---------	------	-------	------	---------	------	--------	---------

ISSUE (4) (6)

SRN-1	R-NO	DT2	ITEM-ID
-------	------	-----	---------

CONSUME (4) (6)

SRN-2	R-NO	ITEM-ID	C-QTY	U-PR
-------	------	---------	-------	------

DAMAGE (6)

SRN-3	ITEM-ID	D-QTY	UP	DATE	REMARKS
-------	---------	-------	----	------	---------

REQUEST (6)

RQT-NO	ITEM-ID	RQ-QTY	D-S	ACCEPTED	D-SENC
--------	---------	--------	-----	----------	--------

BILL-DETAILED (5) (6)

SRN-4	BILL-NO	ITEM-ID	QTY-SUPP	U-P
-------	---------	---------	----------	-----

4.4 FILE DESIGNING

This is the most important part of the system design. The entire system depends upon good file design. The problems of data duplication and data redundancy are taken into account very carefully. File design provides us the representation of our requirements and input design and it is the main source of interaction between the users and out come of system.

The structure of the file and description are as below:-

4.4.1 SUPPLIER

Primary Key: Sp-ID

Purpose:- Information about supplier

FIELD	DESCRIPTION	TYPE	WIDTH
Sp-Id	Supplier Id	Number	3
Name	Supplier Name	Char	30
Addr	Supplier's Address	Char	30
Tel-No.	Supplier's Telephone No.	Number	30

4.4.2 SECTION

Primary Key: Sec-ID

Purpose: Information about each section of Laboratory. Since the division of Lab. Is in four parts. And each part is considered section.

FIELD	DESCRIPTION	TYPE	WIDTH
Sec-Id	Section-Id	Number	3
Name	Section Name	Char	30

4.4.3 TYPE

Primary Key: T.ID Purpose: To keep information about each type of item in Lab.

FIELD	DESCRIPTION	TYPE	WIDTH
T-Id	Type Id	Number	3
Name	Type Name of item	Char	30

4.4.4 STUDENT

Primary Key: R-No.

Purpose:- Information about students.

FIELD	DESCRIPTION	TYPE	WIDTH
R-No	Roll no of Student	Number	3
Name	Student Name	Char	30
Class	Class	Char	10

4.4.5 BILL

Primary Key:-Bill No.

Purpose:- The table containing the information about Bill

FIELD	DESCRIPTION	TYPE	WIDTH
Bill-No	Bill Number	Number	3
Date	Date of Bill		
Sp-Id	Supplier Id	Number	3

4.4.6 ITEM

Primary Key item-ID Foreign Key (i) Sec-ID, (ii) T-ID

Purpose:- It is the major table of the project. It keep all information's of items contained in Lab.

FIELD	DESCRIPTION	TYPE	WIDTH
Item-ID	Item ID	Number	3
Name	Item Name	Char	30
T. Qty	Total Quantity each	Number	3
U-Price	Unite price	Number	3
Sec-Id	Section ID	Number	3
T-Id	Type Id of item	Number	3
Unit	Unite for measure of quantity	Char	10
Ord-Lvl	Order level	Number	3

4.4.7 ISSUE

Primary Key SRN-1

Foreign Key R-No

Purpose:- To keep information about the issue item to the student.

FIELD	DESCRIPTION	TYPE	WIDTH
SRN-1	Serial Number one	Number	3
R-No.	Student Roll number	Number	10
Class	Class	Char	10
Dt2	Date of issue		
Item-Id	Item Id		3

4.4.8 CONSUME

Primary Key: SRN-2

Foreign Key: Item-Id

Purpose:- The table contains the information of consumed quantity of items.

FIELD	DESCRIPTION	TYPE	WIDTH
SRN-2	Serial number two	Number	3
R_No	Roll No.	Number	3
Item_Id	Item_Id	Number	3
C_Qty	Consumed Quantity	Number	3
U_pr	Unit Price	Number	5
Remarks	Reason of damage	Char	40

4.4.9 DAMAGE

Primary Key: SRN-3

Foreign Key: Item-Id

Purpose:- The table contains the information of damaged quantity of items.

FIELD	DESCRIPTION	TYPE	WIDTH
SRN-3	Serial number three	Number	3
Item-Id	Item ID	Number	3
D-Qty	Damage quantity of items	Number	3
Up	Unit Price	Number	3
Date	Date of damage items		
Remarks	Reason of damage	Char	40

4.4.10 REQUEST

Primary Key: SRN-4

Foreign Key Item ID

Purpose:- The table keep record of request for purchase

FIELD	DESCRIPTION	TYPE	WIDTH
SRN-4	Serial number four	Number	3
Rqt-No	Request number	Number	3
Item-Id	Item Id	Number	3
Rq-Qty	Required Quantity of item	Number	3
D-S	Date of sent the request		
Accepted	Either the request is accepted	Char	3
D-senc	Date of Sanctioned the request		

4.4.11 BILL-DETAILED

Primary Key: SRN-5

Foreign Key Bill-No.

FIELD	DESCRIPTION	TYPE	WIDTH
SRN-5	Serial number five	Number	3
Item-Id	Item Id	Number	3
Qty-Supp	Quantity Supplied	Number	3
U-P	Unit Price	Number	3
Bill No.	Bill No.	Number	3

CHAPTER - 5

SYSTEM DEVELOPMENT

SYSTEM DEVELOPMENTT

5.1 INTRODUCTION

After system designing the next phase of software is system development. The software is developed to fulfill the proposed and design specifications. Implementation is the final phase in system development life cycle.

During development different codes or programs are written to meet all of desired requirements. This Phase require a specific plan and different programming techniques. After written different codes or programs their interfacing is required in order to achieve the target.

The phase depends entirely on the package or programming language which we are using. In this project Oracle .7.2 as the backend and developer 2000 as the front end tool, so we have to follow all the rules and techniques of it.

5.2 DEVELOPMENT

The project laboratory inventory system has been developed in Oracle version 7.2, with front end as form 5.0 (form Builder), which is an easy and user friendly way to understand Oracle. The reports has been developed in report builder.

5.2.1 DEVELOPER/2000 FORM BUILDER ENVIRONMENT

5.2.1.1 ORACLE FORM 5.0 (BUILDER)

Forms are the arrangement of information that determine how an application will work. Oracle Form5.0 is a developed tool that can be used to create applications to enter access, change, or delete data from an Oracle database in an online, form-based environment. Forms have provided many objects for developing an effective application module. Oracle form 5.0 operates in graphical user interface (GUI) environment. It is also provided fast and easy data entry, Update delete and query facilities.

5.2.1.2 TRIGGERS

Triggers are set of (instruction) processing commands and are associated with event point with occurs when a form is executed.

5.2.1.3 SCREEN PRINTER

It is a full screen editor in which one can quickly move fields around add boxes and text displayed or a filed.

5.2.1.4 CANVAS-VIEW

A canvas is the virtual structure where the form objects are laid out. For the most part canvases are defined as either content or stacked canvases. A entirely within the form window. When ever a content canvas is first displayed, any other canvas will be hidden in the window. A stacked canvas, on the other hand will display “on top” of any existing canvases within the form window.

5.2.1.5 EDITOR

An editor is a window for viewing maintaining large data fields. These fields are some times included for the entry of user's comments or other information that would not normally fit-in a displayed item.

5.2.1.6 LIST OF VALUES (LOVS)

LOVs provide the user with the list of valid entries for a field. A list of values present data contained within an object called record group where by the user will select one value from the list to populate a form item.

The list of values may also be used to validate user input to ensure that a valid value is entered.

5.2.1.7 PROGRAM UNITES

Program Units are PL/SQL procedures and functions that can be called by the form triggers.

5.2.1.8 PROPERTY CLASSES

A property class defines the properties of a class of objects. In cases where many form objects have identical properties a property class benefits the developer by ensuring that the objects are consistent.

5.2.1.9 VISUAL ATTRIBUTES

An object visual attribute defines the colour, font and style characteristics for an item.

5.2.1.10 WINDOWS

A window is a frame within which a form appears on the user's screen. Each canvas is assigned to a specific window in the form. A single form can contain several windows.

5.2.2 FORM DESIGNING

The following forms are designed for laboratory inventory system of F.G. Girls High School Tariqabad Rawalpindi. Output of these forms can be seen in Appendix.

5.2.2.1 SUPPLIER FORM

Keeps the information about supplier.

5.2.2.2 SECTION FORM

Since the inventory system divide into four parts. Each part considered section.

These sections are

- Subject
- Furniture
- Electricity
- Miscellaneous

In this form these four parts of lab inventory system are introduced.

5.2.2.3 TYPE FORM

In this form the type and nature of the items are introduced, i.e. this item belong to glass-ware or chemicals, wooden furniture or steel furniture etc.

5.2.2.4 ITEM FORM

This form keeps the complete information about, the items.

5.2.2.5 STUDENT_FORM

This form keeps the record of student.

5.2.2.6 ISSUE-FORM

This form keeps the record of issue itmes.

5.2.2.7 CONSUME-FORM

This form keeps the record of consumed items.

5.2.2.8 DAMAGE-FORM

This form keeps the record of damaged item.

5.2.2.9 REQUEST-FORM

In this form keeps the record of request items, i.e. the record of demand item.

5.2.2.10 BILL-FORM

This form is reserved for the record of Bill.

5.2.2.11 BILL DETAILED-FORM

In this for all possible informations or details are recorded about bill and suppliers.

5.3 MASTER DETAILED-FORM

Master detail relationship exist between blocks in case of more than one block, in a form. A master detail relationship is created between blocks of a form, when there exist

multiple records in the detail block corresponding to each reference in the master block or there is primary key to foreign key relationship between two fields.

In our project Lab Inventory System for F.G. Girls High School Tariqabad Rawalpindi there are ten master detailed relationship, where the primary and foreign key attached to each other. They are as below:

	Table involve	Block Name	Key
5.3.1	Section	Sec_Id	P_key
	Item	Sec_Id	F_key
5.3.2	Type	T_Id	P_key
	Item	T_Id	F_key
5.3.3	Item	Item_Id	P_key
	Consume	Item_Id	F_key
5.3.4	Item	Item_Id	P_key
	Damage	Item_Id	F_key
5.3.5	Itme	Item_Id	P_key
	Bill Detail	Item_Id	F_key
5.3.6	Item	Item_Id	P_key
	Request	Item_Id	F_key
5.3.7	Item	Item_Id	P_key
	Issue	Item_Id	F_key
5.3.8	Student	R_No	P_key
	Issue	R_No	F_key
5.3.9	Student	R_No	P_key
	Consume	R_No	F_key
5.3.10	Supplier	Sp-Id	P_key
	Bill	Sp-Id	F_key

CHAPTER - 6

SYSTEM TESTING AND IMPLEMENTATION

SYSTEM TESTING AND IMPLEMENTATION

6.1 INTRODUCTION

System testing is actually a series of different tests whose primary purpose is to full exercise the computer-based system. Although all and each test has a different purpose all work to verify that system elements have been properly integrated and perform allocated functions.

Implementation is the final phase in the system development life cycle. It starts at the beginning of the software development phase with the plan. During this phase the developed system is put into the actual operations

6.2 SYSTEM TESTING ENVIRONMENT

6.2.1 TESTING

The testing process focuses on the logical operations of the software assuring that all statements have been tested. It also focus on the functional externals i.e. concluding tests to assure the defined input will produce actual results that agrees with required results. There are three levels of testing

- Module Testing
- Integrated Testing
- System Testing

6.2.1.1 MODULE TESTING

In this testing different modules of the software are tested independently. The purpose of this testing is to determine that each module is functioning properly and to locate logical and coding error that may contain within the particular module e.g when an input form was completed then dummy data was entered to check its correctness.

6.2.1.2 INTEGRATED TESTING

After module level testing integrated testing of all modules of the system was performed to ensure that all interfaces of the forms and the modules have been defined correctly. This was necessary as the form has been developed separately from the applications. It also ensures that different modules are integrated with each other correctly.

6.2.1.3 SYSTEM TESTING

System testing is performed to ensure that software desired specification and requirements of the organization.

6.3 SYSTEM EVALUATION

The objectives of system evaluation is to determine whether the developed system or desired objectives are of proposed system which are set in the system description are accomplished or not. This is done by determining the merits and dements of the proposed system. This is concerned with the detailed study of developed system from implementation point of view. After testing and installation of system the following merits has been found.

6.3.1 MERITS

A software system is evaluated by the type of interface which is provide to user. It fulfills the requirements of the user. The interacting platform is fun judges by some other factors are measurable objectives which are control to evaluation.

- Query at each field
- Device independence
- Faster response Time
- Correctness
- Consistency
- Easy to use
- Modularity
- Efficiency
- List of values
- Physical and logical independence of software.
- Security
- Modular approach
- Reduce rate of error.

6.3.1.1 QUERY AT EACH FIELD

We can use queries. The software has been providing certain fields of query according to requirements.

6.3.1.2 DEVICE INDEPENDENCE

The system can be run on other machine with different operating system as well as with only minor changes in parameter, setting would be needed to achieve this task.

6.3.1.3 FASTER TIME

The time factor plays a vital role in computerized system. System provide reports and results with in reasonable time.

6.3.1.4 CORRECTNESS

That is if a user tries to enter incorrect information, he gets a warning message to correct it, because many consistency checks are provided.

6.3.1.5 CONSISTENCY

The system which does not provide consistency is not efficient. Due to accuracy and high level degree of precision the computer based system is reliable and helpful.

6.3.1.6 EASY TO USE

The developed system is menus driven and easy to use for a user having some knowledge of the data processing. On line help, proper error messages and respective error message are provided to make the system user friendly.

6.3.1.7 MODULARITY

The system divided into number of modules integrated together to fulfill user's requirements. These modules are independent to each other.

Another advantage of modularity is the easy of modification, extension and enhancement of the developed system.

6.3.1.8 EFFICIENCY

The new system is time effective. As the old system is manual, it consume a large time to prepare the documents and reports. Data entry is easier and much faster, because there is need to enter the length of name and address all the time, until preparing the documents.

This makes the new system much faster for insertion and deletion of data.

6.3.1.9 LIST OF VALUES

In data entries when user enters the data, a list of values pops up and from this user can select required value. By using these values the user needs not to remember entries already made.

6.3.1.10 PHYSICAL AND LOGICAL INDEPENDENCE OF SOFTWARE

Physical and logical data independence is the separation of the way of the data is physically stored from the arrangement of the data as presented to the user, so if the physical storage of data change, there is no need to change the order of the fields in forms or in report.

6.3.1.11 SECURITY

The system will run only by giving correct user name and password. However different users have been implemented at operating level as well as at software level

6.3.1.12 MODULAR APPROACH

The whole system is implemented by designing different modules to perform different tasks. With the help of modular approach during software development significant advantage of design simplicity and operational efficiency has been obtained. The developed system can therefore, be extended or modified with the help of the modular approach.

6.3.1.13 REDUCED RATE OF ERRORS

The rates of errors are considerably reduced in the newly developed system. Appropriate error messages have been provided to prompt the user and refrain him from making errors.

6.4 SYSTEM IMPLEMENTATION

The conversion is the process of replacing the old system into new system. There are three different methods for performing system conversion and ensuring proper working of the systems.

6.4.1 PARALLEL CONVERSION

In this approach both old and new systems run side by side. It means that the user continues to use the old system while he is learning to operate the new system. This is the most safe approach, since in case of failure he may immediately turn back to the old system, without any wastage of time and data. The failure may include inability to handle certain transactions or could not understand certain types of processing errors.

6.4.2 DIRECT CONVERSION

In this approach, the old system is immediately replaced with the new system. It requires the carefully defined implementations plan. As soon as this plan is enforced, the old system is abandoned. There are no parallel activities going on side by side.

6.4.3 PILOT CONVERSION

In this approach the system is implemented in one particular area of organization or department. Thus the system is implemented in parts. The remaining department or areas continue to work with old system. The only advantage of this system or approach is that it provides sound basis for the whole system to install.

6.5 PROPOSED CONVERSION METHOD

Since the existing system can not be discarded at once, direct conversion is not suitable, pilot conversion is also not suitable because the system works in parts.

Hence, parallel conversion strategy is recommended for this project implementation. This is normally the most safe and suitable conversion method. It has minimum problems that may arise for the system failure. If unfortunately system fails data would not be lost, because the old system would also be worked in parallel. It also provides a better way of comparing the old and new systems.

The main drawback of this approach is additional work had which may increase the cost, but this drawback is acceptable for its high advantage.

CHAPTER - 7

**CONCLUSION AND
RECOMMENDATION**

CONCLUSION AND RECOMMENDATION

7.1 INTRODUCTION

The aim of this project has been to computerize the inventory system of the laboratory of F.G. Girls High School Tariqabad Rawalpindi, so that efficient and reliable information becomes available to the management and also provide good services to the students. For this purpose, variety of parameters are computerized, which are related to inventory items.

7.2 CONCLUSION

Our query system and report generation systems, are providing information for activities such as:

- Providing record of the suppliers who have supplied different laboratory items.
- Details relating to items which are purchased and status of their bills etc.
- Different items have been classified into variety of groups and information relating to these items have been made available.
- Record of the items, issue to the students is also maintained.
- List of consumed items is available
- Record about damaged items of Lab with the reason of damage (remarks) can be findout by report generation.
- The minimum level of available items in lab can be examining.

- A record of requested items with requested quantity and cost of these items can be check.
- Detail of items, issue to the students can be generate.

It is hope that with the implementation of the computerization system, manual procedures will be replaced and more efficient and reliable record would be maintained.

FURTHER RECOMMENDATION

In this project effort has been made to computerize important aspects of inventory system. However due to limited time, every aspect is difficult to cover. It is recommended to incorporate variety of new facilities into the existing system and it is hoped that with the introduction of new facilities, scope of computerized system will be greatly improved.

In this regard, following recommendations are made which should be incorporated in the existing computerized system.

- A complete record of science students and their practical schedule will be needed to improve the inventory system.
- All possible information about lab staff also help us to maintain the inventory system in a good way.
- Location of items in lab is another helpful tool to make the management of inventory system more easy and efficient.
- Details of accounting system under the environment of collection of science fee and student fund will be made the lab inventory system more reliable.

It is hope that after computerization of above points the inventory system will be more efficient and charming system for the institution F.G. Girls High School Tariqabad, Rawalpindi.

CHAPTER - 8

USER GUIDE

USER GUIDE

8.1 INTRODUCTION

This Chapter gives the basic understanding of the Lab. Inventory system and comprises the features provided by the system. Different operations like record insertion, deletion, modification and retrieval have also been discussed.

8.2 GETTING START

Before starting work the user might start the database engine. The database engine is mounted by the adopting the process as below

Start → Program → Personal Oracle7 for Window95 → Start database

8.2.1 STARTING DATABASE

To click this point following message will appear one by one which tell about the storing the data.

- i) Storing up database
- ii) Checking Security
- iii) Database mounted.

Finally message box will appear which shows that data base has been sorted successfully.

Press OK to clear this Box

8.2.2 OPENING DEVELOPER 2000

Now in order to open the Developer 2000 Form 5.0

The following paths should be followed start → Program → Developer 2000 R2.1 Form Builder. Open existing file then press OK. A new window will be appear. Look in my documents and file type Form (*.fmb) and then desires file, now click OK, the file will be open in new window.

→ Developer2000 R2.1

Now the form builder will start functioning and hence user can use the form builder

8.2.3 SECURITY

Before getting starting with the front and the user should enter the user name and password for the security purpose of the database.

8.3 IMPORTANT CONSIDERATION

Before using the system the following definitions should be kept in mind.

8.3.1 FORMS

Various forms layout have been designed to enter and retrieve data from the database

8.3.2 EDITING FIELDS.

It is basic unit in the Form Designing, with which only a form layout is able to store and retrieve data from the data base.

8.3.3 MESSAGE LINE

It IS BUTTON LINE OF developer form, in which message and additional help is displayed.

8.3.4 RECORD MANIPULATION

1. INSERTION

Procedure FORMAT < record> menu click on

<insert> Blank form appeared,. Enter the data in the form,

Press<save> and then exit button to restore the main menu.

2. RETERIVAL.

Click on query button first record display by scrollbar next retriev the desired records.

3. MODEFICATION

Repeat first two setps of retrieval operation. Enter new data in the displayed editing field where values are to be modified press save button to save the change.

4. DELETION

Repeat first two steps of retrieval program click on remove in the record menu. The desired record will be deleted. Click save to save the modification. Other record can be deleted by adopting the same procedure.

8.3.5 Query Generation.

Select query option then select required query by upward or downward key and press enter.

8.4 REPORT GENERATION

Report generation is totally different from all other components. In ORACLE (Developer2000) reports are generated by using Report Builder.

8.5 TOOL BAR

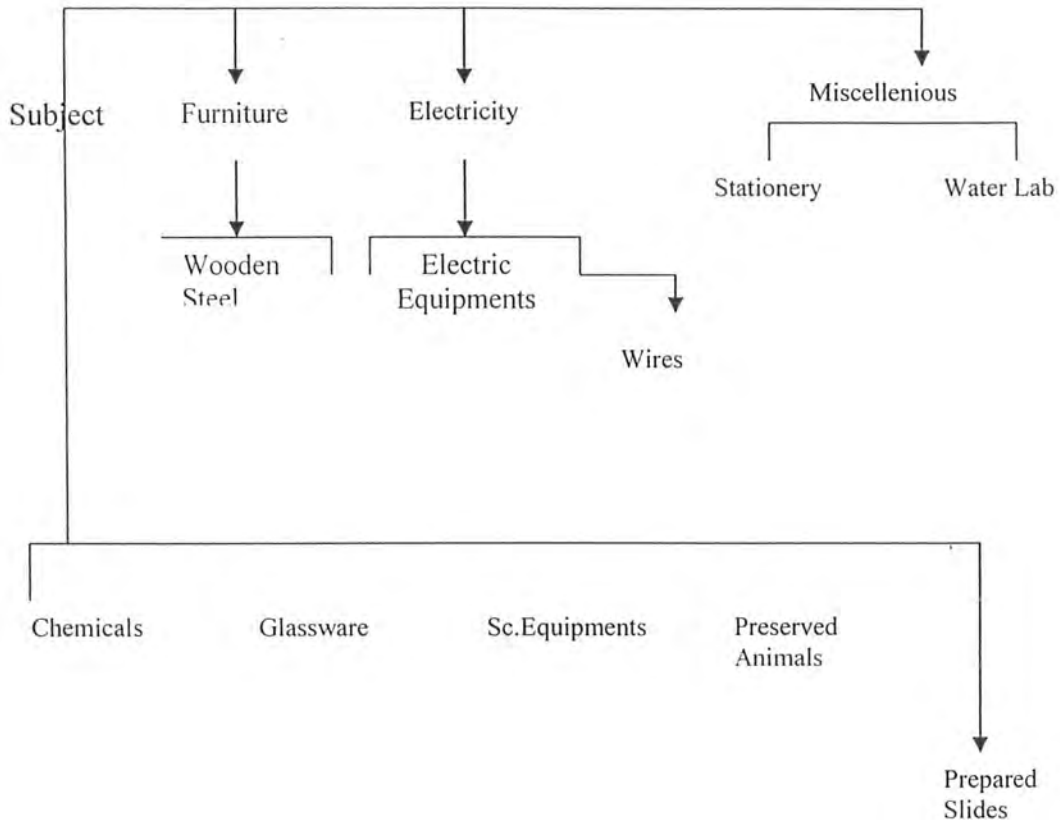
Tool Bar is present on every form with some buttons.

8.6 FORMATTING OF TOOL BAR

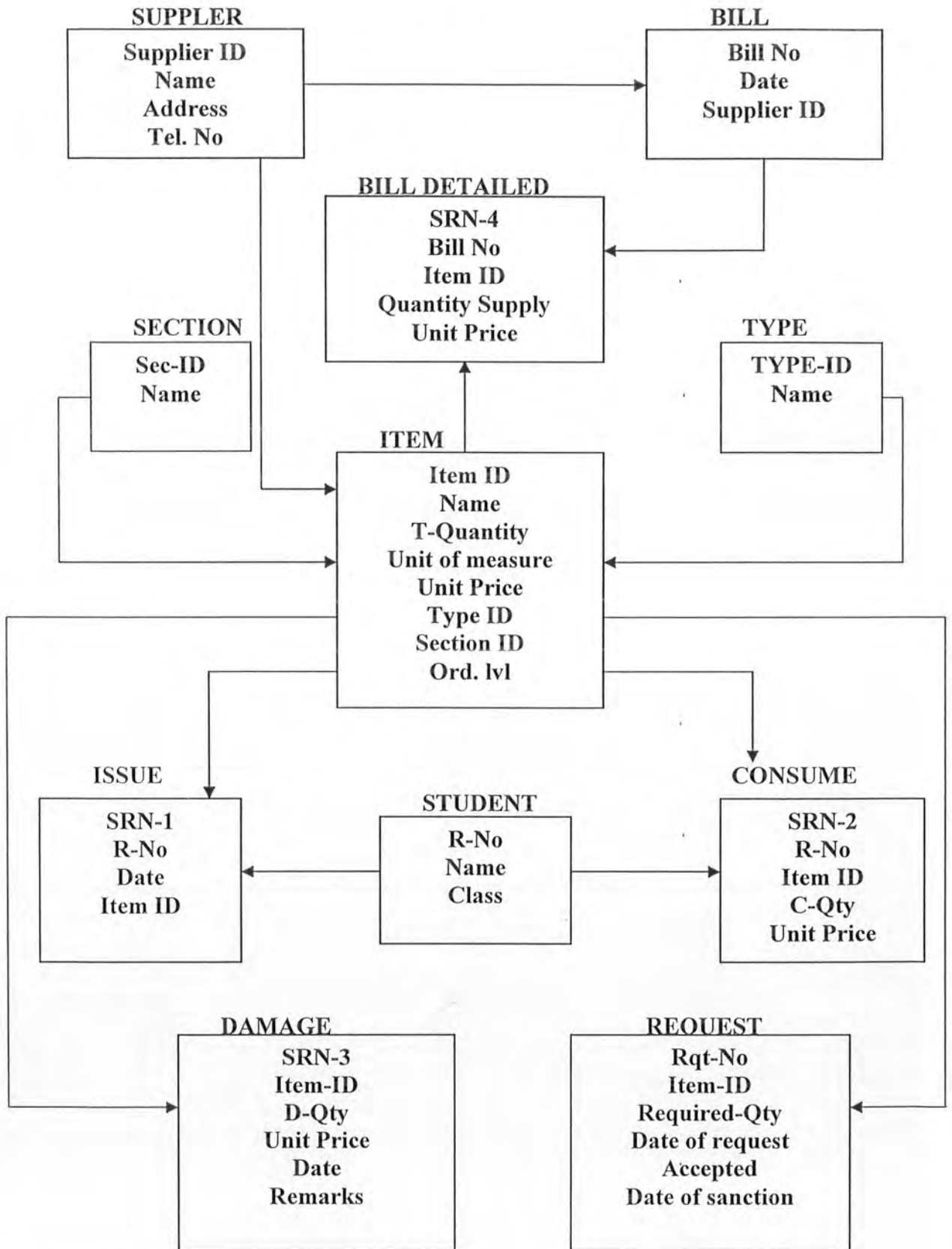
- First button used to save the record.
- Print Button used for print out to be taken
- To cut any value from any where in the form user can select the particular item and then click on the cut button.
- To copy some particular information on the form select that information and click copy button.
- To paste some copied any where select that lines and then click paste button.
- To enter query some specific field click on enter query button. For extent the query click execute query button.

APPENDIX

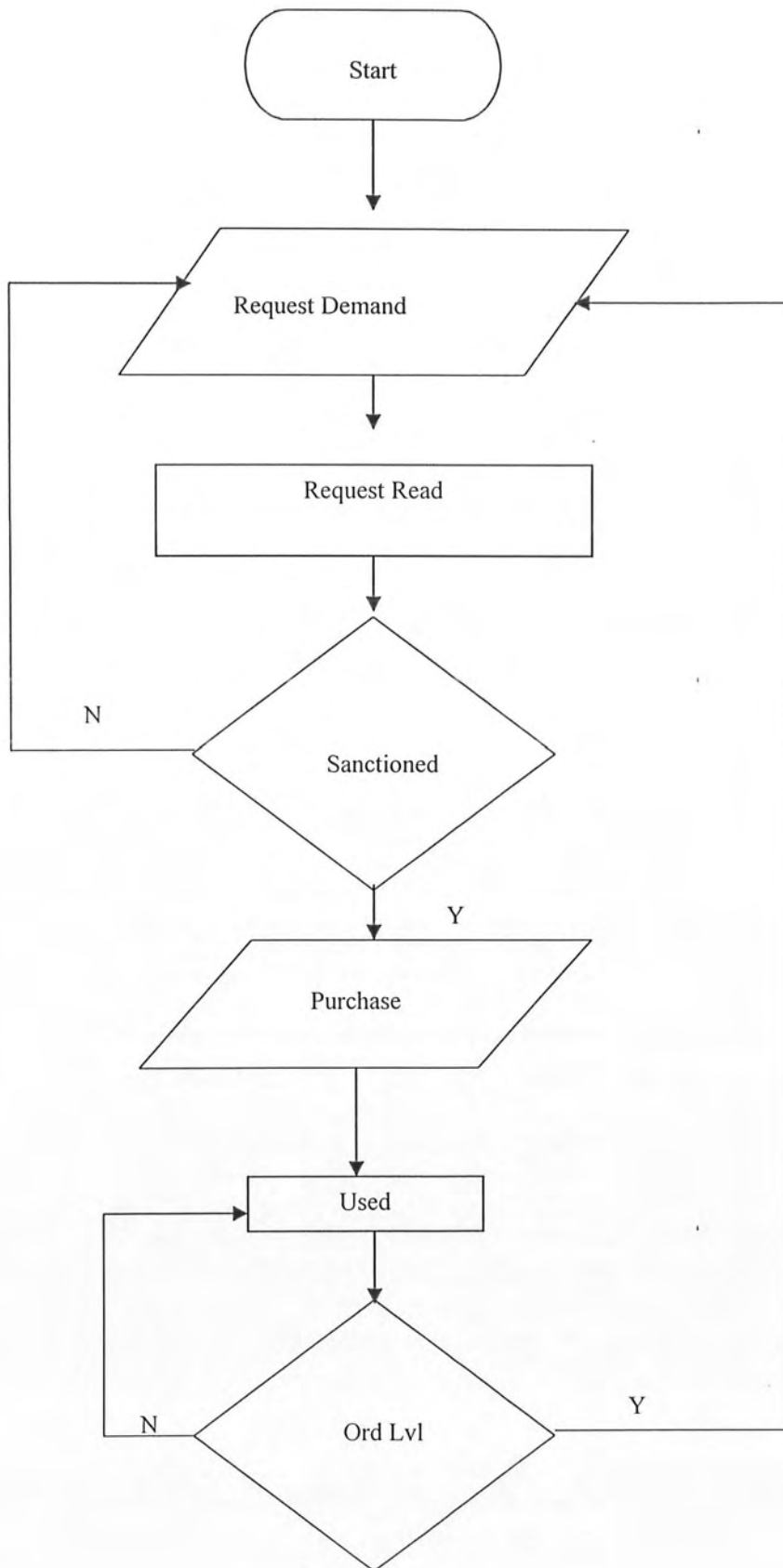
STRUCTURE/CLASSIFICATION OF LAB INVENTORY SYSTEM



ERD



FLOW CHART



Developer/2000 Report Builder for Windows 95 / NT

File Edit View Insert Format Arrange Program Tools Window Help

Object ITEM CONSUME REPORT: Report Editor - Live Previewer

B_OR\$RE

Arial 12 B I U

ITEM CONSUME RECORD

Item Name	Item Id	T Qty	Unit
SULPHUR	918	2	KG
ZINC METAL	919	2	KG
LITMUS PAPER	917	100	NUM
ZINC METAL	919	2	KG
SULPHUR	918	2	KG

1x 4.31 0.13

Start Oracle Graphics Batch Developer/2000 Repo... 11:17 AM

B_ITEM

Arial 10 B I U

Item Name	Unit	R No	Date
VERBER CALLEP	HEM	103	10-APR-02
STARFISH	HEM	103	20-APR-02
GAS JAR	HEM	105	14-APR-02
GAS JAR	HEM	105	20-MAY-02
STOP WATCH	HEM	104	22-MAY-02
STOP WATCH	HEM	104	22-MAY-02
PHYSICAL BALANCE	HEM	104	05-JUN-02
METER ROD	HEM	104	01-JUN-02
VERBER CALLEP	HEM	104	10-JUN-02

Developer/2000 Report Builder for Windows 95 / NT

File Edit View Insert Format Arrange Program Tools Window Help

Object: ITEM REPORT: Report Editor - Live Previewer

B_OR\$RE

Arial 12 B I U

0 1 2 3 4 5 6 7 8 9

Page 1

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL	TAX
001	ITEM 001	10	100	1000	100
002	ITEM 002	5	200	1000	50
003	ITEM 003	2	500	1000	20
004	ITEM 004	1	1000	1000	10
005	ITEM 005	10	100	1000	100
006	ITEM 006	5	200	1000	50
007	ITEM 007	2	500	1000	20
008	ITEM 008	1	1000	1000	10
009	ITEM 009	10	100	1000	100
010	ITEM 010	5	200	1000	50
011	ITEM 011	2	500	1000	20
012	ITEM 012	1	1000	1000	10
013	ITEM 013	10	100	1000	100
014	ITEM 014	5	200	1000	50
015	ITEM 015	2	500	1000	20
016	ITEM 016	1	1000	1000	10
017	ITEM 017	10	100	1000	100
018	ITEM 018	5	200	1000	50
019	ITEM 019	2	500	1000	20
020	ITEM 020	1	1000	1000	10

1/2x 5.19 0.06

Start Oracle Graphics Batch Developer/2000 Repo... 11:20 AM

Developer/2000 Report Builder for Windows 95 / NT

File Edit View Insert Format Arrange Program Tools Window Help

Object REQUEST REQUEST ITEM REPORT: Report Editor - Live Previewer

REQUEST


Courier New 10 B I U

REQUEST ITEM REPORT

Item Id.	Item Name	Rqt No	Rq Qty	D Sanc
904	METER ROD	501	11	07-MAY-01
915	FROGS	502	17	27-FEB-02
911	POT_CHLORATE	503	9	03-JUN-02

1x 1.81 0.38

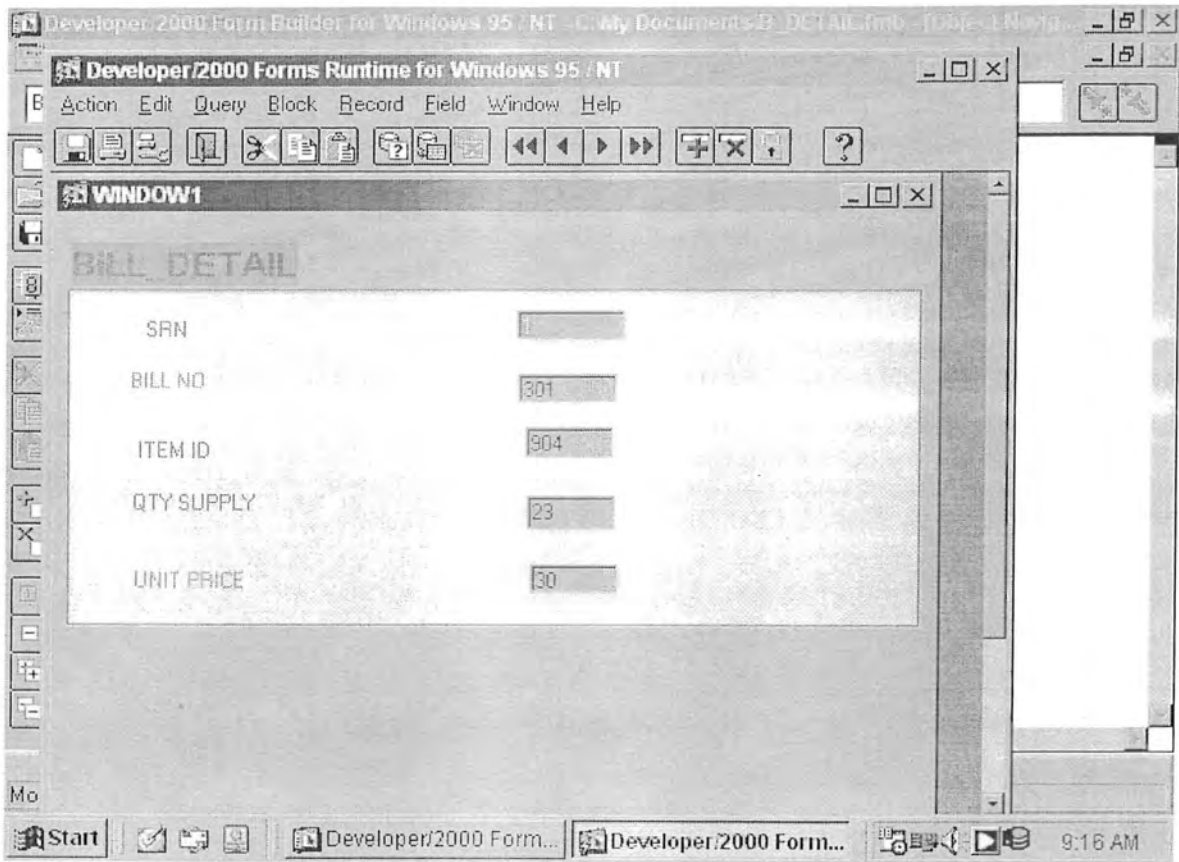
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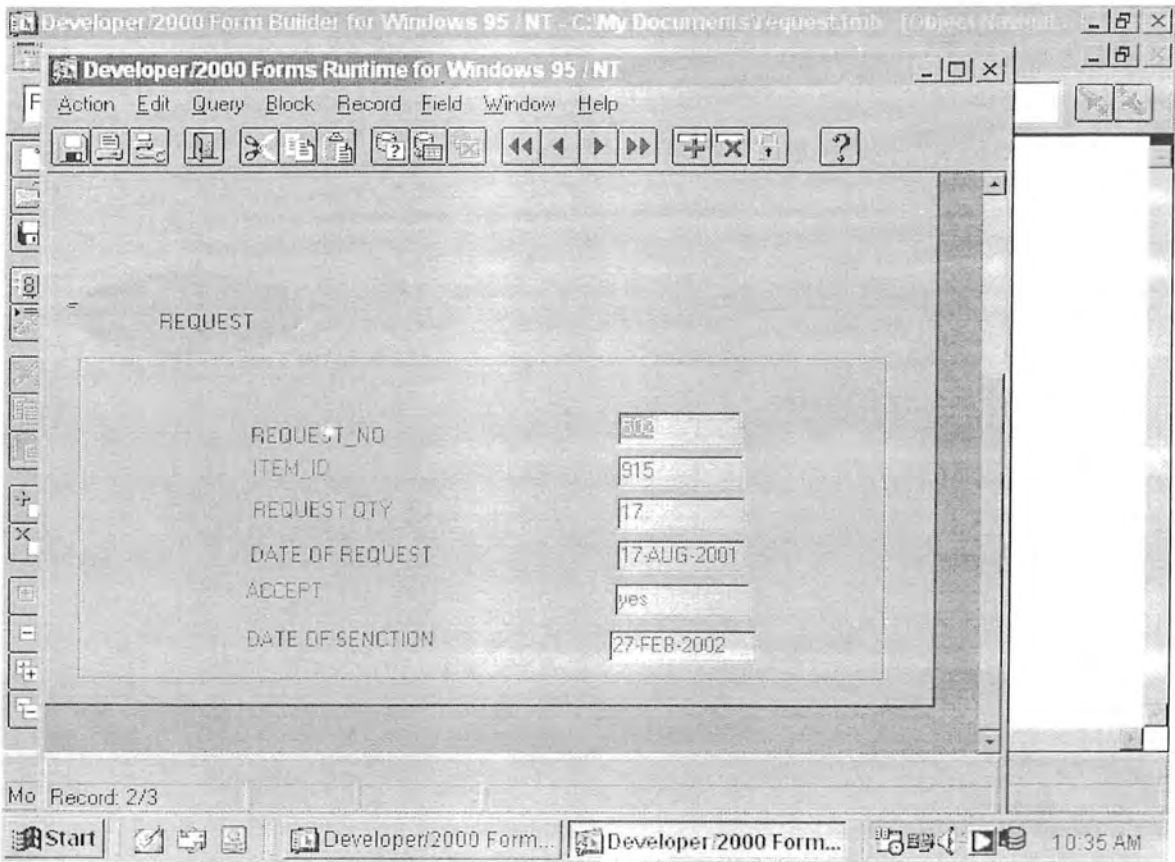


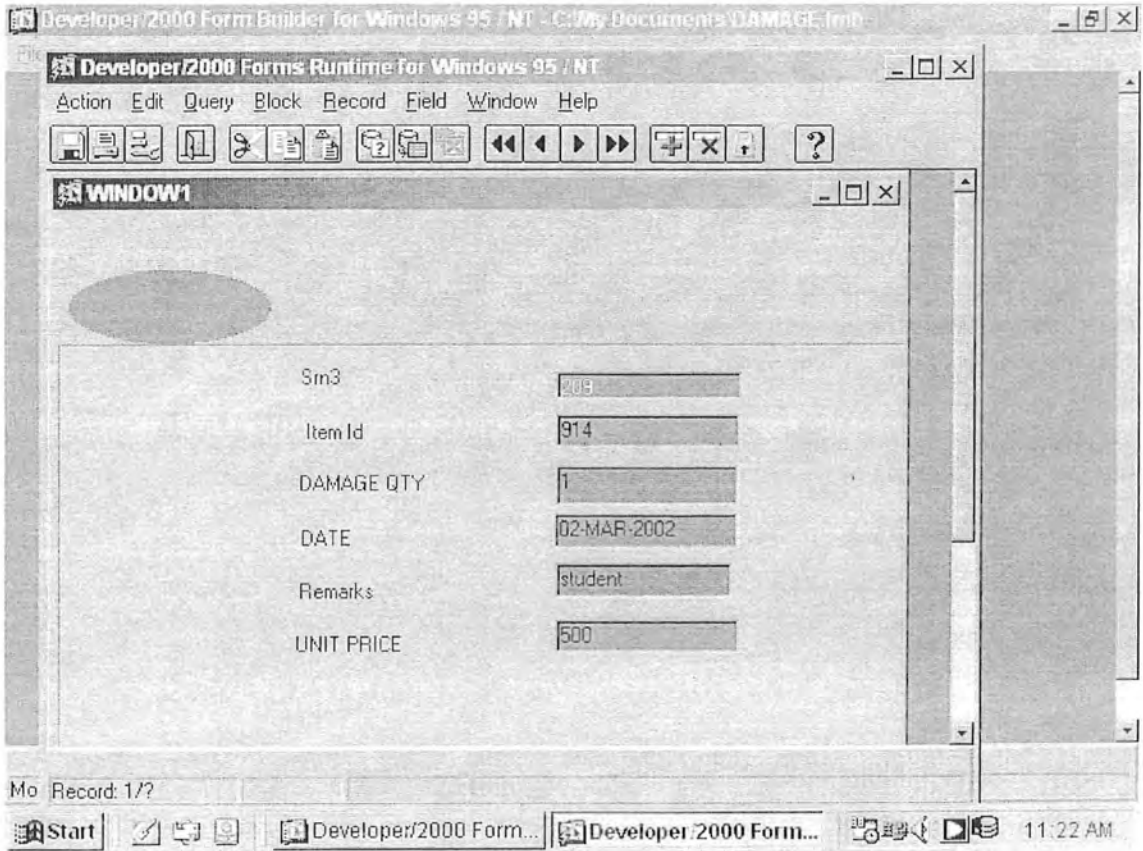
SUPPLIER BILL REPORT

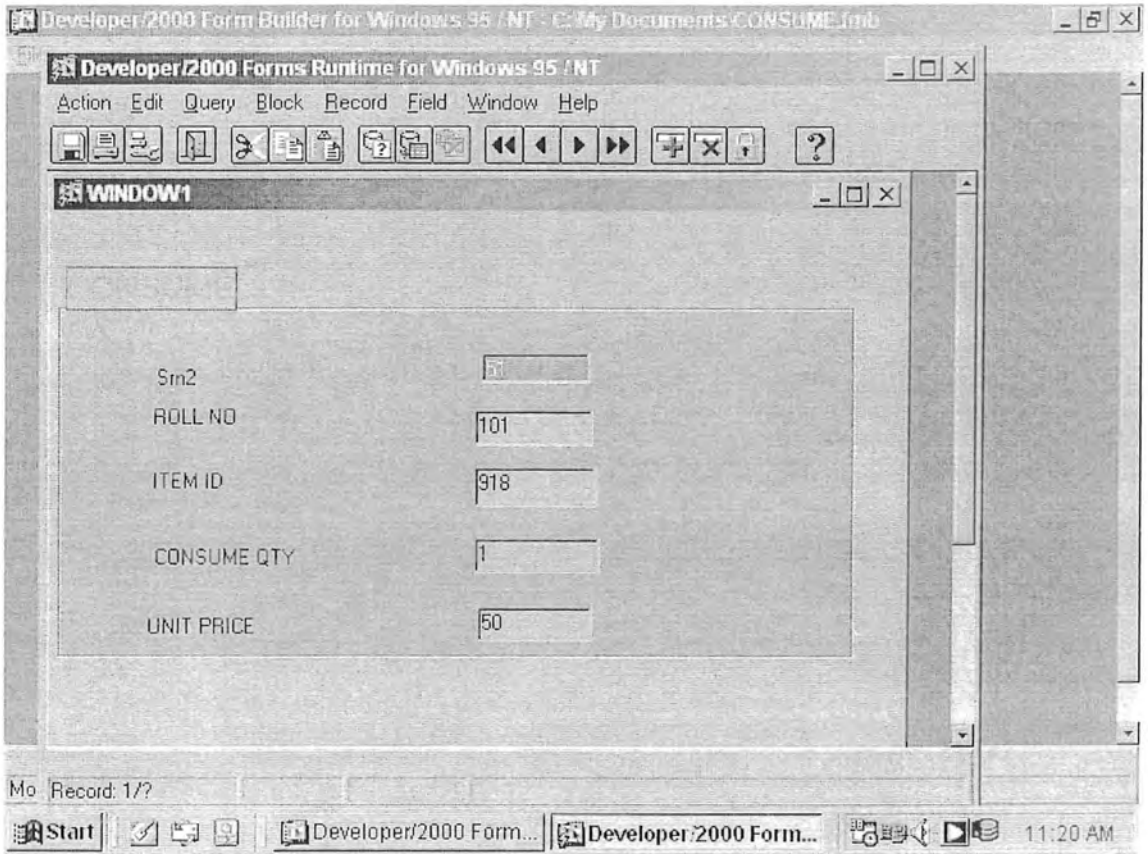
Bill No	Sp IdSp Name	Addr
301	91USMAN	RAWALPINDI
302	92AZAR	RAWALPINDI
303	93BABAR	SLAMABAD

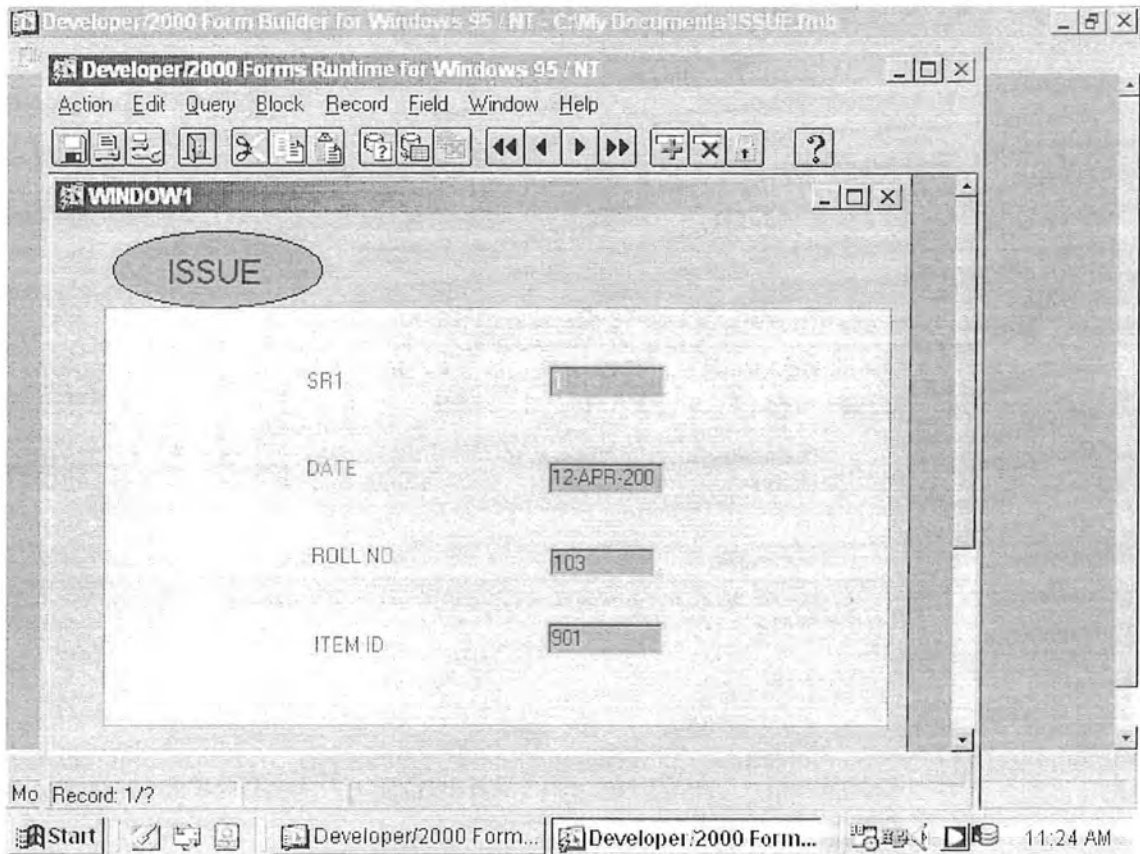
Count:

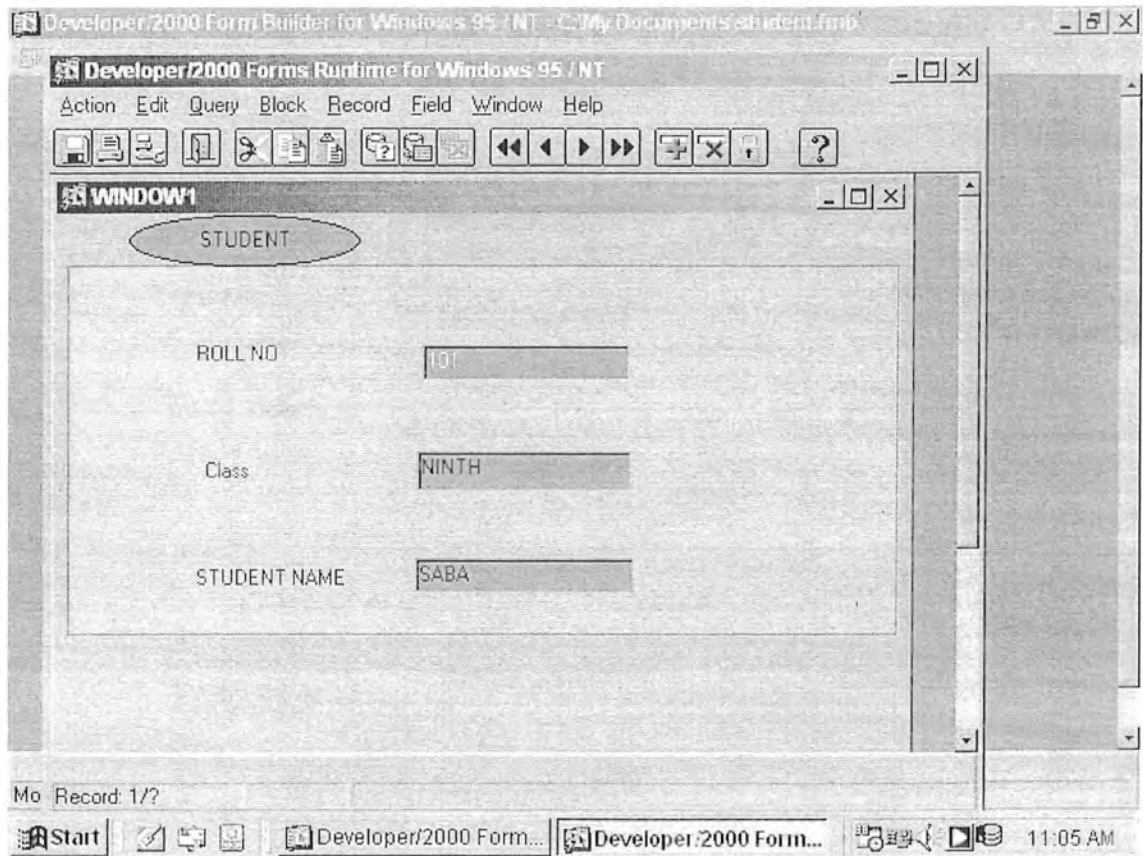


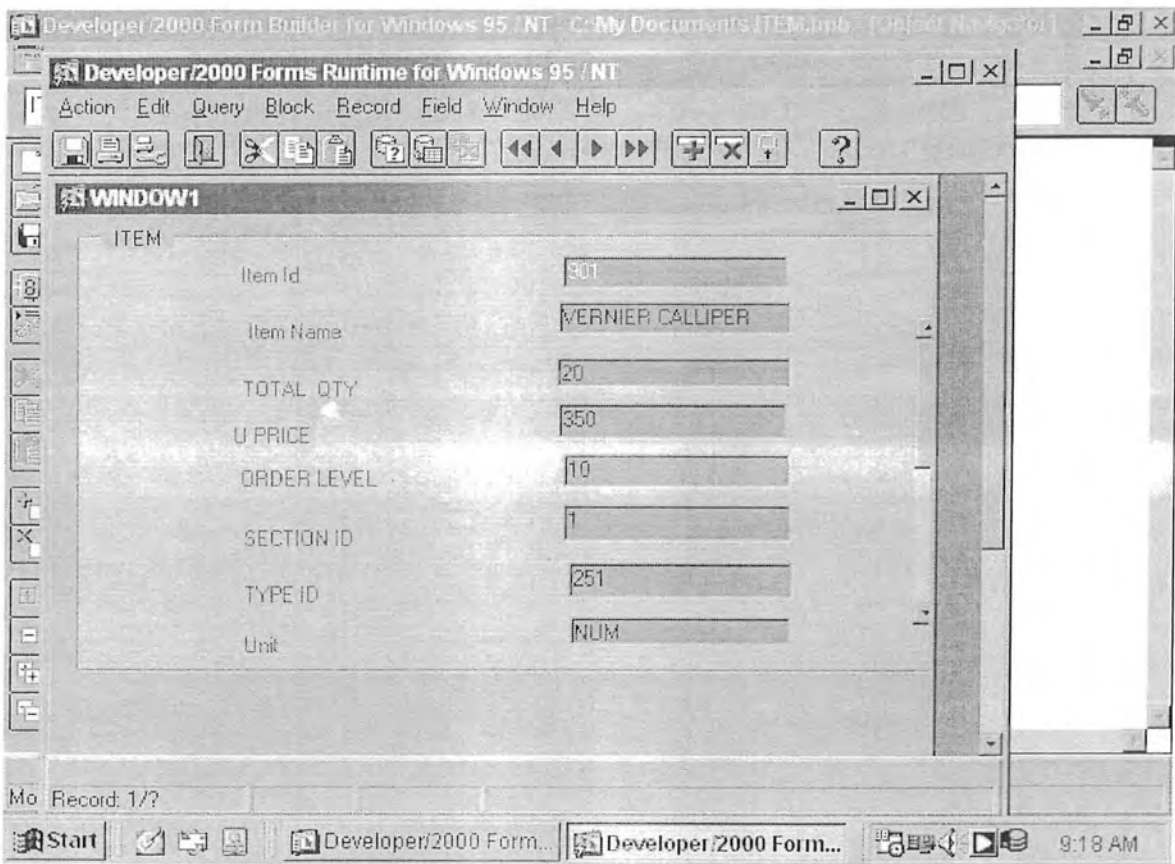


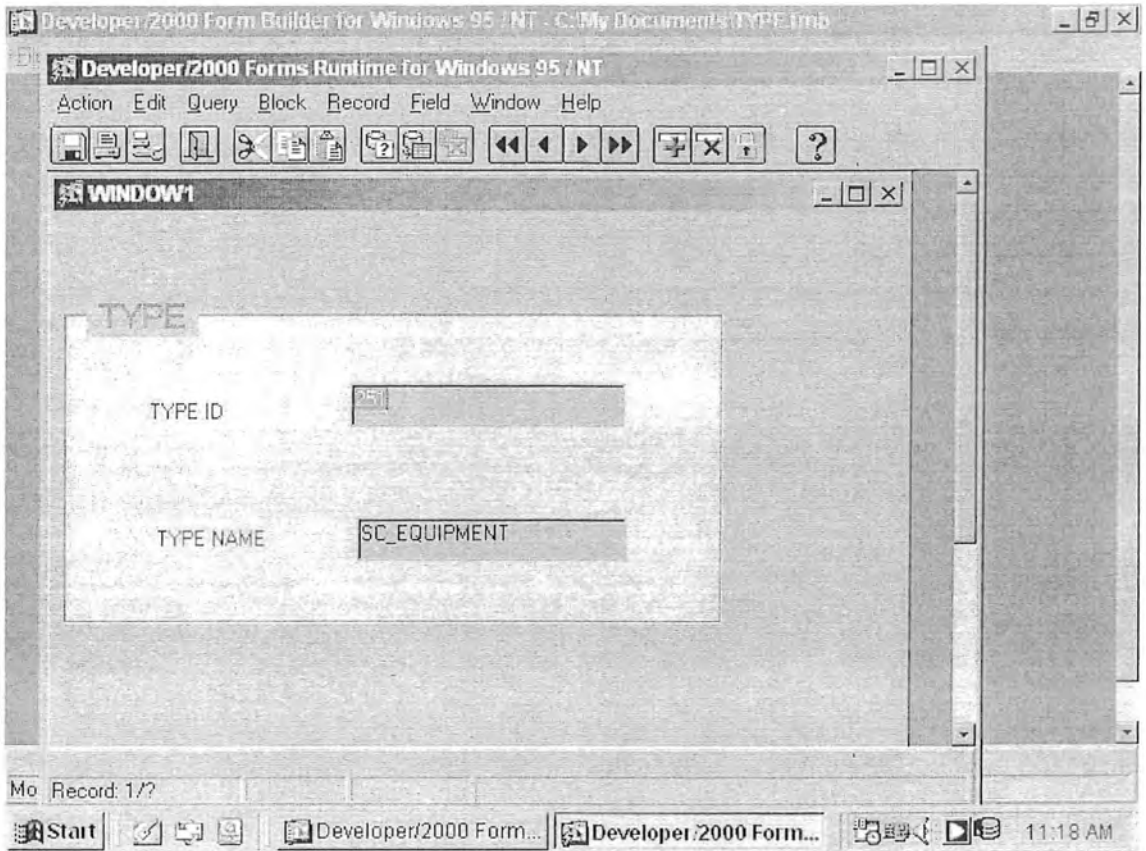


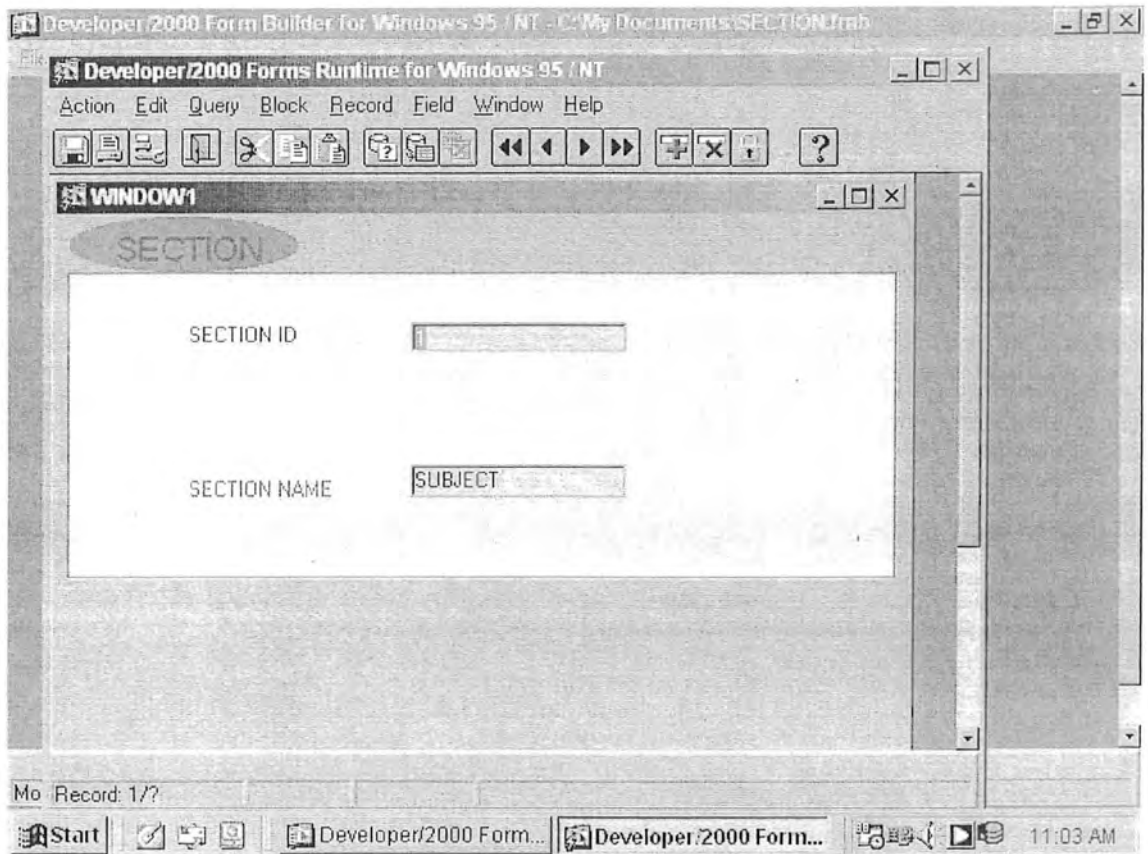












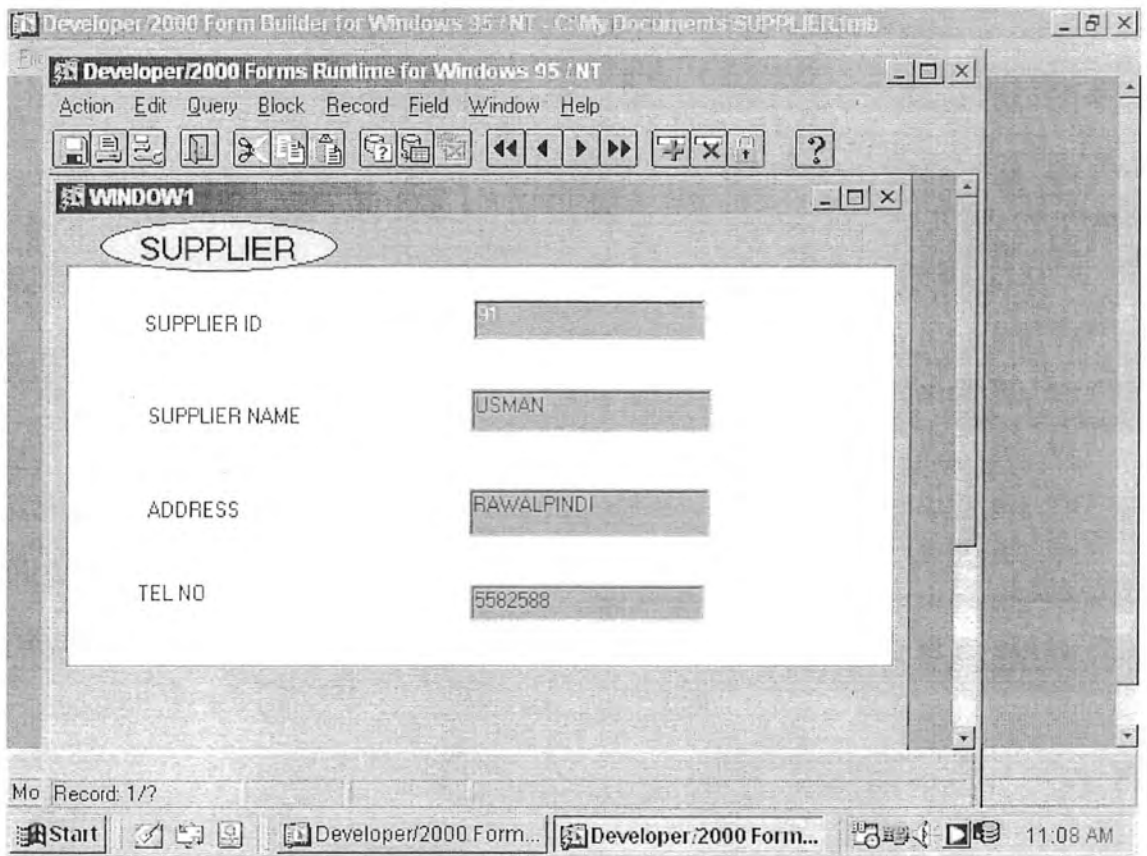
BILL

BILL NO

SUPPLIER ID

DATE

Mo Record: 1/?



APPENDIX

REPORTS

The sample of reports generated in proposed system for lab inventory system F.G.Girls High School Tariqabad Rawalpindi is as below:

ITEM REPORT

ITEM ID	NAME	T.QTY	UNIT PRICE	ORD LVL
903	Stopwatch	5	500	2
904	Meter rod	10	30	4
905	Drawing Board	20	40	10
906	Weight Box	10	80	4
908	Test Tube	50	10	20

STUDENT ISSUE ITEM REPORT

ITEM ID	STUDENT NAME	ROLL NO	CLASS
901	Alina	103	Ninth
916	Alina	103	Ninth
903	Maryam	104	Ninth
902	Maryam	104	Ninth
910	Fatima	105	Tenth

SUPPLIER BILL REPORT

SP-ID	NAME	ADDRESS	BILL NO
91	Usman	Rwp	301
92	Azar	Rwp	302
93	Babar	Islamabad	303

ISSUE ITEM REPORT

ITEM ID	NAME	ROLL NO	DATE
901	Vernier Calliper	103	12-Arp-02
916	Star Fish	103	23-Apr-02
910	Gas jar	103	14-Apr-02
910	Gas Jar	105	20-May-02
903	Stop Watch	104	12-May-02

REQUEST ITEM REPORT

ITEM ID	NAME	REQ. QTY	DATE OF SANCTION
904	Meter Rod	11	7-May-01
915	Frogs	17	27-Feb-02
911	Pot-Chlorate	9	27-Feb-02

REFERENCES

REFEREMCES

1. Oracle PL/SQL by Scott Urman
2. Exam Guide for Oracle certified professional.
3. SQL, SQL*PLUS (Oratech Notes)
4. Oracle SQL Server (Oracle Press)