

SECTION – K21QT SUBJECT -CSE310 TOPIC – <u>UNIVERSITY MANAGEMENT SYSTEM</u> SUBJECT TEACHER – BHIMASEN MOHARANA SIR COLLEGE – LOVELY PROFESSIONAL UNIVERSITY

TEAM MEMBERS FOR PROJECT ARE -

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INTRODUCTION

1.1 Overview:

UNIVERSITY MANAGEMENT SYSTEM (UMS) is a flagship product of Easy Solution which covers all aspects of Universities, Colleges or Schools. UMS covers every minute aspects of a universities work flow and integrates all processes with user friendly interface. With hundreds of satisfied customers UMS is first choice of several state, governments/semi-government universities and institutions. UMS is an outcome of hard work done by our expert technical team in supervision of several renowned educationists which includes Controller of examination, faculties. UMS is a rare combination of experience and precision. UMS streamline path of information flow in organization by taking care of following departments:

- Fee Department
- Examination Department
- Attendance
- Faculty information portal
- Student information portal

1.2 Purpose:

- Drive operational efficiency.
- Self-service systems with simple to use with little or no training.
- Elimination of duplicate data entry processes.
- Integrated with Online Application workflow with unified data model.
- Monitoring and decision support system.
- Automation of all the Academic / Examination / Administration operations.
- Ease and accuracy of reporting.

1.3 Scope:

This project deals with the various functioning in College management process. The main idea is to implement a proper process to system. In our existing system contains a many operations registration, student search, fees, attendance, exam records, performance of the student etc. All these activity takeout manually by administrator.

REQUIREMENT SPECIFICATIONS

2.1 Hardware Requirements:

Processor Brand : Intel

Processor Type : Core i5

Processor Speed : 2 GHz

Processor Count : 1

RAM Size : 4 GB

Memory Technology : DDR3

Computer Memory Type : DDR3 SDRAM

Hard Drive Size : 160 GB

2.2 Software Requirements:

Operating system : Windows 11

Application server : JAVA (NetBeans)

Front end : JAVA

Connectivity : JDBC Driver

Database connectivity : WAMP (MYSQL Console)

TOOL DESCRIPTION

3.1 Overview of Front End

An important issue for the development of a project is the selection of suitable frontend and back-end. When we decided to develop the project we went through an extensive study to determine the most suitable platform that suits the needs of the organization as well as helps in development of the project.

The aspects of our study included the following factors.

Front-end selection:

- 1. It must have a graphical user interface that assists employees that are not from IT background.
- 2. Scalability and extensibility.
- 3. Flexibility.
- 4. Robustness.
- 5. According to the organization requirement and the culture.
- 6. Must provide excellent reporting features with good printing support.
- 7. Platform independent.
- 8. Easy to debug and maintain.
- 9. Event driven programming facility.
- 10. Front end must support some popular back end like MySQL.

3.1.1 About Java:

Java is a general-purpose, class-based, object-oriented programming language designed for having lesser implementation dependencies. It is a computing platform for application development. Java is fast, secure, and reliable, therefore. It is widely used for developing Java applications in laptops, data centers, game consoles, scientific supercomputers, cell phones, etc.

Here are some important Java applications:

- It is used for developing Android Apps
- Helps you to create Enterprise Software
- Wide range of Mobile java Applications
- Scientific Computing Applications
- Use for Big Data Analytics
- Java Programming of Hardware devices
- Used for Server-Side Technologies like Apache, JBoss, GlassFish, etc.

3.2 Overview of Back End

Back End Selection:

- 1. Multiple user support.
- 2. Efficient data handling.
- 3. Provide inherent features for security.
- 4. Efficient data retrieval and maintenance.
- 5. Stored procedures.
- 6. Popularity.
- 7. Operating System compatible.
- 8. Easy to install.
- 9. Various drivers must be available.
- 10. Easy to implant with the Front-end.

According to above stated features we selected MySQL as the backend.

The technical feasibility is frequently the most difficult area encountered at this stage. It is essential that the process of analysis and definition be conducted in parallel with an assessment to technical feasibility. It centers on the existing computer system (hardware, software etc.) and to what extent it can support the proposed system.

3.2.1 About SQL:

SQL is Structured Query Language, which is a computer language for storing, manipulating and retrieving data stored in a relational database.

SQL is the standard language for Relational Database System. All the Relational Database Management Systems (RDMS) like MySQL, MS Access, Oracle, Sybase, Informix, Postgres and SQL Server use SQL as their standard database language.

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons.[1]

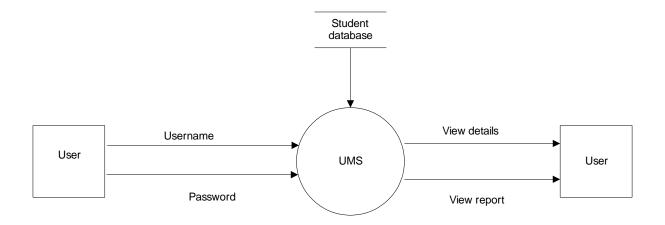
MySQL is released under an open-source license. So you have nothing to pay to use it. MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages. MySQL uses a standard form of the well-known SQL data language. MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.

MySQL works very quickly and works well even with large data sets. MySQL is very friendly to PHP, the most appreciated language for web development. MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).

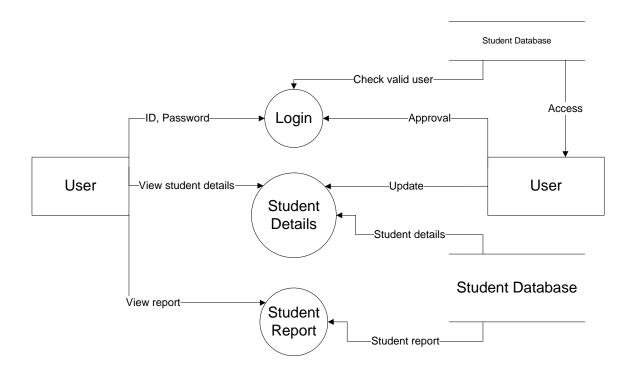
Also, they are using different dialects, such as –

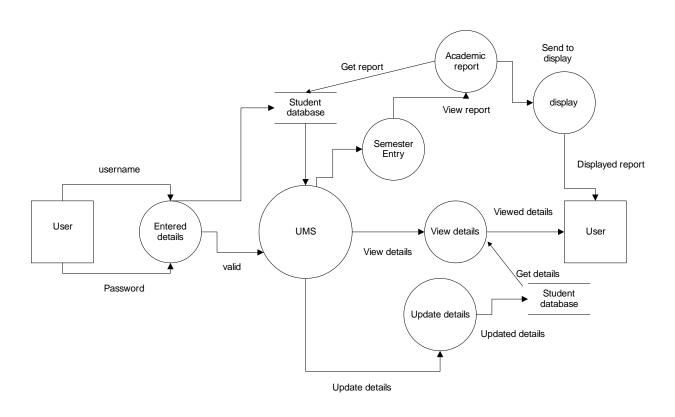
- Oracle using PL/SQL,.
- SQL is widely popular because it offers the following advantages –
- Allows users to access data in the database management systems.
- Allows users to describe the data.relational
- Allows users to define the data in a database and manipulate that data.
- Allows to embed within other languages using SQL modules, libraries & pre-compilers.
- Allows users to create and drop databases and tables.
- Allows users to create view, stored procedure, functions in a database.
- Allows users to set permissions on tables, procedures and views.

Level 0 Data Flow Diagram



Level 1 Data Flow Diagram





REQUIREMENT ANALYSIS

4.1 E-R DIAGRAM:

ER Diagram: ER Diagram is a high-level conceptual data model diagram. Entity-Relation model is based on the notion of real-world entities and the relationship between them. ER modelling helps you to analyse data requirements systematically to produce a well-designed database.

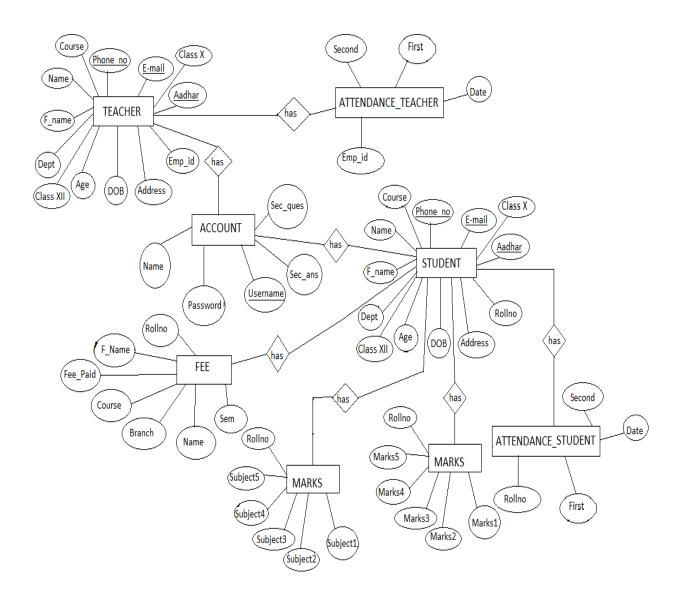


Figure 4.1: ER Diagram for Smartphone Management Arena

4.2 SCHEMA DIAGRAM:

Schema diagram A schema diagram is the skeleton structure that represents the logical view of the entire database. It contains a descriptive detail of the database.

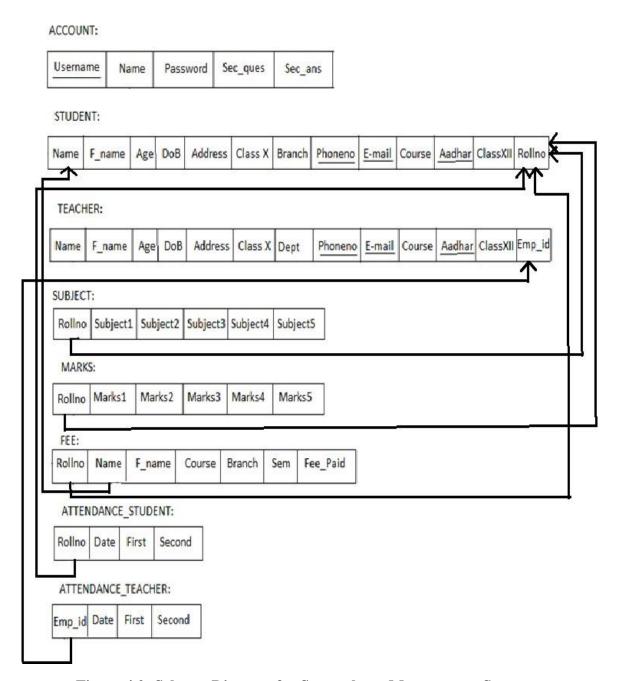


Figure 4.2: Schema Diagram for Smartphone Management System

TABLE DESCRIPTION

5.1 Database Design

ACCOUNT TABLE

Account Table: Account table consists of five attributes which are Username, Name, Password, Sec_ques, Sec_ans.Username is used as Primary key.

Desc account;

ysql> desc	account;	+	·	+	++
Field	Туре	Null	Key	Default	Extra
username name password sec_ques sec_ans	varchar(30) varchar(40) varchar(30) varchar(100) varchar(50)	NO YES YES YES YES	PRI	NULL NULL NULL NULL NULL	
rows in se	et (0.00 sec)				

Fig 5.1 Account table description

STUDENT TABLE

Student table: Student table is used to add the details of new student like Name, phoneno., DoB, course, Branch etc... Phoneno., E-mail and Aadhar are used as Primary key.

Desc student;

ield	Type	Null	Key	Default	Extra
name	varchar(20)	YES		NULL	
fathers_name	varchar(20)	YES		NULL	
age	varchar(5)	YES		NULL	
dob	varchar(20)	YES		NULL	
address	varchar(30)	YES		NULL	
phone	varchar(15)	NO	PRI	NULL	
email	varchar(25)	NO	PRI	NULL	
class_x	varchar(10)	YES		NULL	
class_xii	varchar(10)	YES		NULL	
aadhar	varchar(15)	NO	PRI	NULL	
rollno	varchar(15)	YES		NULL	i i
course	varchar(10)	YES		NULL	i i
branch	varchar(20)	YES		NULL	i i

Fig 5.2 Student table description.

TEACHER TABLE

Teacher table: Teacher table is used to add the details of new student like Name, phoneno.,DoB, course,Branch etc...Phoneno.,E-mail and Aadhar are used as Primary key.

Desc teacher;

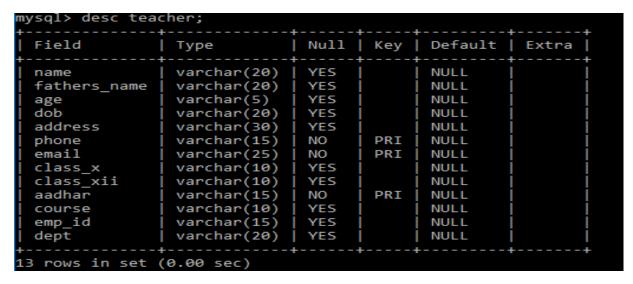


Fig 5.3 Teacher table description

ATTENDANCE_STUDENT TABLE

Attendance_Student Table: Attendance_Student table is used to mark the attendance of the student day to day which as attributes like rollno,name,first and second half.

Desc attendance student;

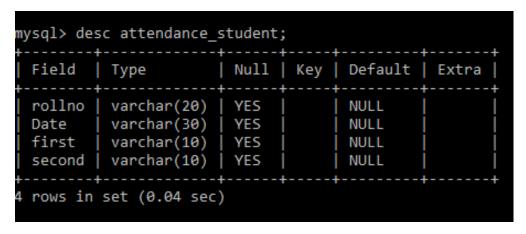


Fig 5.4 Attendance_Student table description.

ATTENDANCE TEACHER TABLE

Attendance_Teachertable: Attendance_Teacher table is used to mark the attendance of the teacher day to day which as attributes like emp_id,name, first and second half.

Desc attendance_teacher;

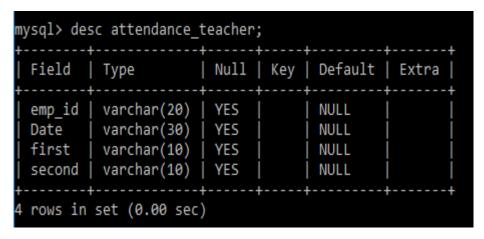


Fig 5.5 Attendance_Teacher table description.

SUBJECT TABLE

Subject table :Subject table is used to add the subjects of the student in that particular sem with the attributes like rollno and five subjects.

Desc Subject;

```
nysql> desc subject;
 Field
                           Null | Key | Default |
            Type
                                                   Extra
 rollno
            varchar(25)
                           YES
                                         NULL
                           YES
 subject1
            varchar(30)
                                         NULL
 subject2
            varchar(30)
                           YES
                                         NULL
 subject3
            varchar(30)
                           YES
                                         NULL
 subject4
            varchar(30)
                           YES
                                         NULL
 subject5
            varchar(30)
                           YES
                                         NULL
 rows in set (0.02 sec)
```

Fig 5.6 Subject table description.

MARKS TABLE

Marks table :Marks table is used to add the marks of the particular subjects of the student in a particular sem and the attributes used are rollno and five subject marks.

Desc Marks;

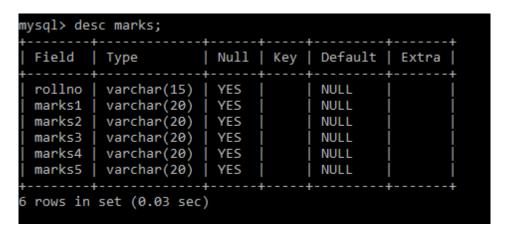


Fig 5.7 Marks table description.

FEE TABLE

Fee table: fee table is used to pay the fee dues of the student for that particular sem and the attributes used like rollno, name, fathersname, course, branch, sem and fee_paid.

Desc Fee;

```
nysql> desc fee;
 Field
                               | Null | Key | Default | Extra
                 Type
 rollno
                 varchar(20)
                                 YES
                                               NULL
                                 YES
 name
                  varchar(25)
                                               NULL
 fathers_name
                                 YES
                                               NULL
                  varchar(25)
 course
                  varchar(10)
                                               NULL
 branch
                  varchar(20)
                                 YES
                                               NULL
 semester
                  varchar(10)
                                 YES
                                               NULL
                  varchar(15)
 fee paid
                                 YES
                                               NULL
 rows in set (0.02 sec)
```

Fig 5.8 Fee table description.

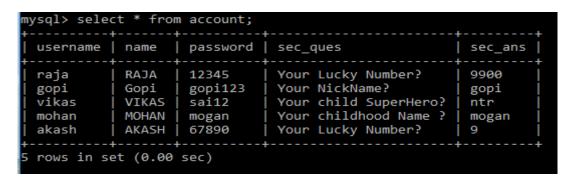
TABLE WITH VALUES

6.1 Output design:

Account table :Account table consists of five attributes which will be retrived from user when the user signsup/logs in.

Select * from account;

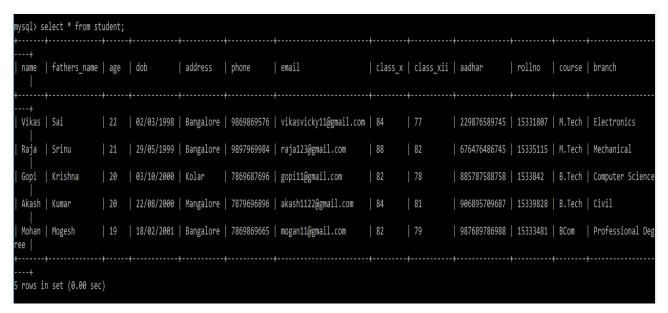
Table 1.1 Account table



Student table: Student table is used to add the details of new student like Name,phoneno.,DoB,course,Branch etc...Phoneno.E-mail and Aadhar are used as Primary key.

Select * from student;

Table 1.2 Student table



Teacher table :Teacher table is used to add the details of new student like Name,phoneno.,DoB,course,Branch etc...Phoneno. ,E-mail and Aadhar are used as Primary key.

Select * from teacher;

Table 1.3 Teacher table

 					phone	email	_	class_xii				dept
+						lakshmi12@gmail.com		78	756876487594			Computer Scien
	(umarswamy	54	21/03/1966	Bangalore	9867976976	prakash11@gmail.com	84	81	979477658798	M.Tech	1013079	Mechanical
Naveen.B.M Bl	Bhaskar	38	26/11/1982	Bangalore	8978987687	naveen123@gmail.com	87	77	896596796798	MBA	1012340	Others
Mahesh.G G	anesh	41	16/09/1979	Mangalore	7897869876	maheshg11@gmail.com	78	68	456736753857	MCA	1014233	Others
Rakesh Cl			11/06/1984			rakesh121@gmail.com		87	337659876007			Professional [

Attendance_Student table :Attendance_Student table is used to mark the attendance of the student day to day which as attributes like rollno,name,first and second half.

Select * from attendance_student;

Table 1.4 Attendance_student table

```
nysql> select * from attendance student;
 rollno
                                             first
 15331807
            Thu Jan 14 16:12:03 IST 2021
                                             Present
                                                       Present
 15335115
            Thu Jan 14 16:12:15 IST
                                     2021
                                             Present
                                                       Absent
 1533842
            Thu Jan 14 16:12:27 IST 2021
                                             Absent
                                                       Present
 15339828
            Thu Jan 14 16:12:41 IST 2021
                                             Absent
                                                       Absent
 15333481
            Thu Jan 14 16:13:00 IST
                                             Leave
                                                       Leave
 rows in set (0.00 sec)
```

Attendance_Teacher table :Attendance_Teachertable is used to mark the attendance of the teacher day to day which as attributes like emp_id,name,first and second half.

Select * fromattendance_teacher;

Table 1.5 Attendance teacher table

```
mysql> select * from attendance teacher;
                                            first
 emp id
                                                      second
 1016569
           Thu Jan 14 15:45:45 IST 2021
                                            Present
                                                      Present
 1013079
           Thu Jan 14 15:46:00 IST 2021
                                            Absent
                                                      Present
 1012340
           Thu Jan 14 15:46:15 IST 2021
                                            Present
                                                      Absent
 1014233
           Thu Jan 14 15:46:32 IST 2021
                                            Absent
                                                      Absent
 1012307
           Thu Jan 14 15:46:47 IST 2021
                                            Leave
                                                      Leave
 rows in set (0.00 sec)
```

Subject table : Subject table is used to add the subjects of the student in that particular sem with the attributes like rollno and five subjects.

Select * from Subject;

Table 1.6 Subject table

rollno	subject1	subject2	subject3	subject4	subject5
15331807	Devices Mathematics Computer networks Building materials Accounts	Signals	System	Numericals	Circuits
15335115		Statics and Dynamics	Solid mechanics	Material engineering	Composites
1533842		Database management	Python	Unix	ATC
15339828		Strength of materials	Structures	Contuction project	Steel design
15333481		Economics	Statistics	Management	Finance

Marks table :Markstable is used to add the marks of the particular subjects of the student in a particular sem and the attributes used are rollno and five subject marks.

Select * from Marks;

Table 1.7 Marks table

mysql> seled	t * from	marks;		·			
rollno	marks1	marks2	marks3	marks4	marks5		
15331807	78	82	79	76	85		
15335115	78	83	88	79	80		
1533842	77	68	76	68	70		
15339828	60	68	65	73	75		
15333481	78	72	70	69	74		
+	+++++						
5 rows in se	et (0.00 s	sec)					

Fee table : fee table is used to pay the fee dues of the student for that particular sem and the attributes used like rollno, name, fathersname, course, branch, sem and fee_paid.

Select * from Fee;

Table 1.8 Fee table

mysql> seled		n fee;	.	.	.	·
rollno	name	fathers_name	course	branch	semester	fee_paid
15331807 15335115 1533842 15339828 15333481	Vikas Raja Gopi Akash Mohan		M.Tech M.Tech B.Tech B.Tech B.com	Electronics Mechanical CSE Civil Other	2nd 1st 5th 6th 3rd	30000 40000 51000 28000 30000
rows in se						, ,

IMPLEMENTATION

Sample code:

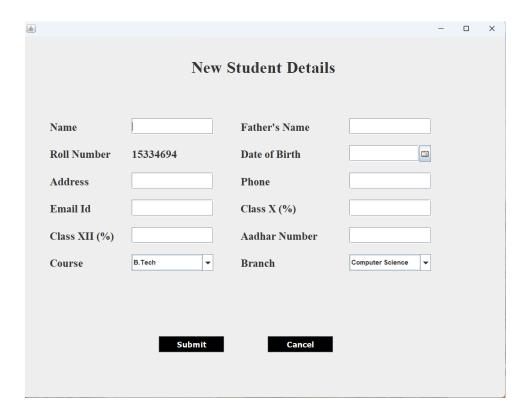
```
Package institution.management.system;
importjava.awt.*;
importjavax.swing.*;
importjava.awt.event.*;
importjava.sql.*;
importinstitution.management.system.Signup;
public class Login extends JFrame implements ActionListener{
       privateJPanel panel;
       privateJTextFieldtextField;
       privateJPasswordFieldpasswordField;
privateJButton b1,b2,b3;
       public Login() {
       setBackground(new Color(169, 169, 169));
setBounds(600, 300, 600, 400);
panel = new JPanel();
       panel.setBackground(new Color(176, 224, 230));
       setContentPane(panel);
       panel.setLayout(null);
       JLabel 11 = new JLabel("Username : ");
       11.setBounds(124, 89, 95, 24);
```

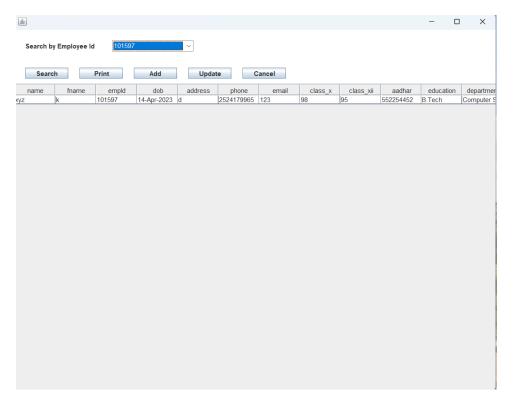
```
panel.add(11);
       JLabel 12 = new JLabel("Password : ");
       12.setBounds(124, 124, 95, 24);
       panel.add(12);
       textField = new JTextField();
       textField.setBounds(210, 93, 157, 20);
       panel.add(textField);
       passwordField = new JPasswordField();
       passwordField.setBounds(210, 128, 157, 20);
       panel.add(passwordField);
       JLabel 13 = new JLabel("");
       13.setBounds(377, 79, 46, 34);
       panel.add(13);
       JLabel 14 = new JLabel("");
       14.setBounds(377, 124, 46, 34);
       panel.add(13);
       b1 = new JButton("Login");
       b1.addActionListener(this);
       b1.setForeground(new Color(46, 139, 87));
       b1.setBackground(new Color(250, 250, 210));
       b1.setBounds(149, 181, 113, 39);
       panel.add(b1);
b2 = new JButton("SignUp");
       b2.addActionListener(this);
```

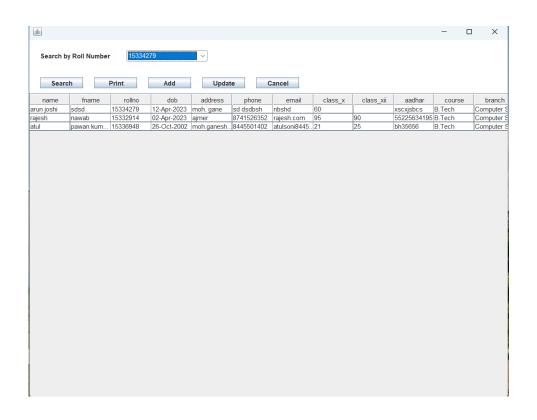
```
b2.setForeground(new Color(139, 69, 19));
       b2.setBackground(new Color(255, 235, 205));
       b2.setBounds(289, 181, 113, 39);
       panel.add(b2);
       b3 = new JButton("Forgot Password");
       b3.addActionListener(this);
b3.setForeground(new Color(205, 92, 92));
       b3.setBackground(new Color(253, 245, 230));
       b3.setBounds(199, 231, 179, 39);
       panel.add(b3);
       JLabel 15 = new JLabel("Trouble in Login?");
       15.setFont(new Font("Tahoma", Font.PLAIN, 15));
       15.setForeground(new Color(255, 0, 0));
       15.setBounds(70, 240, 130, 20);
       panel.add(15);
              JPanel panel2 = new JPanel();
              panel2.setBackground(new Color(176, 224, 230));
              panel2.setBounds(24, 40, 434, 263);
              panel.add(panel2);
 }
public void actionPerformed(ActionEventae){
if(ae.getSource() == b1){
         Boolean status = false;
              try {
```

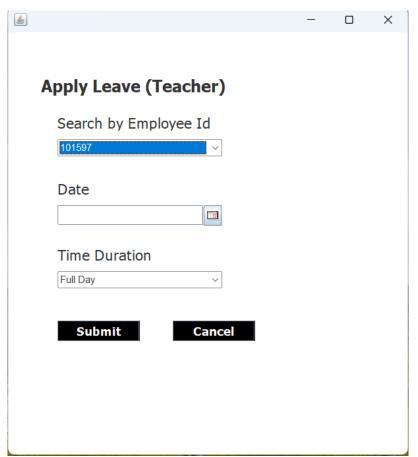
```
conn con = new conn();
            String sql = "select * from account where username=? and password=?";
PreparedStatementst = con.c.prepareStatement(sql);
st.setString(1, textField.getText());
st.setString(2, passwordField.getText());
ResultSetrs = st.executeQuery();
if (rs.next()) {
this.setVisible(false);
new Loading().setVisible(true);
            } else
                      JOptionPane.showMessageDialog(null, "Invalid Login...!.");
               } catch (Exception e2) {
e2.printStackTrace();}
if(ae.getSource() == b2){
setVisible(false);
              Signup su = new Signup();
              su.setVisible(true);}
if(ae.getSource() == b3){
setVisible(false);
              ForgotPassword forgot = new ForgotPassword();
              forgot.setVisible(true);}
     }
       public static void main(String[] args) {
          new Login().setVisible(true);
                                           }
                                                        }
```

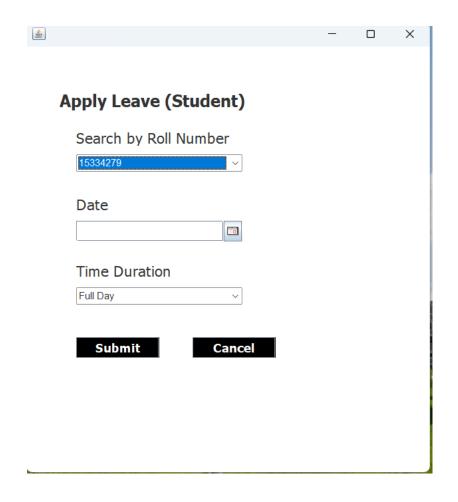
OUTPUT

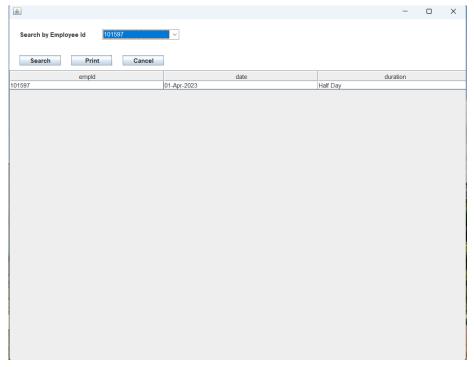


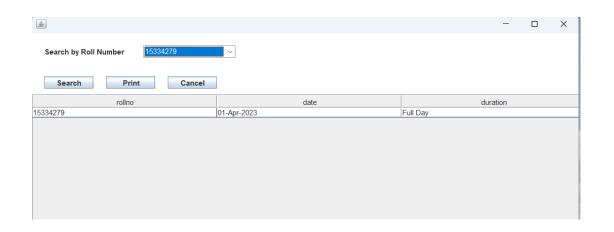


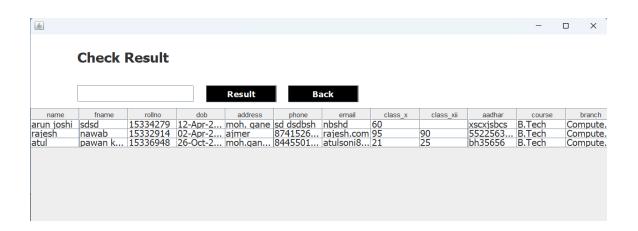


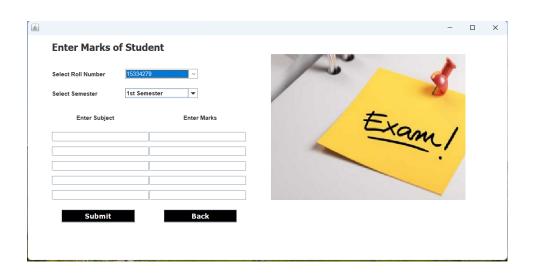


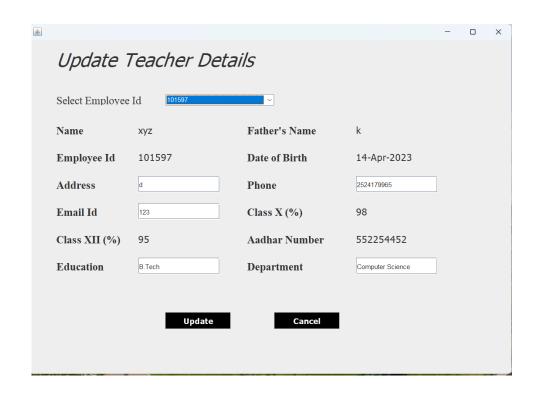


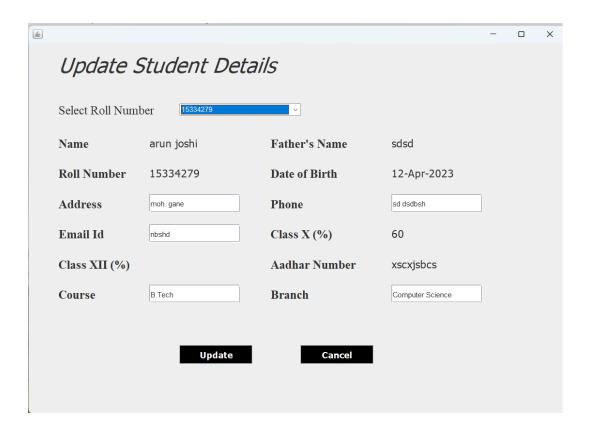


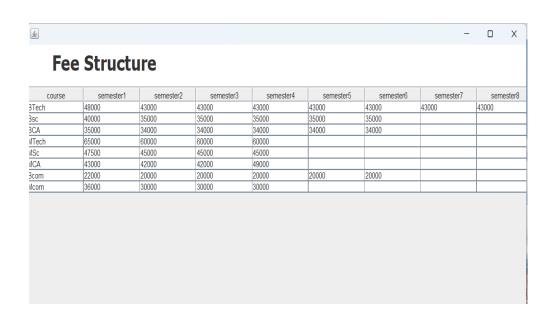


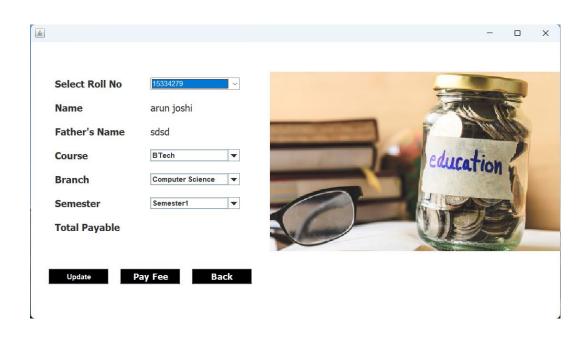












CONCLUSION

The project entitled as **University Management System** is the system that deals with the issues related to a particular institution.

This project is successfully implemented with all the features mentioned in system requirements specification.

The application provides appropriate information to users according to the chosen service.

The project is designed keeping in view the day to day problems faced by a college.

Deployment of our application will certainly help the college to reduce unnecessary wastage of time in personally going to each department for some information.

Awareness and right information about any college is essential for both the development of student as well as faculty. So this serves the right purpose in achieving the desire requirement of both the communities.