

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

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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]

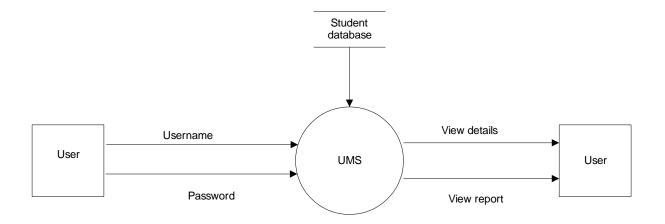
MySQL is released under an open-source license. So you have nothing to pay to use it. MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages. MySQL uses a standard form of the well-known SQL data language. 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).

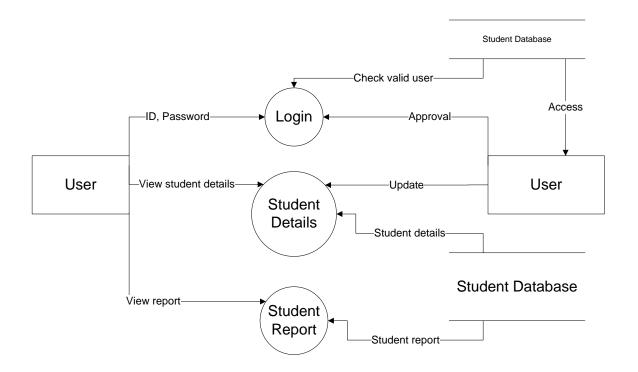
Also, they are using different dialects, such as -

- 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.

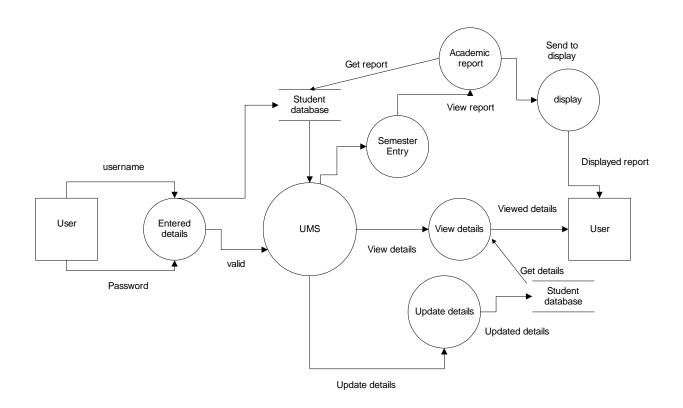
## Level 0 Data Flow Diagram



Level 1 Data Flow Diagram



## Level 2 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.

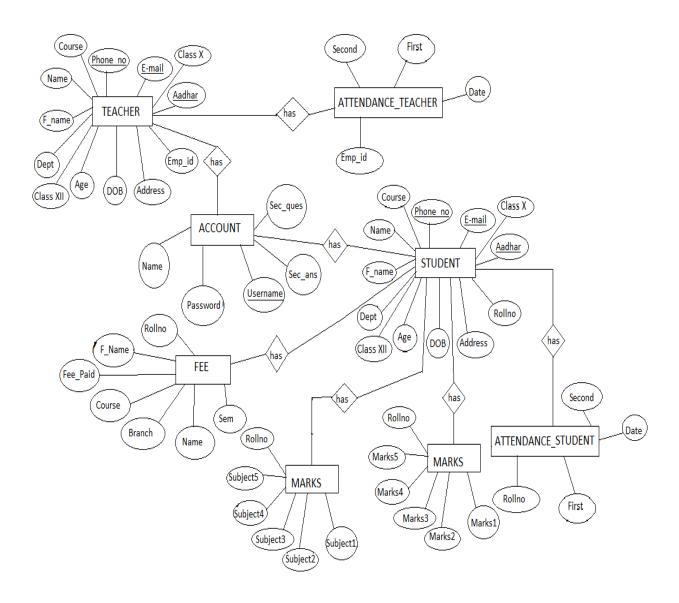


Figure 4.1: ER Diagram for Smartphone Management Arena

### **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.

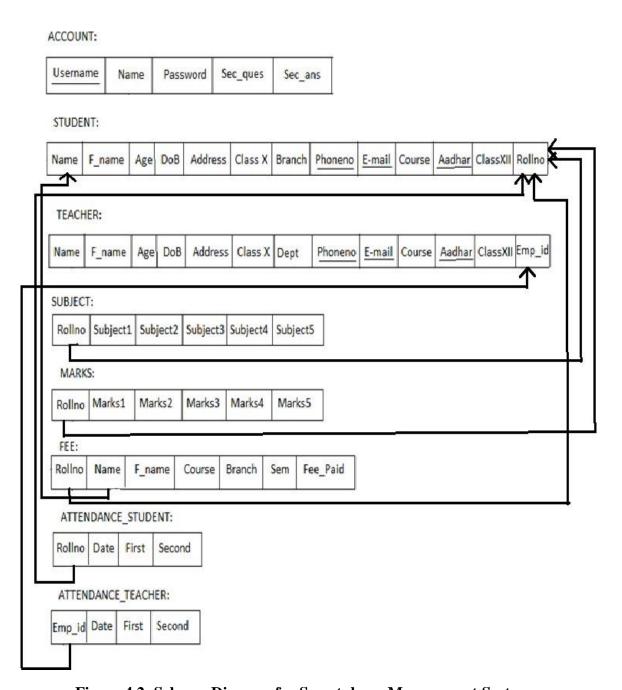


Figure 4.2: Schema Diagram for Smartphone Management System

## 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;

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;

| nysql> desc stu  | dent;   | <b>.</b>   | <b>.</b>          |   | <b></b> |
|--|---|--|-------------------|---|---------|
| Field  | Туре  | Null   | Key               | Default                                 | Extra   |
| name fathers_name age dob address phone email class_x class_xii aadhar rollno course | varchar(20)<br>  varchar(20)<br>  varchar(5)<br>  varchar(20)<br>  varchar(30)<br>  varchar(15)<br>  varchar(25)<br>  varchar(10)<br>  varchar(10)<br>  varchar(15)<br>  varchar(15)<br>  varchar(15) | YES YES YES YES YES NO NO YES YES NO NO YES NO NO NO YES YES | PRI<br>PRI<br>PRI | NULL NULL NULL NULL NULL NULL NULL NULL |         |
| branch   | varchar(20)   | YES  | i                 | 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;

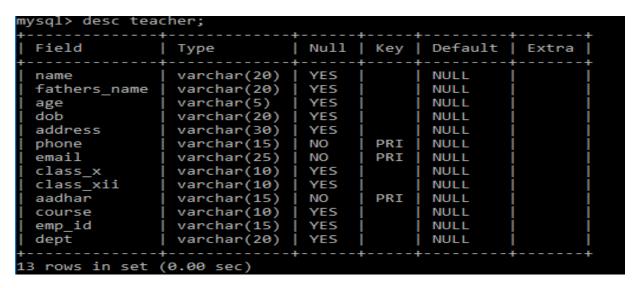


Fig 5.3 Teacher table description

### 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;

```
mysql> desc attendance_student;
                                        Default
 Field
          Type
                         Null | Key
 rollno
           varchar(20)
                          YES
                                        NULL
                          YES
 Date
           varchar(30)
                                        NULL
 first
           varchar(10)
                          YES
                                        NULL
           varchar(10)
 second
                          YES
                                        NULL
 rows in set (0.04 sec)
```

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;

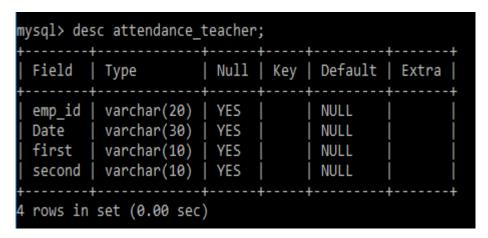


Fig 5.5 Attendance\_Teacher table description.

#### **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
                                          Default
             Type
                                   Key
                                                    Extra
 rollno
                            YES
             varchar(25)
                                          NULL
 subject1
             varchar(30)
                            YES
                                          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;

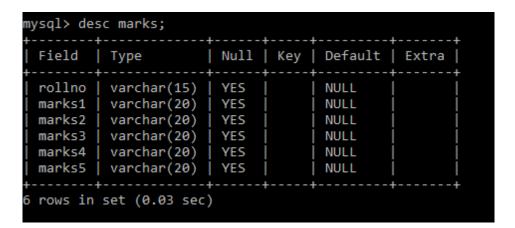


Fig 5.7 Marks table description.

#### **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;

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

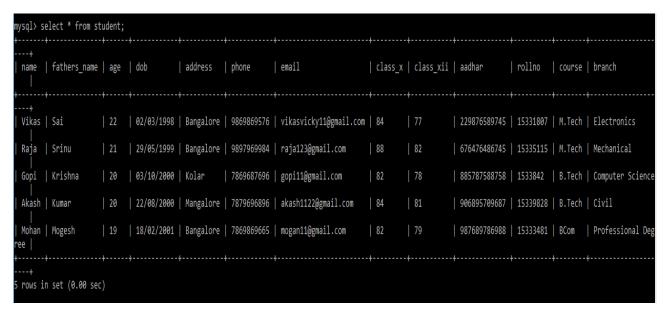
Table 1.1 Account table

|  | <b>+</b>  |   | +<br>  sec_ques  | sec_ans                            |
|--|---|---|--|------------------------------------|
| t<br>  raja<br>  gopi<br>  vikas<br>  mohan<br>  akash | RAJA<br>  Gopi<br>  VIKAS<br>  MOHAN<br>  AKASH | 12345<br>  gopi123<br>  sai12<br>  mogan<br>  67890 | Your Lucky Number?<br>  Your NickName?<br>  Your child SuperHero?<br>  Your childhood Name ?<br>  Your Lucky Number? | 9900  <br>gopi  <br>ntr  <br>mogan |
| t<br>5 rows in se                                      | +<br>⊇t (0.00                                   | sec)  | +  | ++                                 |

**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

| . '                      | * from teacher; |     | 1          |           |            |                     |         |           |              |        |         |                |
|--------------------------|-----------------|-----|------------|-----------|------------|---------------------|---------|-----------|--------------|--------|---------|----------------|
| +<br>  name<br>          | fathers_name    | age | dob        | address   | phone      | email               | class_x | class_xii | aadhar       | course | emp_id  | dept           |
| Lakshmi                  | Venkatesh       |     |            |           |            | lakshmi12@gmail.com |         | 78        | 756876487594 |        |         | Computer Scien |
| Prakash                  | Kumarswamy      | 54  | 21/03/1966 | Bangalore | 9867976976 | prakash11@gmail.com | 84      | 81        | 979477658798 | M.Tech | 1013079 | Mechanical     |
| Naveen.B.M               | Bhaskar         | 38  | 26/11/1982 | Bangalore | 8978987687 | naveen123@gmail.com | 87      | 77        | 896596796798 | MBA    | 1012340 | Others         |
| Mahesh.G                 | Ganesh          | 41  | 16/09/1979 | Mangalore | 7897869876 | maheshg11@gmail.com | 78      | 68        | 456736753857 | MCA    | 1014233 | Others         |
| Rakesh<br>  Rgree        | Chandrasekhar   |     | 11/06/1984 |           |            | rakesh121@gmail.com |         | 87        | 337659876007 |        |         | Professional D |
| ++<br>+<br>5 rows in set |                 | +   |            |           |            |                     |         |           | ·            |        |         |                |

**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

```
* from attendance student;
                                           first
rollno
           Date
                                                      second
           Thu Jan 14 16:12:03 IST 2021
15331807
                                                      Present
15335115
           Thu Jan 14 16:12:15 IST
                                    2021
                                            Present
                                                      Absent
1533842
                   14 16:12:27 IST
                                    2021
                                            Absent
                                                      Present
               Jan
15339828
           Thu Jan 14 16:12:41 IST 2021
                                            Absent
                                                      Absent
           Thu Jan 14 16:13:00 IST 2021
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
           Date
 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
           Thu Jan 14 15:46:32 IST 2021
 1014233
                                            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            | Signals               | System          | Numericals           | Circuits     |
| 15335115 | Mathematics        | Statics and Dynamics  | Solid mechanics | Material engineering | Composites   |
| 1533842  | Computer networks  | Database management   | Python          | Unix                 | ATC          |
| 15339828 | Building materials | Strength of materials | Structures      | Contuction project   | Steel design |
| 15333481 | Accounts           | 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** 

| 2 1           | nysql> select * from marks; |          |    |    |    |  |  |  |
|---------------|-----------------------------|----------|----|----|----|--|--|--|
|               | marks1                      |          |    |    |    |  |  |  |
| 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                  | <br>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

| rollno   | <br>  name | fathers_name | +<br>  course                      | +<br>  branch | <br>  semester | ++<br>  fee_paid |
|----------|------------|--------------|------------------------------------|---------------|----------------|------------------|
| 15331807 | Vikas      | Sai          | M.Tech M.Tech B.Tech B.Tech B.Tech | Electronics   | 2nd            | 30000            |
| 15335115 | Raja       | Srinu        |                                    | Mechanical    | 1st            | 40000            |
| 1533842  | Gopi       | Krishna      |                                    | CSE           | 5th            | 51000            |
| 15339828 | Akash      | Kumar        |                                    | Civil         | 6th            | 28000            |
| 15333481 | Mohan      | Mogesh       |                                    | Other         | 3rd            | 30000            |

## **IMPLEMENTATION**

### Sample code:

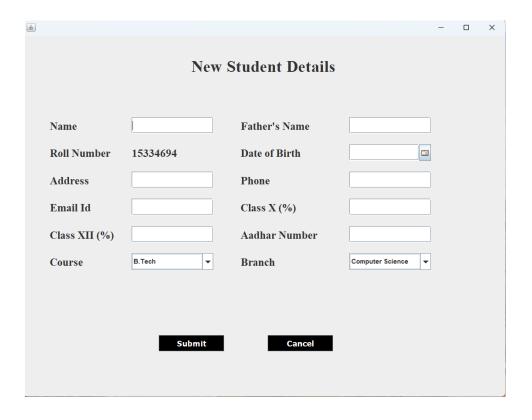
```
Package institution.management.system;
importjava.awt.*;
importjavax.swing.*;
importjava.awt.event.*;
importjava.sql.*;
importinstitution.management.system.Signup;
public class Login extends JFrame implements ActionListener{
       privateJPanel panel;
       privateJTextFieldtextField;
       privateJPasswordFieldpasswordField;
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);
```

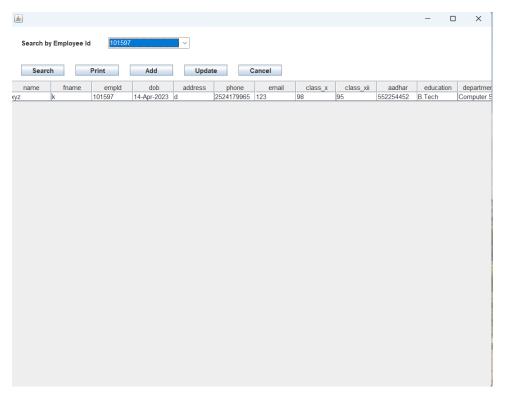
```
panel.add(11);
       JLabel 12 = new JLabel("Password:");
       12.setBounds(124, 124, 95, 24);
       panel.add(12);
       textField = new JTextField();
       textField.setBounds(210, 93, 157, 20);
       panel.add(textField);
       passwordField = new JPasswordField();
       passwordField.setBounds(210, 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);
```

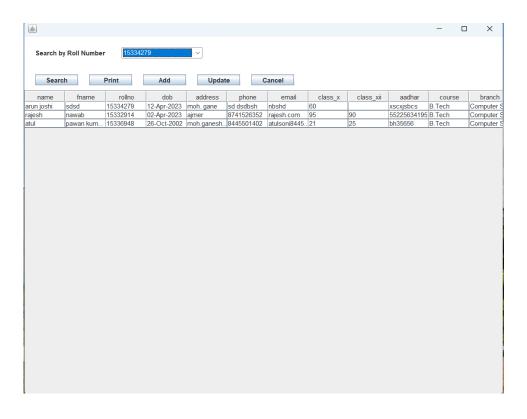
```
b2.setForeground(new Color(139, 69, 19));
       b2.setBackground(new Color(255, 235, 205));
       b2.setBounds(289, 181, 113, 39);
       panel.add(b2);
       b3 = new JButton("Forgot Password");
       b3.addActionListener(this);
b3.setForeground(new Color(205, 92, 92));
       b3.setBackground(new 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 {
```

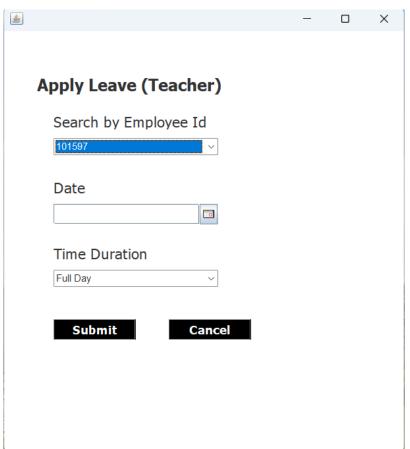
```
conn con = new conn();
            String sql = "select * from account where username=? and password=?";
PreparedStatementst = con.c.prepareStatement(sql);
st.setString(1, textField.getText());
st.setString(2, passwordField.getText());
ResultSetrs = st.executeQuery();
if (rs.next()) {
this.setVisible(false);
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);
                                                         }
```

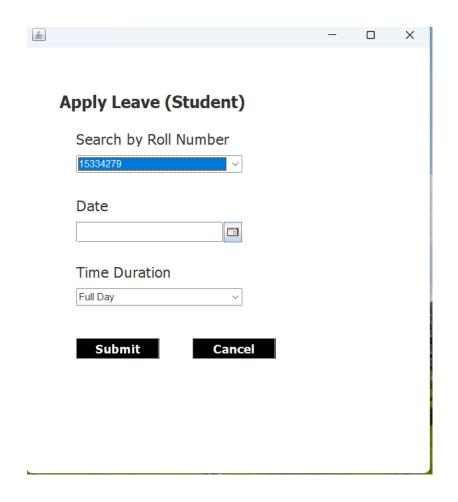
## **OUTPUT**

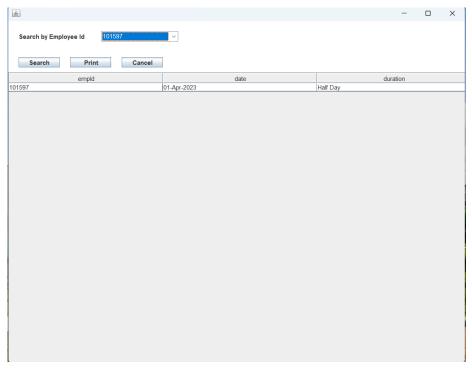


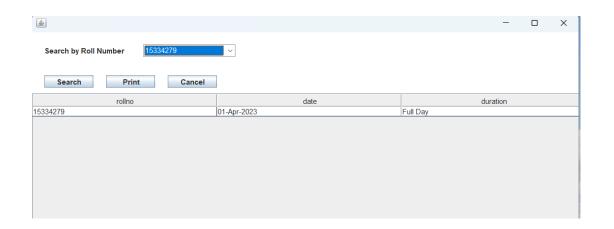


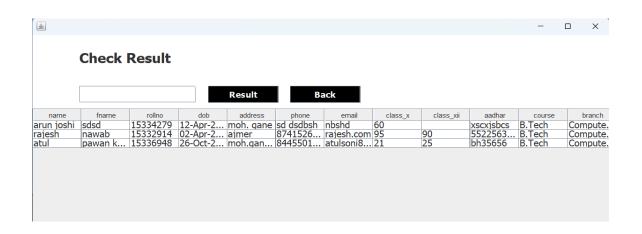


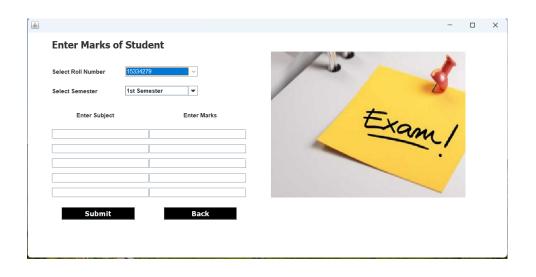


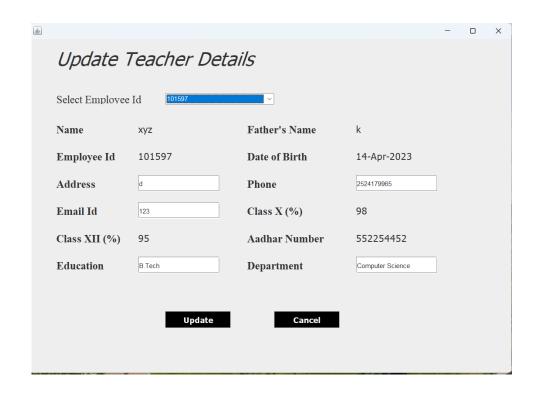


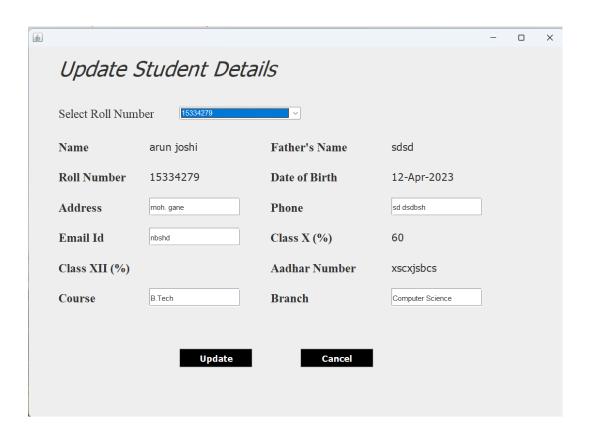


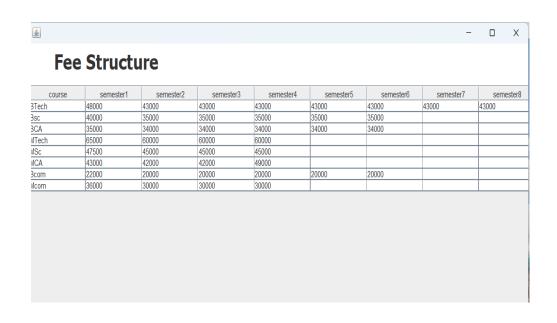


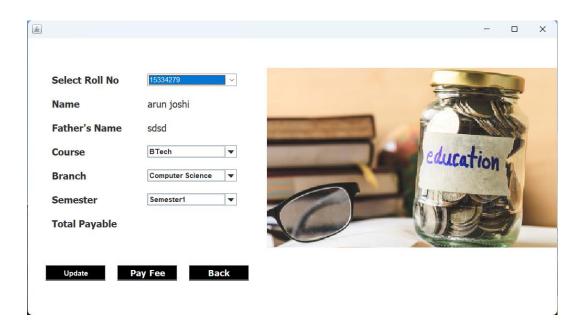












### CONCLUSION

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. \_

# Roles and Responsibilities

# 1. Sanjay Kumar Nayak (12115352)

Module: Student leave & leave detail, Student fee form.

# 2. Subham kumar (12115171)

Module: Add student, Add teacher, Examination detail.

# 3. Atul Soni (12115448)

Module: Conn(database connectivity), splash, mysql(workwench).