ACKNOWLEDGMENT

I take this opportunity to record our sincere thanks to all who helped us to successfully complete this work. Firstly I am grateful to My mentor **Mr Ankit Dobariya** for his invaluable guidance and constant encouragement, support and most importantly for giving us the opportunity to carry out this work.

We would like to express our deepest sense of gratitude and humble regards to our

Head of Department Dr. Vivek Jain for giving invariable encouragement in my endeavors and providing necessary facility for the same. Also a sincere thanks to all faculty members of ECE, TINJRIT for their help in the project directly or indirectly.

I am indebted to my parents for providing constant support, love and encouragement. I thank them for the sacrifices they made so that we could grow up in a learning environment. They have always stood by us in everything we have done, providing constant support, encouragement and love

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Certificate

This is to certify that project work titled University management system by Mayank soni was successfully carried out in the Department of Electronics and Communication Engineering, TINJRIT and the report is approved for submission in the partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Electronics and Communication.

Mr. Ankit Dobariya
Team Leader
ZealousWeb Technologies Pvt. Ltd.
Date.....

Dr. Vivek Jain
Asst. Prof.
Dept. of ECE TINJRIT, Udaipur
Date.....

TECHNO INDIA NJR
INSTITUTE OF TECHNOLOGY

Department of Electronics and Communication Engineering
Techno India NJR Institute of Technology, Udaipur- 313001

Examiner Certificate

This is to certify that the student **Mayank soni** of final year B.Tech. (Electronics and Communication Engineering), was examined for the projectwork titled

University management system

during the academic year 2022 – 2023 at Techno India NJR Institute of Technology, Udaipur

Remarks:

Date:

Signature
(**Internal Examiner**)
Name:- ……
Designation:- ……..
Department: - …….
Organization:- …….

Signature
(**External Examiner**)
Name:- ……
Designation:- ……..
Department: - …….
Organization:- …….

Preface

Welcome to this comprehensive guide on the University Management System! In this document, we aim to provide you with a detailed understanding of the system, its purpose, requirements, design, implementation, testing, and practical application.

Chapter 1: Introduction and Purpose

In this chapter, we will provide an introduction to the University Management System. We will explore the significance and challenges faced by academic institutions in managing their operations effectively. With the ever-increasing complexities of administrative tasks and the need for seamless coordination among various departments, the University Management System offers a solution to streamline processes and enhance overall efficiency. By leveraging technology, this system aims to optimize administrative tasks, improve communication between stakeholders, and ultimately enhance the educational experience.

Chapter 2: Overview of Front End

In this chapter, we will provide an overview of the front-end components of the University Management System. The user interface plays a crucial role in ensuring a user-friendly experience for all system users. We will discuss the design principles and considerations, including usability, accessibility, and visual aesthetics. By creating an intuitive and visually appealing interface, the system aims to enhance user engagement and simplify navigation.

Chapter 3: Overview of Back End and Schema Diagram

In this chapter, we will shift our focus to the back-end components of the University Management System. We will explore the system architecture, discussing the various modules and their interconnections. Additionally, we will provide an in-depth overview of the schema diagram, which represents the database structure and relationships. A well-designed back end ensures efficient data management, allowing for seamless data retrieval and updates.

Chapter 4: E-R Diagram and Database Design

In this chapter, we will present the Entity-Relationship (E-R) diagram, which models the entities, attributes, and relationships within the University Management System. We will discuss the database design principles, including data integrity, normalization, and scalability. The proper design and organization of the database are crucial for effective data storage and retrieval, enabling accurate reporting and analysi

Chapter 5: Table with Values and Output Design

In this chapter, we will provide a comprehensive overview of the tables and their associated values within the University Management System. By examining the different entities and their attributes, we will showcase how data is stored and managed within the system. Additionally, we will discuss the output design.

Chapter 6: Implementation

In this chapter, we will dive into the implementation phase of the University Management System. We will discuss the programming languages, frameworks, and tools utilized in building the system. Additionally, we will explore the deployment strategies and considerations, ensuring a smooth and successful implementation process.

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1 INTRODUCTION

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

1.1 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

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.

CHAPTER 2

REQUIREMENT SPECIFICATIONS

2.1 Hardware Requirements:

Processor Brand	: Intel
Processor Type	: Core i3
Processor Speed	: 2 GHz
Processor Count	: 1
RAM Size	: 2 GB
Memory Technology	: DDR3
Computer Memory Type	: DDR3 RAM
Hard Drive Size	: 160 GB

Software Requirements:

Operating system	: Windows 10
Application server	: JAVA (NetBeans)
Front end	: JAVA
Connectivity	: JDBC Driver
Database connectivity	: WAMP (MYSQL Console)

CHAPTER 3

TOOL DESCRIPTION

3.1 Overview of Front End

An important issue for the development of a project is the selection of suitable front- end 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:

It must have a graphical user interface that assists employees that are not from IT background.

Scalability and extensibility.

Flexibility.

Robustness.

According to the organization requirement and the culture.

Must provide excellent reporting features with good printing support.

Platform independent.

Easy to debug and maintain.

Event driven programming facility.

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, Glass Fish

3.2 Overview of Back End

Back End Selection:

Multiple user support.

Efficient data handling.

Provide inherent features for security.

Efficient data retrieval and maintenance.

Stored procedures.

Popularity.

Operating System compatible.

Easy to install.

Various drivers must be available.

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.

CHAPTER 4

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.

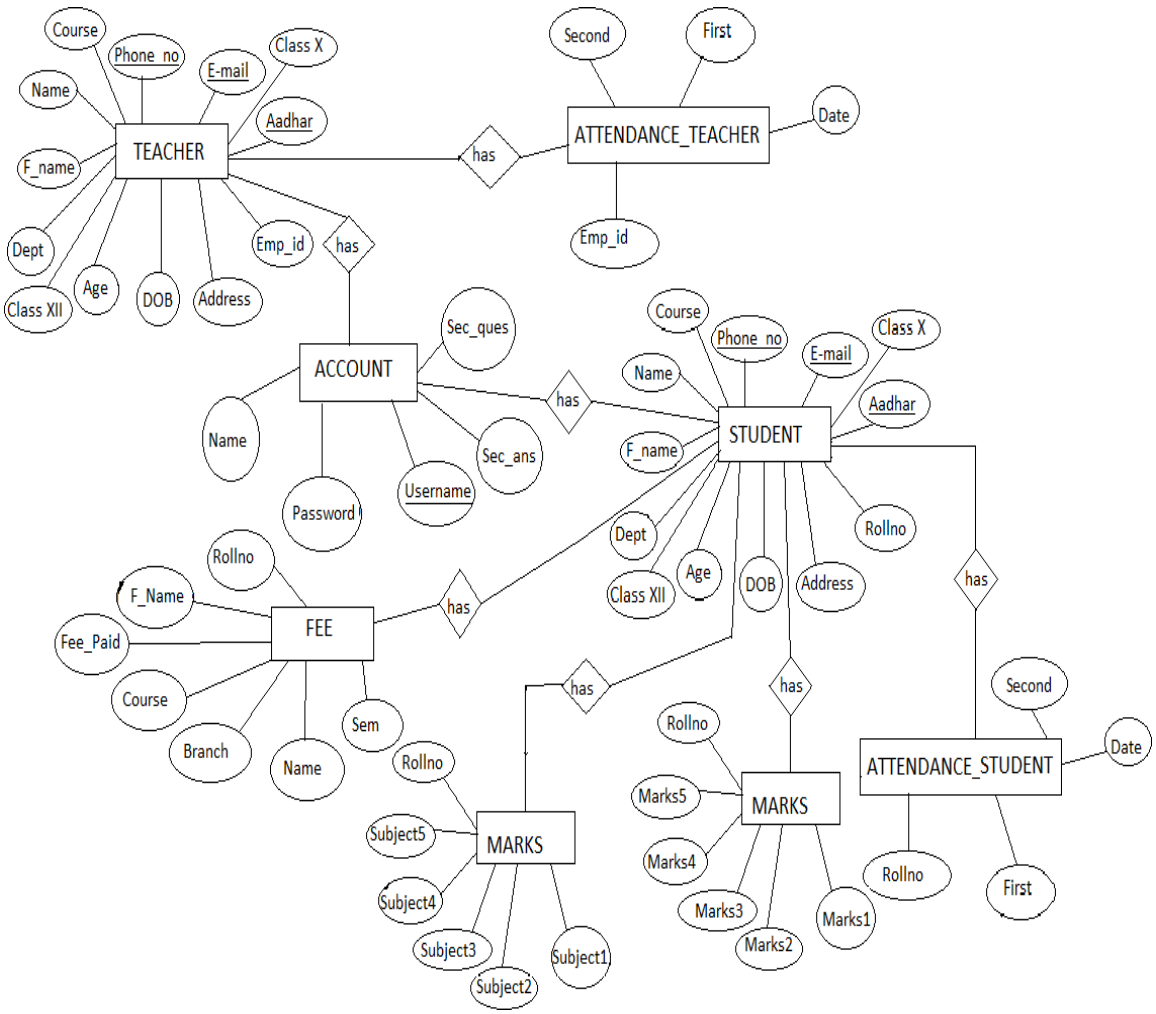


Figure 4.1: ER Diagram for Smartphone

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.

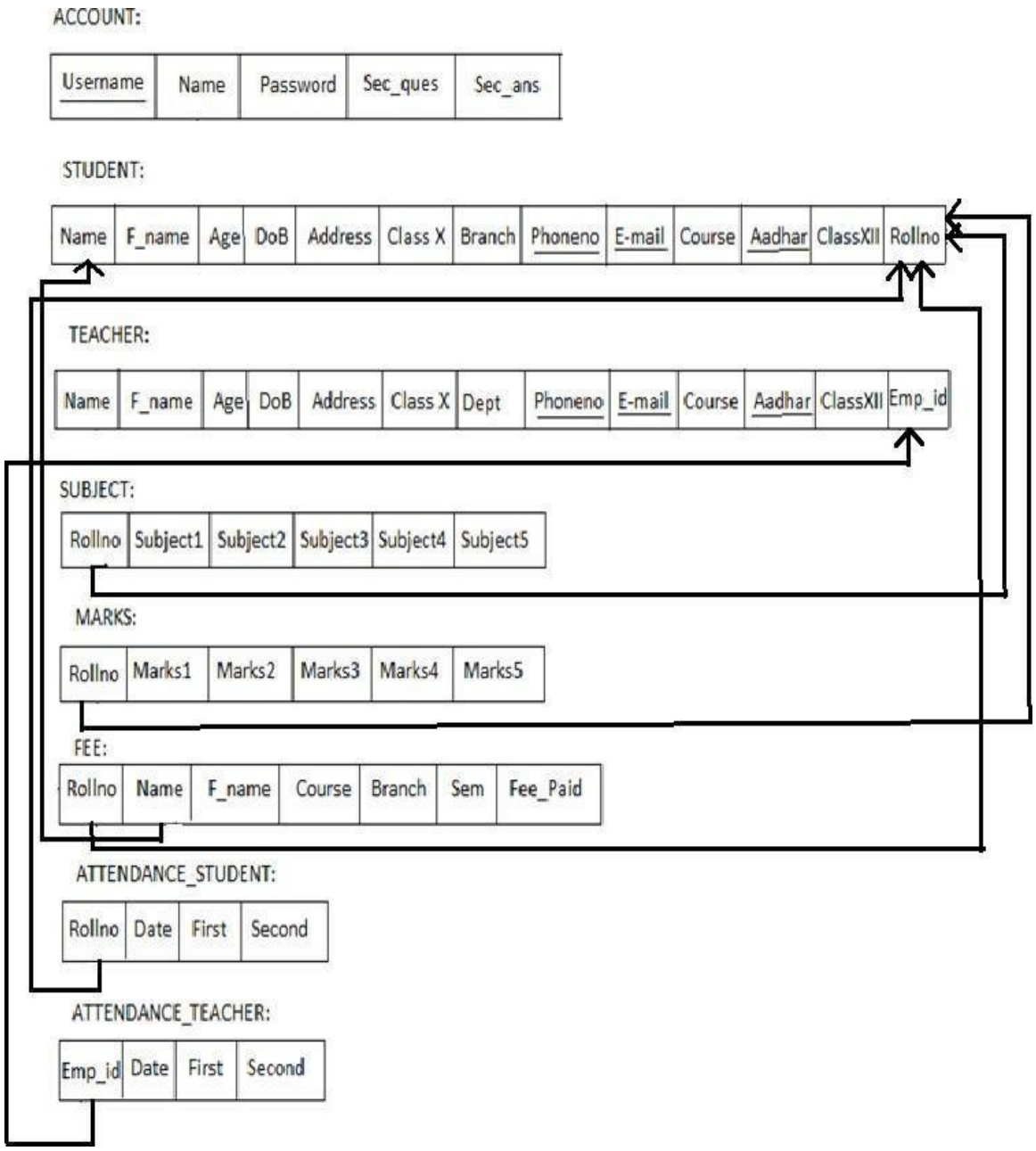


Figure 4.2: Schema Diagram for Smartphone Management

CHAPTER 5

TABLE DESCRIPTION

5.1 Database Design

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;

```
mysql> desc account;
+----------+--------------+------+-----+---------+-------+
| Field    | Type         | Null | Key | Default | Extra |
+----------+--------------+------+-----+---------+-------+
| username | varchar(30)  | NO   | PRI | NULL    |       |
| name     | varchar(40)  | YES  |     | NULL    |       |
| password | varchar(30)  | YES  |     | NULL    |       |
| sec_ques | varchar(100) | YES  |     | NULL    |       |
| sec_ans  | varchar(50)  | YES  |     | NULL    |       |
+----------+--------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

Table 5.1 Account table description

Student table: Student table is used to add the details of new student like Name, phone no, DOB, Course, Branch etc... Phone no., E-mail and Aadhar are used as Primary key.

Desc student;

```
mysql> desc student;
+--------------+-------------+------+-----+---------+-------+
| Field        | 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    |       |
| course       | varchar(10) | YES  |     | NULL    |       |
| branch       | varchar(20) | YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
13 rows in set (0.00 sec)
```

Table 5.2 Student table description.

Teacher table: Teacher table is used to add the details of new student like Name, phone no, DOB, Course, Branch etc... Phone no., E-mail and Aadhar are used as Primary key.

Desc teacher;

```
mysql> desc teacher;
+--------------+-------------+------+-----+---------+-------+
| Field        | 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    |       |
| course       | varchar(10) | YES  |     | NULL    |       |
| emp_id       | varchar(15) | YES  |     | NULL    |       |
| dept         | varchar(20) | YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
13 rows in set (0.00 sec)
```

Table 5.3 Teacher table description

Attendance_Student Table: Attendance_Student table is used to mark the attendance of the student day to day which has attributes like roll no, name, first and second half.

Desc attendance_student;

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

Table 5.4 Attendance_Student table description.

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

desc attendance_teacher;

```
mysql> desc attendance_teacher;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| emp_id | varchar(20) | YES  |     | NULL    |       |
| Date   | varchar(30) | YES  |     | NULL    |       |
| first  | varchar(10) | YES  |     | NULL    |       |
| second | varchar(10) | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

Table 5.5 Attendance_Teacher table description.

Marks table: Marks table is used to add the marks of the particular subjects of the student in a particular semester and the attributes used are roll no and five subject marks.

Des Marks;

```
mysql> desc marks;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| rollno | varchar(15) | YES  |     | NULL    |       |
| marks1 | varchar(20) | YES  |     | NULL    |       |
| marks2 | varchar(20) | YES  |     | NULL    |       |
| marks3 | varchar(20) | YES  |     | NULL    |       |
| marks4 | varchar(20) | YES  |     | NULL    |       |
| marks5 | varchar(20) | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
6 rows in set (0.03 sec)
```

Table 5.7 Marks table description.

CHAPTER 6

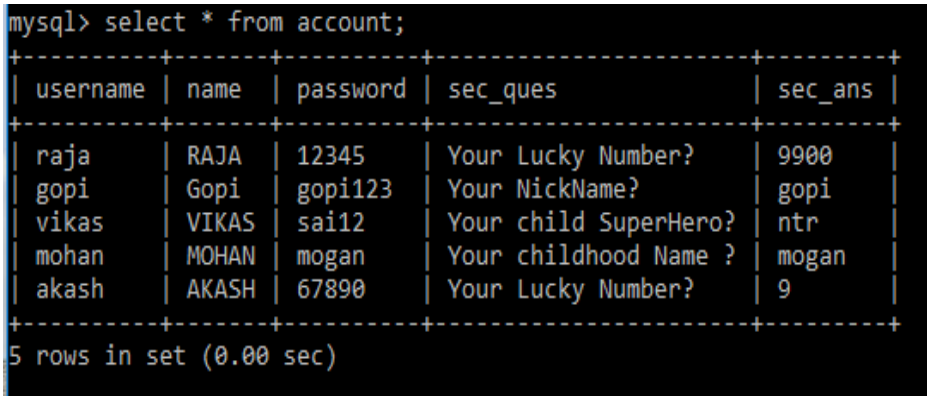
TABLE WITH VALUES

6.1 Output design:

Account table: Account table consists of five attributes which will be retrived from user when the user signup/login.

Select * from account;

Table 6.1 Account table



```
mysql> select * from account;
+----------+-------+----------+----------------------+---------+
| username | name  | password | sec_ques             | sec_ans |
+----------+-------+----------+----------------------+---------+
| raja     | RAJA  | 12345    | Your Lucky Number?   | 9900    |
| gopi     | Gopi  | gopi123  | Your NickName?       | gopi    |
| vikas    | VIKAS | sai12    | Your child SuperHero? | ntr     |
| mohan    | MOHAN | mogan    | Your childhood Name ? | mogan   |
| akash    | AKASH | 67890    | Your Lucky Number?   | 9       |
+----------+-------+----------+----------------------+---------+
5 rows in set (0.00 sec)
```

Student table: Student table is used to add the details of new student like Name, phone no, DOB, Course, Branch etc...Phone no, E-mail and Aadhar are used as Primary key.

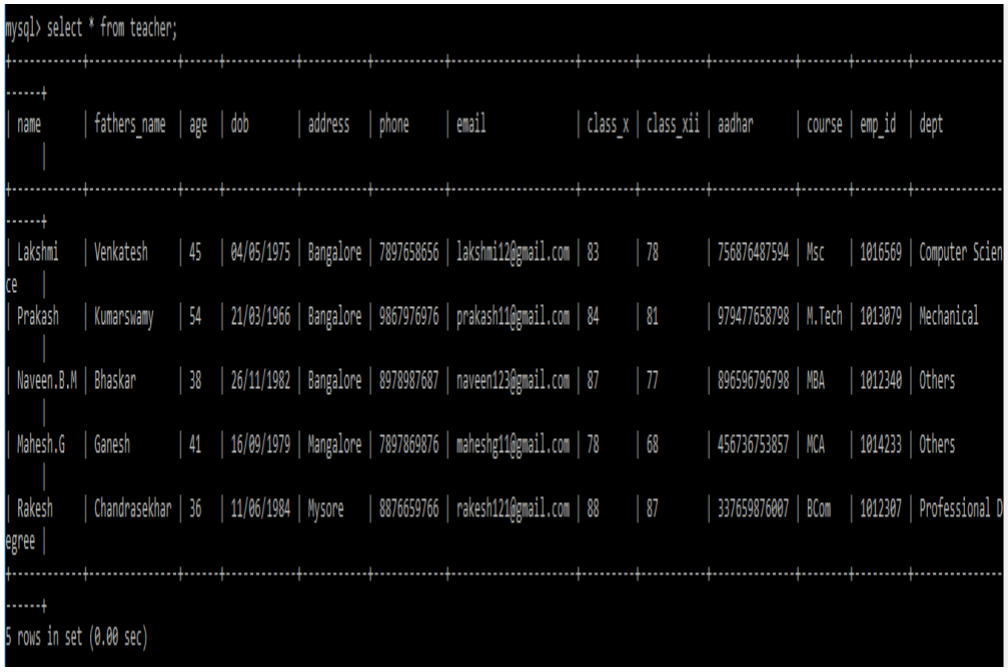
Select * from student;

```
mysql> select * from student;
+-------+-------------+-----+------------+----------+------------+----------------------+---------+----------+-------------+---------+-------+-----------------
---+
| name  | fathers_name | age | dob        | address  | phone      | email                | class_x | class_xii | aadhar      | rollno  | course | branch
   |
+-------+-------------+-----+------------+----------+------------+----------------------+---------+----------+-------------+---------+-------+-----------------
---+
| Vikas | Sai         | 22  | 02/03/1998 | Bangalore | 9869869576 | vikasvicky11@gmail.com | 84      | 77       | 229876589745 | 15331807 | M.Tech | Electronics
   |
| Raja  | Srinu       | 21  | 29/05/1999 | Bangalore | 9897969984 | raja123@gmail.com      | 88      | 82       | 676476486745 | 15335115 | M.Tech | Mechanical
   |
| Gopi  | Krishna     | 20  | 03/10/2000 | Kolar     | 7869687696 | gopi11@gmail.com       | 82      | 78       | 885787588758 | 1533842  | B.Tech | Computer Science
   |
| Akash | Kumar       | 20  | 22/08/2000 | Mangalore | 7879696896 | akash1122@gmail.com    | 84      | 81       | 906895709687 | 15339828 | B.Tech | Civil
   |
| Mohan | Mogesh      | 19  | 18/02/2001 | Bangalore | 7869869665 | mogan11@gmail.com      | 82      | 79       | 987689786988 | 15333481 | BCom   | Professional Deg
ree |
+-------+-------------+-----+------------+----------+------------+----------------------+---------+----------+-------------+---------+-------+-----------------
---+
5 rows in set (0.00 sec)
```

Table 6.2 Student Table

Teacher table: Teacher table is used to add the details of new student like Name, phone no, DOB, Course, Branch etc... Phone no., E-mail and Aadhar are used as Primary key.

Select * from teacher;



```
mysql> select * from teacher;
+-----------+-------------+-----+-----------+-----------+------------+--------------------+---------+----------+-------------+--------+---------+-------------
------+
| name      | fathers_name | age | dob       | address   | phone      | email              | class_x | class_xii | aadhar      | course | emp_id  | dept
      |
+-----------+-------------+-----+-----------+-----------+------------+--------------------+---------+----------+-------------+--------+---------+-------------
------+
| Lakshmi   | Venkatesh    | 45  | 04/05/1975 | Bangalore | 7897658656 | lakshmi12@gmail.com | 83      | 78       | 756876487594 | Msc    | 1016569 | Computer Scien
ce    |
| 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    | Chandrasekhar | 36 | 11/06/1984 | Mysore    | 8876659766 | rakesh121@gmail.com | 88      | 87       | 337659876007 | BCom   | 1012307 | Professional D
egree |
+-----------+-------------+-----+-----------+-----------+------------+--------------------+---------+----------+-------------+--------+---------+-------------
------+
5 rows in set (0.00 sec)
```

Table 6.3 Teacher table

CHAPTER 7 IMPLEMENTATION

Sample code:

```
Package
institution.management.syste
m; importjava.awt.*;
importjavax.swing.*;
importjava.awt.event.*;
importjava.sql.*;
import institution.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);
```

```
JLabel l1 = new
JLabel("Username : ");
l1.setBounds(124, 89, 95,
24);
 panel.add(l1);


JLabel l2 = new
JLabel("Password : ");
l2.setBounds(124, 124, 95,
24); panel.add(l2);
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 l3 = new
JLabel("");
l3.setBounds(377,
79, 46, 34);
panel.add(l3);
JLabel l4 = new
JLabel("");
l4.setBounds(377,
```

```
124, 46, 34);
panel.add(l3);

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.addActionListe
ner(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 l5 = new JLabel("Trouble in
        Login?"); l5.setFont(new
        Font("Tahoma", Font.PLAIN, 15));
        l5.setForeground(new Color(255, 0, 0));
        l5.setBounds(70, 240,
        130, 20);
        panel.add(l5);
                JPanel panel2 = new JPanel();
                panel2.setBackground(new Color(176, 224,
                230));
                panel2.setBounds(24, 40,
                434, 263);
                panel.add(panel2);
}
```

CONCLUSION

The project entitled as **Institution Management System** is the systemthat deals with the issues related to a particular institution.

his project is successfully implemented with all the features mentionedin system requirements specification. The application provides appropriate information to users according to the chosen service. Development of student as well as faculty. So this serves the right purpose in achieving the desired requirements of both the communities.