

University Management System (UMS)

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Abstract: UNIVERSITY MANAGEMENT SYSTEM (UMS) deals with the management of university, university, department and student information within a university. UMS is an automated system used to store university colleges, faculty, students, courses, and information. Manual systems have many drawbacks. The process of retaining and maintaining information is very cumbersome and time consuming for workers as all data must be maintained manually. It is a very time consuming and cumbersome process as students have to visit the university every month to pay their fees and obtain supporting documents. That's why we provide functionality. The current system is partially automated (computerized) and existing systems require the same information to be entered in different places, which is rather cumbersome. Our project system manages all student files electronically, eliminating paper maintenance. Admins don't have to keep track of students and teachers manually. students do not need to attend college to pay their tuition fees. thus saving manpower and resources.

Keywords: University management system; Application; Software; Java

I. INTRODUCTION

- UNIVERSITY MANAGEMENT SYSTEM (UMS) deals with the management of university, university, department and student information within a university. UMS is a partially automated system used to store university colleges, faculty, students, courses, and information. It manages the files used to collect relevant information from all departments of the organization and generate reports in various formats that measure individual and collective student performance.
- The University Management System is a softwarebased application. It offers the following features:
 - Drive operating efficiency. □
 - Easy-to-use, self-service system with little or no training.
 - Removed redundant data entry process. □
 - Integrated into online application workflows with a unified data model. □
 - Monitoring and decision support systems.
 - Automation of all the Academic / Examination / Administration operations.
 - Ease and accuracy of reporting.

II. DATABASE DESIGN

2.1 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.

Descaccount;

```
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)
```

Fig.2.1.1

2.2 STUDENT TABLE

Student Table: The Student table is used to add new student details such as Name, Phone, Date of Birth, Course, Industry...

Phone. Email and Aadhar are used as primary keys.

Descstudent;

```
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)

Fig.2.2.1

2.3 TEACHER TABLE

Teachers Table: The Teachers table is used to add new student details such as name, phone number, date of birth, course, and industry. Email and Aadhar are used as primary keys.

Descteacher;

```
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)

Fig.2.3.1

2.4 ATTENDANCE_STUDENT TABLE

Attendance_Student table: The Attendance_Student table is used to mark the attendance of students on a daily basis, attributes such as role number, name, first half 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)

Fig.2.4.1

2.5 ATTENDANCE_TEACHER TABLE

Attendance_Teachertable: The Attendance_Teacher table is used to mark the daily attendance of a teacher, attributes like emp_id, name, first half, 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)
```

Fig.2.5.1

2.6 SUBJECT TABLE

Courses Table: The Courses table is used to add courses for a as boxes with three squares in each box. The upper rectangle has student in that particular semester with attributes such as rollno the name of the class. The middle rectangle contains the properties and 5 courses. of the class. The bottom rectangle contains the methods of the Desc Subject;

```
mysql> desc subject;
+-----+-----+-----+-----+-----+-----+
| Field | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| rollno | varchar(25) | YES  |     | 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    |       |
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.02 sec)
```

Fig.2.6.1

2.7 MARKS TABLE

```
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)
```

Fig.2.7.1

2.8 FEES TABLE

Fee Schedule: The fee schedule is used to pay the student fees for each semester and the attributes used such as rolling number,

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

Fig.2.8.1

III. IMPLEMENTATION

In this University management system, there are three types of users' roles: Admin, Teacher and Student. Here, Admin is the main role of this system who can set up the main function.

3.1 Class Diagram

A class diagram is similar to a flowchart, with classes represented class, commonly called operations.



Fig.3.1

3.2 Sequence Diagram

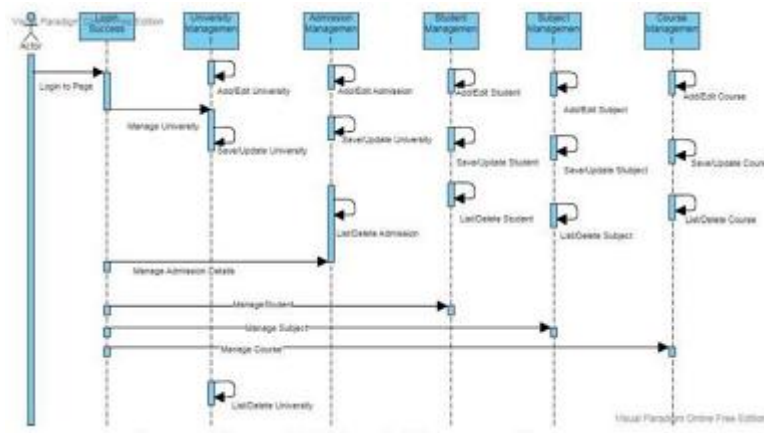


Fig.3.2

3.3 Use case diagram

A university management system use case diagram is a visual representation of how the user interacts with the system. It depicts the system's numerous use cases and different sorts of users. The circles or ellipses are used to depict the use cases. The use case diagram for the university management system comes with several diagrams that describe the function of various use cases from the general use case. It uses the labels <<includes>> and <<includes>> to know the structure and behavior of the system at the same time

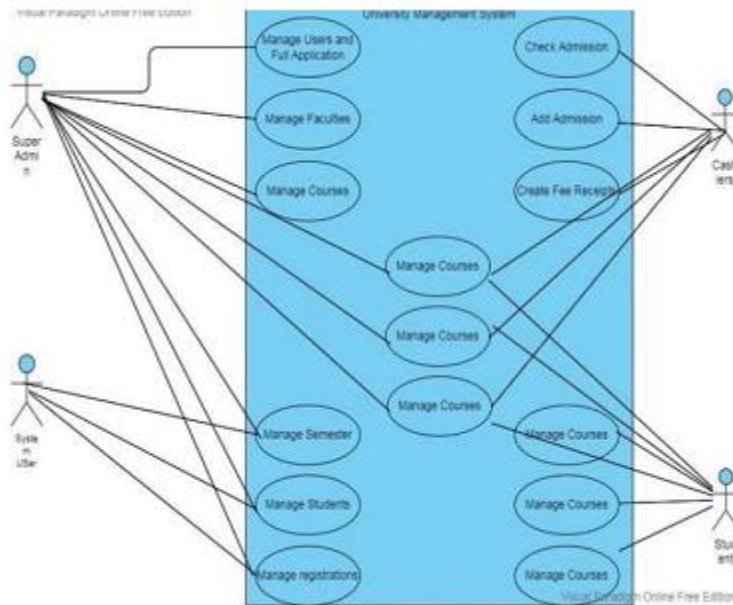


Fig.3.3

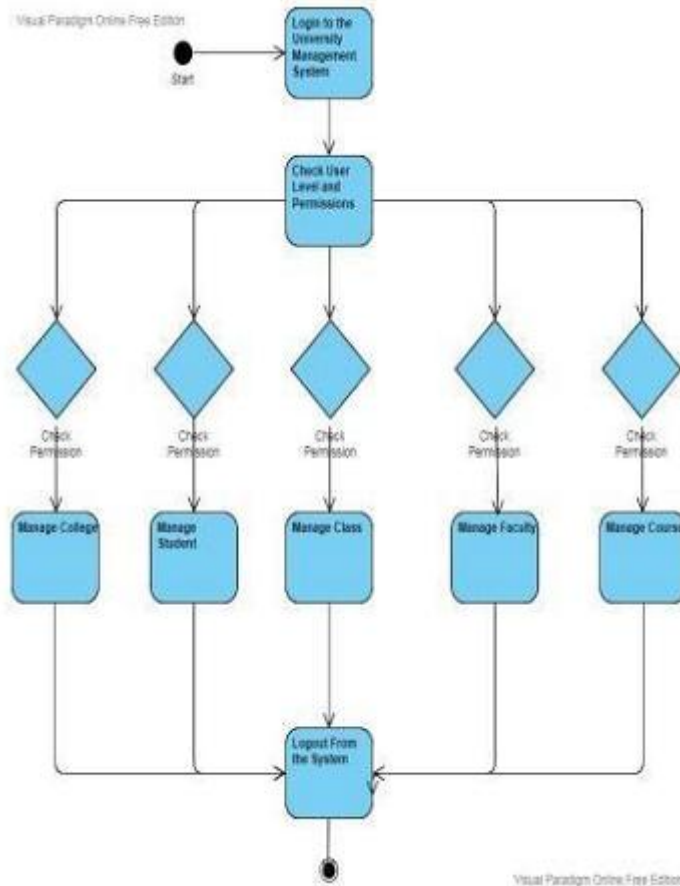


Fig.3.4

3.4 Activity diagram

The basis for this chart comes from the concept of university management. Universities are expected to admit students and provide accurate educational information to students. Here is an example of that activity. It shows an activity diagram for a university management system that highlights user-staff interactions during admission. This activity diagram was created to show its core functionality and how activities in university administration work. The interactions presented here are based on activities that typically occur in university administration.

3.4 Login form:

This page is the first page about our website. Continues to the staff login point. Username, password and login are required.



Gradebook: Gradebook Management System Sequence Diagram – particular subject in a particular semester. The attributes used are This designed sequence diagram is able to show programmers and rollno and grades for the five subjects. readers the sequence of messages between the actor and the objects Desc Marks

3.6 Home page user :

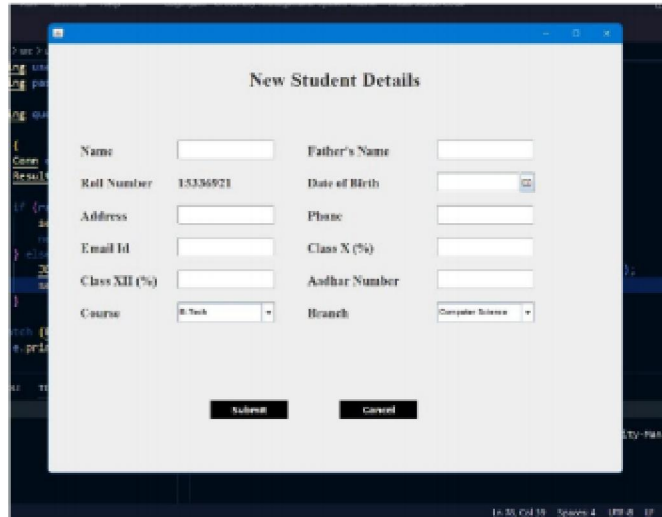
This page shows what users can see and access. He can add, delete, update and upload data. He can logout from his website on the home page.



3.9 Marks and Subject page :This page allows you to enter subjects and grades for specific subjects along with role numbers.

3.7 Student form :

In it you can add new student details which will be stored in the user's backend. These details may be further updated on the Updates page.

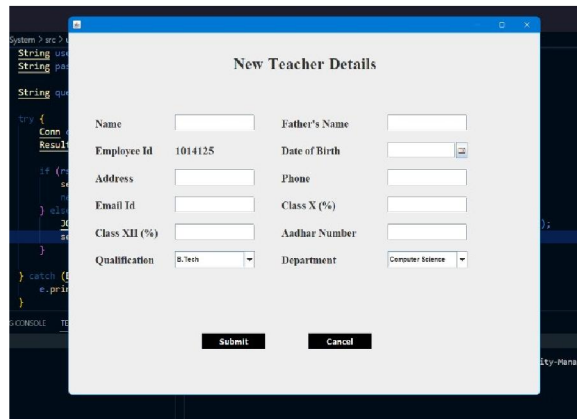


The screenshot shows a web form titled "New Student Details". It contains the following fields: Name, Father's Name, Roll Number (pre-filled with 15336971), Date of Birth, Address, Phone, Email Id, Class X (%), Class XII (%), Aadhar Number, Course (dropdown menu with "B.Tech" selected), and Branch (dropdown menu with "Computer Science" selected). At the bottom, there are "Submit" and "Cancel" buttons.

Fig.3.7

3.8 Teacher form

In it you can add new teacher details which will be stored in the user's backend. These details may be further updated on the Updates page.



The screenshot shows a web form titled "New Teacher Details". It contains the following fields: Name, Father's Name, Employee Id (pre-filled with 1014125), Date of Birth, Address, Phone, Email Id, Class X (%), Class XII (%), Qualification (dropdown menu with "B.Tech" selected), Aadhar Number, and Department (dropdown menu with "Computer Science" selected). At the bottom, there are "Submit" and "Cancel" buttons.

Fig.3.8

3.9 Marks and Subject page

This page allows you to enter subjects and grades for specific subjects along with role numbers.



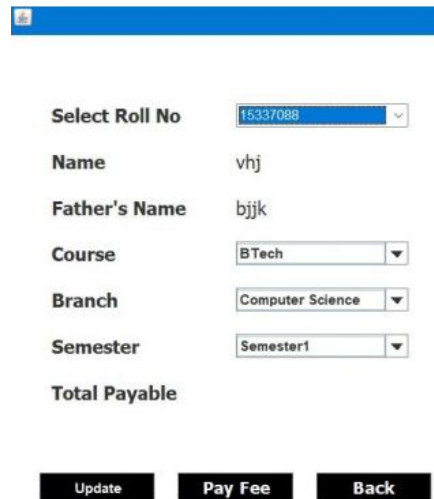
The screenshot shows a web browser window titled "Enter Marks of Student". It contains a form with the following elements:

- "Select Roll Number" dropdown menu with "15337088" selected.
- "Select Semester" dropdown menu with "1st Semester" selected.
- Two columns: "Enter Subject" and "Enter Marks", each with five empty input rows.
- "Submit" and "Back" buttons at the bottom.
- The SNIST logo (Sreenidhi Institute of Science and Technology) is displayed on the right side of the form.

Fig.3.9

3.10 Fee payment page

In this page we can pay the fee dues of the particular student which uses rollno, course, branch and sem to pay the fee.



The screenshot shows a web form for fee payment with the following fields:

- "Select Roll No" dropdown menu with "15337088" selected.
- "Name" text input field with "vhj" entered.
- "Father's Name" text input field with "bjjk" entered.
- "Course" dropdown menu with "BTech" selected.
- "Branch" dropdown menu with "Computer Science" selected.
- "Semester" dropdown menu with "Semester1" selected.
- "Total Payable" text input field.
- "Update", "Pay Fee", and "Back" buttons at the bottom.

Fig.3.10

IV. CONCLUSION AND FUTURE WORKS

The project titled Institutional Management System is a system that deals with issues related to a specific institution. This project has been successfully implemented using all the features mentioned in the System Requirements specification. The application will provide the user with appropriate information depending on the service selected. This project is designed to monitor the day-to-day issues of the university. By deploying our application, universities can certainly avoid wasting unnecessary time personally going to each department for information. Awareness and appropriate information about each university is essential to the development of both students and faculty. This therefore serves the right purpose of meeting the desired needs of both communities. In the near future, we will develop mobile-based applications instead of web-based or desktop applications. Also, the software will be enhanced with more features after collecting customer feedback.

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