

A Project Report

on



'STUDENT MANAGEMENT SYSTEM'

Submitted towards partial fulfillment of the requirements
for the award of the degree

**Bachelor of Computer Applications
(BCA)**

OF SESSION-2023-24

Guided by

Kashif Asrar Ahmad
Asst. Professor
Department of
Computer Science

Submitted by

Mohd Shuaib
Roll No. : 210303106045
Enroll No. MSU21245953
BCA VI Semester

ISLAMIA DEGREE COLLEGE, DEOBAND, SAHARANPUR

(Affiliated to Maa Shakumbhari University, Saharanpur)

CERTIFICATE

This is to certify that this report embodies the work done by **Mohd Shuaib** during this project submission as a fulfillment of the requirement for the Major Project of Bachelors Of Computer Application VI Semester.

**Dr. Vakeel Ahmad
(Principal)
Islamia Degree College
Deoband**

**Miss. Khalida Fatma (H.O.D)
(BCA Department)
Islamia Degree College**

ACKNOWLEDGEMENT

The satisfaction and euphoria that accompany the successful completion of any task would be incomplete without complementing those who made it possible, whose guidance and encouragement made our efforts successful.

I express our sincere gratitude to **Dr Vakeel Ahmad** (Principal), **Islamia Degree College, Deoband** for providing the required facility.

I am extremely thankful to **Miss Khalida Fatma HOD of BCA** for providing support and encouragement.

I am grateful to **Mr Kashif Asrar Ahmad**, Asst.Professor,Dept.of **BCA** who helped me to complete this project successfully by providing guidance,encouragement and valuable suggestion during entire period of the project. I thank all my computer science staff and others who helped directly or indirectly to meet my project work with grandsuccess.

Finally, I am grateful to my parents and classmates for the invaluable support guidance and encouragement.

Mohd Shuaib

BCA VI Sem.

Roll No. : 210303106045

TITLE OF THE PROJECT

The title of the project plays a very important role. It denotes someone, something about the project. The title of the project must be thought with a great care. It should be short and must contain everything in itself. Sometimes the main title of the project is so specific that it tells the purpose and meaning of the project and sometimes it is so complicated that one cannot identify the purpose of the project by only knowing the name of the project.

I thought the title of my project as the:-

Student Management System

The name of the project is rightly thought as it is for the Management of Student's Data.

ABSTRACT

Student Management System is software which is helpful for students as well as the school authorities. In the current system all the activities are done manually. Its time saving and scalable. Our Student Management System deals with the various activities related to the students

In the software we can register as a user and user has two types student and administrator. Administrator has the power to add new user and can edit the students details entered. A admin can add students record ,attendance status with department wise. All students can search his/her basics details and attendance status with there respective roll numbers.

INDEX & CONTENT

CHAPTERNO.	PAGENO.
1. INTRODUCTION	1
1.1 OBJECTIVES	
1.2 LIMITATIONS	
2. STUDY OF EXISTING SYSTEM	2
2.1 A CASE STUDY ON	
2.2 PROPOSED SYSTEM	
2. DATABASE DESIGN	03-20
3.1 SOFTWARE REQUIREMENTS SPECIFICATION	
3.1.1 COLLECTION OF REQUIREMENTS	
3.1.2 SOFTWARE AND HARDWARE REQUIREMENTS	
3.2 CONCEPTUAL DESIGN	
3.2.1 ER DIAGRAM	
3.2.3 SCHEMAD DIAGRAM	
3.3 IMPLEMENTATION	
3.3.1 FRONTEND	
3.3.2 BACKEND	
3.3.3 TRIGGER	
3.3.4 STORED PROCEDURE	
3. USER INTERFACES	21-31
4.1 SCREENSHOTS	
CONCLUSIONS FUTURE ENHANCEMENTS AND REFERENCES	

CHAPTER-1

INTRODUCTION

1.1 OBJECTIVES:

- The main objective of the project is to design and develop a user friendly-system
- Easy to use and an efficient computerized system.
- To develop an accurate and flexible system, it will eliminate data redundancy.
- To study the functioning of Students management System.
- To make a software fast in processing, with good user interface.
- To make software with good user interface so that user can change it and it should be used for a long time without error and maintenance.
- To provide synchronized and centralized farmer and seller database.
- Computerization can be helpful as a means of saving time and money.
- To provide better Graphical User Interface (GUI).
- Less chances of information leakage.
- Provides Security to the data by using login and password method.
- To provide immediate storage and retrieval of data and information.
- Improving arrangements for students coordination.
- Reducing paperwork.

1.2 LIMITATIONS:

- Time consumption in data entry as the records are to be manually maintained faculties a lot of time.
- Lot of paper work is involved as the records are maintained in the files and registers.
- Storage Requires as files and registers are used the storage space requirement is increased.
- Less Reliable use of papers for storing valuable data information is not at all reliable.
- Aadhar linkage with the official aadhar database has not been done.

CHAPTER-2

STUDY OF EXISTING SYSTEM

2.1 Future & Scope:

The success of any organization such as School of Public Health, University of Delhi on its ability to acquire accurate and timely data about its operations, to manage this data effectively, and to use it to analyze and guide its activities. Integrated student database system offer users (Student, Registrar, HOD) with a unified view of data from multiple sources. To provide a single consistent result for every object represented in these data sources, data fusion is concerned with resolving data inconsistency present in the heterogeneous sources of data. The main objective of this project is to build a rigid and robust integrated student database system that will track and store records of students. This easy-to-use, integrated database application is geared towards reducing time spent on administrative tasks. The system is intended to accept process and generate report accurately and any user can access the system at any point in time provided internet facility is available. The system is also intended to provide better services to users, provide meaningful, consistent, and timely data and information and finally promotes efficiency by converting paper processes to electronic form. The system was developed using technologies such as, HTML, CSS ,JS and MySQL. PYTHON- FLASK, HTML and CSS are used to build the user interface and database was built using MySQL. The system is free of errors and very efficient and less time consuming due to the care taken to develop it. All the phases of software development cycle are employed and it is worthwhile to state that the system is very robust. Provision is made for future development in the system.

2.2 PROPOSED SYSTEM

While there has been no consensus on the definition of Students Management in the literature, they have proposed that researchers adopt the below definition to allow for the coherent development of theory in the colleges. In order to have a successful students management, we need to make many decisions related to the flow of marks, attendance, and data. Each records should be added in a way to increase the scalability. Student management is more complex in colleges and other universities because of the impact on people's number requiring adequate and accurate information of students need.

CHAPTER 3

3. DATABASE DESIGN

3.1 SOFTWARE REQUIREMENTS SPECIFICATION

3.1.2 SOFTWARE REQUIREMENTS:

Frontend- HTML, CSS, Java Script

Backend-Python flask (Python 3.7) , SQLAlchemy,

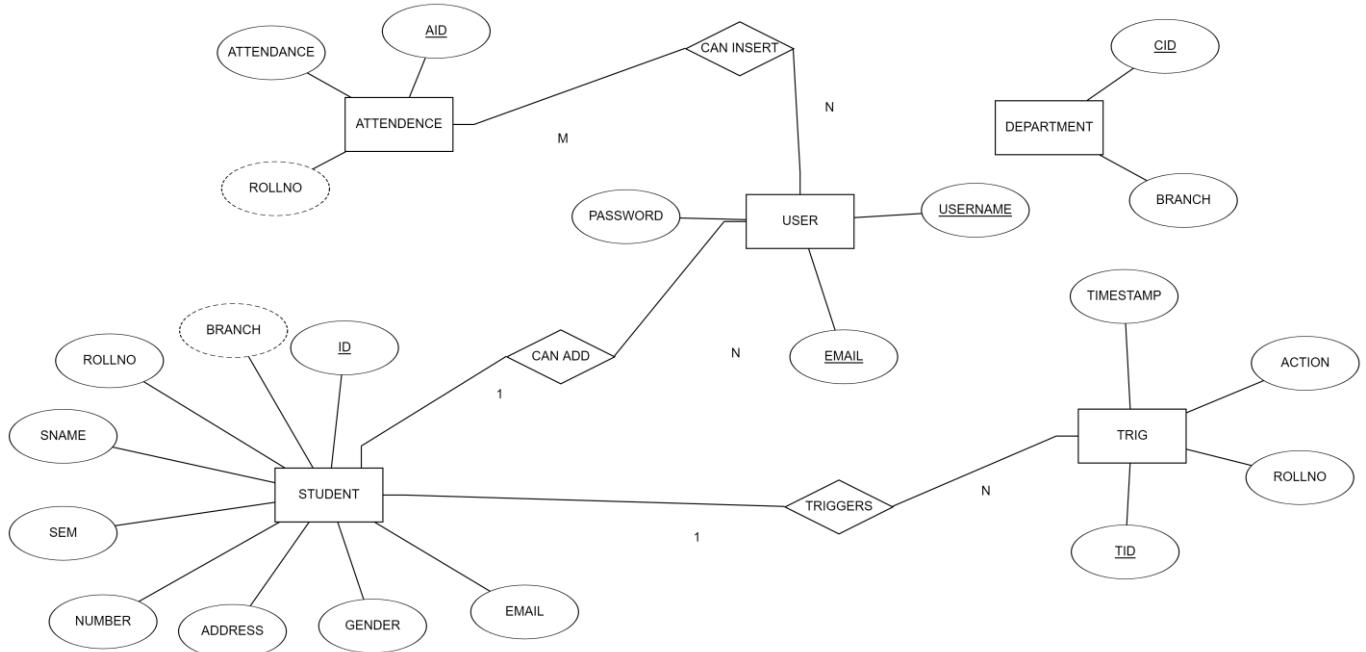
- Operating System: Windows 10,7,8.1,Linux,MAC
- Google Chrome/Internet Explorer
- XAMPP (Version-3.7)
- Python main editor (user interface): PyCharm Community Edition, VS Code
- workspace editor: VS Code

HARDWARE REQUIREMENTS:

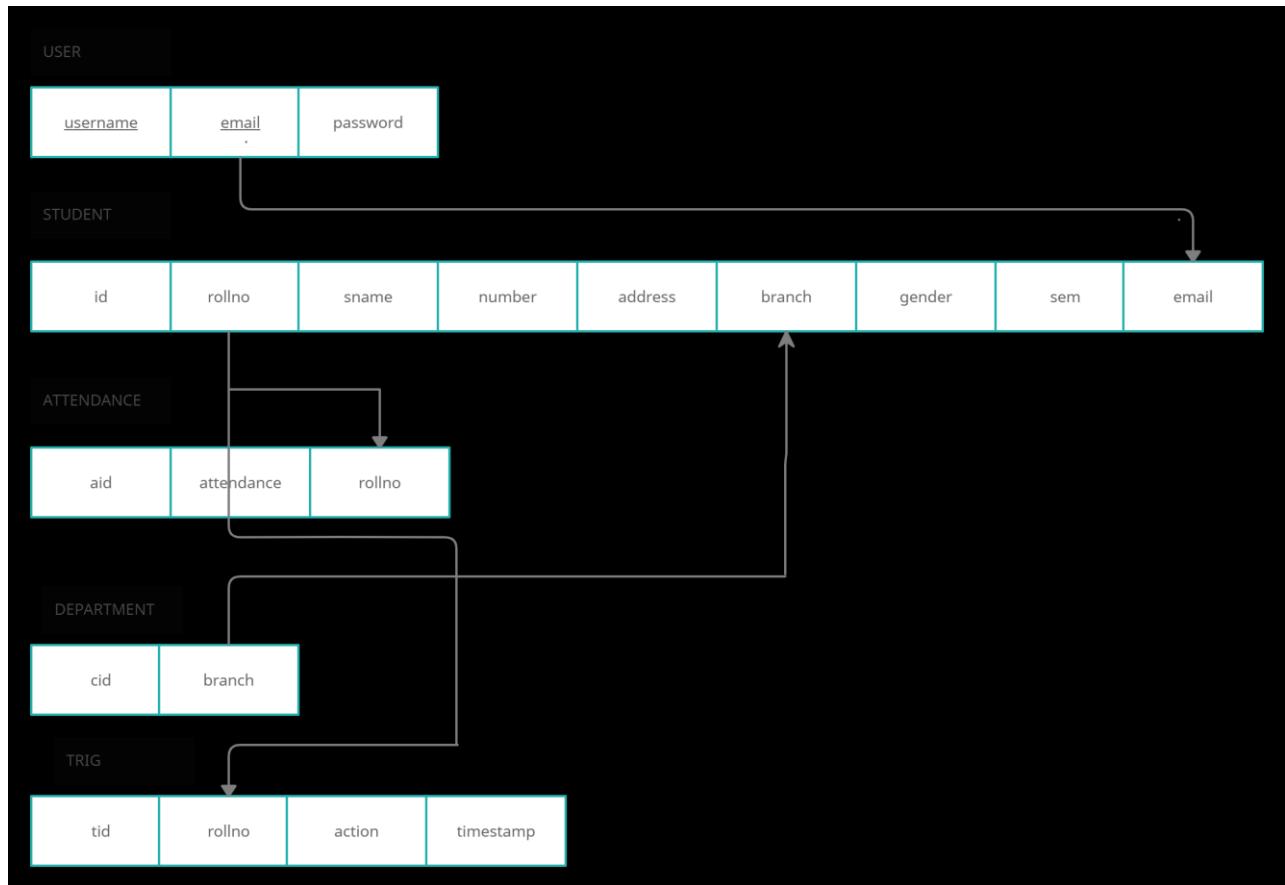
- Computer with a 1.1 GHz or faster processor
- Minimum 2GB of RAM or more
- 2.5 GB of available hard-disk space
- 5400 RPM hard drive
- 1366×768 or higher-resolution display
- DVD-ROM drive

3.2 CONCEPTUAL DESIGN:

3.2.1 E-R DIAGRAM:



3.2.2 SCHEMA DIAGRAM:



3.3 IMPLEMENTATION:

An "implementation" of Python should be taken to mean a program or environment which provides support for the execution of programs written in the Python language, as represented by the [CPython](#) reference implementation.

There have been and are several distinct software packages providing what we all recognize as Python, although some of those are more like distributions or variants of some existing implementation than a completely new implementation of the language.

Back End (MySQL)

Database:

A Database Management System (DBMS) is computer software designed for the purpose of managing databases, a large set of structured data, and run operations on the data requested by numerous users. Typical examples of DBMSs include Oracle, DB2, Microsoft Access, Microsoft SQL Server, Firebird, PostgreSQL, MySQL, SQLite, FileMaker and Sybase Adaptive Server Enterprise. DBMSs are typically used by Database administrators in the creation of Database systems. Typical examples of DBMS use include accounting, human resources and customer support systems. Originally found only in large companies with the computer hardware needed to support large data sets, DBMSs have more recently emerged as a fairly standard part of any company back office.

A DBMS is a complex set of software programs that controls the organization, storage, management, and retrieval of data in a database. A DBMS includes:

- A modeling language to define the schema of each database hosted in the DBMS, according to the DBMS data model.
- The dominant model in use today is the ad hoc one embedded in SQL, despite the objections of purists who believe this model is a corruption of the relational model, since it violates several of its fundamental principles for the sake of practicality and performance. Many DBMSs also support the Open Database Connectivity API that supports a standard way for programmers to access the DBMS.
- Data structures (fields, records, files and objects) optimized to deal with very large amounts of data stored on a permanent data storage device (which implies relatively slow access compared to volatile main memory).A database query language and report

writer to allow users to interactively interrogate the database, analyze its data and update it according to the users privileges on data.

- Data security prevents unauthorized users from viewing or updating the database. Using passwords, users are allowed access to the entire database or subsets of it called sub schemas. For example, an employee database can contain all the data about an individual employee, but one group of users may be authorized to view only payroll data, while others are allowed access to only work history and student data.
 - If the DBMS provides a way to interactively enter and update the database, as well as interrogate it, this capability allows for managing personal databases. However, it may not leave an audit trail of actions or provide the kinds of controls necessary in a multi-user organization. These controls are only available when a set of application programs are customized for each data entry and updating function.
- ✓ A transaction mechanism, that ideally would guarantee the ACID properties, in order to ensure data integrity, despite concurrent user accesses (concurrency control), and faults (fault tolerance).
- It also maintains the integrity of the data in the database.
 - The DBMS can maintain the integrity of the database by not allowing more than one user to update the same record at the same time. The DBMS can help prevent duplicate records via unique index constraints; for example, no two customers with the same customer numbers (key fields) can be entered into the database. See ACID properties for more information (Redundancy avoidance).

When a DBMS is used, information systems can be changed much more easily as the organization's information requirements change. to the Organizations may use one kind of DBMS for daily transaction processing and then move the detail onto another computer that uses another DBMS better suited for random inquiries and analysis. Overall systems design decisions are performed by data administrators and systems analysts. Detailed database design is performed by database administrators.

SQL:

Structured Query Language (SQL) is the language used to manipulate relational databases. SQL is tied very closely with the relational model.

- In the relational model, data is stored in structures called relations or tables.

SQL statements are issued for the purpose of:

- Data definition: Defining tables and structures in the database (DDL used to create, alter and drop schema objects such as tables and indexes)

4.2 : Stored Procedure

Routine name: proc

Type: procedure

Definition: Select * from register;

4.3: Triggers

It is the special kind of stored procedure that automatically executes when an event occurs in the database.

Triggers used :

1: Trigger name: on insert

Table: register

Time: after

Event: insert

INSERT INTO trig VALUES(null,NEW.rid,'Farmer Inserted',NOW())

2: Trigger name: on delete

Table: register

Time: after

Event: delete

Definition: INSERT INTO trig VALUES(null,OLD.rid,'FARMER DELETED',NOW())

3: Trigger name: on update

Table: register

Time: after

Event: update

Definition: INSERT INTO trig VALUES(null,NEW.rid,'FARMER UPDATED',NOW())

Students Management System

BACKEND PYHTON WITH MYSQL CODE

```
from flask import Flask,render_template,request,session,redirect,url_for,flash
from flask_sqlalchemy import SQLAlchemy
from flask_login import UserMixin
from werkzeug.security import generate_password_hash,check_password_hash
from flask_login import login_user,logout_user,login_manager,LoginManager
from flask_login import login_required,current_user
import json

# MY db connection
local_server= True
app = Flask(__name__)
app.secret_key='kusumachandashwini'

# this is for getting unique user access
login_manager=LoginManager(app)
login_manager.login_view='login'

@login_manager.user_loader
def load_user(user_id):
    return User.query.get(int(user_id))

#
app.config['SQLALCHEMY_DATABASE_URL']='mysql://username:password@localhost/databas_table_name'
app.config['SQLALCHEMY_DATABASE_URI']='mysql://root:@localhost/students'
db=SQLAlchemy(app)

# here we will create db models that is tables
class Test(db.Model):
    id=db.Column(db.Integer,primary_key=True)
    name=db.Column(db.String(100))
    email=db.Column(db.String(100))
```

Students Management System

```
class Department(db.Model):
    cid=db.Column(db.Integer,primary_key=True)
    branch=db.Column(db.String(100))

class Attendance(db.Model):
    aid=db.Column(db.Integer,primary_key=True)
    rollno=db.Column(db.String(100))
    attendance=db.Column(db.Integer())

class Trig(db.Model):
    tid=db.Column(db.Integer,primary_key=True)
    rollno=db.Column(db.String(100))
    action=db.Column(db.String(100))
    timestamp=db.Column(db.String(100))

class User(UserMixin,db.Model):
    id=db.Column(db.Integer,primary_key=True)
    username=db.Column(db.String(50))
    email=db.Column(db.String(50),unique=True)
    password=db.Column(db.String(1000))

class Student(db.Model):
    id=db.Column(db.Integer,primary_key=True)
    rollno=db.Column(db.String(50))
    sname=db.Column(db.String(50))
    sem=db.Column(db.Integer)
    gender=db.Column(db.String(50))
    branch=db.Column(db.String(50))
    email=db.Column(db.String(50))
    number=db.Column(db.String(12))
    address=db.Column(db.String(100))
```

Students Management System

```
@app.route('/')
def index():
    return render_template('index.html')

@app.route('/studentdetails')
def studentdetails():
    query=db.engine.execute(f"SELECT * FROM `student`")
    return render_template('studentdetails.html',query=query)

@app.route('/triggers')
def triggers():
    query=db.engine.execute(f"SELECT * FROM `trig`")
    return render_template('triggers.html',query=query)

@app.route('/department',methods=['POST','GET'])
def department():
    if request.method=="POST":
        dept=request.form.get('dept')
        query=Department.query.filter_by(branch=dept).first()
        if query:
            flash("Department Already Exist","warning")
            return redirect('/department')
        dep=Department(branch=dept)
        db.session.add(dep)
        db.session.commit()
        flash("Department Addes","success")
    return render_template('department.html')

@app.route('/addattendance',methods=['POST','GET'])
def addattendance():
    query=db.engine.execute(f"SELECT * FROM `student`")
    if request.method=="POST":
        rollno=request.form.get('rollno')
        attend=request.form.get('attend')
        print(attend,rollno)
        atte=Attendance(rollno=rollno,attendance=attend)
        db.session.add(atte)
        db.session.commit()
```

Students Management System

```
flash("Attendance added","warning")
return render_template('attendance.html',query=query)

@app.route('/search',methods=['POST','GET'])
def search():
    if request.method=="POST":
        rollno=request.form.get('roll')
        bio=Student.query.filter_by(rollno=rollno).first()
        attend=Attendance.query.filter_by(rollno=rollno).first()
        return render_template('search.html',bio=bio,attend=attend)

    return render_template('search.html')

@app.route("/delete/<string:id>",methods=['POST','GET'])
@login_required
def delete(id):
    db.engine.execute(f"DELETE FROM `student` WHERE `student`.`id`={id}")
    flash("Slot Deleted Successful","danger")
    return redirect('/studentdetails')

@app.route("/edit/<string:id>",methods=['POST','GET'])
@login_required
def edit(id):
    dept=db.engine.execute("SELECT * FROM `department`")
    posts=Student.query.filter_by(id=id).first()
    if request.method=="POST":
        rollno=request.form.get('rollno')
        sname=request.form.get('sname')
        sem=request.form.get('sem')
        gender=request.form.get('gender')
        branch=request.form.get('branch')
        email=request.form.get('email')
        num=request.form.get('num')
        address=request.form.get('address')
        query=db.engine.execute(f"UPDATE `student` SET
`rollno`='{rollno}',`sname`='{sname}',`sem`='{sem}',`gender`='{gender}',`branch`='{branch}',`email`='{email}',`number`='{num}',`address`='{address}'")
```

Students Management System

```
flash("Slot is Updates","success")
return redirect('/studentdetails')

return render_template('edit.html',posts=posts,dept=dept)

@app.route('/signup',methods=['POST','GET'])
def signup():
    if request.method == "POST":
        username=request.form.get('username')
        email=request.form.get('email')
        password=request.form.get('password')
        user=User.query.filter_by(email=email).first()
        if user:
            flash("Email Already Exist","warning")
            return render_template('/signup.html')
        encpassword=generate_password_hash(password)

        new_user=db.engine.execute(f"INSERT INTO `user` (`username`, `email`, `password`) VALUES ('{username}', '{email}', '{encpassword}')")

        # this is method 2 to save data in db
        # newuser=User(username=username,email=email,password=encpassword)
        # db.session.add(newuser)
        # db.session.commit()
        flash("Signup Succes Please Login","success")
        return render_template('login.html')

    return render_template('signup.html')

@app.route('/login',methods=['POST','GET'])
def login():
    if request.method == "POST":
        email=request.form.get('email')
        password=request.form.get('password')
        user=User.query.filter_by(email=email).first()
```

Students Management System

```
if user and check_password_hash(user.password,password):
    login_user(user)
    flash("Login Success","primary")
    return redirect(url_for('index'))
else:
    flash("invalid credentials","danger")
    return render_template('login.html')

return render_template('login.html')

@app.route('/logout')
@login_required
def logout():
    logout_user()
    flash("Logout SuccessFul","warning")
    return redirect(url_for('login'))

@app.route('/addstudent',methods=['POST','GET'])
@login_required
def addstudent():
    dept=db.engine.execute("SELECT * FROM `department`")
    if request.method=="POST":
        rollno=request.form.get('rollno')
        sname=request.form.get('sname')
        sem=request.form.get('sem')
        gender=request.form.get('gender')
        branch=request.form.get('branch')
        email=request.form.get('email')
        num=request.form.get('num')
        address=request.form.get('address')
        query=db.engine.execute(f'INSERT INTO `student`(`rollno`,`sname`,`sem`,`gender`,`branch`,`email`,`number`,`address`) VALUES ("{rollno}","{sname}","{sem}","{gender}","{branch}","{email}","{num}","{address}")')
    else:
        return render_template('addstudent.html')
```

Students Management System

```
flash("Booking Confirmed","info")

return render_template('student.html',dept=dept)

@app.route('/test')
def test():
    try:
        Test.query.all()
        return 'My database is Connected'
    except:
        return 'My db is not Connected'

app.run(debug=True)
```

FRONT END CODE

```
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="utf-8">
    <meta content="width=device-width, initial-scale=1.0" name="viewport">

    <title>{% block title %}>
    {% endblock title %}</title>
    <meta content="" name="description">
    <meta content="" name="keywords">

    {% block style %}>
    {% endblock style %}>
    <link
        href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,700,700i|Raleway:300,400,500,700,800" rel="stylesheet">

    <!-- Vendor CSS Files -->
    <link href="static/assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">
    <link href="static/assets/vendor/venobox/venobox.css" rel="stylesheet">
    <link href="static/assets/vendor/font-awesome/css/font-awesome.min.css" rel="stylesheet">
    <link href="static/assets/vendor/owl.carousel/assets/owl.carousel.min.css" rel="stylesheet">
    <link href="static/assets/vendor/aos/aos.css" rel="stylesheet">

    <!-- Template Main CSS File -->
    <link href="static/assets/css/style.css" rel="stylesheet">

</head>

<body>
```

Students Management System

```
<!-- ===== Header ===== -->
<header id="header">
  <div class="container">

    <div id="logo" class="pull-left">
      <a href="/" class="scrollto">S.M.S</a>
    </div>

    <nav id="nav-menu-container">
      <ul class="nav-menu">
        <li class="{% block home %}" {% endblock home %}><a href="/">Home</a></li>

        <li><a href="/addstudent">Students</a></li>
        <li><a href="/addattendance">Attendance</a></li>
        <li><a href="/department">Department</a></li>
        <li><a href="/triggers">Records</a></li>
        <li><a href="/studentdetails">Student Details</a></li>
        <li><a href="/search">Search</a></li>

        <li><a href="/about">About</a></li>

        {% if current_user.is_authenticated %}
          <li class="buy-tickets"><a href="">Welcome</a></li>
          <li class="buy-tickets"><a href="/logout">Logout</a></li>
        {% else %}
          <li class="buy-tickets"><a href="/signup">Signin</a></li>

        {% endif %}
      </ul>
    </nav><!-- #nav-menu-container -->
```

Students Management System

```
</div>

</header><!-- End Header -->

<!-- ===== Intro Section ===== -->
<section id="intro">
  <div class="intro-container" data-aos="zoom-in" data-aos-delay="100">
    <h1 class="mb-4 pb-0">STUDENT MANAGEMENT SYSTEM </span> </h1>
    <p class="mb-4 pb-0">DBMS Mini Project Using Flask & MYSQL</p>

    <a href="" class="about-btn scrollto">View More</a>
  </div>
</section><!-- End Intro Section -->

<main id="main">

  {%- block body %}

  {% with messages=get_flashed_messages(with_categories=true) %}
  {% if messages %}
    {% for category, message in messages %}
      <div class="alert alert-{{category}} alert-dismissible fade show" role="alert">
        {{message}}
      </div>
    {% endfor %}
    {% endif %}
    {% endwith %}
  {% endblock body %}

<a href="#" class="back-to-top"><i class="fa fa-angle-up"></i></a>
```

```
<!-- Vendor JS Files -->
<script src="static/assets/vendor/jquery/jquery.min.js"></script>
<script src="static/assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
<script src="static/assets/vendor/jquery.easing/jquery.easing.min.js"></script>
<script src="static/assets/vendor/php-email-form/validate.js"></script>
<script src="static/assets/vendor/venobox/venobox.min.js"></script>
<script src="static/assets/vendor/owl.carousel/owl.carousel.min.js"></script>
<script src="static/assets/vendor/superfish/superfish.min.js"></script>
<script src="static/assets/vendor/hoverIntent/hoverIntent.js"></script>
<script src="static/assets/vendor/aos/aos.js"></script>

<!-- Template Main JS File -->
<script src="static/assets/js/main.js"></script>

</body>

</html>
```

2.Students.html

```
{% extends 'base.html' %}

{% block title %}
Add Students
{% endblock title %}

{% block body %}
<h3 class="text-center"><span>Add Student Details</span> </h3>

{% with messages=get_flashed_messages(with_categories=true) %}
{% if messages %}
{% for category, message in messages %}
```

Students Management System

```
<div class="alert alert-{category} alert-dismissible fade show" role="alert">
  {{message}}
</div>
{%
  endfor %}
{%
  endif %}
{%
  endwith %}

<br>
<div class="container">

<div class="row">

<div class="col-md-4"></div>
<div class="col-md-4">

<form action="/addstudent" method="post">
<div class="form-group">

<label for="rollno">Roll Number</label>
<input type="text" class="form-control" name="rollno" id="rollno">
</div>
<br>
<div class="form-group">

<label for="sname">Student Name</label>
<input type="text" class="form-control" name="sname" id="sname">
</div>
<br>
<div class="form-group">

<label for="sem">Sem</label>
<input type="number" class="form-control" name="sem" id="sem">
</div>
<br>
```

Students Management System

```
<div class="form-group">
<select class="form-control" id="gender" name="gender" required>
    <option selected>Select Gender</option>

    <option value="male">Male</option>
    <option value="female">Female</option>

</select>
</div>
<br>

<div class="form-group">
<select class="form-control" id="branch" name="branch" required>
    <option selected>Select Branch</option>
    {% for d in dept %}
        <option value="{{d.branch}}>{{d.branch}}</option>
    {% endfor %}
</select>
</div>
<br>
<div class="form-group">

<label for="email">Email</label>
<input type="email" class="form-control" name="email" id="email">
</div>
<br>
<div class="form-group">
<label for="num">Phone Number</label>
<input type="number" class="form-control" name="num" id="num">
</div>
<br>

<div class="form-group">
<label for="address">Address</label>
<textarea class="form-control" name="address" id="address"></textarea>
```

Students Management System

```
</div>
<br>

<button type="submit" class="btn btn-danger btn-sm btn-block">Add Record</button>
</form>
<br>
<br>

</div>

<div class="col-md-4"></div>

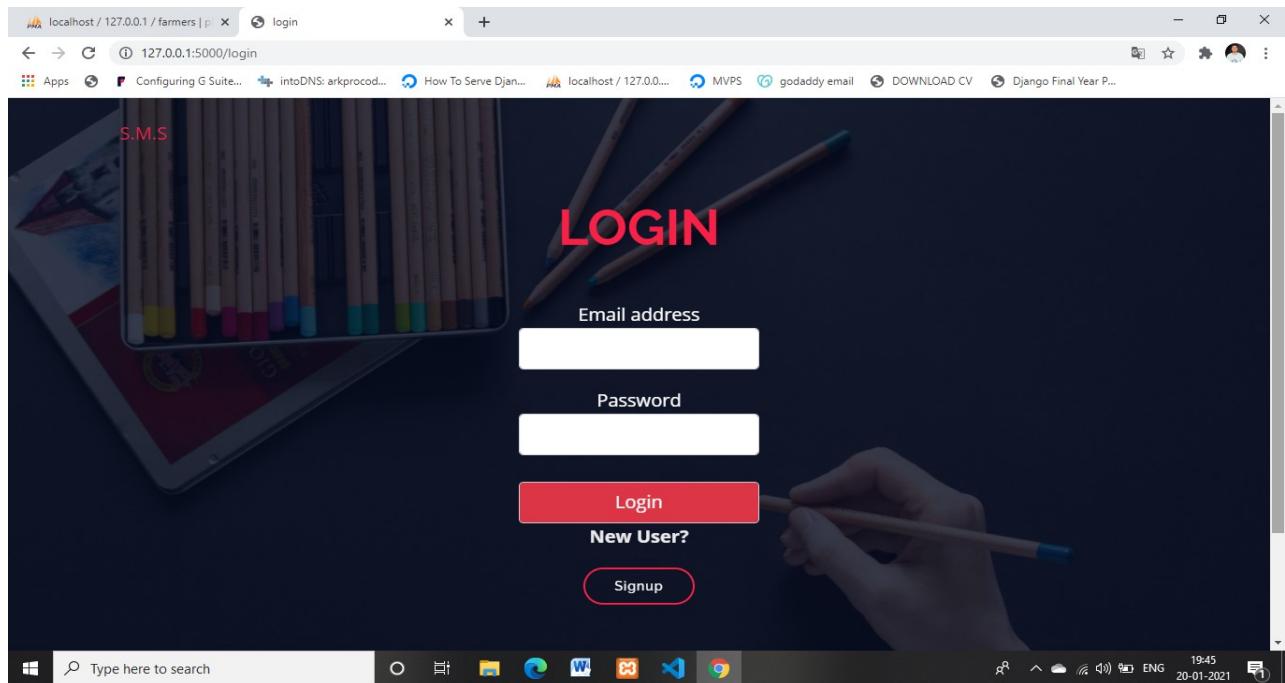
</div></div>

{%
    endblock body %}
```

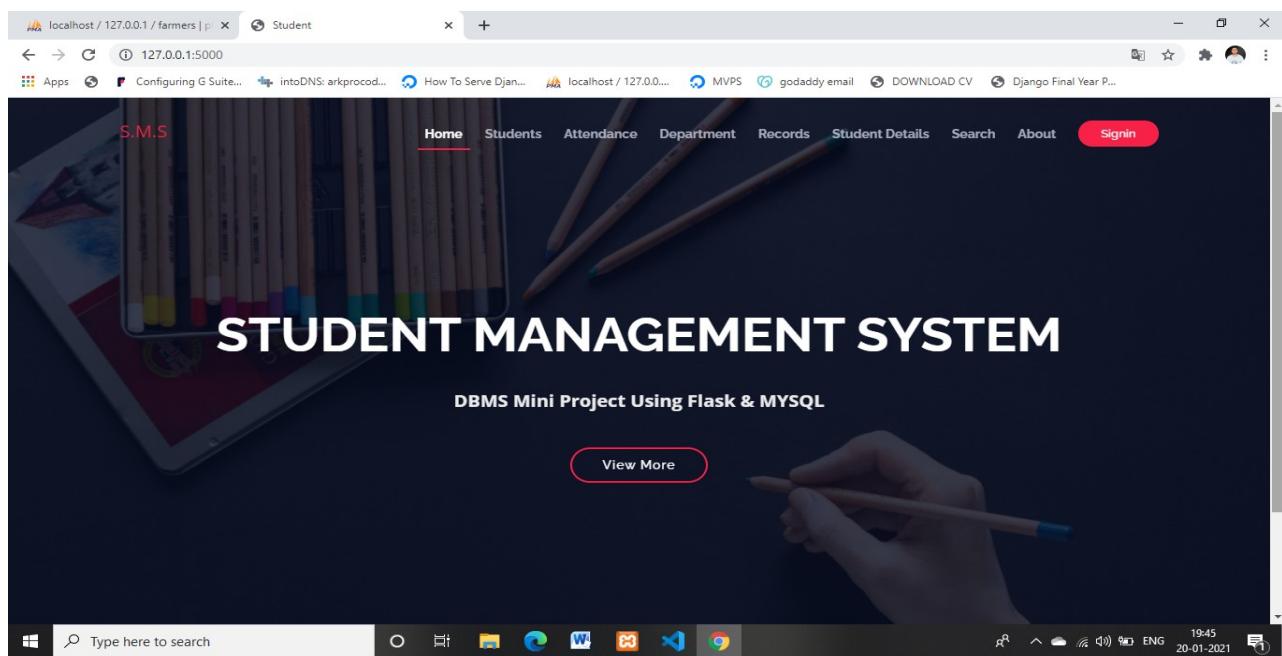
USER INTERFACE

4.1 SCREEN SHOTS

LOGIN PAGE:



USER INTERFACE



Students Management System

ADD STUDENTS INFO

The screenshot shows a web browser window titled "Add Students" with the URL "127.0.0.1:5000/addstudent". The page header includes a logo "S.M.S", navigation links like Home, Students, Attendance, Department, Records, Student Details, Search, About, and two buttons "Welcome" and "Logout". Below the header is a dark banner with a faint background image. The main content area is titled "Add Student Details". It contains four input fields: "Roll Number" (empty), "Student Name" (empty), "Sem" (empty), and "Select Gender" (empty). At the bottom of the page is a Windows taskbar with icons for File Explorer, Edge, Word, Excel, and others, along with system status indicators.

localhost / 127.0.0.1 / farmers | p Add Students

127.0.0.1:5000/addstudent

S.M.S

Home Students Attendance Department Records Student Details Search About

Welcome Logout

Add Student Details

Roll Number

Student Name

Sem

Select Gender

Type here to search

19:46 20-01-2021

Students Management System

ADD STUDENTS INFO

localhost / 127.0.0.1 / farmers | p Student Details

127.0.0.1:5000/studentdetails

S.M.S

Home Students Attendance Department Records Student Details Search About Welcome kusuma Logout

DBMS Mini Project Using Flask & MYSQL

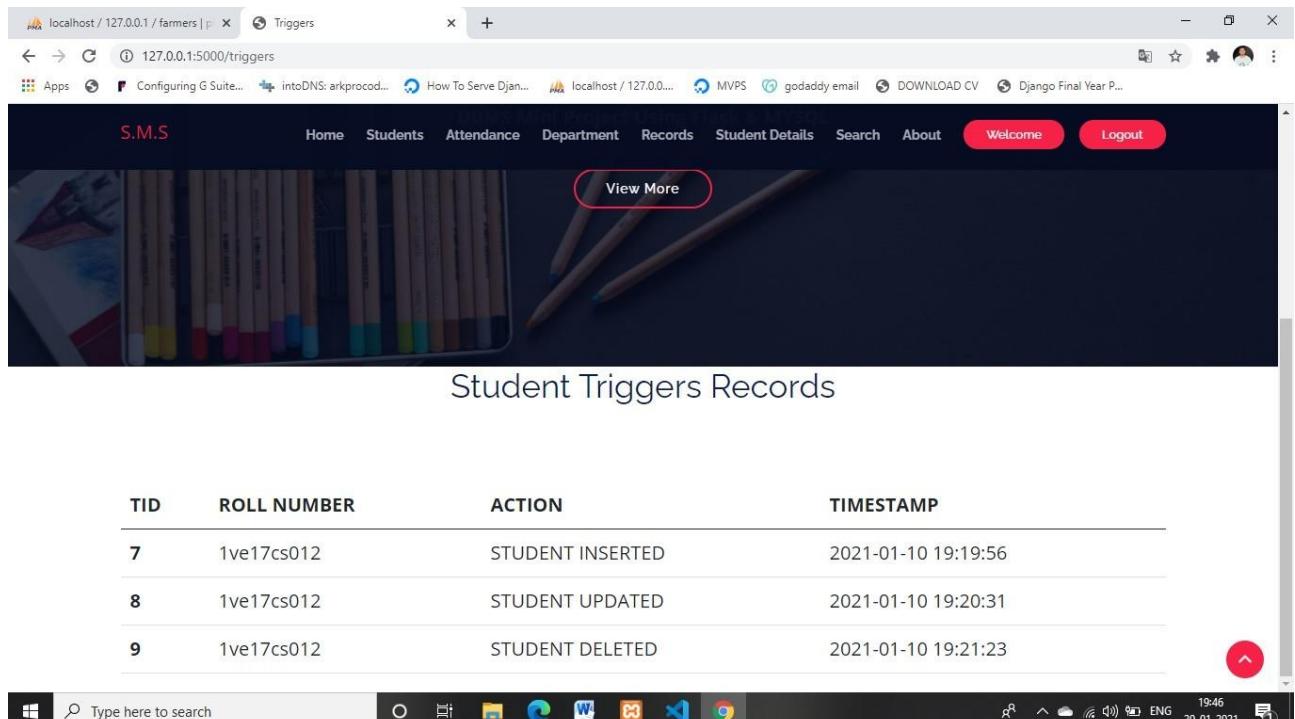
View More

SID	ROLL NUMBER	STUDENT NAME	SEM	GENDER	BRANCH	EMAIL	NUMBER	ADDRESS	EDIT	DELETE
7	1234	rohit	3	male	Electronic and Communication	rohit@gmail.com	9986786453	bangalore	<button>Edit</button>	<button>Delete</button>

Type here to search

19:48 20-01-2021

TRIGGERS RECORDS



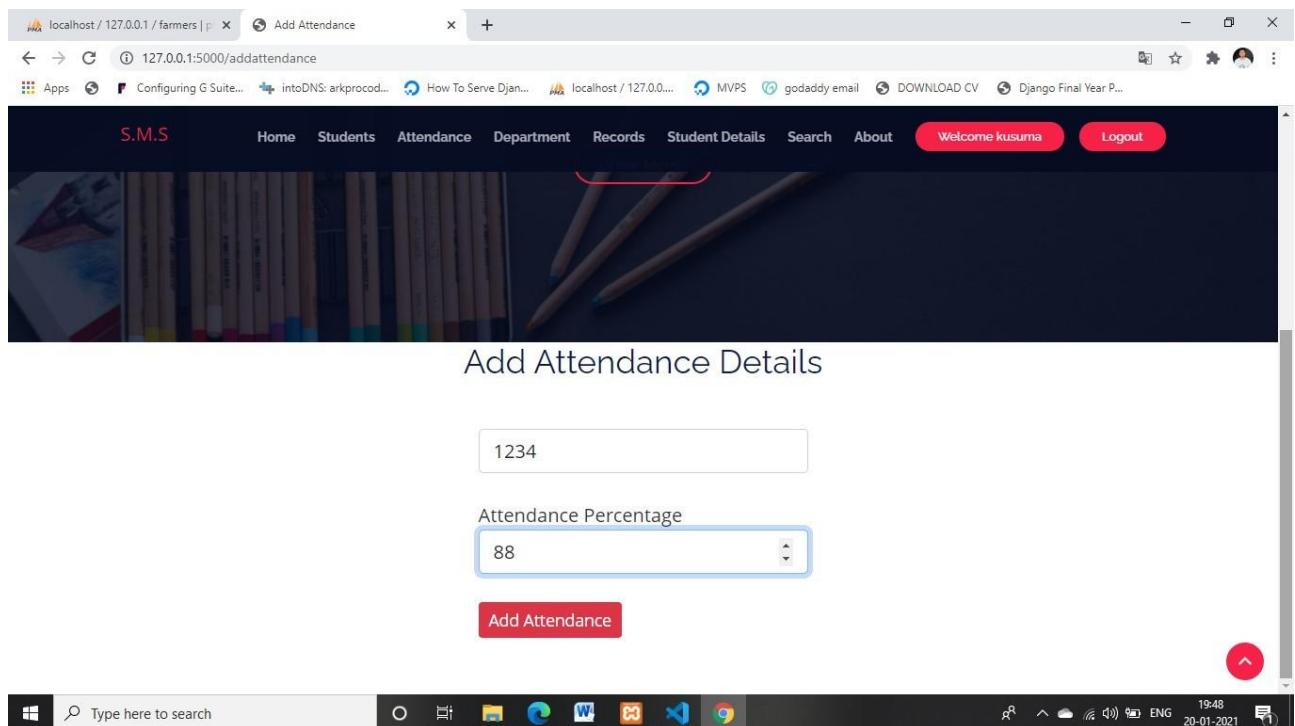
The screenshot shows a web browser window with the URL `localhost / 127.0.0.1 / farmers | p` and the title `Triggers`. The page is titled "Student Triggers Records". It features a dark header with the logo "S.M.S" and navigation links: Home, Students, Attendance, Department, Records, Student Details, Search, About, Welcome, and Logout. Below the header is a decorative banner with pencils and a "View More" button. The main content area displays a table of trigger records:

TID	ROLL NUMBER	ACTION	TIMESTAMP
7	1ve17cs012	STUDENT INSERTED	2021-01-10 19:19:56
8	1ve17cs012	STUDENT UPDATED	2021-01-10 19:20:31
9	1ve17cs012	STUDENT DELETED	2021-01-10 19:21:23

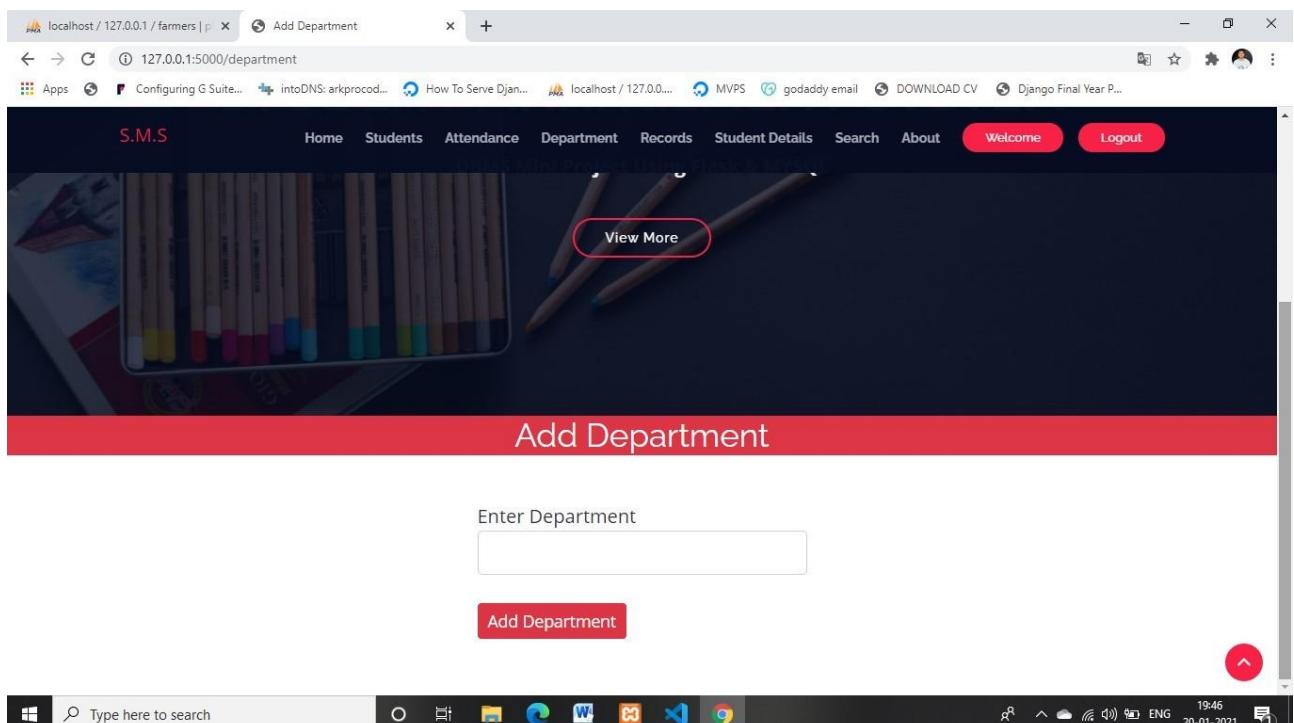
At the bottom of the browser window, the taskbar shows the Windows Start button, a search bar with "Type here to search", and various pinned icons. The system tray shows the date "20-01-2021" and time "19:46".

Student Triggers Records

TRIGGERS RECORDS



Students Management System



Students Management System

The screenshot shows a web browser window with the URL `localhost / 127.0.0.1 / farmers | p` in the address bar. The page title is "Search". The main content area displays a search form with a placeholder "Enter Your Roll Number" and a button labeled "Search". To the right, under the heading "Your Details", is a list of student information:

- Roll No : 1234
- Name : rohit
- Sem : 3
- Gender : male
- Branch : Electronic and Communication
- Email : rohit@gmail.com
- Number : 9986786453
- Address : bangalore

Below this is a section titled "Attendance Status" with a single item:

- Attendance : 88

The browser's toolbar at the top includes various icons for file operations, search, and navigation. The taskbar at the bottom of the screen shows several pinned application icons: File Explorer, Edge, Word, Excel, Powerpoint, OneDrive, Mail, and Google Chrome. The system tray on the right shows the date (20-01-2021), time (19:49), battery level, signal strength, and language (ENG).

DATABASE LOCALHOST

The screenshot shows the phpMyAdmin interface for the 'students' database on localhost. The left sidebar lists databases: performance_schema, phpmyadmin, redmi, register, students, test, test111, testing, weblab, xiome. The main area displays the 'Structure' tab for the 'students' database, which contains six tables: attendance, department, student, test, trig, and user. The 'attendance' table has 2 rows, while others have 1 row. All are InnoDB type with utf8mb4_general_ci collation. The 'Rows' column shows the count of records, 'Type' shows the storage engine, 'Collation' shows the character set and collation, 'Size' shows the size of the table, and 'Overhead' shows the overhead of the table.

Table	Action	Rows	Type	Collation	Size	Overhead
attendance	Browse Structure Search Insert Empty Drop	2	InnoDB	utf8mb4_general_ci	16.0 Kib	-
department	Browse Structure Search Insert Empty Drop	6	InnoDB	utf8mb4_general_ci	16.0 Kib	-
student	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	16.0 Kib	-
test	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	16.0 Kib	-
trig	Browse Structure Search Insert Empty Drop	4	InnoDB	utf8mb4_general_ci	16.0 Kib	-
user	Browse Structure Search Insert Empty Drop	2	InnoDB	utf8mb4_general_ci	16.0 Kib	-
6 tables	Sum		InnoDB	utf8mb4_general_ci	96.0 Kib	0 B

DATABASE LOCALHOST

The screenshot shows the phpMyAdmin interface for a MySQL database named 'students'. The 'student' table is selected. A single row is displayed with the following data:

	Edit	Copy	Delete	With selected:	Edit	Copy	Delete	Export					
1					7	1234	rohit	3	male	Electronic and Communication	rohit@gmail.com	9986786453	bangalore

Below the table, there are 'Query results operations' buttons: Print, Copy to clipboard, Export, Display chart, Create view.

Students Management System

The screenshot shows the phpMyAdmin interface for the 'students' database. The 'trig' table is selected. The table structure includes columns: tid, rollno, action, and timestamp. The data shows four rows of activity:

	tid	rollno	action	timestamp
<input type="checkbox"/>	7	1ve17cs012	STUDENT INSERTED	2021-01-10 19:19:56
<input type="checkbox"/>	8	1ve17cs012	STUDENT UPDATED	2021-01-10 19:20:31
<input type="checkbox"/>	9	1ve17cs012	STUDENT DELETED	2021-01-10 19:21:23
<input type="checkbox"/>	10	1234	STUDENT INSERTED	2021-01-20 19:48:07

Below the table, there are buttons for 'Check all', 'With selected:', and 'Edit', 'Copy', 'Delete', 'Export'. The status bar at the bottom right shows the date and time: 19:57 20-01-2021.

Students Management System

The screenshot shows the phpMyAdmin interface running on a Windows operating system. The left sidebar lists databases: performance_schema, phpmyadmin, redmi, register, students, New, attendance, department, student, test, trig, user, test, test111, testing, weblab, and xiome. The 'students' database is selected. The main area displays the 'user' table with two rows of data:

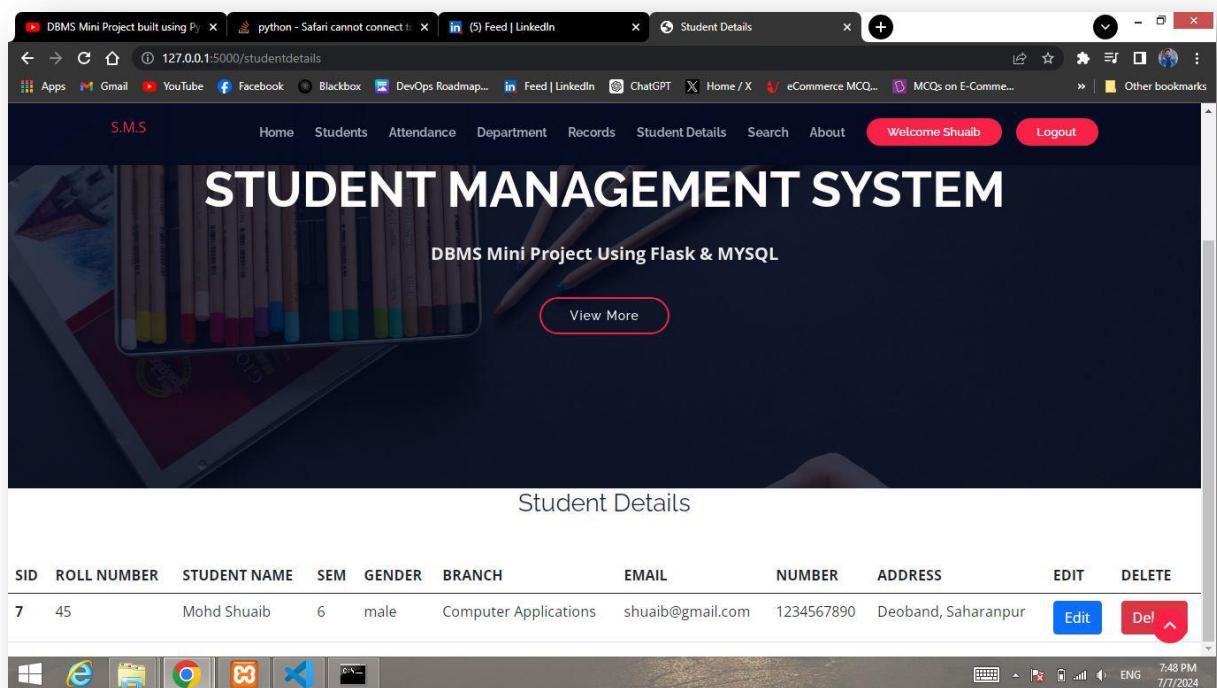
	id	username	email	password
<input type="checkbox"/>	4	anees	anees@gmail.com	pbkdf2:sha256:150000\$1CSLss89\$ef995dfc48121768b207...
<input type="checkbox"/>	5	kusuma	kusuma@gmail.com	pbkdf2:sha256:150000\$s3QvAXVg\$7092cf5aca424c364dd0...

Below the table, there are buttons for 'Edit', 'Copy', 'Delete', 'Check all', and 'With selected'. At the bottom, there are links for 'Print', 'Copy to clipboard', 'Export', 'Display chart', and 'Create view'.

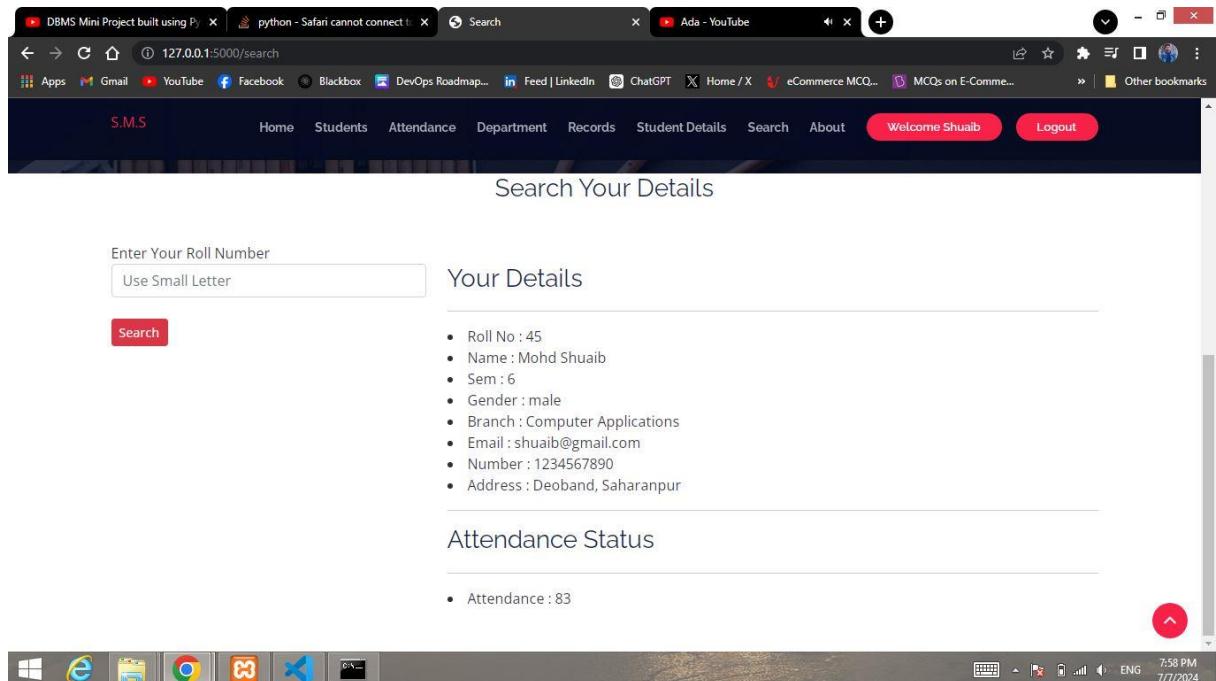
Students Management System

The screenshot shows the phpMyAdmin interface for a MySQL database named 'students'. The current table is 'attendance'. The interface includes a sidebar with a tree view of databases and tables, and a main panel with tabs for Browse, Structure, SQL, Search, Insert, Export, Import, Privileges, and More. A green status bar at the top indicates 'Showing rows 0 - 0 (1 total, Query took 0.0006 seconds.)'. The SQL query shown is 'SELECT * FROM `attendance`'. The data grid displays one row with columns aid, rollno, and attendance, with values 7, 1234, and 88 respectively. There are buttons for Edit, Copy, Delete, and Export. Below the grid are buttons for Print, Copy to clipboard, Export, Display chart, and Create view. The bottom of the window shows a taskbar with various icons and a system tray with the date and time.

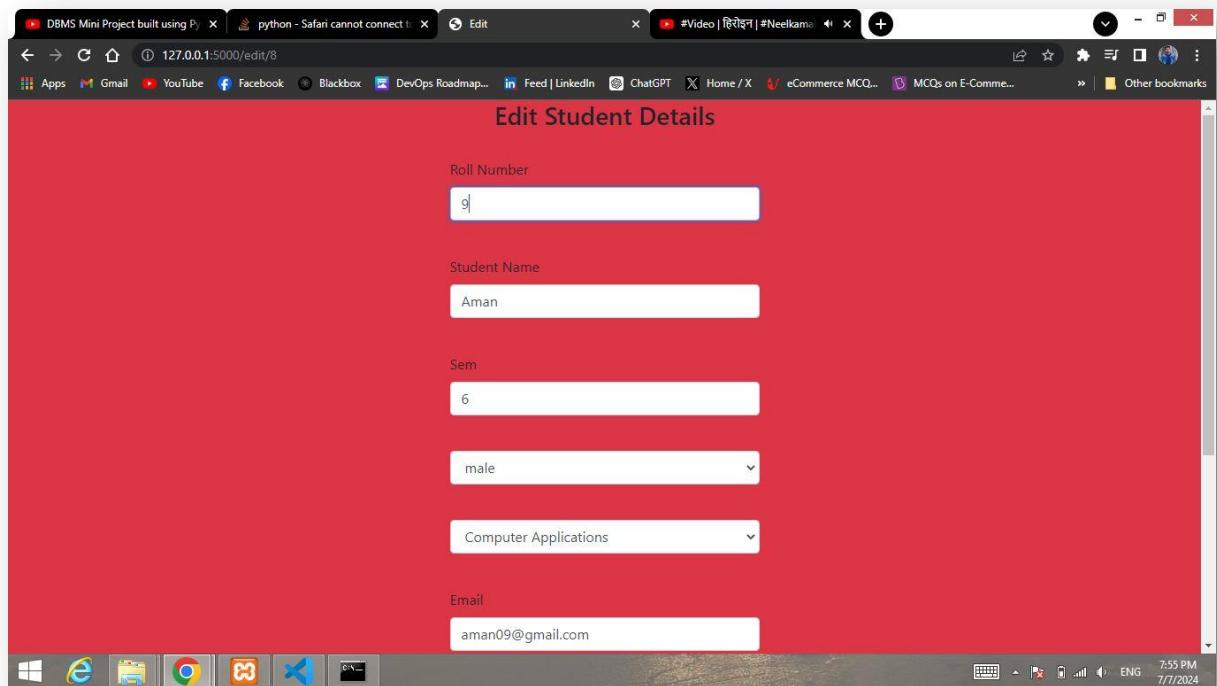
Some more shots while running the project and performing Operations.



Some more shots while running the project and performing Operations.



Some more shots while running the project and performing Operations. We can also update the information of the students.

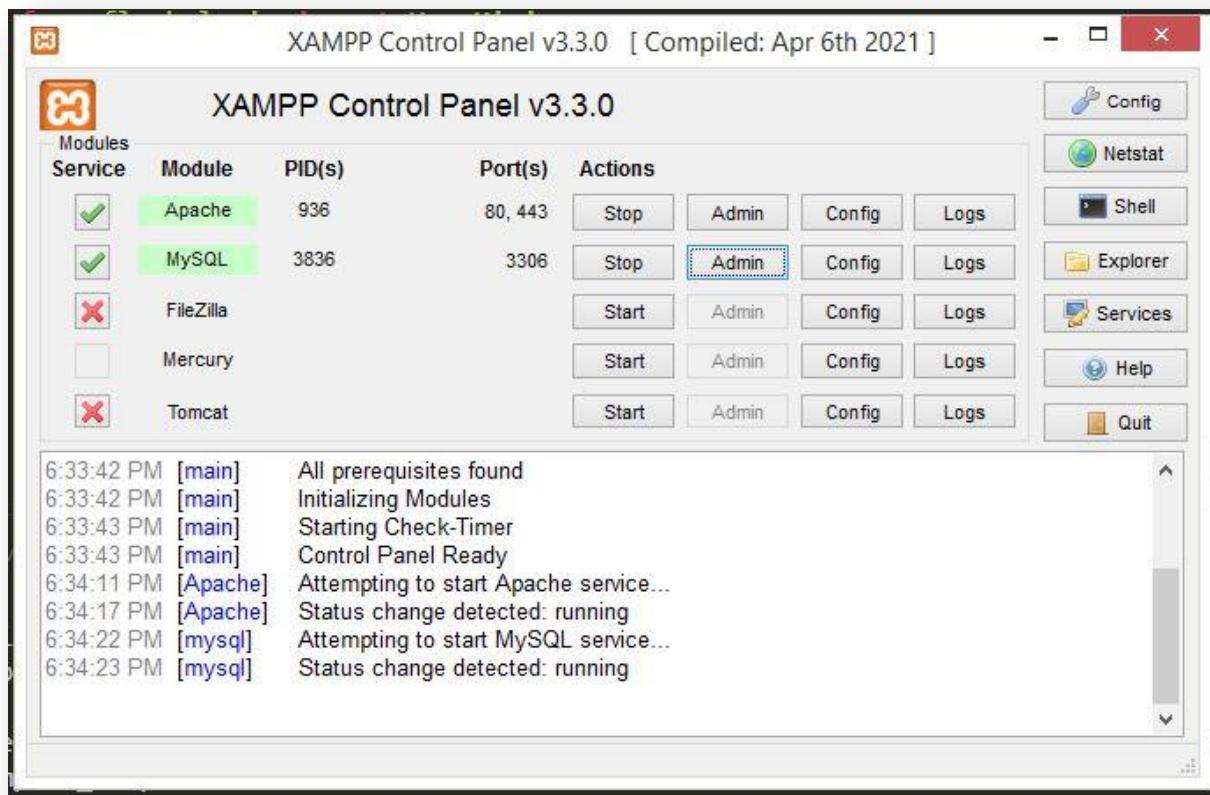


Some more shots while running the project and performing Operations.

The screenshot shows a web browser window with multiple tabs open. The active tab is titled "Student Details". The main content area displays a table of student records with columns: SID, ROLL NUMBER, STUDENT NAME, SEM, GENDER, BRANCH, EMAIL, NUMBER, ADDRESS, EDIT, and DELETE. The table contains three rows of data. The "Edit" and "Delete" buttons for each row are highlighted with red boxes. The "Delete" button for the third row has a red arrow pointing to it. The browser's address bar shows the URL "127.0.0.1:5000/studentdetails". The top navigation bar includes links for Home, Students, Attendance, Department, Records, Student Details, Search, About, Welcome Shuaib, and Logout. The background features a dark theme with a pencil and paper icon.

SID	ROLL NUMBER	STUDENT NAME	SEM	GENDER	BRANCH	EMAIL	NUMBER	ADDRESS	EDIT	DELETE
7	45	Mohd Shuaib	6	male	Computer Applications	shuaib@gmail.com	1234567890	Deoband, Saharanpur	<button>Edit</button>	<button>Delete</button>
8	9	Aman	6	male	Computer Applications	aman09@gmail.com	89247568	Nanauta	<button>Edit</button>	<button>Delete</button>
9	39	Mohd Musahid	6	male	Computer Applications	musahid@yahoo mail.com	4444888777	Gopali, Deoband	<button>Edit</button>	<button>Delete</button>

Screenshot of XAMPP Control Panel.



Screenshot of Database.

The screenshot shows the phpMyAdmin interface for a MySQL database named 'studentdbms'. The left sidebar displays the database structure with tables like 'information_schema', 'mysql', 'performance_schema', 'phpmyadmin', 'studentdbms' (which contains 'New', 'attendance', 'department', 'student', 'test', 'trig', and 'user'), and 'test'. The main panel is titled 'table: student' and shows the results of the query 'SELECT * FROM `student`'. The results table has columns: id, rollno, sname, sem, gender, branch, email, number, and address. Three rows are listed:

	id	rollno	sname	sem	gender	branch	email	number	address
<input type="checkbox"/>	7	45	Mohd Shuaib	6	male	Computer Applications	shuaib@gmail.com	1234567890	Deoband, Saharanpur
<input type="checkbox"/>	8	9	Aman	6	male	Computer Applications	aman09@gmail.com	89247568	Nanauta
<input type="checkbox"/>	9	39	Mohd Musahid	6	male	Computer Applications	musahid@yahoo.com	4444888777	Gopali, Deoband

Below the table are buttons for 'Edit', 'Copy', 'Delete', 'Check all', and 'With selected...'. At the bottom of the main panel are buttons for 'Print', 'Copy to clipboard', 'Export', 'Display chart', and 'Create view'.

Some shots of the Code written in the code editor VS Code

The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer:** On the left, it shows a project structure under "STUDENT MANAGEMENT". The "main.py" file is selected.
- Code Editor:** The main area displays the Python code for "main.py". The code imports various Flask and SQLAlchemy modules and sets up a Flask application with a secret key and a login manager.
- Status Bar:** At the bottom, it shows the line number (Ln 14, Col 1), spaces (Spaces: 4), encoding (UTF-8), file type (Python), version (3.12.4), port (Port : 5500), and date/time (8:19 PM, 7/7/2024).

```
1 from flask import Flask,render_template,request,session,redirect,url_for,flash
2 from flask_sqlalchemy import SQLAlchemy
3 from flask_login import UserMixin
4 from werkzeug.security import generate_password_hash,check_password_hash
5 from flask_login import login_user,logout_user,login_manager,LoginManager
6 from flask_login import login_required,current_user
7 import json
8
9 # MY db connection
10 local_server= True
11 app = Flask(__name__)
12 app.secret_key='kusumachandashwini'
13
14 # this is for getting unique user access
15 login_manager=LoginManager(app)
16 login_manager.login_view='login'
17
18 @login_manager.user_loader
19 def load_user(user_id):
20     return User.query.get(int(user_id))
21
22
23
24
25 # app.config['SQLALCHEMY_DATABASE_URL']='mysql://username:password@localhost/databas_table_name'
26 app.config['SQLALCHEMY_DATABASE_URL']='mysql://root:@localhost/studentdbms'
```

Some shots of the Code written in the code editor VS Code

The screenshot shows a Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** main.py - student management - Visual Studio Code [Administrator].
- Explorer:** Shows a project structure for "STUDENT MANAGEMENT" with folders like assets, vendor, and templates, and files like main.py, requirements.txt, and students.sql.
- Code Editor:** Displays Python code for SQLAlchemy models:

```
27 db=SQLAlchemy(app)
28
29 # here we will create db models that is tables
30 class Test(db.Model):
31     id=db.Column(db.Integer,primary_key=True)
32     name=db.Column(db.String(100))
33     email=db.Column(db.String(100))
34
35 class Department(db.Model):
36     cid=db.Column(db.Integer,primary_key=True)
37     branch=db.Column(db.String(100))
38
39 class Attendance(db.Model):
40     aid=db.Column(db.Integer,primary_key=True)
41     rollno=db.Column(db.String(100))
42     attendance=db.Column(db.Integer())
43
44 class Trig(db.Model):
45     tid=db.Column(db.Integer,primary_key=True)
46     rollno=db.Column(db.String(100))
47     action=db.Column(db.String(100))
48     timestamp=db.Column(db.String(100))
49
50
51 class User(UserMixin,db.Model):
52     id=db.Column(db.Integer,primary_key=True)
```

- Terminal:** Shows the command "python 3.12.4 ('myenv': venv) Port : 5500".
- Status Bar:** L14, Col 1, Spaces: 4, UTF-8, LF, Python 3.12.4 ('myenv': venv), Port : 5500, 8:20 PM, 7/7/2024.

Some shots of the Code written in the code editor VS Code

The screenshot shows a Visual Studio Code interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** main.py - student management - Visual Studio Code [Administrator].
- Code Editor:** The main.py file contains Python code defining two database models: User and Student, and a route handler for the root path. The code uses SQLAlchemy and Flask.

```
51 class User(UserMixin, db.Model):
52     id=db.Column(db.Integer, primary_key=True)
53     username=db.Column(db.String(50))
54     email=db.Column(db.String(50), unique=True)
55     password=db.Column(db.String(1000))
56
57
58
59
60
61 class Student(db.Model):
62     id=db.Column(db.Integer, primary_key=True)
63     rollno=db.Column(db.String(50))
64     sname=db.Column(db.String(50))
65     sem=db.Column(db.Integer)
66     gender=db.Column(db.String(50))
67     branch=db.Column(db.String(50))
68     email=db.Column(db.String(50))
69     number=db.Column(db.String(12))
70     address=db.Column(db.String(100))
71
72
73 @app.route('/')
74 def index():
75     return render_template('index.html')
```

- Explorer:** Shows the project structure under "STUDENT MANAGEMENT".
- Terminal:** Shows the command "Port : 5500" and the date "7/7/2024".
- Bottom Bar:** Includes icons for Windows, Task View, Taskbar, and Start.

Some shots of the Code written in the code editor VS Code

The screenshot shows a Visual Studio Code interface with the following details:

- File Path:** main.py - student management - Visual Studio Code [Administrator]
- Code Editor Content:**

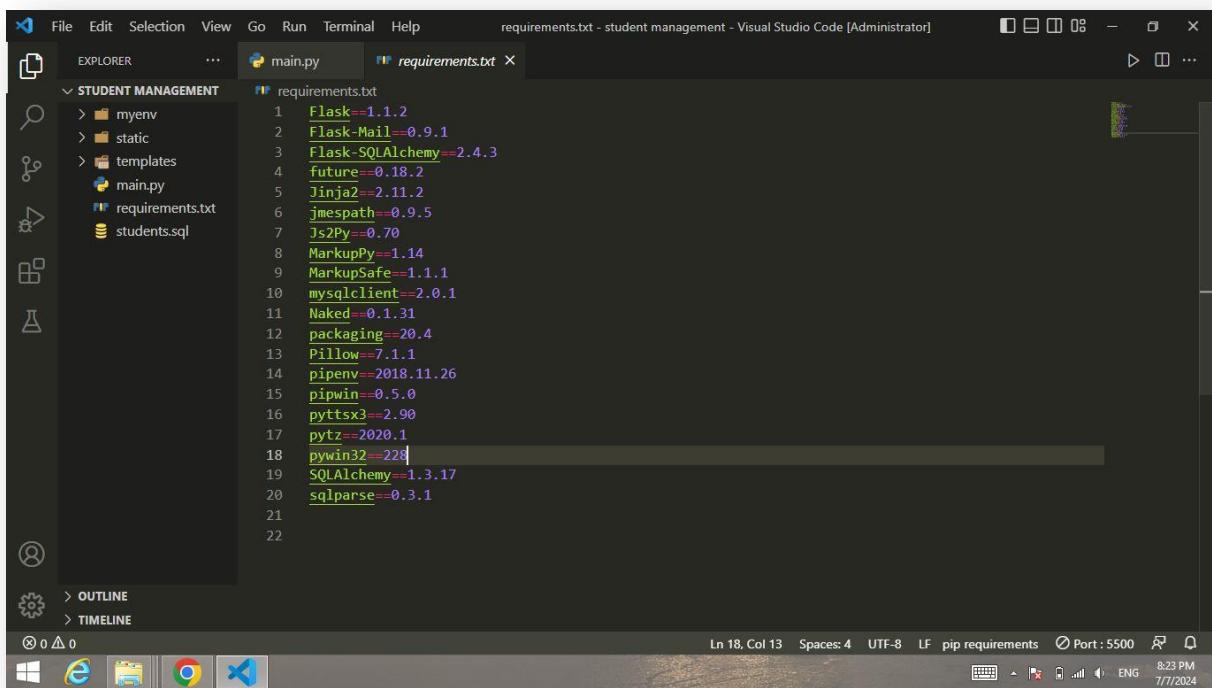
```
    77 @app.route('/studentdetails')
    78 def studentdetails():
    79     # query=db.engine.execute(f"SELECT * FROM `student`")
    80     query=Student.query.all()
    81     return render_template('studentdetails.html',query=query)
    82
    83 @app.route('/triggers')
    84 def triggers():
    85     # query=db.engine.execute(f"SELECT * FROM `trig`")
    86     query=Trig.query.all()
    87     return render_template('triggers.html',query=query)
    88
    89 @app.route('/department',methods=['POST','GET'])
    90 def department():
    91     if request.method=="POST":
    92         dept=request.form.get('dept')
    93         query=Department.query.filter_by(branch=dept).first()
    94         if query:
    95             flash("Department Already Exist", "warning")
    96             return redirect('/department')
    97         dep=Department(branch=dept)
    98         db.session.add(dep)
    99         db.session.commit()
    100        flash("Department Added", "success")
    101    return render_template('department.html')
```
- Explorer View:** Shows a project structure for "STUDENT MANAGEMENT" with folders like assets, vendor, and templates, and files like main.py, requirements.txt, and students.sql.
- Status Bar:** L14, Col 1 | Spaces: 4 | UTF-8 | LF | Python 3.12.4 (myenv: venv) | Port : 5500 | 821 PM | 7/7/2024

Some shots of the Code written in the code editor VS Code

The screenshot shows a Visual Studio Code interface with the following details:

- File Menu:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** main.py - student management - Visual Studio Code [Administrator].
- Code Editor:** The main.py file is open, displaying Python code for a web application. The code includes imports from flask, forms, and other modules, along with database queries using SQLAlchemy. A cursor is visible near the end of the file.
- Explorer:** The sidebar shows a project structure for "STUDENT MANAGEMENT" containing assets, vendor, templates, requirements.txt, and students.sql.
- Bottom Status Bar:** Ln 14, Col 1 | Spaces: 4 | UTF-8 | LF | Python 3.12.4 (myenv: venv) | Port: 5500 | 8:21 PM | 7/7/2024.

A list of all python modules required to run



The screenshot shows the Visual Studio Code interface with the 'requirements.txt' file open in the editor. The file contains a list of Python dependencies. The code is as follows:

```
1 Flask==1.1.2
2 Flask-Mail==0.9.1
3 Flask-SQLAlchemy==2.4.3
4 future==0.18.2
5 Jinja2==2.11.2
6 jmespath==0.9.5
7 Js2Py==0.70
8 MarkupPy==1.14
9 MarkupSafe==1.1.1
10 mysqlclient==2.0.1
11 Naked==0.1.31
12 packaging==20.4
13 Pillow==7.1.1
14 pipenv==2018.11.26
15 pipwin==0.5.0
16 pytsx3==2.90
17 pytz==2020.1
18 pywin32==228
19 SQLAlchemy==1.3.17
20 sqlparse==0.3.1
21
22
```

The 'EXPLORER' sidebar on the left shows a project structure under 'STUDENT MANAGEMENT' with files like 'myenv', 'static', 'templates', 'main.py', 'requirements.txt', and 'students.sql'. The status bar at the bottom right shows the port is 5500, the date is 7/7/2024, and the time is 8:23 PM.

CONCLUSION

STUDENT MANAGEMENT SYSTEM successfully implemented based on online data filling which helps us in administrating the data user for managing the tasks performed in students. The project successfully used various functionalities of Xampp and python flask and also create the fully functional database management system for online portals.

Using MySQL as the database is highly beneficial as it is free to download, popular and can be easily customized. The data stored in the MySQL database can easily be retrieved and manipulated according to the requirements with basic knowledge of SQL.

With the theoretical inclination of our syllabus it becomes very essential to take the atmost advantage of any opportunity of gaining practical experience that comes along. The building blocks of this Major Project “Students Management System” was one of these opportunities. It gave us the requisite practical knowledge to supplement the already taught theoretical concepts thus making us more competent as a computer engineer. The project from a personal point of view also helped us in understanding the following aspects of project development:

- The planning that goes into implementing a project.
- The importance of proper planning and an organized methodology.
- The key element of team spirit and co-ordination in a successful project.

FUTURE ENHANCEMENT

- Enhanced database storage facility
- Enhanced user friendly GUI
- more advanced results systems
- online feedbacks forms

REFERENCES & BIBLIOGRAPHY

- <https://www.youtube.com>
- <https://www.google.com>
- <http://www.getbootstrap.com>

Python: The Complete reference: Python for Everybody: Exploring Data in Python 3
By Charles R. Severance

Flask: The Complete reference: Flask Web Development
By Miguel Grinberg

Database System Concepts: SQL, MySQL By Dr. Charles R. Severance

Study Materials: Many books of various BCA semesters along with that online websites such as GeeksForGeeks, JavaTPoint, Etc.

