Assignment No.	2
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CRUD Operations Using Flask

- 1. Create User table with user with email, username, roll number, password.
- 2. Perform UPDATE, DELETE Queries with user table
- 3. Connect python code to db2.
- 4. Create a flask app with registration page, login page and welcome page. By default load the registration page once the user enters all the fields store the data in database and navigate to login page authenticate user username and password. If the user is valid show the welcome page.

Source Code:

App.py:

```
from flask import Flask, render_template, url_for,
redirect, flash

from flask_login import UserMixin, login_user,
LoginManager, login_required, logout_user,
current_user

from wtforms.validators import InputRequired,
Length, ValidationError

from flask_bcrypt import Bcrypt

from wtforms import StringField, PasswordField,
SubmitField, IntegerField

from flask_wtf import FlaskForm
import sqlite3
```

```
app = Flask(__name__)
bcrypt = Bcrypt(app)
app.config['SECRET_KEY'] = 'B7-1A3E'
```

```
login_manager = LoginManager()
login_manager.init_app(app)
login_manager.login_view = 'login'
```

```
def connect_db():
    conn = sqlite3.connect('database.db')
    return conn
```

class User:

```
def __init__(self, id, email, username):
        self.id = id
        self.username = username
        self.email = email
    def to_json(self):
        return {"username": self.username,
              "email": self.email}
    def is authenticated(self):
       return True
    def is_active(self):
        return True
    def is_anonymous(self):
       return False
    def get_id(self):
        return str(self.id)
class RegisterForm(FlaskForm):
    email = StringField(validators=[
```

submit = SubmitField('Register')

```
raise ValidationError(
                'That username already exists. Try
another one.')
class LoginForm(FlaskForm):
    username = StringField(validators=[
                           InputRequired(),
Length(min=4, max=20)], render_kw={"placeholder":
"Username"})
    password = PasswordField(validators=[
                             InputRequired(),
Length(min=8, max=20)], render kw={"placeholder":
"Password"})
    submit = SubmitField('Login')
class UpdateForm(FlaskForm):
    username = StringField(validators=[
                           InputRequired(),
Length(min=4, max=20)], render_kw={"placeholder":
"Username"})
    oldpassword = PasswordField(validators=[
        InputRequired(), Length(min=8, max=20)],
render kw={"placeholder": "Previous Password"})
```

```
submit = SubmitField('Update')
```

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

```
if bcrypt.check_password_hash(user[4],
form.password.data):
                usr_obj = User(user[0], user[1],
user[2])
                login_user(usr_obj)
                return redirect(url for('welcome'))
            else:
                print('Hi')
                flash(f'Invalid credentials, check
and try logging in again.', 'danger')
                return redirect(url for('login'))
    return render template('login.html', form=form)
@app.route('/welcome', methods=['GET', 'POST'])
@login required
def welcome():
    return render template('welcome.html')
@app.route('/logout', methods=['GET', 'POST'])
@login required
def logout():
    logout user()
```

```
@ app.route('/register', methods=['GET', 'POST'])
def register():
    form = RegisterForm()
    conn = connect_db()
    if form.validate_on_submit():
        hashed password =
bcrypt.generate password hash(form.password.data)
        conn.execute('INSERT INTO user (email,
username, roll number, pass word) VALUES
(?, ?, ?, ?)',
                     (form.email.data,
form.username.data, form.rollnumber.data,
hashed password))
        conn.commit()
        conn.close()
        return redirect(url for('login'))
    return render template('register.html',
form=form)
```

```
@ app.route('/update', methods=['GET', 'POST'])
def update():
    form = UpdateForm()
    conn = connect_db()
```

```
if form.validate on submit():
        conn = connect db()
        user = conn.execute('SELECT * FROM user
WHERE username = ?',
                             (form.username.data,))
.fetchone()
        if user:
            if bcrypt.check_password_hash(user[4],
form.oldpassword.data):
                print(user)
                hashed password1 =
bcrypt.generate password hash(
                    form.password.data)
                conn.execute('UPDATE user set
pass word = ? where username = ?',
                              (hashed password1,
form.username.data))
                conn.commit()
                conn.close()
                flash(f'Password changed
successfully.', 'success')
                return redirect(url_for('home'))
            else:
                flash(f'Invalid password, Enter
valid password.', 'danger')
                return redirect(url_for('update'))
```

```
if __name__ == "__main__":
    app.run(debug=True)
```

Schema.sql:

```
DROP TABLE IF EXISTS user;

CREATE TABLE user (
   id INTEGER PRIMARY KEY AUTOINCREMENT,
   email TEXT NOT NULL,
   username TEXT NOT NULL,
   roll_number INTEGER NOT NULL,
   pass_word TEXT NOT NULL
);
```

Init_db.py :

```
import sqlite3

conn = sqlite3.connect('database.db')

with open('schema.sql') as f:
    conn.executescript(f.read())

conn.commit()
```

Style.css:

conn.close()

```
.header {
    padding: 5px 120px;
    width: 150px;
    height: 70px;
    background-color: #236b8e;
}

.border {
    padding: 80px 50px;
```

```
width: 400px;
  height: 450px;
  border: 1px solid #236b8e;
  border-radius: 0px;
  background-color: #9ac0cd;
}
.btn {
  padding: 10px 40px;
  background-color: #236b8e;
  color: #ffffff;
  font-style: oblique;
  font-weight: bold;
  border-radius: 10px;
}
.textbox {
  padding: 10px 40px;
  background-color: #236b8e;
  text-shadow: #ffffff;
  border-radius: 10px;
```

```
::placeholder {
  color: #ffffff;
  opacity: 1;
  font-style: oblique;
  font-weight: bold;
}
.word {
  color: #ffffff;
  font-style: oblique;
  font-weight: bold;
.bottom {
  color: #236b8e;
  font-style: oblique;
  font-weight: bold;
}
body {
  background: #fafafa;
  color: #333333;
  margin-top: 5rem;
```

```
}
h1, h2, h3, h4, h5, h6 {
  color: #444444;
}
.bg-steel {
  background-color: #5f788a;
.site-header .navbar-nav .nav-link {
  color: #cbd5db;
}
.site-header .navbar-nav .nav-link:hover {
  color: #ffffff;
}
.site-header .navbar-nav .nav-link.active {
  font-weight: 500;
.content-section {
```

```
background: #ffffff;
  padding: 10px 20px;
  border: 1px solid #dddddd;
  border-radius: 3px;
  margin-bottom: 20px;
}
.article-title {
  color: #444444;
}
a.article-title:hover {
  color: #428bca;
  text-decoration: none;
}
.article-content {
  white-space: pre-line;
.article-img {
  height: 65px;
  width: 65px;
```

```
margin-right: 16px;
}
.article-metadata {
  padding-bottom: 1px;
  margin-bottom: 4px;
  border-bottom: 1px solid #e3e3e3
}
.article-metadata a:hover {
  color: #333;
  text-decoration: none;
}
.article-svg {
  width: 25px;
  height: 25px;
  vertical-align: middle;
.account-img {
  height: 125px;
  width: 125px;
```

```
margin-right: 20px;
margin-bottom: 16px;
}
.account-heading {
  font-size: 2.5rem;
}
```

Templates:

Welcome.html:

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

Login.html:

```
<link rel="stylesheet" type="text/css"
href="{{ url_for('static',
filename='style.css') }}" />
</head>
```

```
<body>
    <div class="col-md-8">
        {% with messages =
get flashed messages(with categories=true) %}
            {% if messages %}
                {% for category, message in
messages %}
                    <div class="alert alert-
{{category}}">
                        {{ message }}
                    </div>
                {% endfor %}
            {% endif %}
        {% endwith %}
        {% block content %} {% endblock %}
    </div>
    <h1>Login Page</h1> <br>
```

```
<form method="POST" action="">
```

```
{{ form.hidden_tag() }}
        <fieldset class="form-group">
            <div>
                {{ form.username.label(class="form
-control-label") }}
                {% if form.username.errors %}
                     {{ form.username(class="form-
control form-control-lg is-invalid") }}
                     <div class="invalid-feedback">
                         {% for error in
form.username.errors %}
                             <span>{{ error }}</spa</pre>
n>
                         {% endfor %}
                     </div>
                {% else %}
                     {{ form.username(class="form-
control form-control-lg") }}
                {% endif %}
            </div>
            <div>
```

```
{{ form.password.label(class="form
-control-label") }}
                {% if form.password.errors %}
                     {{ form.password(class="form-
control form-control-lg is-invalid") }}
                     <div class="invalid-feedback">
                         {% for error in
form.password.errors %}
                             <span>{{ error }}</spa</pre>
n>
                         {% endfor %}
                     </div>
                {% else %}
                     {{ form.password(class="form-
control form-control-lg") }}
                {% endif %}
            </div>
        </fieldset>
        <div class="form-group">
            {{ form.submit(class="btn btn-outline-
info") }}
        </div>
```

```
<script src="https://code.jquery.com/jquery-</pre>
3.3.1.slim.min.js" integrity="sha384-
q8i/X+965Dz00rT7abK41JStQIAqVgRVzpbzo5smXKp4YfRvH+
8abtTE1Pi6jizo" crossorigin="anonymous"></script>
    <script
src="https://cdn.jsdelivr.net/npm/popper.js@1.14.7
/dist/umd/popper.min.js" integrity="sha384-
UO2eT0CpHqdSJQ6hJty5KVphtPhzWj9WO1clHTMGa3JDZwrnQq
4sF86dIHNDz0W1" crossorigin="anonymous"></script>
    <script
src="https://cdn.jsdelivr.net/npm/bootstrap@4.3.1/
dist/js/bootstrap.min.js" integrity="sha384-
JjSmVgyd0p3pXB1rRibZUAYoIIy6OrQ6VrjIEaFf/nJGzIxFDs
f4x0xIM+B07jRM" crossorigin="anonymous"></script>
</body>
</html>
```

Home.html:

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

```
<div class="alert alert-</pre>
{{category}}">
                         {{ message }}
                     </div>
                {% endfor %}
            {% endif %}
        {% endwith %}
        {% block content %} {% endblock %}
    </div>
    <h1>Flask Application</h1> <br>
    <a href="{{ url for('login') }}">Login
Page</a><br> <br>
    <a href="{{ url for('register') }}">Register
Page</a><br> <br>
    <a href="{{ url for('update') }}">Update
Password</a><br> <br>
```

```
</html>
```

Register.html:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <link rel="stylesheet"</pre>
href="https://cdn.jsdelivr.net/npm/bootstrap@4.3.1
/dist/css/bootstrap.min.css" integrity="sha384-
ggOyR0iXCbMQv3Xipma34MD+dH/1fQ784/j6cY/iJTQUOhcWr7
x9JvoRxT2MZw1T" crossorigin="anonymous">
    <link rel="stylesheet" type="text/css"</pre>
href="{{ url for('static',
filename='style.css') }}" />
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible"</pre>
content="IE=edge">
    <meta name="viewport" content="width=device-</pre>
width, initial-scale=1.0">
```

```
<title>Register</title>
</head>
```

```
<body>
    <h1>Register Page</h1> <br>
    <form method="POST" action="">
        {{ form.hidden_tag() }}
        <fieldset class="form-group">
            <!-- <legend class="border-bottom mb-
4">Registration Page</legend> -->
            <div>
                {{ form.email.label(class="form-
control-label") }}
                {% if form.email.errors %}
                     {{ form.email(class="form-
control form-control-lg is-invalid") }}
                     <div class="invalid-feedback">
                         {% for error in
form.email.errors %}
                             <span>{{ error }}</spa</pre>
n>
                         {% endfor %}
                     </div>
```

```
{% else %}
                     {{ form.email(class="form-
control form-control-lg") }}
                {% endif %}
            </div>
            <div>
                {{ form.username.label(class="form
-control-label") }}
                {% if form.username.errors %}
                     {{ form.username(class="form-
control form-control-lg is-invalid") }}
                     <div class="invalid-feedback">
                         {% for error in
form.username.errors %}
                             <span>{{ error }}</spa</pre>
n>
                         {% endfor %}
                     </div>
                {% else %}
                     {{ form.username(class="form-
control form-control-lg") }}
                {% endif %}
```

```
</div>
            <div>
                {{ form.rollnumber.label(class="fo
rm-control-label") }}
                {% if form.rollnumber.errors %}
                     {{ form.rollnumber(class="form
-control form-control-lg is-invalid") }}
                     <div class="invalid-feedback">
                         {% for error in
form.rollnumber.errors %}
                             <span>{{ error }}</spa</pre>
n>
                         {% endfor %}
                     </div>
                {% else %}
                     {{ form.rollnumber(class="form
-control form-control-lg") }}
                {% endif %}
            </div>
            <div>
```

```
{{ form.password.label(class="form
-control-label") }}
                {% if form.password.errors %}
                     {{ form.password(class="form-
control form-control-lg is-invalid") }}
                     <div class="invalid-feedback">
                         {% for error in
form.password.errors %}
                             <span>{{ error }}</spa</pre>
n>
                         {% endfor %}
                     </div>
                {% else %}
                     {{ form.password(class="form-
control form-control-lg") }}
                {% endif %}
            </div>
        </fieldset>
        <div class="form-group">
            {{ form.submit(class="btn btn-outline-
info") }}
        </div>
```

```
</html>
```

Update.html:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible"</pre>
content="IE=edge">
    <meta name="viewport" content="width=device-</pre>
width, initial-scale=1.0">
    <title>Login</title>
    <link rel="stylesheet"</pre>
href="https://cdn.jsdelivr.net/npm/bootstrap@4.3.1
/dist/css/bootstrap.min.css" integrity="sha384-
ggOyR0iXCbMQv3Xipma34MD+dH/1fQ784/j6cY/iJTQUOhcWr7
x9JvoRxT2MZw1T" crossorigin="anonymous">
    <link rel="stylesheet" type="text/css"</pre>
href="{{ url for('static',
filename='style.css') }}" />
</head>
```

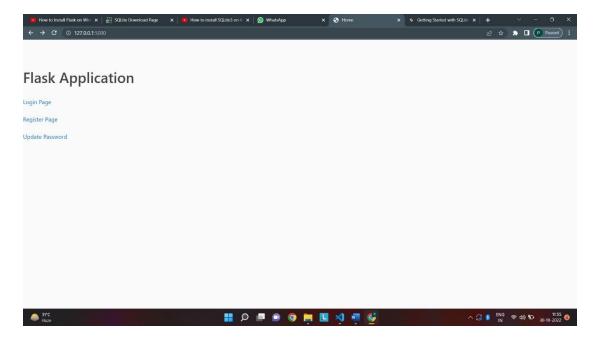
```
{% with messages =
get_flashed_messages(with_categories=true) %}
            {% if messages %}
                {% for category, message in
messages %}
                     <div class="alert alert-</pre>
{{category}}">
                         {{ message }}
                     </div>
                {% endfor %}
            {% endif %}
        {% endwith %}
        {% block content %} {% endblock %}
    </div>
    <h1>Update Password</h1> <br>
```

```
{% for error in
form.oldpassword.errors %}
                             <span>{{ error }}</spa</pre>
n>
                         {% endfor %}
                     </div>
                 {% else %}
                     {{ form.oldpassword(class="for
m-control form-control-lg") }}
                 {% endif %}
            </div>
            <div>
                 {{ form.password.label(class="form
-control-label") }}
                 {% if form.password.errors %}
                     {{ form.password(class="form-
control form-control-lg is-invalid") }}
                     <div class="invalid-feedback">
                         {% for error in
form.password.errors %}
                             <span>{{ error }}</spa</pre>
n>
```

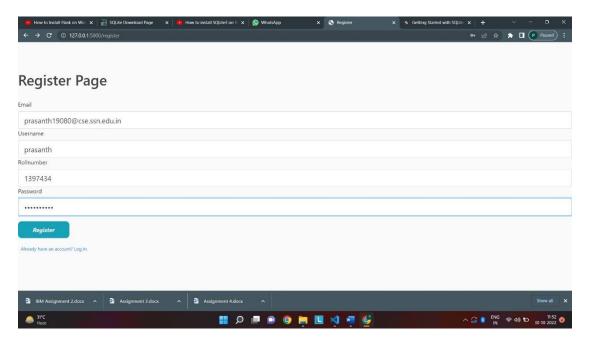
```
JjSmVgyd0p3pXB1rRibZUAYoIIy6OrQ6VrjIEaFf/nJGzIxFDs
f4x0xIM+B07jRM" crossorigin="anonymous"></script>
</body>
</html>
```

Output Screenshots:

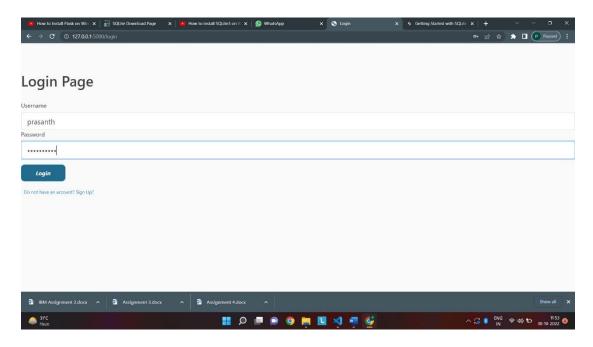
Home page:

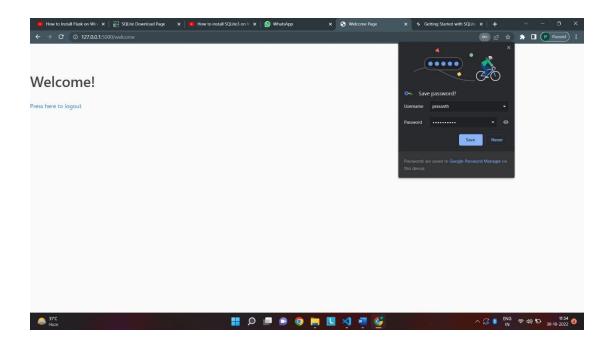


Registration:



Login:





Password update:

