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'
@login manager.user loader
def load user(user id):
    conn = connect db()
    user = conn.execute('SELECT * FROM user WHERE
id = ?',
                        (user_id,)).fetchone()
    usr_obj = User(user[0], user[1], user[2])
    return usr obj
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)
```

submit = SubmitField('Register')

```
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"})
    password = PasswordField(validators=[
                             InputRequired(),
Length(min=8, max=20)], render_kw={"placeholder":
"Password"})
    submit = SubmitField('Update')
@app.route('/')
def home():
    return render template('home.html')
```

```
@app.route('/login', methods=['GET', 'POST'])
def login():
   form = LoginForm()
    if form.validate on submit():
        conn = connect db()
        user = conn.execute('SELECT * FROM user
WHERE username = ?',
                            (form.username.data,))
fetchone()
        conn.commit()
        conn.close()
        if user:
            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()
   return redirect(url_for('login'))
```

```
@ 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)
```

```
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'))
        else:
            flash(f'Invalid user, Enter valid
User.', 'danger')
            return redirect(url_for('update'))
    return render template('update.html',
form=form)
```

```
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()
conn.close()
```

Style.css:

```
.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;
  width: 125px;
  margin-right: 20px;
  margin-bottom: 16px;
}

.account-heading {
  font-size: 2.5rem;
}
```

Templates:

Welcome.html:

<script

```
<!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',
<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>Welcome Page</title>
</head>
<body>
    <h1>Welcome!</h1> <br>
    <a href="{{url_for('logout')}}">Press here to
logout</a>
    <script src="https://code.jquery.com/jquery-</pre>
3.3.1.slim.min.js" integrity="sha384-
q8i/X+965Dz00rT7abK41JStQIAqVgRVzpbzo5smXKp4YfRvH+
8abtTE1Pi6jizo" crossorigin="anonymous"></script>
```

src="https://cdn.jsdelivr.net/npm/popper.js@1.14.7

/dist/umd/popper.min.js" integrity="sha384-

Login.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',
</head>
```

```
<body>
<div class="col-md-8">
```

```
<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:

```
/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',
<meta name="viewport" content="width=device-</pre>
width, initial-scale=1.0">
    <title>Home</title>
</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-</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>
```

</html>

Register.html:

```
<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-
<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>
```

```
{% 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="anonym<u>o</u>us">
    <link rel="stylesheet" type="text/css"</pre>
href="{{ url for('static',
filename='style.css') }}" />
</head>
```

```
{% endwith %}
   {% block content %} {% endblock %}
   </div>
   <h1>Update Password</h1>   <br>
   <form method="POST" action="">
    {{ form.hidden_tag() }}
```

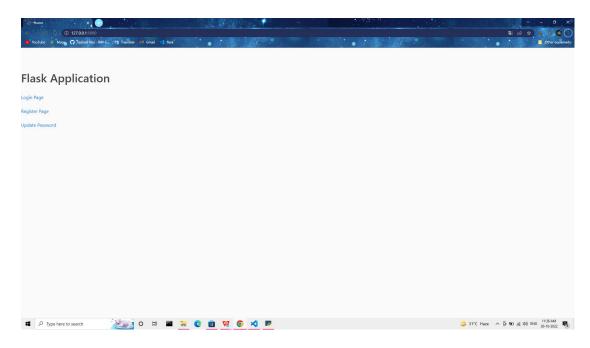
```
<fieldset class="form-group">
            <div>
                {{ form.username.label(class="form
control-label") }}
                {% if form.username.errors %}
                    {{ form.username(class="form-
control form-control-lg is-invalid") }}
                     <div class="invalid-feedback">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

```
{{ form.oldpassword(class="for
m-control form-control-lg is-invalid") }}
                     <div class="invalid-feedback">
                         {% 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>
                         {% endfor %}
                     </div>
                 {% else %}
                     {{ form.password(class="form-
control form-control-lg") }}
                {% endif %}
```

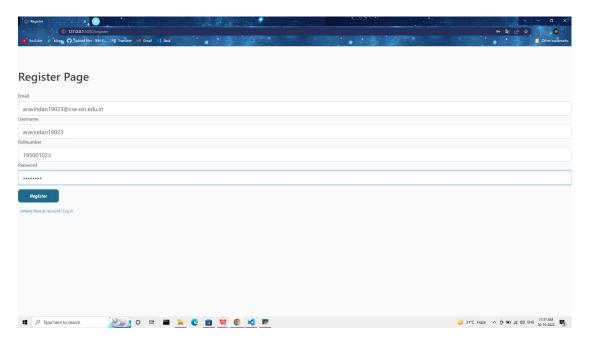
```
</html>
```

Output Screenshots:

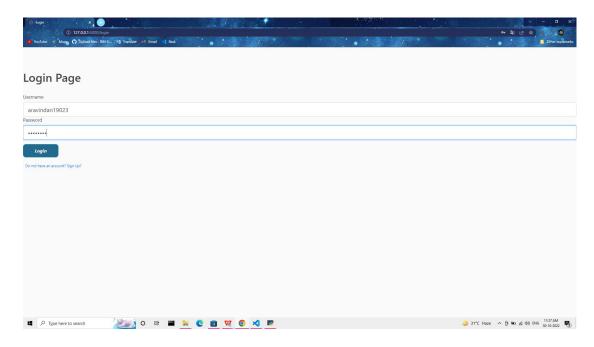
Home page:

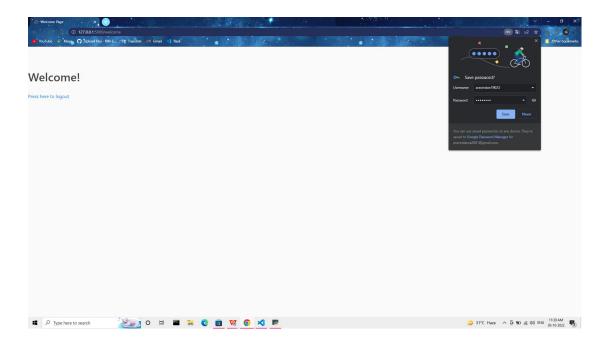


Registration:



Login:





Password update:

