

#### EXPERIMENT NO. 4 - Flask Application using GET and POST

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**AIM :** To design a Flask application that showcases URL building and demonstrates the use of HTTP methods (GET and POST) for handling user input and processing data.

#### **PROBLEM STATEMENT :**

Create a Flask application with the following requirements:

1. A homepage (/) with links to a "Profile" page and a "Submit" page using the `url_for()` function.
2. The "Profile" page (`/profile/<username>`) dynamically displays a user's name passed in the URL.
3. A "Submit" page (`/submit`) displays a form to collect the user's name and age. The form uses the POST method to send the data, and the server displays a confirmation message with the input.

#### **Theory:**

##### **1. What is a route in Flask, and how is it defined?**

A route in Flask is a URL pattern linked to a function using the `@app.route()` decorator.

Example:

```
@app.route('/')
```

```
def home():
```

```
    return "Welcome!"
```

## 2. How can you pass parameters in a URL route?

Parameters can be passed in a route using angle brackets (< >) in the URL. Flask captures these values and passes them to the function as arguments. You can also specify data types like <int:id> or <string:name>.

Example:

```
@app.route('/user/<string:name>')

def greet_user(name):

    return f"Hello, {name}!"
```

## 3. What happens if two routes in a Flask application have the same URL pattern?

If two routes share the same URL pattern, Flask will use the last-defined route, overriding the previous one. This causes unexpected behavior.

Example:

```
@app.route('/hello')

def hello1():

    return "Hello from function 1"
```

```
@app.route('/hello')

def hello2():

    return "Hello from function 2"
```

# Only "Hello from function 2" will be shown.

## 4. What are the commonly used HTTP methods in web applications?

HTTP methods define the type of request a client sends to a server:

- **GET:** Retrieve data (e.g., accessing a web page).
- **POST:** Send data to the server (e.g., submitting a form).
- **PUT:** Update existing data.
- **DELETE:** Remove data.
- **PATCH:** Partially update data.

## 5. What is a dynamic route in Flask?

A dynamic route allows variables to be embedded within the URL, making it more flexible. The data in the URL is passed to the function for further processing.

Example:

```
@app.route('/profile/<username>')  
  
def show_profile(username):  
  
    return f"Welcome to {username}'s Profile!"
```

## 6. Write an example of a dynamic route that accepts a username as a parameter.

Example:

```
@app.route('/user/<username>')  
  
def welcome_user(username):  
  
    return f"Hello, {username}! Glad to see you here."
```

## 7. What is the purpose of enabling debug mode in Flask?

Debug Mode is used during development for easy troubleshooting. It enables:

- **Automatic Code Reloading:** The app restarts when code changes.
- **Detailed Error Messages:** Displays an interactive debugger in case of an error.

It should be **disabled** in production for security reasons.

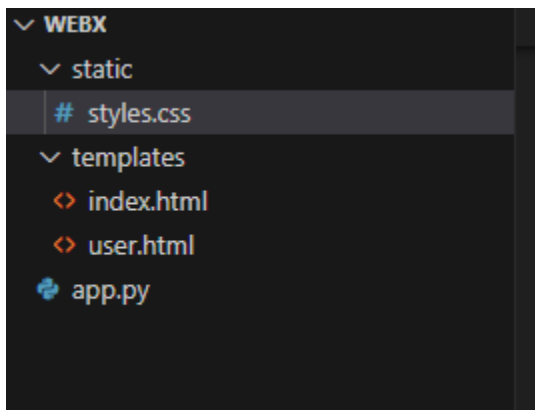
## 8. How do you enable debug mode in a Flask application?

You can enable debug mode using one of these methods:

- Using `app.run(debug=True)`
- `export FLASK_ENV=development`
- `flask run`

## CODE:

Folder Structure:



### 1. app.py (Flask Application)

```
from flask import Flask, request, url_for, redirect, session
app = Flask(__name__)
app.secret_key = "supersecretkey"
```

```
@app.route('/')
def home():
    return f'''
    <html>
    <head>
        <style>
```

```

    body {{
        font-family: 'Arial', sans-serif;
        background-color: #f4f4f9;
        color: #333;
        text-align: center;
        padding: 20px;
    }}
    a {{
        display: inline-block;
        margin: 10px;
        padding: 12px 24px;
        background-color: #4CAF50;
        color: white;
        text-decoration: none;
        border-radius: 5px;
        font-weight: bold;
    }}
    a:hover {{
        background-color: #45a049;
    }}
    h1 {{
        color: #333;
        font-size: 32px;
    }}
</style>
</head>
<body>
    <h1>Welcome to the Homepage</h1>
    <a href="{url_for('profile')}}">Go to Profile</a>
    <a href="{url_for('submit')}}">Go to Submit Page</a>
</body>
</html>
'''

```

```

@app.route('/profile')
def profile():
    name = session.get('name', 'Guest')
    age = session.get('age', 'Unknown')

```

```
return f'''
<html>
<head>
  <style>
    body {{
      font-family: 'Arial', sans-serif;
      background-color: #f0f8ff;
      text-align: center;
      color: #333;
      padding: 20px;
    }}
    h1 {{
      color: #5a5a5a;
      font-size: 32px;
    }}
    p {{
      font-size: 18px;
      margin-top: 10px;
    }}
    a {{
      margin-top: 20px;
      display: inline-block;
      padding: 10px 20px;
      background-color: #ff6347;
      color: white;
      text-decoration: none;
      border-radius: 5px;
    }}
    a:hover {{
      background-color: #ff4500;
    }}
  </style>
</head>
<body>
  <h1>Profile Page</h1>
  <p><strong>Name:</strong> {name}</p>
  <p><strong>Age:</strong> {age}</p>
  <a href="{url_for('home')}">Back to Homepage</a>
```

```
</body>
</html>
'''
```

```
@app.route('/submit', methods=['GET', 'POST'])
def submit():
    if request.method == 'POST':
        session['name'] = request.form.get('name', 'Unknown')
        session['age'] = request.form.get('age', 'Unknown')
        return redirect(url_for('profile'))

    return '''
<html>
<head>
    <style>
        body {{
            font-family: 'Arial', sans-serif;
            background-color: #fafad2;
            text-align: center;
            color: #333;
            padding: 20px;
        }}
        form {{
            background-color: #ffffff;
            padding: 20px;
            border-radius: 8px;
            box-shadow: 0 4px 8px rgba(0, 0, 0, 0.1);
            display: inline-block;
        }}
        input {{
            margin: 10px;
            padding: 12px 20px;
            border-radius: 5px;
            border: 1px solid #ccc;
            font-size: 16px;
        }}
        input[type="submit"] {{
            background-color: #4CAF50;
```

```

        color: white;
        cursor: pointer;
    }}
    input[type="submit"]:hover {{
        background-color: #45a049;
    }}
    h1 {{
        color: #333;
        font-size: 32px;
    }}
    a {{
        display: inline-block;
        margin-top: 20px;
        padding: 12px 24px;
        background-color: #ff6347;
        color: white;
        text-decoration: none;
        border-radius: 5px;
    }}
    a:hover {{
        background-color: #ff4500;
    }}
</style>
</head>
<body>
    <h1>Submit Your Information</h1>
    <form method="post">
        <label for="name">Name:</label><br>
        <input type="text" id="name" name="name" required><br>
        <label for="age">Age:</label><br>
        <input type="number" id="age" name="age" required><br><br>
        <input type="submit" value="Submit">
    </form>
    <a href="{url_for('home')}">Back to Homepage</a>
</body>
</html>
'''

```



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

## 2. templates/index.html (Homepage Template)

```
<!DOCTYPE html>  
<html lang="en">  
<head>  
    <meta charset="UTF-8">  
    <meta name="viewport" content="width=device-width,  
initial-scale=1.0">  
    <title>Homepage</title>  
    <link rel="stylesheet" href="{{ url_for('static',  
filename='style.css') }}">  
</head>  
<body>  
    <div class="container">  
        <div class="card">  
            <h1>Welcome to My Flask App</h1>  
            <p>Click the links below to explore:</p>  
            <div class="links">  
                <a href="{{ url_for('user', username='Sneha') }}"  
class="btn">Sneha's Profile</a>  
                <a href="{{ url_for('user', username='Anuprita') }}"  
class="btn">Anuprita's Profile</a>  
            </div>  
        </div>  
    </div>  
</body>  
</html>
```

## 3. templates/user.html (User Profile Template)

```
<!DOCTYPE html>  
<html lang="en">  
<head>  
    <meta charset="UTF-8">  
    <meta name="viewport" content="width=device-width,  
initial-scale=1.0">
```

```
<title>User Page</title>
<link rel="stylesheet" href="{{ url_for('static',
filename='style.css') }}">
</head>
<body>
  <div class="container">
    <div class="card">
      <h1>Hello, {{ username }}! 🙋</h1>
      <p>Welcome to your personalized space.</p>
      <a href="{{ url_for('home') }}" class="btn">Back to
Home</a>
    </div>
  </div>
</body>
</html>
```

#### 4. static/style.css (CSS Styles)

```
body {
  font-family: 'Arial', sans-serif;
  background-color: #f4f4f9;
  margin: 0;
  padding: 0;
  color: #333;
}

.container {
  text-align: center;
  margin-top: 50px;
}

h1 {
  color: #333;
  font-size: 32px;
}

.card {
  background-color: white;
```

```
padding: 20px;
border-radius: 8px;
box-shadow: 0px 4px 8px rgba(0, 0, 0, 0.1);
width: 50%;
margin: 20px auto;
}

a {
  display: inline-block;
  padding: 12px 24px;
  background-color: #4CAF50;
  color: white;
  text-decoration: none;
  border-radius: 5px;
  font-weight: bold;
}

a:hover {
  background-color: #45a049;
}

form {
  background-color: #ffffff;
  padding: 20px;
  border-radius: 8px;
  box-shadow: 0 4px 8px rgba(0, 0, 0, 0.1);
  display: inline-block;
  text-align: left;
}

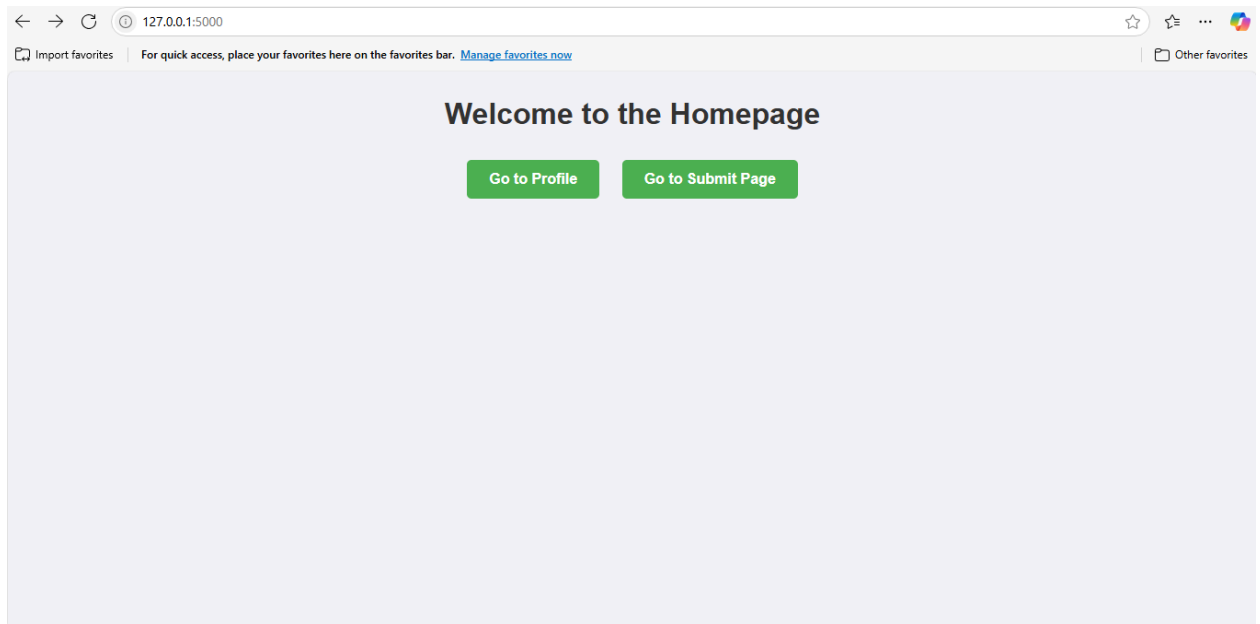
input {
  margin: 10px;
  padding: 12px 20px;
  border-radius: 5px;
  border: 1px solid #ccc;
  font-size: 16px;
}
```

```
input[type="submit"] {  
    background-color: #4CAF50;  
    color: white;  
    cursor: pointer;  
}  
  
input[type="submit"]:hover {  
    background-color: #45a049;  
}
```

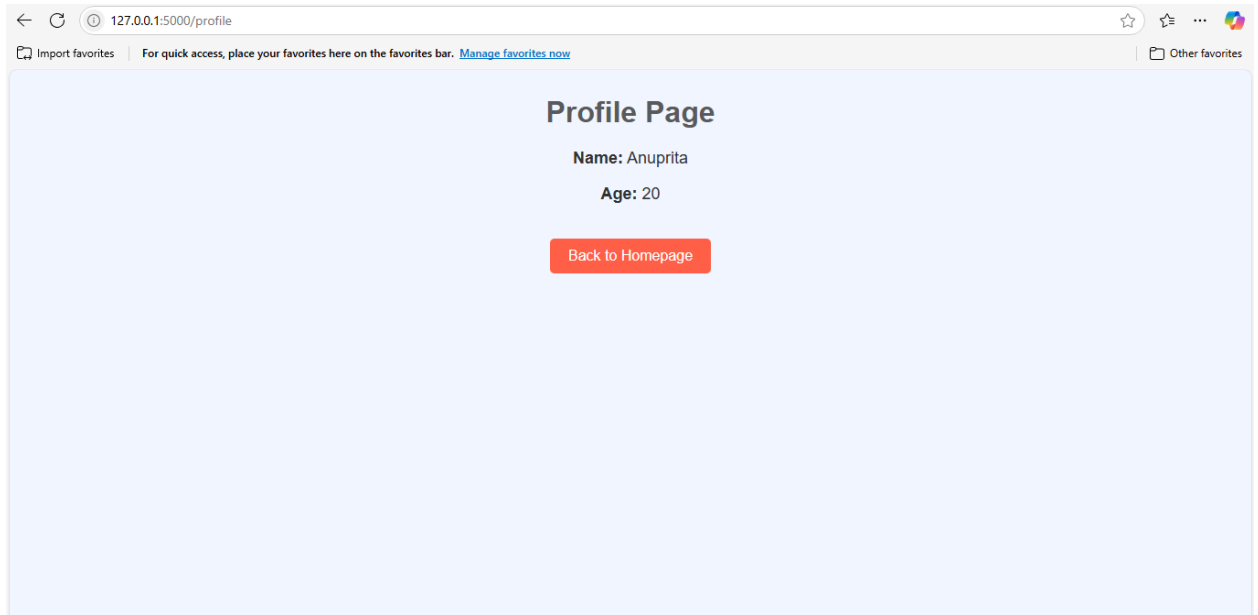
**Github Link** - [https://github.com/Anuprita2022-26/WebX\\_Exp4](https://github.com/Anuprita2022-26/WebX_Exp4)

## OUTPUT

- **Homepage:** The homepage will display two links: one to the "Profile" page and another to the "Submit" page.



- **Profile Page:** After submitting the form with your name and age, the profile page will display your details dynamically.



- **Submit Page:** The form will allow users to enter their name and age, and upon submission, they will be redirected to the profile page with the entered details.

