

## Experiment 4

Name of Student	Pranav Pol
Class Roll No	D15A / 41
D.O.P.	
D.O.S.	
Sign and Grade	

**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?
2. How can you pass parameters in a URL route?
3. What happens if two routes in a Flask application have the same URL pattern?
4. What are the commonly used HTTP methods in web applications?
5. What is a dynamic route in Flask?
6. Write an example of a dynamic route that accepts a username as a parameter.
7. What is the purpose of enabling debug mode in Flask?
8. How do you enable debug mode in a Flask application?

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

A route in Flask is a URL pattern that is mapped to a specific function in the application. It defines how the application responds to a request for a particular URL. Routes are defined using the `@app.route()` decorator.

Example:

```
python
from flask import Flask

app = Flask(__name__)

@app.route('/')
def home():
    return "Welcome to Flask!"
```

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

Parameters can be passed in a Flask route by using angle brackets (`<>`). Flask extracts these parameters and passes them as arguments to the associated function.

Example:

Python

```
@app.route('/user/<name>')
def user(name):
    return f"Hello, {name}!"
```

Visiting `/user/John` will display "Hello, John!".

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

If two routes have the same URL pattern, Flask will raise an error because it cannot determine which function to execute for that route.

Example (Incorrect Usage):

Python

```
@app.route('/profile')
def profile1():
    return "Profile 1"
```

```
@app.route('/profile')
def profile2():
    return "Profile 2"
```

This will result in a duplicate route error.

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

The commonly used HTTP methods in web applications include:

- GET – Retrieves data from the server.
- POST – Submits data to be processed on the server.
- PUT – Updates existing data on the server.
- DELETE – Deletes data from the server.

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

A dynamic route in Flask allows a URL to accept variable parameters, making it flexible to handle different inputs.

Example:

```
@app.route('/product/<int:product_id>')
def product(product_id):
    return f"Product ID: {product_id}"
```

Visiting /product/101 will display "Product ID: 101".

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

```
python
@app.route('/profile/<username>')
def profile(username):
    return f"Welcome, {username}!"
```

Accessing /profile/Alex will return "Welcome, Snehal!".

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

Enabling debug mode in Flask provides:

- Automatic code reloading – No need to restart the server after code changes.
- Detailed error messages – It shows interactive error pages when an error occurs.

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

Debug mode can be enabled by setting debug=True in the app.run() function or by setting an environment variable.

Method 1: Directly in Code

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

Method 2: Using Environment Variable

```
bash
CopyEdit
export FLASK_ENV=development
flask run
```

This enables debug mode automatically.

#### **OUTPUT:**

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

```
app = Flask(__name__)
```

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

```

```
def home():
```

```
    name = request.args.get('name', 'Guest')
```

```
    return render_template('home.html', name=name)
```

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

```
def home_redirect():
```

```
    return render_template('index.html')
```

```
@app.route('/contact', methods=['GET', 'POST'])
```

```
def contact():
```

```
    if request.method == 'POST':
```

```
        name = request.form['name']
```

```
        email = request.form['email']
```

```
        return redirect(url_for('thank_you', name=name, email=email))
```

```
    return render_template('contact.html')
```

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

```
def thank_you():
```

```
    name = request.args.get('name', 'Anonymous')
```

```
    email = request.args.get('email', 'No Email Provided')
```

```
    return render_template('thank_you.html', name=name, email=email)
```

```
@app.route('/profile/<username>')
```

```
def profile(username):
```

```
    return render_template('profile.html', username=username)
```

```
@app.route('/submit', methods=['GET', 'POST'])
```

```
def submit():
```

```
    if request.method == 'POST':
```

```
        name = request.form['name']
```

```
        age = request.form['age']
```

```
    return render_template('confirmation.html', name=name, age=age)

    return render_template('submit.html')
```

```
if __name__ == '__main__':

    app.run(debug=True)
```

profile.html

```
<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Profile</title>

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

</head>

<body>

    <h1>Profile Page</h1>

    <p>Welcome, {{ username }}!</p>

    <a href="{{ url_for('home') }}">Back to Home</a>

</body>

</html>
```

Submit.html

```
<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```
<title>Submit Details</title>
```

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

```
</head>
```

```
<body>
```

```
<h1>Submit Your Details</h1>
```

```
<form method="post">
```

```
<label for="name">Name:</label>
```

```
<input type="text" id="name" name="name" required>
```

```
<br>
```

```
<label for="age">Age:</label>
```

```
<input type="number" id="age" name="age" required>
```

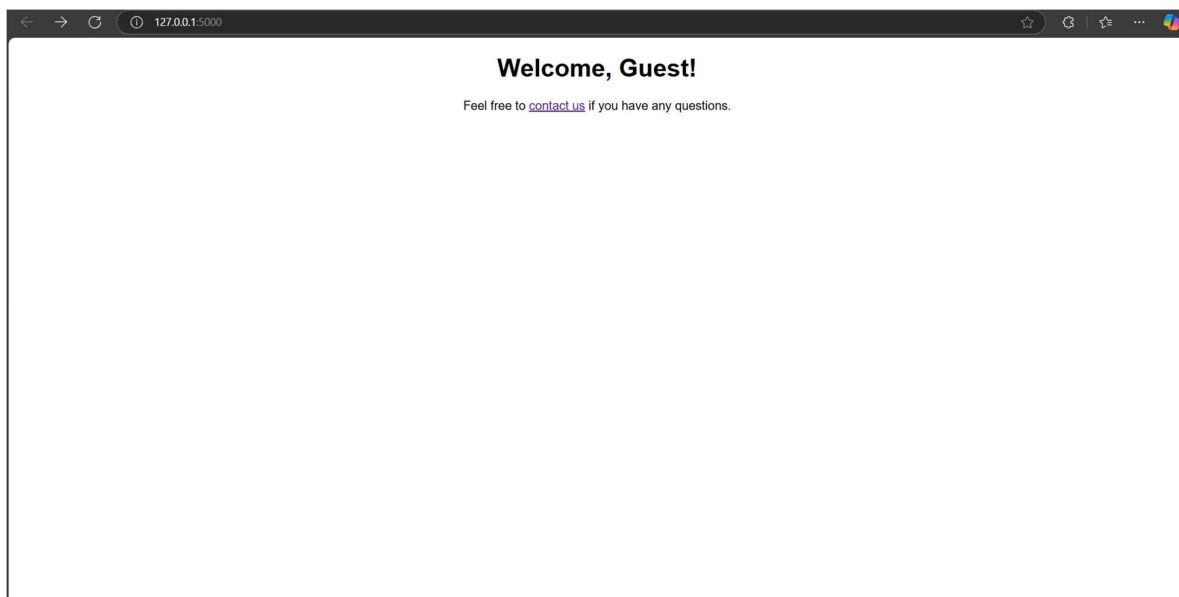
```
<br>
```

```
<button type="submit">Submit</button>
```

```
</form>
```

```
</body>
```

```
</html>
```



127.0.0.1:5000/submit

## Submit Your Details

Name:

Age:

127.0.0.1:5000/submit

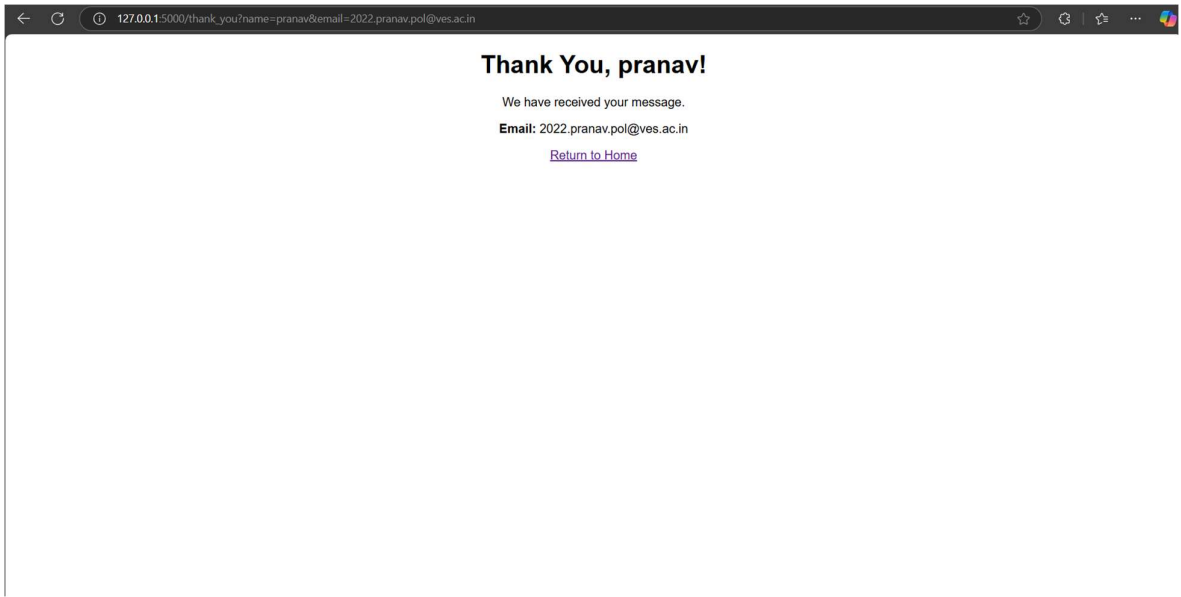
## Thank You!

We have received your details.

**Name:** Pranav Santosh Pol

**Age:** 20

[Return to Home](#)



## Thank You, pranav!

We have received your message.

**Email:** 2022.pranav.pol@ves.ac.in

[Return to Home](#)