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. A **route** in Flask maps a URL to a specific function in the Python code. When a user visits a specific URL, Flask executes the corresponding function and returns the response.
    b. **Defined using the @app.route() decorator** above a function.
    c.
       Example:

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

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

    a. You can pass parameters in the route by defining a **dynamic segment** in the URL using angle brackets <>.

    b. **Example:**

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

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**. Each route must be **unique**; otherwise, the application won't run correctly.

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

The most commonly used HTTP methods are:
*   **GET** – Retrieve data from the server.
*   **POST** – Send data to the server (e.g., form submission).
*   **PUT** – Update existing data.
*   **DELETE** – Remove data from the server.

5. What is a dynamic route in Flask?

    a. A **dynamic route** allows parts of the URL to act as **variables**. These can be passed to the view function and used to generate a dynamic response.
    b. It makes the route **flexible** and **customizable** for each user.

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

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

    If you visit /user/Alice, it will display: Hello, Alice!

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

    Debug mode helps developers by:
*   **Automatically reloading** the app when code changes.
*   Showing **detailed error messages** in the browser when something goes wrong.
    It's great during development but should be turned off in production.

8. How do you enable debug mode in a Flask application?
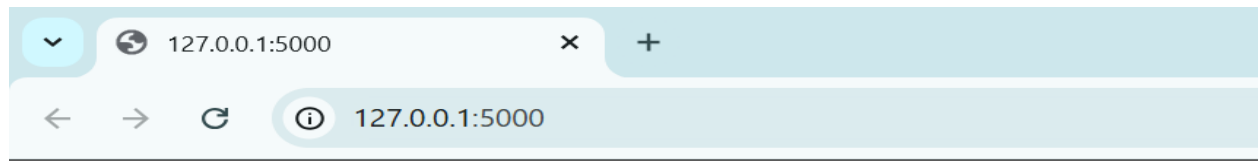
    You can enable it in two ways:

    Method 1: In the code
        app.run(debug=True)

    Method 2: Using environment variable
        export FLASK_DEBUG=1 # On Linux/Mac
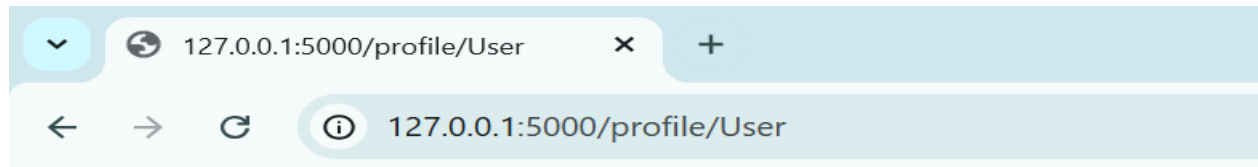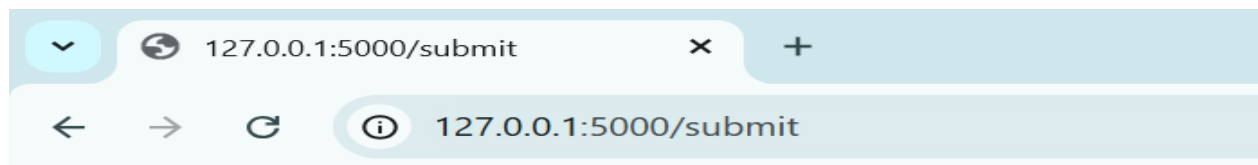   set FLASK_DEBUG=1   # On Windows

OUTPUT
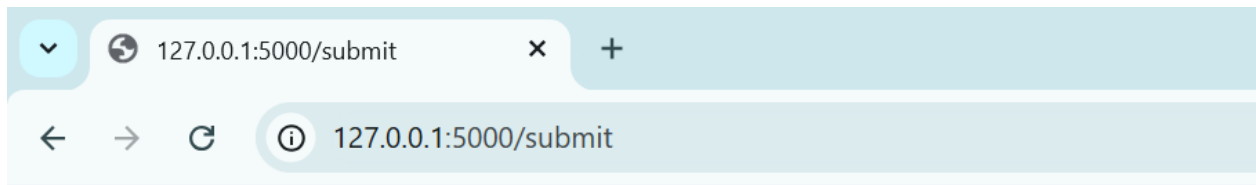

Welcome to Flask App

Go to Profile

Submit Data

Profile Page

Welcome, User!

Name: Chirag Choudhary
Age: 20
Submit

Submission Successful

Name: Chirag Choudhary

Age: 20