Flask – HTTP Method

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In this article, we will learn how to handle HTTP methods, such as GET and POST in Flask using Python. Here, we will understand the concept of HTTP, GET, and HTTP POST, and then we will the example and implement each in Flask. Before starting, let's understand the basic terminology:

- **GET**: to request data from the server.
- **POST**: to send data to be processed to the server.
- **PUT**: PUT request is used to modify the data on the server. It replaces the entire content at a particular location with data that is passed in the body payload. If there are no resources that match the request, it will generate one.
- **PATCH**: PATCH request is similar to PUT request but the difference is, it modifies a part of the data. It will only replace the content that is required.
- **DELETE**: A DELETE request is used to delete the data on the server at a specified location.

Related Article: Flask HTTP methods, Handle GET & POST requests

Flask HTTP Methods

In a Client-Server architecture, there is a set of rules, called a protocol, using which, we can allow the clients to communicate with the server, and vice-versa. Here, the Hyper Text Transfer Protocol is used, through which, communication is possible. For example, Our browser, passes our query to the Google server, and similarly, the Google server, returns relevant suggestions. The commonly used HTTP methods, for this interaction, are – **GET** and **POST**.

GET Method in Flask

The request are type, in the browser address bar, say, 'http://google.com' is called the Uniform Resource Locator. It mentions the address we are looking for, in this case, the Google Landing/signup page. The browser, sends a GET request, to the Google server, which returns the starting webpage, in response. The GET request is simply used, to fetch data from the server. It should not be used, to apply changes, to the server data.

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Example of HTTP GET in Flask

Let us discuss, the execution of the GET method, using the Flask library. In this example, we will consider, a landing page, that gives us facts, about Math calculations, and, allows us to enter a number, and, return its square. Let us see the example:

Step 1: The '**squaresum.html**' file, has a form tag, that allows the user to enter a number. The form data is sent, to the page mentioned, in the 'action' attribute. Here, the form data, is sent, to the page, as, indicated by '#'. Since we are using the GET method, the data will be appended, to the URL, in the name-value pair format. So, if we enter number, 2, and, click on Submit button, then data will be appended, as 'http://localhost:5000/squaresum?num=2&submum=Submit'

HTML

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Square Of Number</title>
</head>
<body>
    <h1>Welcome to the Maths page!</h1><br>
    <p>Simply shows every choice of our daily lives.<br>
    Calculations, Facts about Numbers, Dates, etc.<br>
    make decisions that affects their way of life. </p>
    <form method="GET" action="#">
        <lebel for="num">
        Enter a number:</lebel><br><br>
        <input type="number" id="num"><br><br>
        <input type="submit" value="Submum" id="submum"></input>
    </form>
</body>
</html>
```

HTML

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Answer Page</title>
</head>
<body>
    <h1>Keep Learning Maths!</h1>
    <h2>Square of number {{num}} is {{squaresum}}</h2>
</body>
</html>
```

Step 3: Here, we have written a view function, called 'squaresumfunc'. The view function returns an HTTP response. The function is decorated with app.route('/square'). This decorator, matches the incoming request's URL. In the view function, The incoming requests like localhost:5000/ will be mapped to the view squaresumfunc() function.

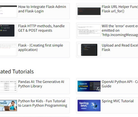
In this case, we have used a GET, hence we mention 'methods=['GET']' in the app.route decorator. The HTML form will, append the number, entered by the user, in the URL. Hence, we check if data is present. To do so, we have to use the request.args bajo. When data is not present, the value of argument "num" will be None. Hence, we will display, the webpage to the user. If the user has not entered, any number, and right away clicked the Submit button, then, we have displayed the error message. We have to use the Flask Jinja2 template, to pass the result, and, the number entered into the HTML file.

Python3

```
# Import the Flask library:
from flask import Flask, render_template, request

# Create the Flask instance and pass the __name
# constructor the path of the current module
app = Flask(__name__)

# The URL 'localhost:5000/square' is mapped to
# the square() function
# The GET request will display the user to enter
# a number (coming from squaresum.html page)

@app.route('/', methods=['GET'])
def square():
    # If method is GET, check if number is entered
    # or user has just requested the page
    # If number is entered, square of number and pass it to
    # answerhtml method
    if request.method == 'GET':
        # Check if the user has requested page the first time
        if(request.args.get('num') == None):
            return render_template('squaresum.html')
        # If number is entered, fetch the number
        # entering number display answer
        elif(request.args.get('num') != ""):
            return "<h1>Welcome to the Maths page!</h1><br>Simply shows
# Start with Flask web app with debug on
# If this is the starting page
if __name__ == '__main__':
    app.run(debug=True)
```

Output:

```
* Serving Flask app "app" (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: on
* Restarting with stat
* Debugger is active!
* Debugger PIN: 322-000-000
127.0.0.1 - - [12/Dec/2021 19:20:30] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [12/Dec/2021 19:20:30] "GET /favicon.ico HTTP/1.1" 404 -
127.0.0.1 - - [12/Dec/2021 19:20:41] "GET /square?num=2&submum=Submit HTTP/1.1" 200 -
```



The user enters a number, enter the page is entered the URL localhost:5000/square?

Click enter/submit, appended in the URL, and output is displayed.

Example of HTTP POST in Flask

Suppose, we need to register our details, to a website, OR, upload our files, we will send data, from our browser(the client) to the desired server. The HTTP method, preferred here, is POST. The data sent, from HTML, is then saved, on the server side, post validation. The POST method should be used, when we need to changeload data, on the server side.

Example of HTTP POST in Flask

In this example, we will consider, the same landing page, giving us facts, about Math calculations, and, allowing us to enter a number, and, return its square. Let us see the example:

Step 1: The same HTML page, called '**squaresum.html**', is in the templates folder. At the backend side, we will write, appropriate logic, in a view function, to get the number, entered by the user, and, return the same, in the 'answer.html' template. The frontend code file is as shown below:

HTML

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Square Of Number</title>
</head>
<body>
    <h1>Welcome to the Maths page!</h1><br>
    <p>Simply shows every choice of our daily lives.<br>
    Calculations, Facts about Numbers, Dates, etc.<br>
    make decisions that affects their way of life. </p>
    <form method="POST" action="#">
        <lebel for="num">
        Enter a number:</lebel><br><br>
        <input type="number" id="num"><br><br>
        <input type="submit" value="Submum" id="submum"></input>
    </form>
</body>
</html>
```

Step 2: The view function squaresumpost(), now also contains value POST in the 'methods' attribute, in the decorator. Thus, when the user requests the page, the first time, by calling 'http://localhost:5000/square', a GET request will be made. Here, the server will render, the corresponding "squaresum.html", webpage. After clicking on Submit, on entering a number, the data is posted back, to the same webpage. Here, the POST method, sends data, in the message body, unlike GET, which appends data in the URL. In the view function, the 'request.form' attribute, retrieves the number, by accessing the 'form' attribute, of the request. The square of the number is calculated, and the value is passed to the same "answer.html" webpage, using the Jinja2 template.

Python3

```
# Import the Flask library:
from flask import Flask, render_template, request

# Create the Flask instance and pass the Flask constructor the path of the
app = Flask(__name__)

@app.route('/', methods=['GET', 'POST'])
def square():
    # If method is GET, get the number entered by user
    # Calculate the square of number and pass it to answerhtml
    if request.method == 'POST':
        # Check if the user has requested page the first time
        if(request.form['num'] == None):
            return render_template('squaresum.html')
        # If number is entered, fetch the number
        num = int(request.form['num'])
        sq = int(num)**2 # Calculate square
        return render_template('answer.html',
                               squaresum=sq, num=num)
    # If the method is GET, render the HTML page, for the user
    if request.method == 'GET':
        return render_template('squaresum.html')

# Start with Flask web app with debug on True only
# If this is the starting page
if __name__ == '__main__':
    app.run(debug=True)
```

Output:

```
* Serving Flask app "app" (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: on
* Restarting with stat
* Debugger is active!
* Debugger PIN: 322-000-000
127.0.0.1 - - [12/Dec/2021 19:22:20] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [12/Dec/2021 19:22:20] "GET /favicon.ico HTTP/1.1" 404 -
127.0.0.1 - - [12/Dec/2021 19:22:41] "POST /square?num=2&submum=Submit HTTP/1.1" 200 -
```

The user enters a number, enter the page is entered the URL localhost:5000/square?

On clicking the Submit button, the data is posted back, to the same URL, and, the result page is rendered. Please note, the value entered, is not visible in the URL now, as the method used, is POST.

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