# Flask

is a micro web framework written in Python. It is classified as a microframework because it does not require particular tools or libraries. It has no database abstraction layer, form validation, or any other components where pre-existing third-party libraries provide common function.

# Requirements

* Python
* Pip
* Flask
* Virtual Environment (optional but recommended)

# Setup

1. **Create Project Folder**

cd into project folder

1. **Create Flask Application**

Create a new Python file **app.py**

from flask import Flask

app = Flask(\_\_name\_\_)

@app.route('/')

def home():

    return "Hello, Flask!"

if \_\_name\_\_ == '\_\_main\_\_':

    app.run(debug=True)

1. **Create and Activate Virtual Environment**

py -m venv my\_virt

my\_virt\Scripts\activate

deactivate

1. **Install Project Dependencies/Save Dependencies to requirements.txt**

pip install flask

pip freeze > requirements.txt

pip install -r requirements.txt

1. **Run flask application**

python app.py

flask run

# Render Template

@app.route('/')

def home():

    return render\_template('index.html')

## index.html

<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="utf-8">

  <meta name="viewport" content="width=device-width, initial-scale=1">

  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

  <title>index</title>

</head>

<body>

  <!-- Navigation page -->

  <nav class="navbar navbar-expand-lg navbar-light bg-light mb-3 border">

    <div class="container">

      <a class="navbar-brand" href="/">Kambok</a>

      <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarNav"

        aria-controls="navbarNav" aria-expanded="false" aria-label="Toggle navigation">

        <span class="navbar-toggler-icon"></span>

      </button>

      <div class="collapse navbar-collapse" id="navbarNav">

        <ul class="navbar-nav">

          <li class="nav-item">

            <a class="nav-link active" aria-current="page" href="">Home</a>

          </li>

          <li class="nav-item">

            <a class="nav-link" href="">Contact</a>

          </li>

        </ul>

      </div>

      <div class="collapse navbar-collapse" id="navbarNav">

        <ul class="navbar-nav ms-auto mb-2 mb-lg-0">

          <li class="nav-item">

            <a class="nav-link active" aria-current="page" href="">Admin</a>

          </li>

        </ul>

      </div>

    </div>

  </nav>

  <h1>Welcome to My Flask App</h1>

  <p>This is the home page.</p>

</body>

</html>

# Serve Static Files

<link rel="stylesheet" href="{{ url\_for('static', filename='css/style.css') }}">

<script src="{{ url\_for('static', filename='js/script.js') }}"></script>

<img src="{{ url\_for('static', filename='images/kam.png') }}">

# Extends

## base.html

<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="utf-8">

  <meta name="viewport" content="width=device-width, initial-scale=1">

  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

  <link rel="stylesheet" href="{{ url\_for('static', filename='css/style.css') }}">

    <title>

        {% block title %}

        {% endblock %}

    </title>

</head>

<body>

  <!-- Navigation page -->

  <nav class="navbar navbar-expand-lg navbar-light bg-light mb-3 border">

    <div class="container">

      <a class="navbar-brand" href="/">Kambok</a>

      <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarNav"

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        <ul class="navbar-nav">

          <li class="nav-item">

            <a class="nav-link active" aria-current="page" href="">Home</a>

          </li>

          <li class="nav-item">

            <a class="nav-link" href="{{ url\_for('contact') }}">Contact</a>

          </li>

        </ul>

      </div>

      <div class="collapse navbar-collapse" id="navbarNav">

        <ul class="navbar-nav ms-auto mb-2 mb-lg-0">

          <li class="nav-item">

            <a class="nav-link active" aria-current="page" href="">Admin</a>

          </li>

        </ul>

      </div>

    </div>

  </nav>

  {% block content %}

  {% endblock %}

</body>

</html>

## index.html

{% extends "base.html" %}

{% block title %}

Home

{% endblock %}

{% block content %}

<div class="container">

<div class="row">

    <div class="col">

        <h1>Client Home</h1>

</div>

</div>

</div>

{% endblock %}

# Urls/Links

{{ url\_for('contact') }}

# Passing data to templates

## app.py

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

def profile(username):

    # Simulate retrieving user data

    user\_data = {

        'username': username,

        'age': 30,

        'location': 'New York'

    }

    return render\_template('profile.html', user=user\_data)

## profile.html

{% extends "base.html" %}

{% block title %}

Home

{% endblock %}

{% block content %}

<div class="container">

    <div class="row">

        <div class="col">

            <body>

                <h1>Profile of {{ user.username }}</h1>

                <p>Age: {{ user.age }}</p>

                <p>Location: {{ user.location }}</p>

            </body>

        </div>

    </div>

</div>

{% endblock %}

# Form

## contact.html

{% extends "base.html" %}

{% block title %}

Contact

{% endblock %}

{% block content %}

<div class="container">

    <div class="row">

        <div class="col-md-6 m-auto">

            <h3>Contact Us</h3>

            <form method="POST" action="{{url\_for('contact')}}">

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

                <input class="form-control border-2" type="text" id="name" name="name" required><br>

                <label for="email">Email:</label>

                <input class="form-control border-2" type="email" id="email" name="email" required><br>

                <label for="message">Message:</label>

                <textarea class="form-control border-2" rows="5" id="comment" name="text"></textarea><br>

                <button class="btn btn-success" type="submit">Submit</button>

            </form>

        </div>

    </div>

</div>

{% endblock %}

## app.py

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

def contact():

    if request.method == 'POST':

        name = request.form.get('name')

        email = request.form.get('email')

        message = request.form.get('message')

        print(f'Name: {name}, Email: {email}, Message: {message}')

    return render\_template('contact.html')

# Redirect/passing parameters to a different Function

return redirect(url\_for('display',  data=data))

# Writing template logics

## app.py

@app.route("/services")

def services():

     my\_name="kambok"

     age=24

     langs=["Python","javascript","bash","ruby"]

     friends={   "tom":60,

                "frank":50,

               "Tony":30

                }

     colours=("red","green")

     cool=True

     class Kambok:

          def \_\_init\_\_(self,name,description,url):

               self.name=name

               self.description=description

               self.url=url

          def pull(self):

                return f"pulling repo {self.name}"

          def clone(self):

               return f"pulling repo {self.url}"

     my\_data=Kambok(name="kambok",description="Information",url="kambok.com")

     def repeat(x,qty):

          return x\*qty

     return render\_template("clients/services.html",my\_name=my\_name,age=age,langs=langs,colours=colours,cool=cool,

                            Kambok=Kambok,repeat=repeat,my\_data=my\_data,friends=friends

                            )

## services.html

{% extends "base.html" %}

{% block title %}services{% endblock %}

{% block content %}

<div class="container">

<div class="row">

    <div class="col">

        <h1>Client services</h1>

        <h1>accessing a variable</h1>

        <P>{{my\_name}}</P>

        <hr />

        <h1>looping langs variable</h1>

 <ul>

    {% for lang in langs%}

    <li>{{lang}}</li>

    {% endfor %}

 </ul>

 <h1>looping dict</h1>

 <ul>

    {% for k,v in friends.items() %}

    <li>{{k}}: {{v}}</li>

    {% endfor %}

 </ul>

 <h1>accessing class</h1>

 <P>{{my\_data.name}}</P>

 <h1>calling a function</h1>

 <p>{{ repeat(9,8)}}</p>

 <h1>calling a class method</h1>

 <p>{{ my\_data.clone()}}</p>

 <h1>condition functions</h1>

 <hr/>

 {% if cool%}

 <p>{{cool}}</p>

 {%endif%}

 <hr>

 <h1>comparison</h1>

{% if age < 18%}

<p>No entry</p>

{% elif age < 26 %}

<p>You are free to enter</p>

{% else%}

<p>invalid</p>

{%endif%}

<h4>Templates Filters langs</h4>

<hr />

<p>{{langs | length}}</p>

<h4>Templates Filters colour</h4>

<hr />

<p>{{colours | length}}</p>

</div>

</div>

</div>

{%endblock%}

# Generating dynamic URL in template

<a href="{{ url\_for('show\_post', post\_id=123) }}">View Post 123</a>