Week4: Deployment on Flask

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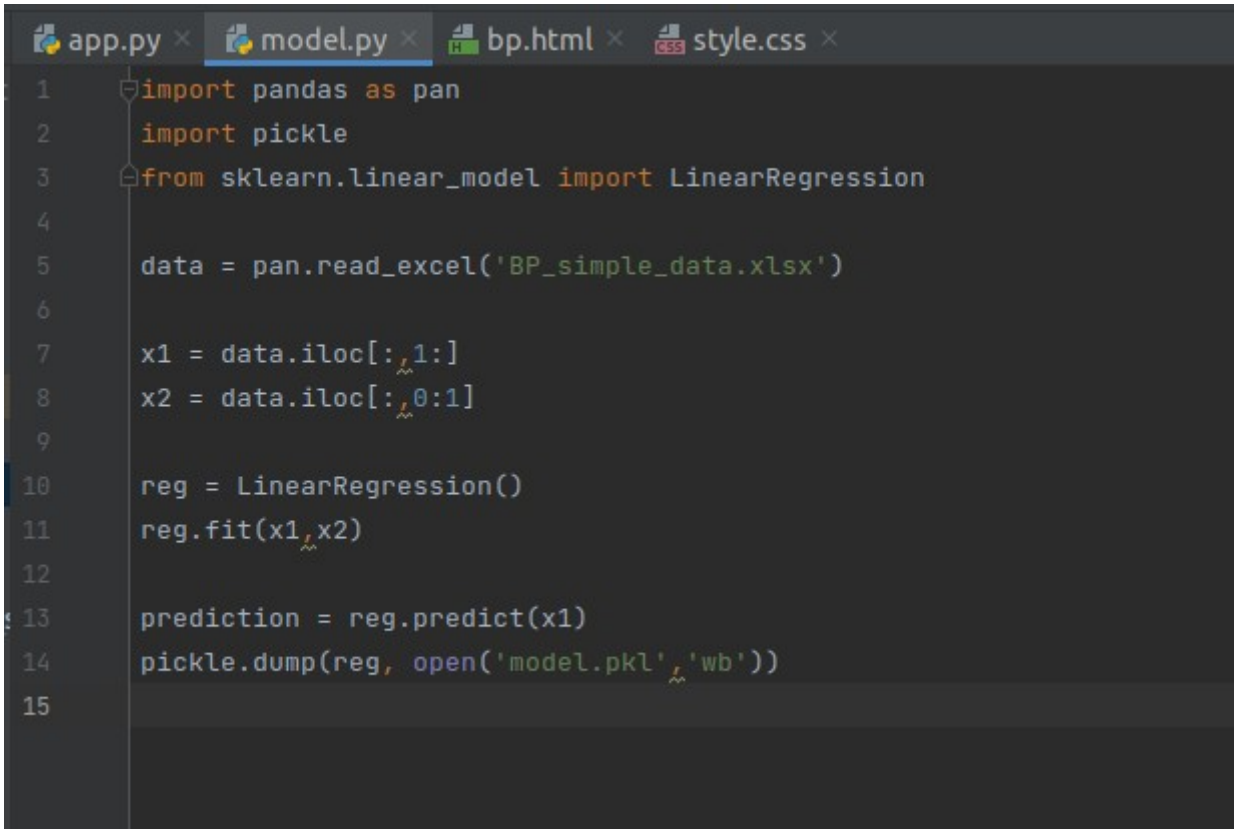
The following are the steps involved in the Deployment on Flask.

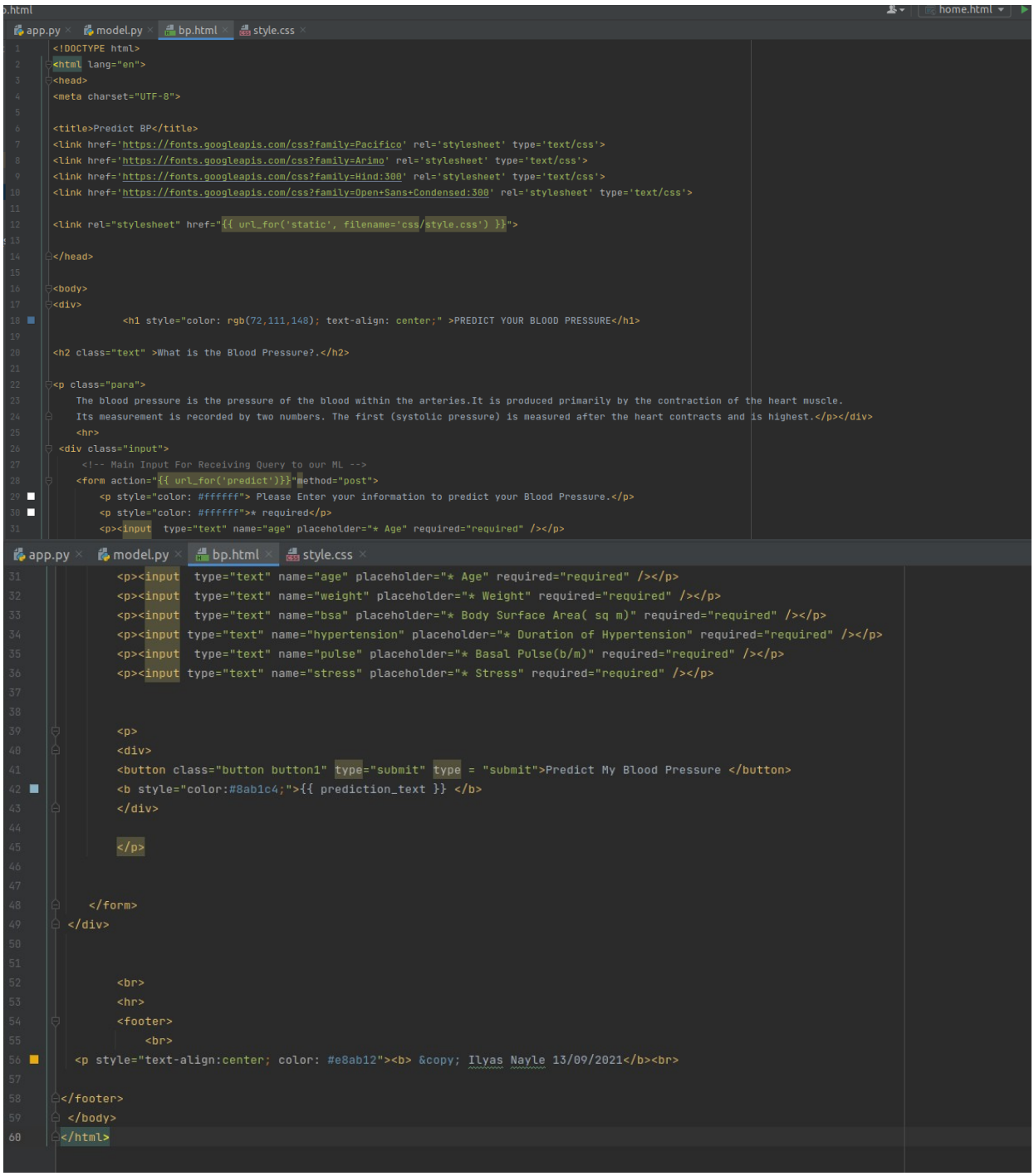
Step 1:

- Found a sample Blood pressure Data
- Converted the .xlsx file format to .pkl using python code.
- Saved the file in model.pkl in the directory



Step 2:

- Creating of the HTML (bp.html) and CSS (style.css) file



```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">

<title>Predict BP</title>
<link href='https://fonts.googleapis.com/css?family=Pacifico' rel='stylesheet' type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Arimo' rel='stylesheet' type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Hind:300' rel='stylesheet' type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Open+Sans+Condensed:300' rel='stylesheet' type='text/css'>

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

</head>

<body>
<div>
            <h1 style="color: rgb(72,111,148); text-align: center;" >PREDICT YOUR BLOOD PRESSURE</h1>

<h2 class="text" >What is the Blood Pressure?.</h2>

<p class="para">
    The blood pressure is the pressure of the blood within the arteries.It is produced primarily by the contraction of the heart muscle.
    Its measurement is recorded by two numbers. The first (systolic pressure) is measured after the heart contracts and is highest.</p></div>
    <hr>
<div class="input">
    <!-- Main Input For Receiving Query to our ML -->
    <form action="{{ url_for('predict')}}"method="post">
        <p style="color: #ffffff"> Please Enter your information to predict your Blood Pressure.</p>
        <p style="color: #ffffff">* required</p>
        <p><input  type="text" name="age" placeholder="* Age" required="required" /></p>
        <p><input  type="text" name="weight" placeholder="* Weight" required="required" /></p>
        <p><input  type="text" name="bsa" placeholder="* Body Surface Area( sq m)" required="required" /></p>
        <p><input type="text" name="hypertension" placeholder="* Duration of Hypertension" required="required" /></p>
        <p><input  type="text" name="pulse" placeholder="* Basal Pulse(b/m)" required="required" /></p>
        <p><input type="text" name="stress" placeholder="* Stress" required="required" /></p>


        <p>
        <div>
        <button class="button button1" type="submit" type = "submit">Predict My Blood Pressure </button>
        <b style="color:#8ab1c4;">{{ prediction_text }} </b>
        </div>

        </p>


    </form>
</div>


        <br>
        <hr>
        <footer>
            <br>
    <p style="text-align:center; color: #e8ab12"><b> &copy; Ilyas Nayle 13/09/2021</b><br>

</footer>
 </body>
</html>
```

app.py × model.py × bp.html × style.css ×

```css
body, html {
  height: 100%;
  line-height: 1.8;

}
body{
   background-image: url("new.jpg");
  background-repeat: no-repeat;
  background-size: cover;
  background-attachment: fixed;

}
input[type=text] {
  width: 20%;
  padding: 10px 15px;
  margin: 8px 0;
  box-sizing: border-box;
  border: none;
  background-color: #052f3f;
  color: #e5dddd;
  position: center;
}

.button {
  background-color: #7b491c; /* Green */
  border: none;
  color: white;
  padding: 16px 32px;
  text-align: center;
  text-decoration: none;
  display: inline-block;
  font-size: 16px;
```

.para

app.py × model.py × bp.html × style.css ×

```css
}

.button1 {
  background-color: #b91a3a;
  color: #172540;
  border: none;

}

.button1:hover {
  background-color: #082c36;
  color: #d6152a;
}

.text{
  border: 1px solid #15c6f9;
  padding: 4px;
  border-style: dotted;
  border-top-left-radius: 5px;
  border-top-right-radius: 5px;
  text-align:center ;
  text-transform: capitalize;
  color: #ffffff;

}
.para{
  text-indent: 20px;
  color: #15c6f9;
  letter-spacing: 2px;
}
```

Step 3:

- Creating the Web Application app.py

app.py | model.py | bp.html | style.css

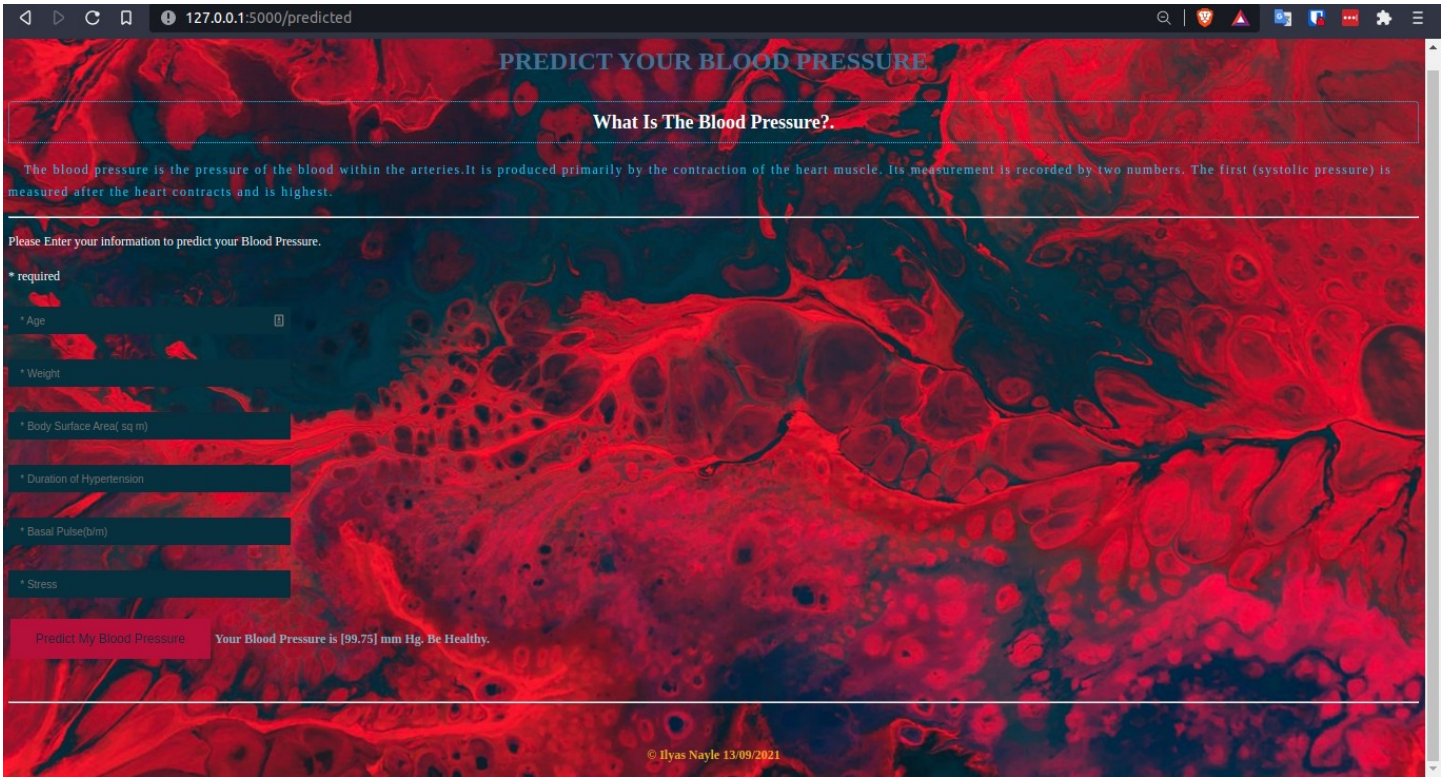
```
import numpy as np
from flask import Flask, request, render_template
import pickle

app = Flask(__name__,template_folder='html')
model = pickle.load(open('model.pkl', 'rb'))


@app.route('/')
def home():
    return render_template('bp.html')



@app.route('/predicted', methods=['POST'])
def predict():
    '''
    For rendering results on HTML GUI
    '''
    int_features = [int(float(x)) for x in request.form.values()]
    final_features = [np.array(int_features)]
    prediction = model.predict(final_features)

    output = np.round(prediction[0], 2)

    return render_template('bp.html', prediction_text='Your Blood Pressure is {} mm Hg. Be Healthy.'.format(output))



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

Step 4: Deployment of the model using command prompt

- We open the command prompt
- Navigate to the location of the folder
- Run the file as: python3 app.py

```
Terminal:  Local  +
(venv) coder_me_ilyas@ilyasnayle:~/PycharmProjects/Week4_flask_development$ python3 app.py
 * 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
 * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 483-454-315
```

* Running on http://127.0.0.1:5000 and the result will be as the following.


127.0.0.1:5000/predicted
PREDICT YOUR BLOOD PRESSURE
What Is The Blood Pressure?.
The blood pressure is the pressure of the blood within the arteries.It is produced primarily by the contraction of the heart muscle. Its measurement is recorded by two numbers. The first (systolic pressure) is measured after the heart contracts and is highest.
Please Enter your information to predict your Blood Pressure.
* required
* Age
* Weight
* Body Surface Area(sq m)
* Duration of Hypertension
* Basal Pulse(b/m)
* Stress
Predict My Blood Pressure
Your Blood Pressure is [99.75] mm Hg. Be Healthy.
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