Week4: Deployment on Flask

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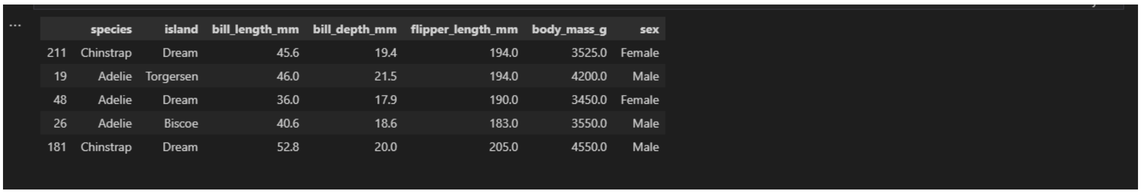
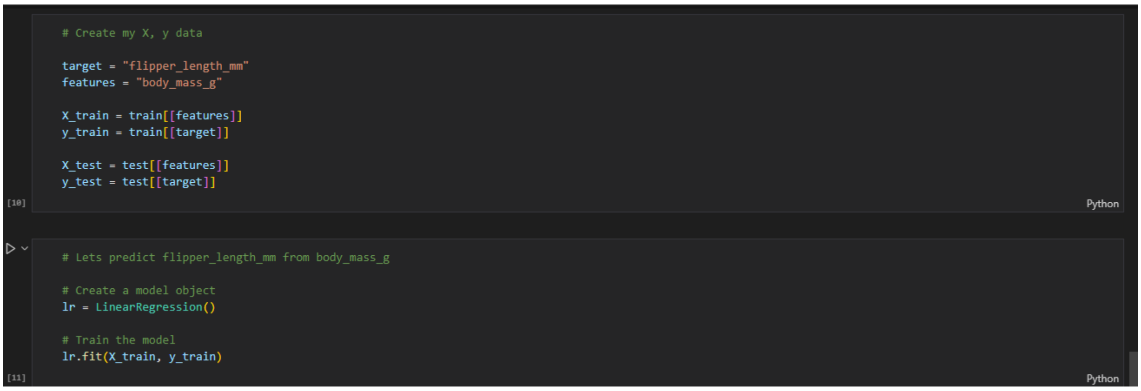
Submitted to: N/A

- Make a simple linear regression model to predict penguin's flapper length in millimetres from its body mass in gram using the penguins' data set.

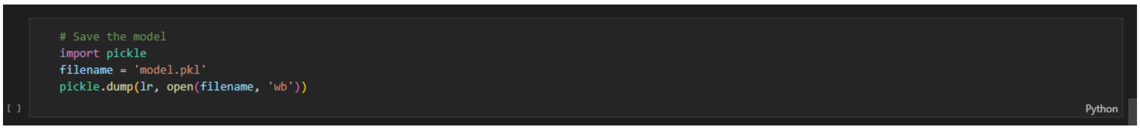


	species	island	bill_length_mm	bill_depth_mm	flipper_length_mm	body_mass_g	sex
211	Chinstrap	Dream	45.6	19.4	194.0	3525.0	Female
19	Adelie	Torgersen	46.0	21.5	194.0	4200.0	Male
48	Adelie	Dream	36.0	17.9	190.0	3450.0	Female
26	Adelie	Biscoe	40.6	18.6	183.0	3550.0	Male
181	Chinstrap	Dream	52.8	20.0	205.0	4550.0	Male



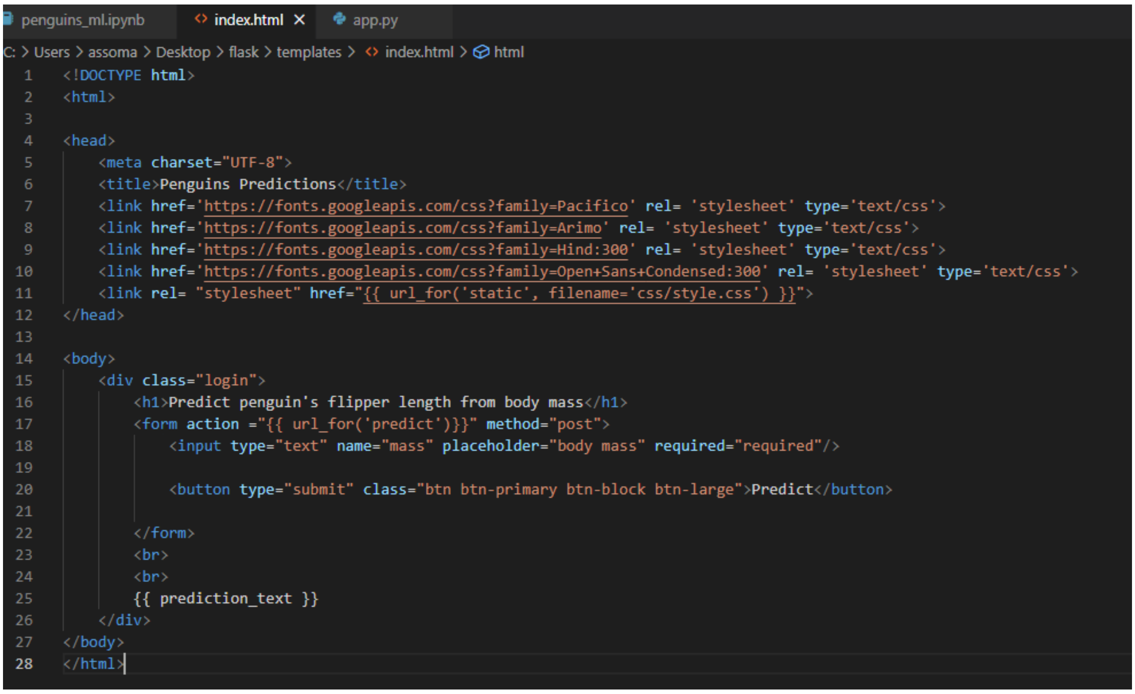
```
# Create my X, y data

target = "flipper_length_mm"
features = "body_mass_g"

X_train = train[[features]]
y_train = train[[target]]

X_test = test[[features]]
y_test = test[[target]]
```

```
# Lets predict flipper_length_mm from body_mass_g

# Create a model object
lr = LinearRegression()

# Train the model
lr.fit(X_train, y_train)
```



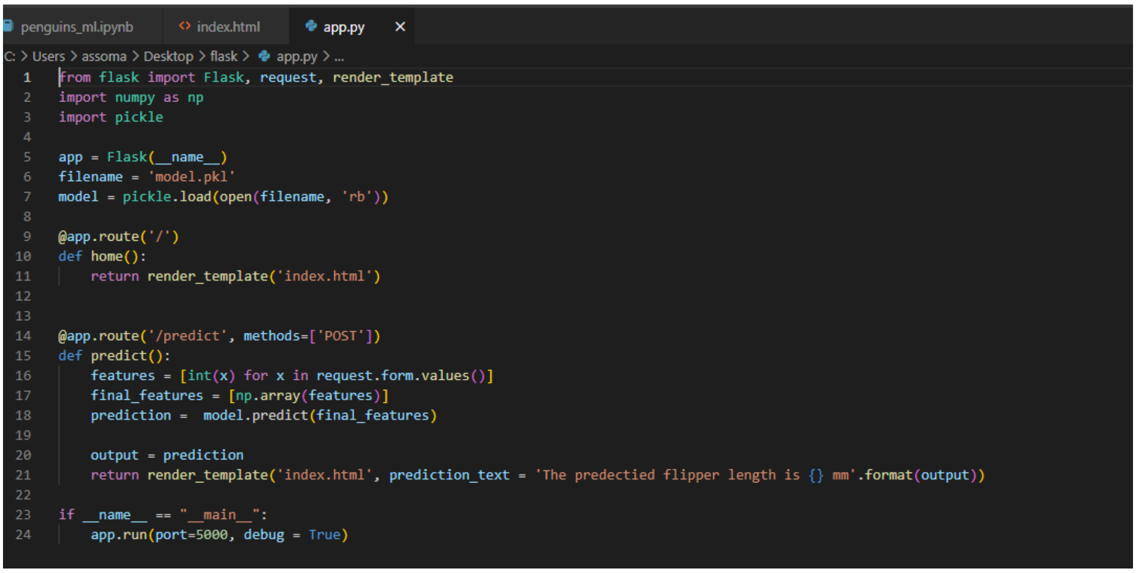
```
# Save the model
import pickle
filename = 'model.pkl'
pickle.dump(lr, open(filename, 'wb'))
```

- Create an html template to deploy flask app. It has a text input to get the body mass and a button to send the data the user wants to predict.


penguins_ml.ipynb
index.html ×
app.py
C: > Users > assoma > Desktop > flask > templates > index.html > html

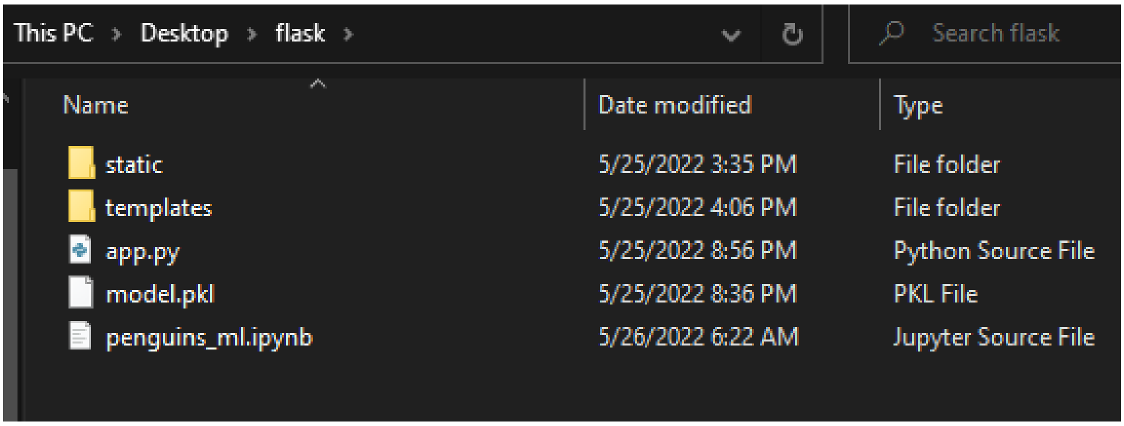
```html
<!DOCTYPE html>
<html>

<head>
    <meta charset="UTF-8">
    <title>Penguins Predictions</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 class="login">
        <h1>Predict penguin's flipper length from body mass</h1>
        <form action ="{{ url_for('predict')}}" method="post">
            <input type="text" name="mass" placeholder="body mass" required="required"/>

            <button type="submit" class="btn btn-primary btn-block btn-large">Predict</button>

        </form>
        <br>
        <br>
        {{ prediction_text }}
    </div>
</body>
</html>
```

- The flask app.py file has ‘predict’ function that get the form values from the html file and predict the output from the model we saved earlier.



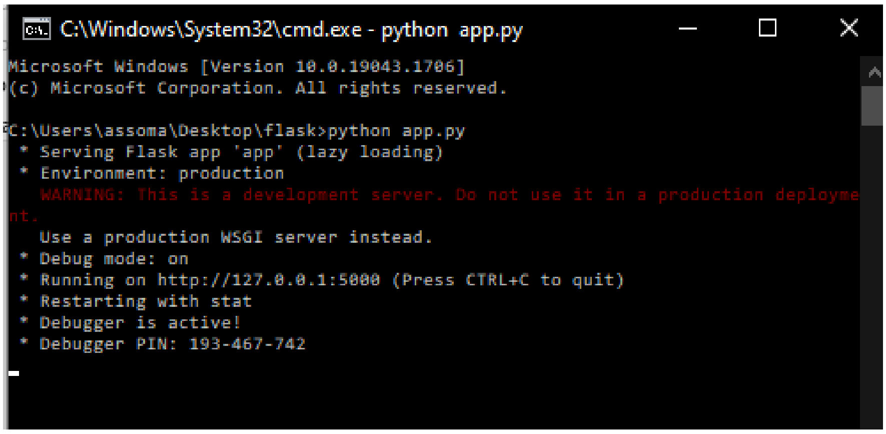
```python
from flask import Flask, request, render_template
import numpy as np
import pickle

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

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


@app.route('/predict', methods=['POST'])
def predict():
    features = [int(x) for x in request.form.values()]
    final_features = [np.array(features)]
    prediction =  model.predict(final_features)

    output = prediction
    return render_template('index.html', prediction_text = 'The predectied flipper length is {} mm'.format(output))

if __name__ == "__main__":
    app.run(port=5000, debug = True)
```

- This is what our folder looks like: static (style sheet), templates (html file), the model and the app file.



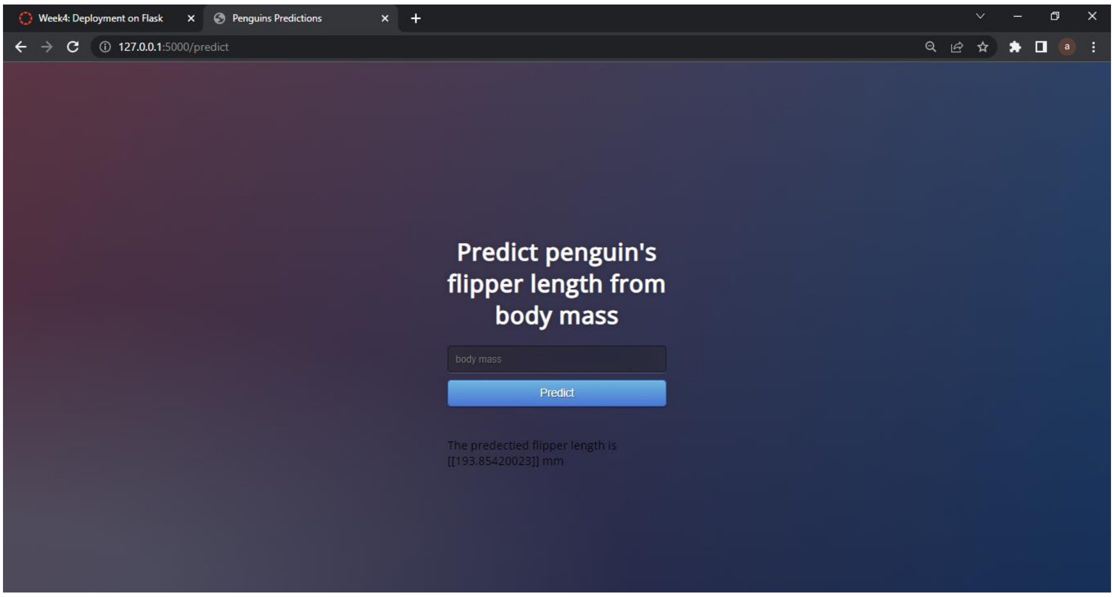
Name	Date modified	Type
static	5/25/2022 3:35 PM	File folder
templates	5/25/2022 4:06 PM	File folder
app.py	5/25/2022 8:56 PM	Python Source File
model.pkl	5/25/2022 8:36 PM	PKL File
penguins_ml.ipynb	5/26/2022 6:22 AM	Jupyter Source File

- Run the app file.



```
Microsoft Windows [Version 10.0.19043.1706]
(c) Microsoft Corporation. All rights reserved.

C:\Users\assoma\Desktop\flask>python app.py
 * Serving Flask app 'app' (lazy loading)
 * Environment: production
   WARNING: This is a development server. Do not use it in a production deployme
nt.
   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: 193-467-742
```

- Open the http://127.0.0.1:5000/ url and enter a value then press the predict button to get the result.



Predict penguin's flipper length from body mass

body mass

The predectied flipper length is [[193.85420023]] mm