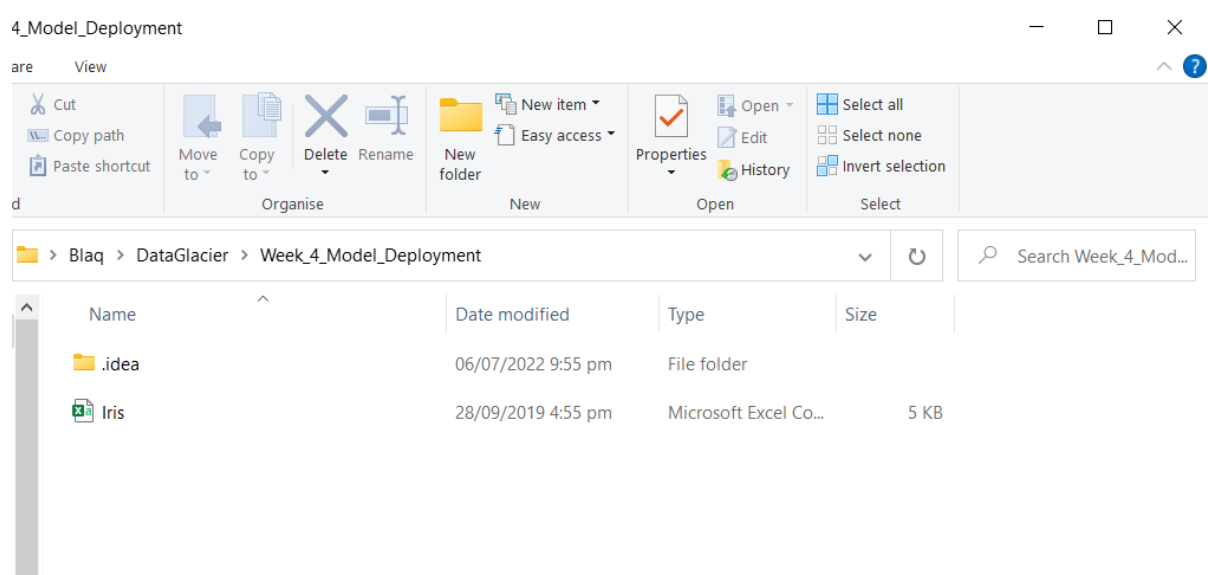
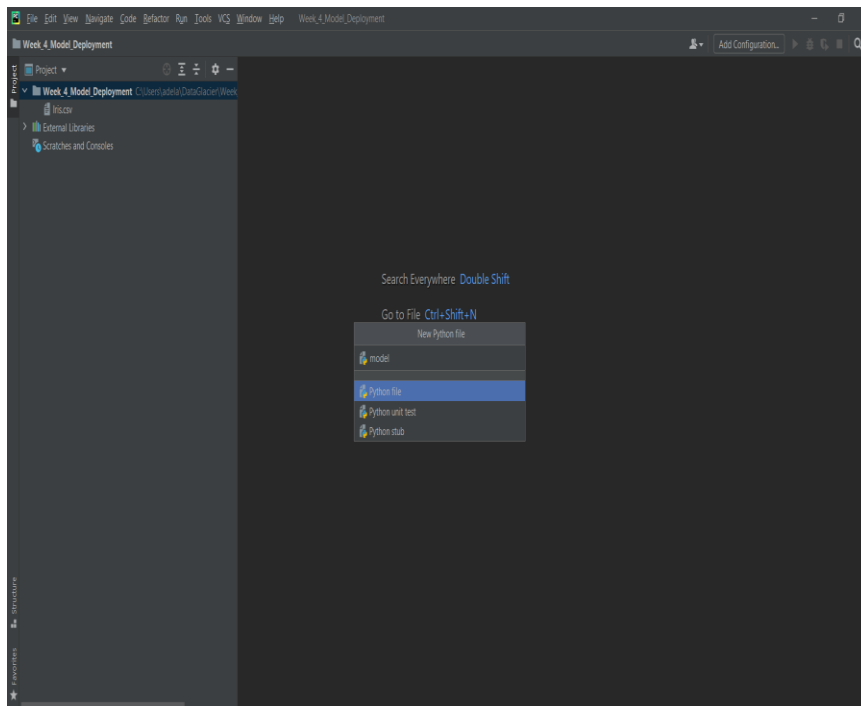


MODEL DEPLOYMENT ON WEB USING FLASK

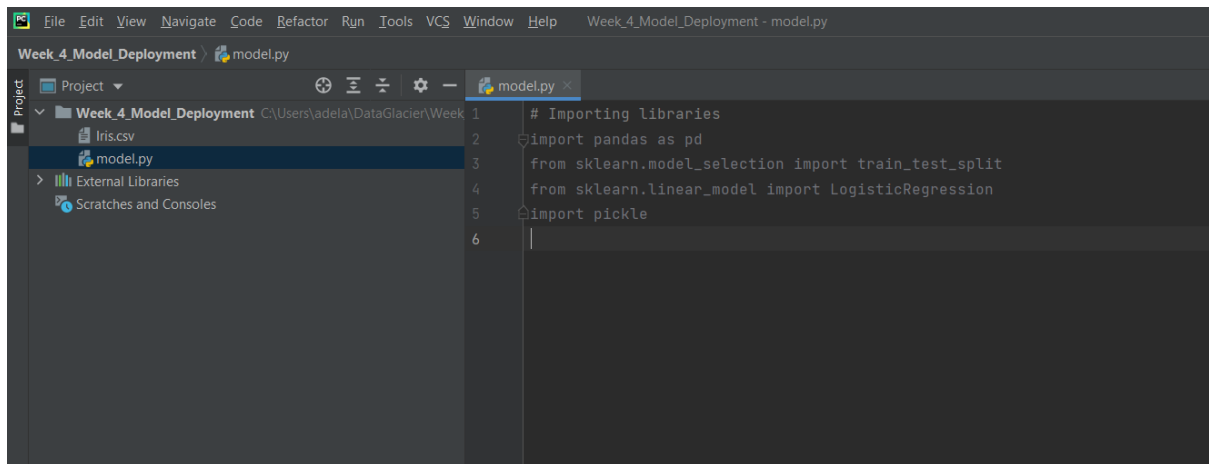
Import Iris file



Create prediction model python file



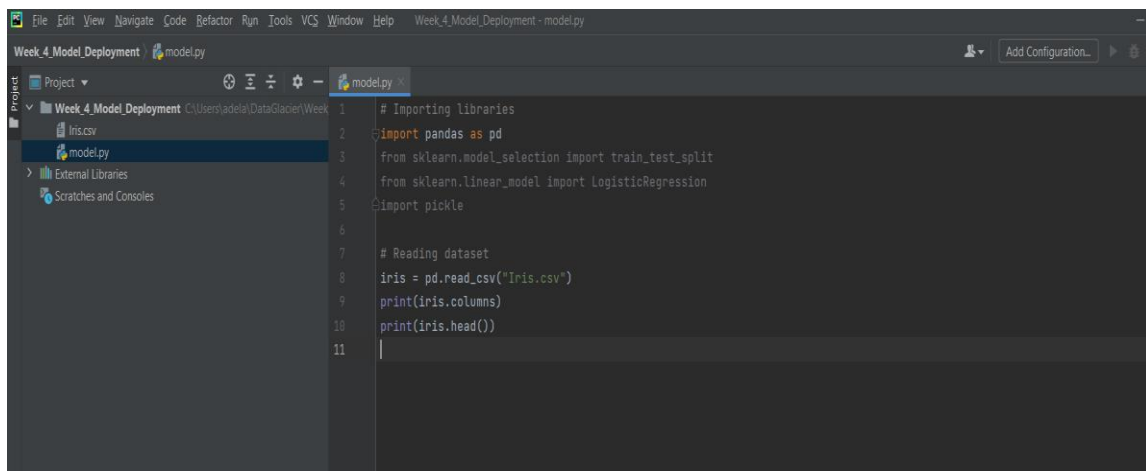
Import Libraries



The screenshot shows an IDE window titled "Week_4_Model_Deployment - model.py". The project explorer on the left shows a project named "Week_4_Model_Deployment" containing files "Iris.csv" and "model.py". The code editor displays the following Python code:

```
1 # Importing libraries
2 import pandas as pd
3 from sklearn.model_selection import train_test_split
4 from sklearn.linear_model import LogisticRegression
5 import pickle
6
```

Import Iris CSV file



The screenshot shows the same IDE window with the code editor displaying the following Python code:

```
1 # Importing libraries
2 import pandas as pd
3 from sklearn.model_selection import train_test_split
4 from sklearn.linear_model import LogisticRegression
5 import pickle
6
7 # Reading dataset
8 iris = pd.read_csv("Iris.csv")
9 print(iris.columns)
10 print(iris.head())
11
```

Set Target attribute



The screenshot shows the code editor with the following Python code:

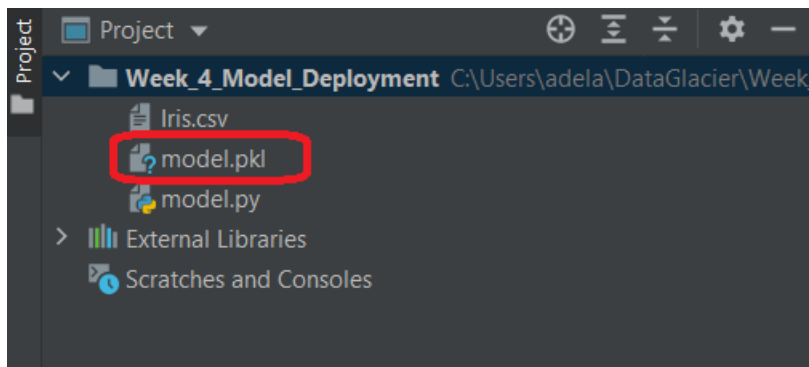
```
11
12 # Define target attribute (species)
13 y = iris['species']
14 iris.drop(columns='species', inplace=True)
15 X = iris[['sepal_length', 'sepal_width', 'petal_length', 'petal_width']]
16
```

Train the model

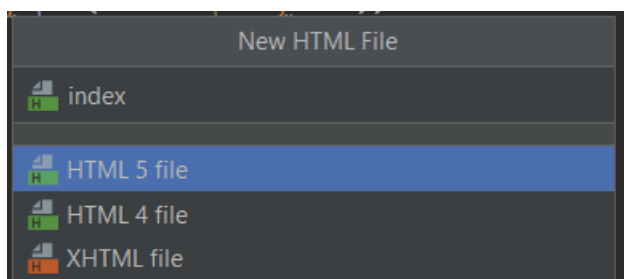
```
17 # Training the model
18 x_train,x_test,y_train,y_test = train_test_split(X,y, test_size=0.3)
19 model = LogisticRegression()
20 model.fit(x_train,y_train)
```

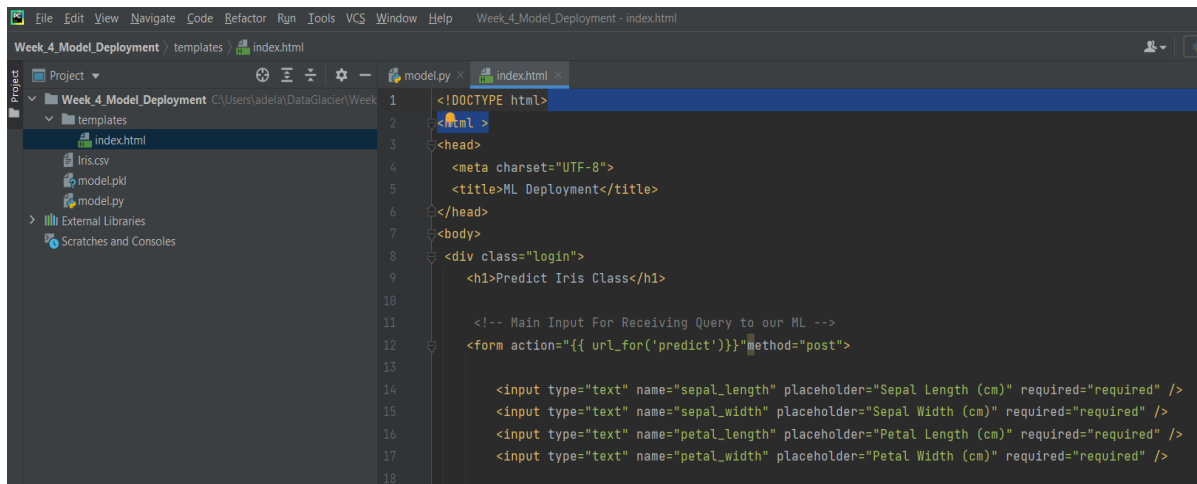
Create pickle file

```
22 # Create pickle file
23 pickle.dump(model,open('model.pkl','wb'))
24
```



Create Index HTML file





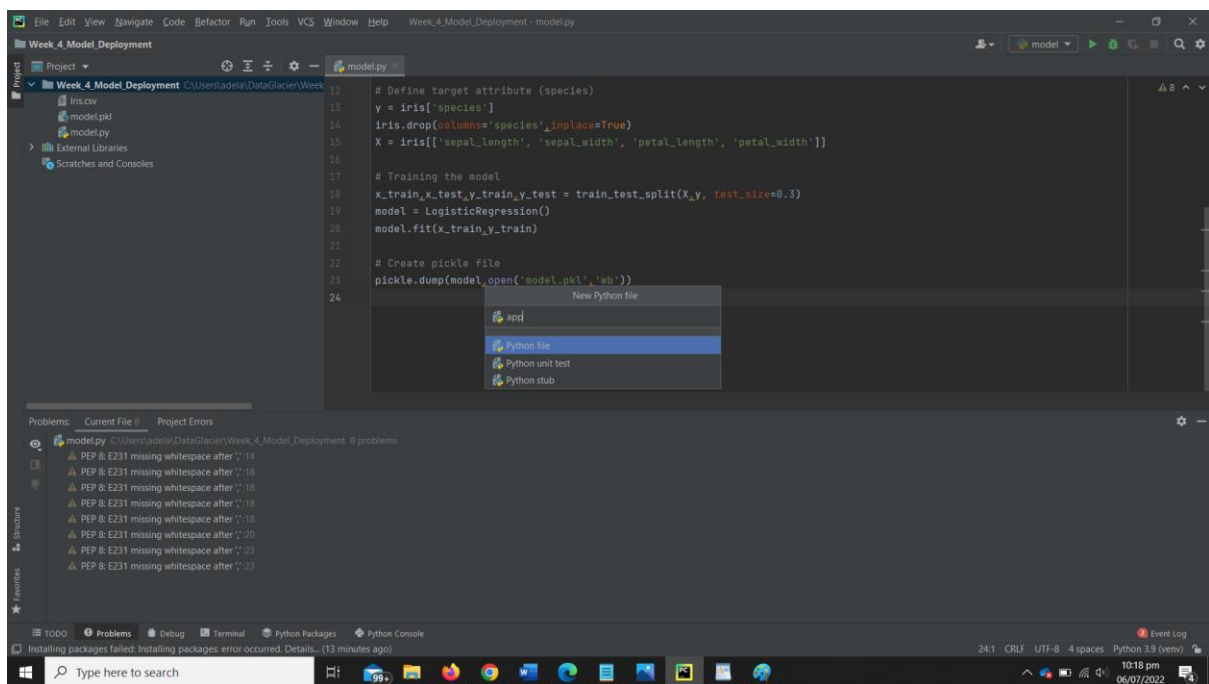
The screenshot shows an IDE window titled "Week_4_Model_Deployment - index.html". The file explorer on the left shows a project named "Week_4_Model_Deployment" with subfolders "templates" and "static". The "templates" folder contains "index.html", "iris.csv", "model.pkl", and "model.py". The "index.html" file is open in the editor, showing the following code:

```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>ML Deployment</title>
</head>
<body>
<div class="login">
<h1>Predict Iris Class</h1>

<!-- Main Input For Receiving Query to our ML -->
<form action="{{ url_for('predict')}}" method="post">

<input type="text" name="sepal_length" placeholder="Sepal Length (cm)" required="required" />
<input type="text" name="sepal_width" placeholder="Sepal Width (cm)" required="required" />
<input type="text" name="petal_length" placeholder="Petal Length (cm)" required="required" />
<input type="text" name="petal_width" placeholder="Petal Width (cm)" required="required" />
```

Create application file



The screenshot shows an IDE window titled "Week_4_Model_Deployment - model.py". The file explorer on the left shows the same project structure as the previous screenshot. The "model.py" file is open in the editor, showing the following code:

```
# Define target attribute (species)
y = iris['species']
iris.drop(columns='species', inplace=True)
X = iris[['sepal_length', 'sepal_width', 'petal_length', 'petal_width']]

# Training the model
x_train, x_test, y_train, y_test = train_test_split(X, y, test_size=0.3)
model = LogisticRegression()
model.fit(x_train, y_train)

# Create pickle file
pickle.dump(model, open('model.pkl', 'wb'))
```

A context menu is open over the code, showing options: "New Python file", "Python file", "Python unit test", and "Python stub". The "Python file" option is selected.

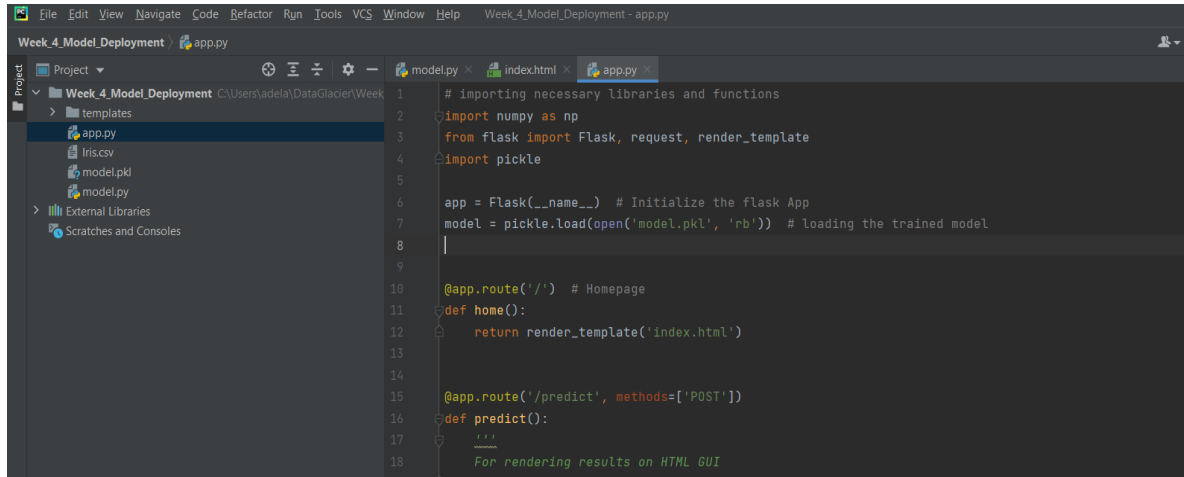
The Problems panel at the bottom shows 8 problems related to PEP 8: E231 (missing whitespace after semicolon) on lines 14, 16, 18, 20, 22, and 23.

Import libraries

Initialize application

Load training model

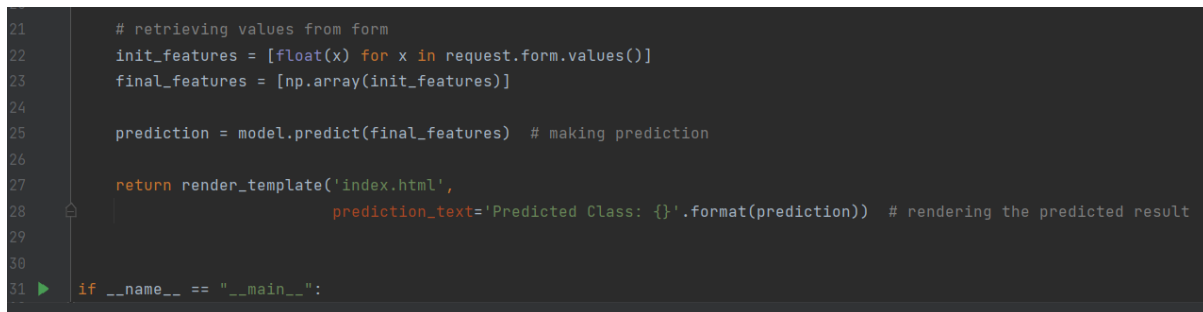
Set Webpage route directories



The screenshot shows an IDE window titled 'Week_4_Model_Deployment - app.py'. The left sidebar shows a project structure with files: app.py, iris.csv, model.pkl, and model.py. The main editor displays the following Python code:

```
1 # importing necessary libraries and functions
2 import numpy as np
3 from flask import Flask, request, render_template
4 import pickle
5
6 app = Flask(__name__) # Initialize the flask App
7 model = pickle.load(open('model.pkl', 'rb')) # loading the trained model
8
9
10 @app.route('/') # Homepage
11 def home():
12     return render_template('index.html')
13
14
15 @app.route('/predict', methods=['POST'])
16 def predict():
17     """
18     For rendering results on HTML GUI
```

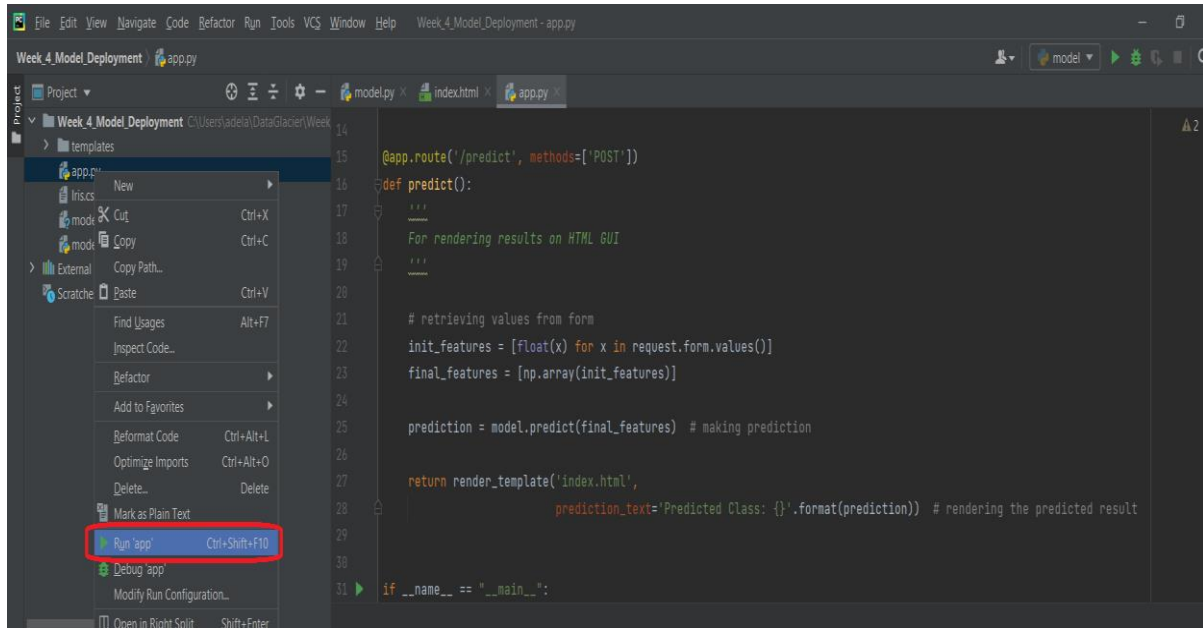
Retrieve form values and display predictions



The screenshot shows the continuation of the Python code from the previous block, starting at line 21:

```
21 # retrieving values from form
22 init_features = [float(x) for x in request.form.values()]
23 final_features = [np.array(init_features)]
24
25 prediction = model.predict(final_features) # making prediction
26
27 return render_template('index.html',
28                        prediction_text='Predicted Class: {}'.format(prediction)) # rendering the predicted result
29
30
31 if __name__ == "__main__":
```

Run application



```
* 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 watchdog (windowsapi)
* Debugger is active!
* Debugger PIN: 644-132-729
```

Web based prediction Model

ML Deployment

127.0.0.1:5000

Predict Iris Class

Sepal Length (cm)

Sepal Width (cm)

Petal Length (cm)

Petal Width (cm)

Predict

Prediction Result

ML Deployment

127.0.0.1:5000/predict

Predict Iris Class

Sepal Length (cm)

Sepal Width (cm)

Petal Length (cm)

Petal Width (cm)

Predict

Predicted Class: ['Iris-virginica']

Files and Folders created

View				
<div><div>Cut</div><div>Copy path</div><div>Paste shortcut</div><div>Move to</div><div>Copy to</div><div>Delete</div><div>Rename</div><div>New folder</div><div>New item</div><div>Easy access</div><div>Properties</div><div>Open</div><div>Open</div><div>Edit</div><div>History</div><div>Select all</div><div>Select none</div><div>Invert selection</div></div>				
<div><div>Blaq</div><div>DataGlacier</div><div>Week_4_Model_Deployment</div><div>Search Week_4_Mod...</div></div>				
Name	Date modified	Type	Size	
<div>.idea</div>	06/07/2022 10:38 pm	File folder		
<div>templates</div>	06/07/2022 10:26 pm	File folder		
<div>app</div>	06/07/2022 10:30 pm	Python File	1 KB	
<div>Iris</div>	28/09/2019 4:55 pm	Microsoft Excel Co...	5 KB	
<div>model.pkl</div>	06/07/2022 10:16 pm	PKL File	1 KB	
<div>model</div>	06/07/2022 10:15 pm	Python File	1 KB	