

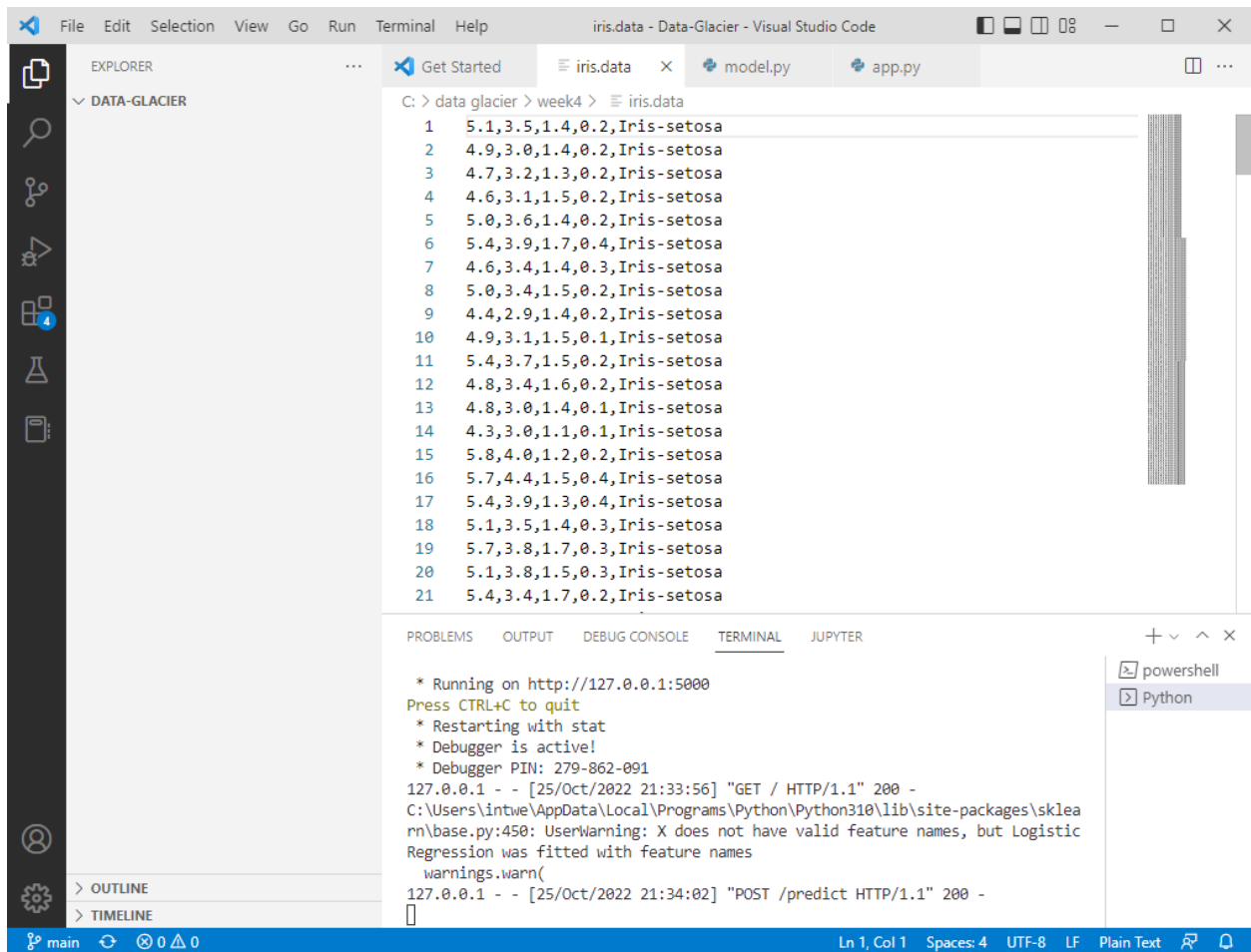
Name: Wen Li

Batch code: LISUM14

Submission date: 2022-10-27

1. Iris data set

The data set contains 3 classes of 50 instances each, where each class refers to a type of iris plant. One class is linearly separable from the other 2; the latter are NOT linearly separable from each other.

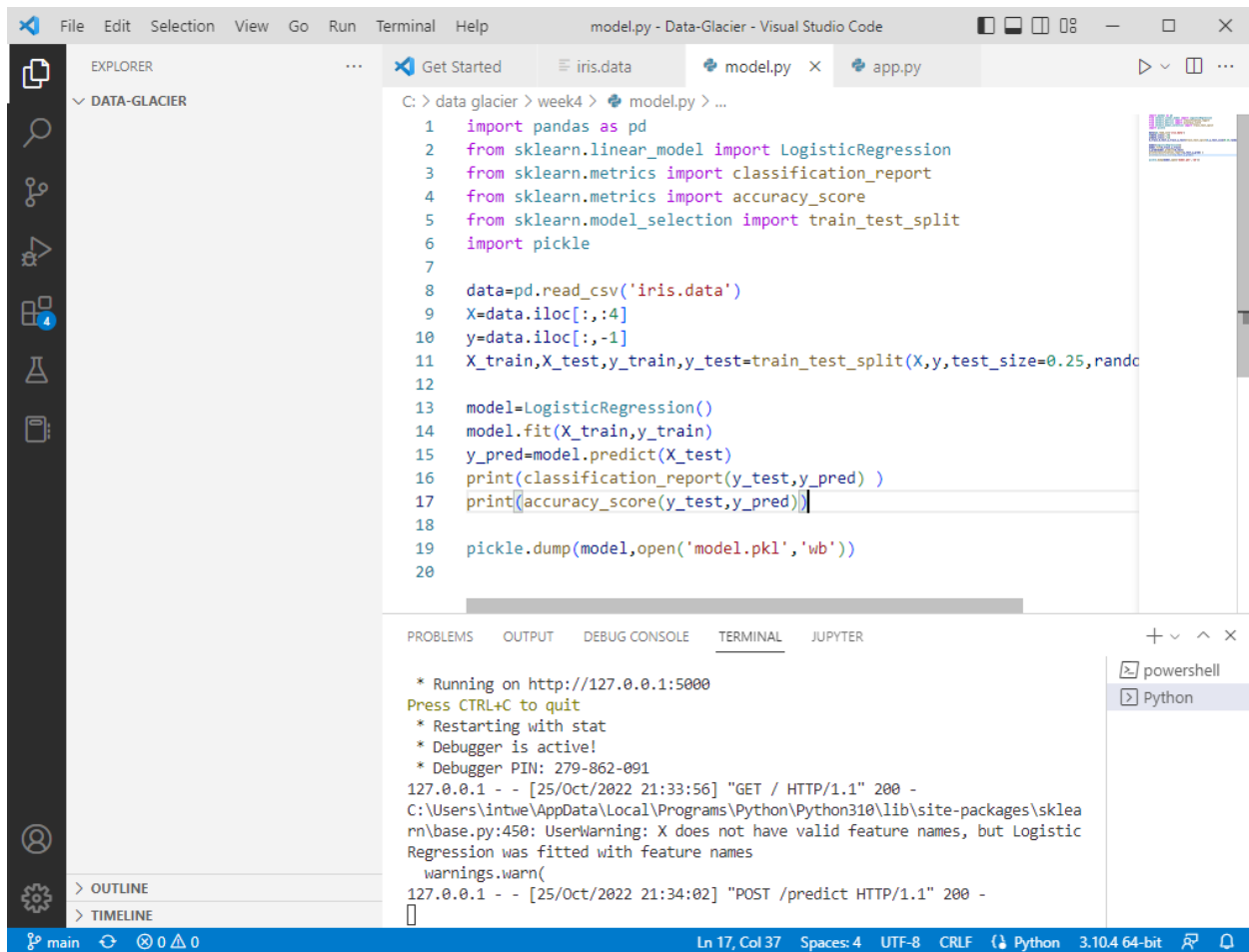


The screenshot shows the Visual Studio Code interface. The Explorer panel on the left shows the file structure of a project named 'DATA-GLACIER'. The main editor area displays the 'iris.data' file, which contains a list of 21 rows of data. Each row consists of five numerical values followed by the class name 'Iris-setosa'. The Terminal panel at the bottom shows the output of a Jupyter notebook, including a message about running on http://127.0.0.1:5000, a warning about feature names, and a POST request to /predict.

```
C: > data glacier > week4 > iris.data
1 5.1,3.5,1.4,0.2,Iris-setosa
2 4.9,3.0,1.4,0.2,Iris-setosa
3 4.7,3.2,1.3,0.2,Iris-setosa
4 4.6,3.1,1.5,0.2,Iris-setosa
5 5.0,3.6,1.4,0.2,Iris-setosa
6 5.4,3.9,1.7,0.4,Iris-setosa
7 4.6,3.4,1.4,0.3,Iris-setosa
8 5.0,3.4,1.5,0.2,Iris-setosa
9 4.4,2.9,1.4,0.2,Iris-setosa
10 4.9,3.1,1.5,0.1,Iris-setosa
11 5.4,3.7,1.5,0.2,Iris-setosa
12 4.8,3.4,1.6,0.2,Iris-setosa
13 4.8,3.0,1.4,0.1,Iris-setosa
14 4.3,3.0,1.1,0.1,Iris-setosa
15 5.8,4.0,1.2,0.2,Iris-setosa
16 5.7,4.4,1.5,0.4,Iris-setosa
17 5.4,3.9,1.3,0.4,Iris-setosa
18 5.1,3.5,1.4,0.3,Iris-setosa
19 5.7,3.8,1.7,0.3,Iris-setosa
20 5.1,3.8,1.5,0.3,Iris-setosa
21 5.4,3.4,1.7,0.2,Iris-setosa
```

```
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 279-862-091
127.0.0.1 - - [25/Oct/2022 21:33:56] "GET / HTTP/1.1" 200 -
C:\Users\intwe\AppData\Local\Programs\Python\Python310\lib\site-packages\sklearn\base.py:450: UserWarning: X does not have valid feature names, but Logistic Regression was fitted with feature names
warnings.warn(
127.0.0.1 - - [25/Oct/2022 21:34:02] "POST /predict HTTP/1.1" 200 -
```

2. Model development



The screenshot displays the Visual Studio Code interface with a Python script named `model.py` open. The script performs the following steps:

- Imports `pandas` as `pd`, `LogisticRegression` from `sklearn.linear_model`, `classification_report` and `accuracy_score` from `sklearn.metrics`, `train_test_split` from `sklearn.model_selection`, and `pickle`.
- Reads the `iris.data` CSV file into a `data` DataFrame.
- Splits the data into features (`X`) and target (`y`).
- Uses `train_test_split` to create training and testing sets with a 0.25 split.
- Creates a `LogisticRegression` model, fits it to the training data, and predicts on the test data.
- Prints the `classification_report` and `accuracy_score`.
- Saves the trained model to a file named `model.pkl` using `pickle.dump`.

The terminal at the bottom shows the execution output, including a warning about feature names and a successful POST request to the `/predict` endpoint.

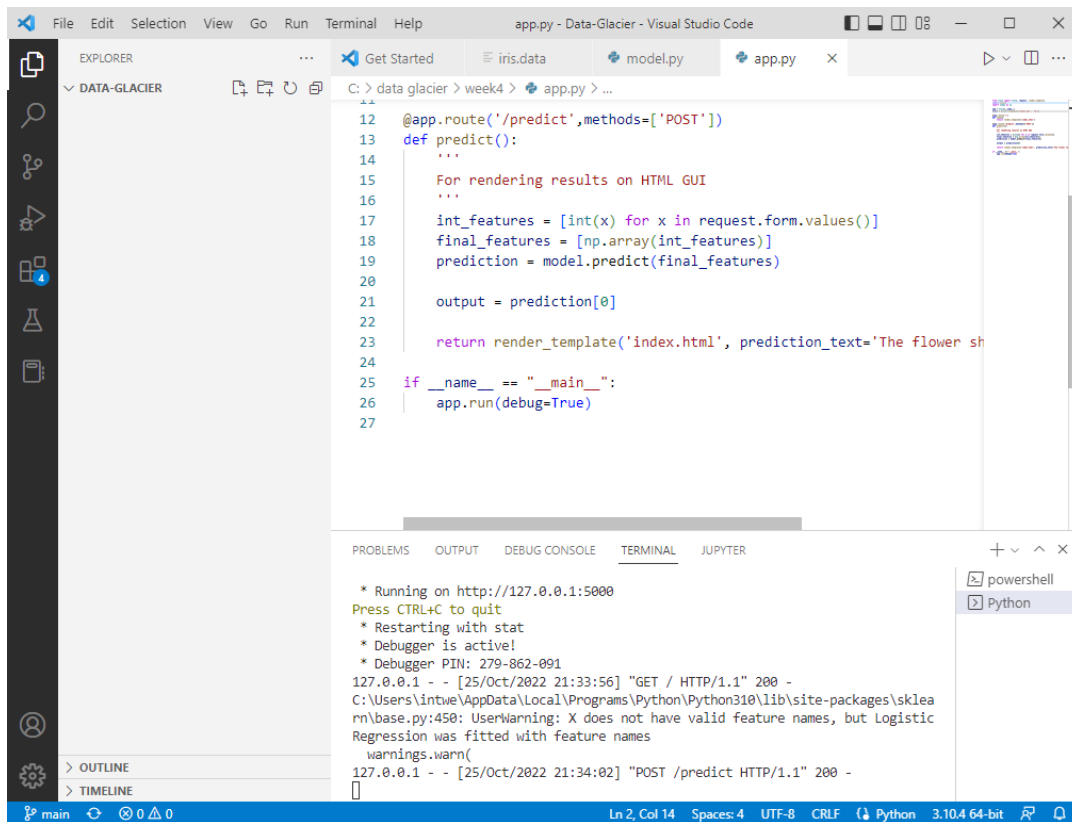
```
C: > data glacier > week4 > model.py > ...
1 import pandas as pd
2 from sklearn.linear_model import LogisticRegression
3 from sklearn.metrics import classification_report
4 from sklearn.metrics import accuracy_score
5 from sklearn.model_selection import train_test_split
6 import pickle
7
8 data=pd.read_csv('iris.data')
9 X=data.iloc[:, :4]
10 y=data.iloc[:, -1]
11 X_train,X_test,y_train,y_test=train_test_split(X,y,test_size=0.25,rand
12
13 model=LogisticRegression()
14 model.fit(X_train,y_train)
15 y_pred=model.predict(X_test)
16 print(classification_report(y_test,y_pred) )
17 print(accuracy_score(y_test,y_pred))
18
19 pickle.dump(model,open('model.pkl','wb'))
20
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL JUPYTER

```
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
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127.0.0.1 - - [25/Oct/2022 21:33:56] "GET / HTTP/1.1" 200 -
C:\Users\intwe\AppData\Local\Programs\Python\Python310\lib\site-packages\sklea
rn\base.py:450: UserWarning: X does not have valid feature names, but Logistic
Regression was fitted with feature names
warnings.warn(
127.0.0.1 - - [25/Oct/2022 21:34:02] "POST /predict HTTP/1.1" 200 -
[]
```

main 0 0 Ln 17, Col 37 Spaces: 4 UTF-8 CRLF Python 3.10.4 64-bit

3. Web app

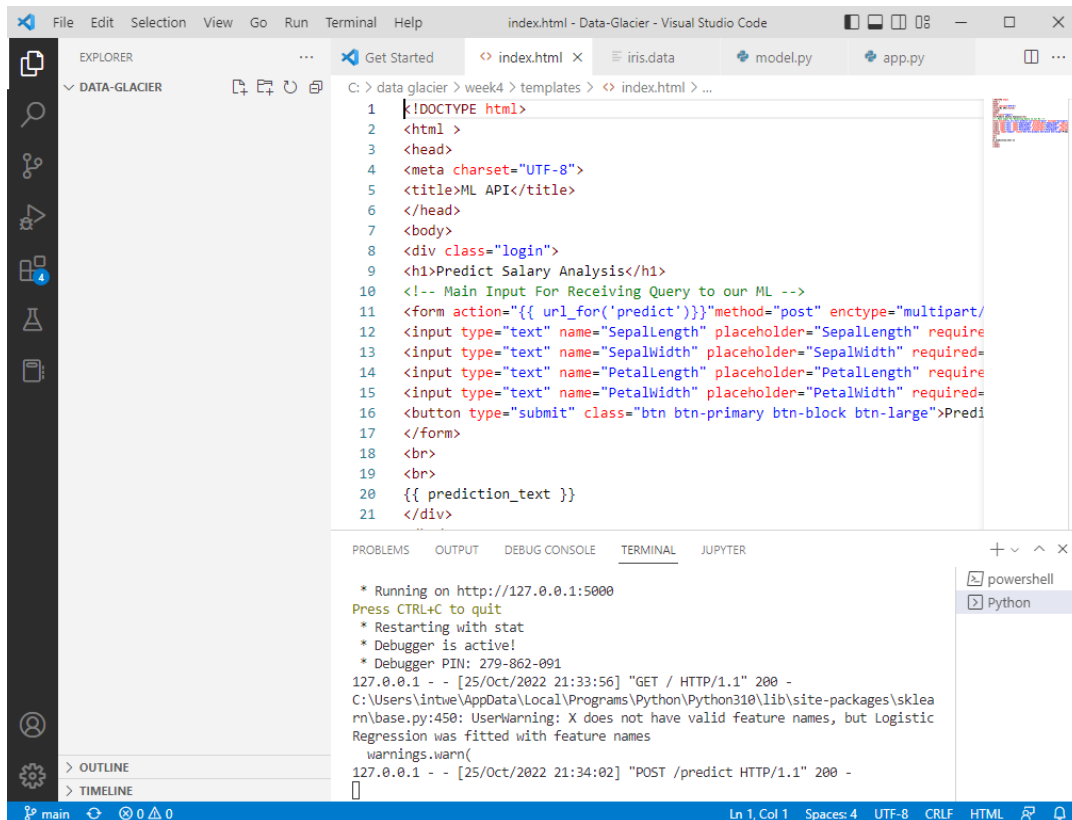


The screenshot shows the Visual Studio Code editor with the file `app.py` open. The code defines a Flask application with a `/predict` endpoint that takes POST requests and returns a prediction. The terminal output shows the application running on `http://127.0.0.1:5000` and receiving a POST request.

```
12 @app.route('/predict',methods=['POST'])
13 def predict():
14     ...
15     For rendering results on HTML GUI
16     ...
17     int_features = [int(x) for x in request.form.values()]
18     final_features = [np.array(int_features)]
19     prediction = model.predict(final_features)
20
21     output = prediction[0]
22
23     return render_template('index.html', prediction_text='The flower sh
24
25 if __name__ == "__main__":
26     app.run(debug=True)
27
```

Terminal Output:

```
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 279-862-091
127.0.0.1 - - [25/Oct/2022 21:33:56] "GET / HTTP/1.1" 200 -
C:\Users\intwe\AppData\Local\Programs\Python\Python310\lib\site-packages\sklea
rn\base.py:450: UserWarning: X does not have valid feature names, but Logistic
Regression was fitted with feature names
  warnings.warn(
127.0.0.1 - - [25/Oct/2022 21:34:02] "POST /predict HTTP/1.1" 200 -
```



The screenshot shows the Visual Studio Code editor with the file `index.html` open. The HTML code defines a web form for predicting salary analysis. The terminal output is the same as the previous screenshot, showing the application running and receiving a POST request.

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <meta charset="UTF-8">
5 <title>ML API</title>
6 </head>
7 <body>
8 <div class="login">
9 <h1>Predict Salary Analysis</h1>
10 <!-- Main Input For Receiving Query to our ML -->
11 <form action="{{ url_for('predict')}}" method="post" enctype="multipart/
12 <input type="text" name="Sepallength" placeholder="Sepallength" require
13 <input type="text" name="SepalWidth" placeholder="SepalWidth" require
14 <input type="text" name="PetalLength" placeholder="PetalLength" require
15 <input type="text" name="PetalWidth" placeholder="PetalWidth" require
16 <button type="submit" class="btn btn-primary btn-block btn-large">Predi
17 </form>
18 <br>
19 <br>
20 {{ prediction_text }}
21 </div>
```

Terminal Output:

```
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 279-862-091
127.0.0.1 - - [25/Oct/2022 21:33:56] "GET / HTTP/1.1" 200 -
C:\Users\intwe\AppData\Local\Programs\Python\Python310\lib\site-packages\sklea
rn\base.py:450: UserWarning: X does not have valid feature names, but Logistic
Regression was fitted with feature names
  warnings.warn(
127.0.0.1 - - [25/Oct/2022 21:34:02] "POST /predict HTTP/1.1" 200 -
```

4. Comitting code to GitHub

intwentytwelve / heroku-demo2 Public

[Code](#) [Issues](#) [Pull requests](#) [Actions](#) [Projects](#) [Wiki](#) [Security](#) [Insights](#) [Settings](#)

main ▾

1 branch

0 tags

[Go to file](#)

[Add file ▾](#)

[Code ▾](#)

intwentytwelve Update runtime.txt e4d829e 2 hours ago 16 commits

templates	Add files via upload	21 hours ago
LICENSE	Initial commit	21 hours ago
Procfile	Update Procfile	4 hours ago
app.py	Update app.py	4 hours ago
iris.data	Add files via upload	21 hours ago
model.pkl	Add files via upload	21 hours ago
model.py	Add files via upload	21 hours ago
requirements.txt	Update requirements.txt	2 hours ago
runtime.txt	Update runtime.txt	2 hours ago

Help people interested in this repository understand your project by adding a README. [Add a README](#)

5. Linking GitHub to Heroku

App connected to GitHub

Code diffs, manual and auto deploys are available for this app.

Connected to intwentytwelve/heroku-demo2 by intwentytwelve

[Disconnect...](#)

Releases in the [activity feed](#) link to GitHub to view commit diffs

Automatic deploys

Enables a chosen branch to be automatically deployed to this app.

You can now change your main deploy branch from "master" to "main" for both manual and automatic deploys, please follow the instructions [here](#).

Enable automatic deploys from GitHub

Every push to the branch you specify here will deploy a new version of this app. **Deploys happen automatically:** be sure that this branch is always in a deployable state and any tests have passed before you push. [Learn more](#)

Choose a branch to deploy

main ▾

☐ Wait for CI to pass before deploy

Only enable this option if you have a Continuous Integration service configured on your repo.

[Enable Automatic Deploys](#)

Manual deploy

Deploy the current state of a branch to this app.

Deploy a GitHub branch

This will deploy the current state of the branch you specify below. [Learn more](#)

Choose a branch to deploy

main ▾

[Deploy Branch](#)

6. Deployment and testing

Manual deploy

Deploy the current state of a branch to this app.

Deploy a GitHub branch

This will deploy the current state of the branch you specify below. [Learn more](#).

Choose a branch to deploy

main

Deploy Branch

Receive code from GitHub	✓
Build main e4d829e7	✓
Release phase	✓
Deploy to Heroku	✓

Your app was successfully deployed.

View

data-glacier.herokuapp.com

data-glacier.herokuapp.com

Predict Salary Analysis

1

2

4

6

Predict

data-glacier.herokuapp.com/predict

data-glacier.herokuapp.com/predict

Predict Salary Analysis

Sepal.Length

Sepal.Width

Petal.Length

Petal.Width

Predict

The flower should be \$ Iris-virginica