

Data Glacier Internship Week 5

Reeha Khan

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LISUM 01

Creating the pickle file:

Predict the life expectancy using Linear Regression.

```
In [7]: import numpy as np
import pandas as pd
from flask import Flask, request, render_template, jsonify
import pickle
import json
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression

In [8]: data_set = pd.read_csv('data_set_uk.csv', sep = ',')

In [16]: # Split-out validation dataset
x = data_set.iloc[:,0].values
y = data_set.iloc[:, -1].values

In [18]: X_train, X_test, Y_train, Y_test = train_test_split(x, y, test_size=0.20, random_state=1)
```

```
In [29]: regressor = LinearRegression()
regressor.fit(X_train.reshape(-1,1), Y_train)
Y_pred = regressor.predict(X_test.reshape(-1,1))
print(Y_pred)

[48.77085875 38.56504648 38.79184231 45.1421255 53.07997949 52.62638783
57.84269188 75.07917483 50.13163372 31.98796746 44.23494219 72.58442072
78.93470392 69.86287078 52.39959201 38.11145482 59.88385434 55.34793777
41.05980059 66.0073417 66.23413753 39.92582145 67.82170833 71.90403324
78.25431643 35.16310966 58.06948771 42.64737139 53.30677532 67.36811667
35.38990488 73.49160404 39.69902562 39.01863814 33.57553826 37.65786317
31.08078415 46.7296963 76.4399498 70.31646244 37.43106734 34.7095174
54.21395863 52.17279618]

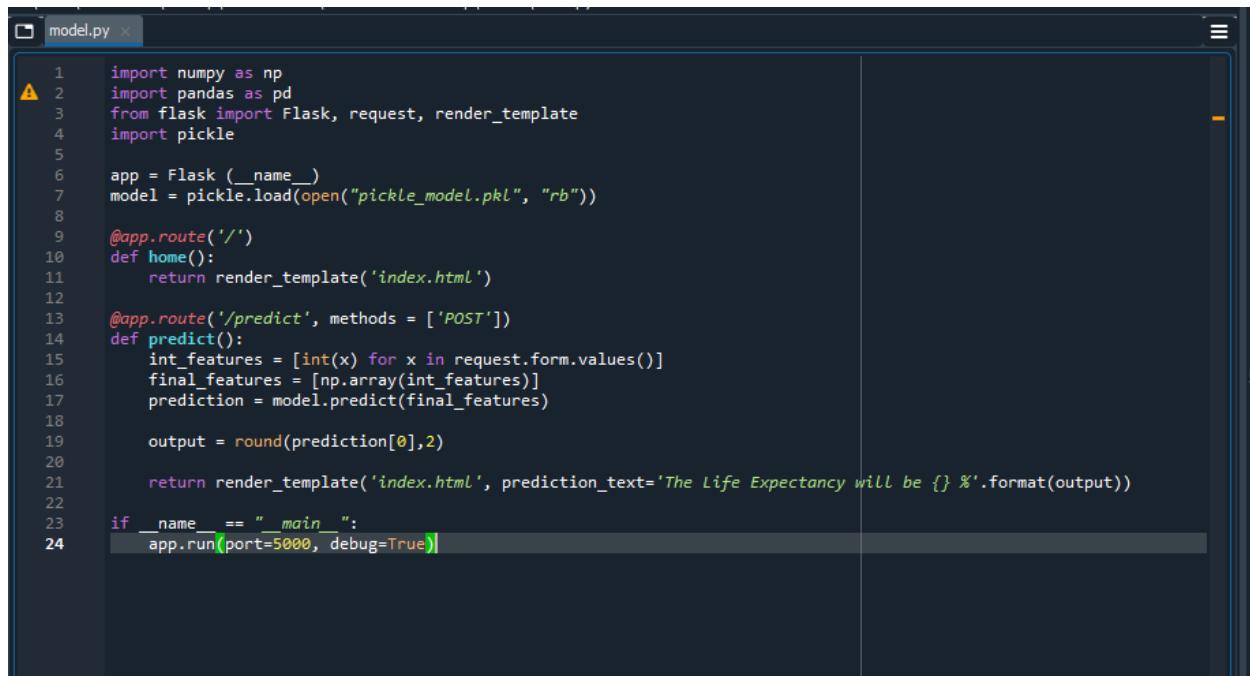
In [30]: pickle.dump(regressor, open('model.pkl', 'wb'))

In [32]: model = pickle.load(open('model.pkl', 'rb'))
print(model.predict([[2020]]))

[80.97586637]
```

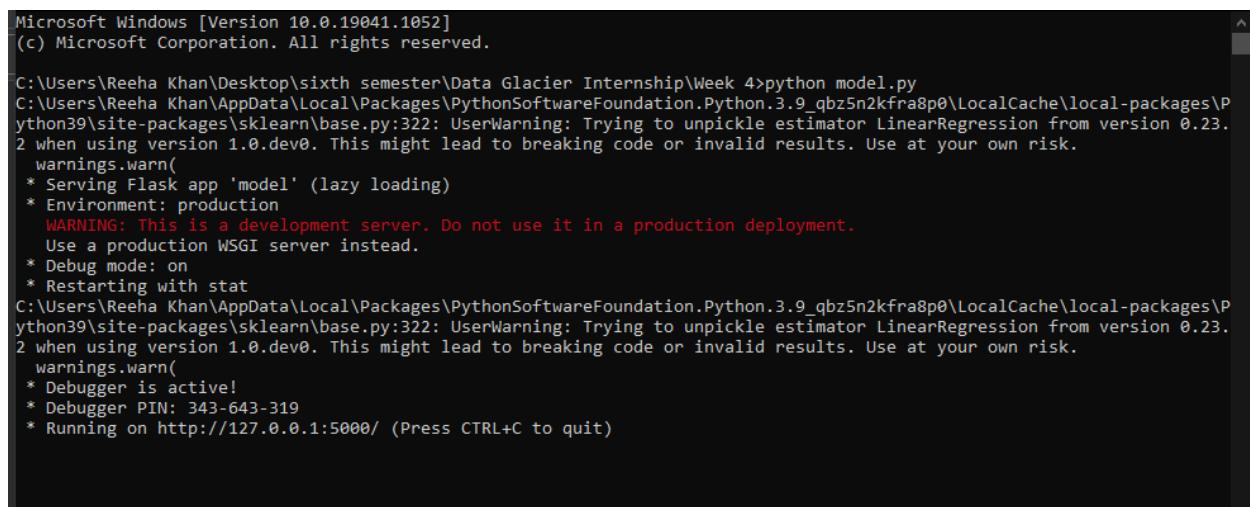
Model Deployment:

Loading the model and deploying the following code using Flask.



```
model.py
1  import numpy as np
2  import pandas as pd
3  from flask import Flask, request, render_template
4  import pickle
5
6  app = Flask(__name__)
7  model = pickle.load(open("pickle_model.pkl", "rb"))
8
9  @app.route('/')
10 def home():
11     return render_template('index.html')
12
13 @app.route('/predict', methods = ['POST'])
14 def predict():
15     int_features = [int(x) for x in request.form.values()]
16     final_features = [np.array(int_features)]
17     prediction = model.predict(final_features)
18
19     output = round(prediction[0],2)
20
21     return render_template('index.html', prediction_text='The Life Expectancy will be {} %'.format(output))
22
23 if __name__ == "__main__":
24     app.run(port=5000, debug=True)
```

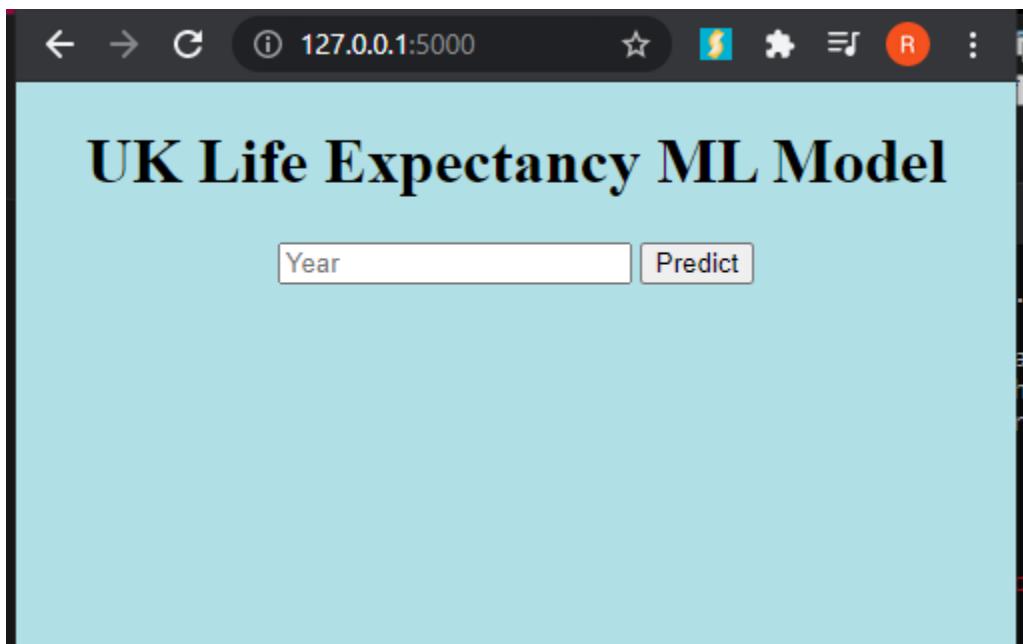
Running the file on command prompt:



```
Microsoft Windows [Version 10.0.19041.1052]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Reeha Khan\Desktop\sixth semester\Data Glacier Internship\Week 4>python model.py
C:\Users\Reeha Khan\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra8p0\LocalCache\local-packages\Python39\site-packages\sklearn\base.py:322: UserWarning: Trying to unpickle estimator LinearRegression from version 0.23.
2 when using version 1.0.dev0. This might lead to breaking code or invalid results. Use at your own risk.
  warnings.warn(
* Serving Flask app 'model' (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
* Restarting with stat
C:\Users\Reeha Khan\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra8p0\LocalCache\local-packages\Python39\site-packages\sklearn\base.py:322: UserWarning: Trying to unpickle estimator LinearRegression from version 0.23.
2 when using version 1.0.dev0. This might lead to breaking code or invalid results. Use at your own risk.
  warnings.warn(
* Debugger is active!
* Debugger PIN: 343-643-319
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
```

Checking the website:



Adding the files to Github and creating the Procfile and requirements.txt file

The screenshot shows a GitHub repository page for 'ReehaKhan / deployment_of_heroku'. The 'Code' tab is selected. At the top, it shows 'main' branch, '1 branch', '0 tags', and buttons for 'Go to file', 'Add file', and 'Code'. Below this is a list of files with their upload history:

File	Action	Time Ago
templates	Add files via upload	2 hours ago
app.py	Add files via upload	2 hours ago
data_set_uk.csv	Add files via upload	2 hours ago
model.pkl	Add files via upload	2 hours ago
procfile	Create procfile	2 hours ago
requirements.txt	Update requirements.txt	30 minutes ago

At the bottom, there's a message: 'Help people interested in this repository understand your project by adding a README.' with a 'Add a README' button.

Creating an app on Heroku

The screenshot shows the Heroku dashboard. The top navigation bar includes the Heroku logo, a search bar, and links for 'Personal', 'Favorites', 'Apps', 'Pipelines', and 'Spaces'. A purple banner at the top says 'Welcome to Heroku' and 'Now that your account has been set up, here's how to get started.' with a 'Show next steps' button. Below the banner is a search bar with the placeholder 'Filter apps and pipelines'. At the bottom, there's a card for an app named 'life-expectancy-uk'.

Linking the Github account to the app

The screenshot shows the Heroku dashboard for the app 'life-expectancy-uk'. At the top, there's a navigation bar with 'Personal' and 'life-expectancy-uk'. Below it, the GitHub integration status is shown: 'GitHub Connected' with a green checkmark. The main area has sections for 'Add this app to a pipeline' and 'Deployment method'. Under 'Add this app to a pipeline', there are two options: 'Pipelines let you connect multiple apps together and promote code between them.' and 'Pipelines connected to GitHub can enable review apps, and create apps for new pull requests.'. A dropdown menu 'Choose a pipeline' is also present. Under 'Deployment method', there are three options: 'Heroku Git' (using Heroku CLI), 'GitHub Connected' (which is highlighted with a green checkmark), and 'Container Registry' (using Heroku CLI).

Deploying the code successfully on Heroku

The screenshot shows the Heroku deployment interface. It starts with a 'Manual deploy' section where users can deploy the current state of a branch. Below that is a 'Deploy a GitHub branch' section, which is currently active. It says 'This will deploy the current state of the branch you specify below.' with a 'Learn more' link. A dropdown menu 'Choose a branch to deploy' shows 'main' selected, with a 'Deploy Branch' button next to it. The main deployment area shows a 'Receive code from GitHub' section with a green checkmark. Below it is a 'Build main 5d70b07d' section containing a terminal log:

```

----> Mis-cased procfile detected; ignoring.
----> Rename it to Procfile to have it honored.
      Procfile declares types -> (none)
----> Compressing...
      Done: 193.7M
----> Launching...
      Released v5
      https://life-expectancy-uk.herokuapp.com/ deployed to Heroku
  
```

There's a checkbox 'Autoscroll with output' and a 'View build log' link. Below this is a 'Release phase' section and a 'Deploy to Heroku' button.