

Week 4 - Deployment on Flask

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STEP 1 : Installation

```
(base) kashishj@Kashish-MBP-2 ~ % pip install flask
Requirement already satisfied: flask in ./opt/anaconda3/lib/python3.7/site-packages (1.1.1)
Requirement already satisfied: itsdangerous>=0.24 in ./opt/anaconda3/lib/python3.7/site-packages (from flask) (1.1.0)
Requirement already satisfied: Werkzeug>=0.15 in ./opt/anaconda3/lib/python3.7/site-packages (from flask) (1.0.0)
Requirement already satisfied: click>=5.1 in ./opt/anaconda3/lib/python3.7/site-packages (from flask) (7.0)
Requirement already satisfied: Jinja2>=2.10.1 in ./opt/anaconda3/lib/python3.7/site-packages (from flask) (2.11.1)
Requirement already satisfied: MarkupSafe>=0.23 in ./opt/anaconda3/lib/python3.7/site-packages (from flask) (2.0.1)
WARNING: You are using pip version 21.3.1; however, version 22.1.2 is available.
You should consider upgrading via the '/Users/kashishj/opt/anaconda3/bin/python -m pip install --upgrade pip' command.
(base) kashishj@Kashish-MBP-2 ~ % pip install --upgrade pip
Requirement already satisfied: pip in ./opt/anaconda3/lib/python3.7/site-packages (21.3.1)
Collecting pip
  Downloading pip-22.1.2-py3-none-any.whl (2.1 MB)
    |#####| 2.1 MB 4.9 MB/s
Installing collected packages: pip
  Attempting uninstall: pip
    Found existing installation: pip 21.3.1
    Uninstalling pip-21.3.1:
      Successfully uninstalled pip-21.3.1
  Successfully installed pip-22.1.2
(base) kashishj@Kashish-MBP-2 ~ % pip install flask
Requirement already satisfied: flask in ./opt/anaconda3/lib/python3.7/site-packages (1.1.1)
Requirement already satisfied: Werkzeug>=0.15 in ./opt/anaconda3/lib/python3.7/site-packages (from flask) (1.0.0)
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Requirement already satisfied: MarkupSafe>=0.23 in ./opt/anaconda3/lib/python3.7/site-packages (from flask) (2.0.1)
(base) kashishj@Kashish-MBP-2 ~ % flask --version
Python 3.7.6
Flask 1.1.1
Werkzeug 1.0.0
(base) kashishj@Kashish-MBP-2 ~ %
```

→ Installing Flask

→ Checking Flask Version

STEP 2 : Download the dataset from Kaggle

Population by Country - 2020

Data Code (220) Discussion (1) Metadata

158 New Notebook Download (8 KiB)

population_by_country_2020.csv (15.89 KiB)

Detail Compact Column 10 of 11 columns

About this file

File Description

Below is a sortable list of countries by their population- 2020. There are 235 countries along with their population. And there are 11 columns each representing different features of countries. This is dataset is pretty new i.e 2020. Feel free to use the data set and play with it.

Country (or depe... This column contains different country's name (235 countries)	# Population (2020) This column contains the population of different countries	Yearly Change This column contains the population change by yearly	Net Change This column contains the net change of the population	Density (P/Km²) The column contains the density of the population	Land Area This column contains the land area in kilometer
235 unique values	801 1.44b	1.48 % 1.06 % Other (228) 97%	2% 1% -383840 13.6m	0 26.3k	0
China	1440297825	0.39 %	5540090	153	9388211
India	1382345885	0.99 %	13586631	464	2973190
United States	331341050	0.59 %	1937734	36	9147420

Data Explorer
Version 4 (15.89 KiB)
population_by_country_202...

STEP 3 : app.py

```
1  #!/usr/bin/env python3
2  # -*- coding: utf-8 -*-
3  """
4  Created on Tue Jun 28 15:59:19 2022
5
6  @author: kashishhj
7  """
8
9
10 import numpy as np
11 from flask import Flask, request, render_template
12 import pickle
13
14 app = Flask(__name__)
15 model = pickle.load(open('model.pkl', 'rb'))
16
17 @app.route('/')
18 def home():
19     return render_template('index.html')
20
21 @app.route('/predict', methods=['POST'])
22 def predict():
23     """
24     For rendering results on HTML GUI
25     """
26     int_features = [int(x) for x in request.form.values()]
27     final_features = [np.array(int_features)]
28     prediction = model.predict(final_features)
29
30     output = round(prediction[0], 2)
31
32     return render_template('index.html', prediction_text='House price should be $ {}'.format(output))
33
34 if __name__ == "__main__":
35     app.run(debug=True)
```

STEP 4 : model.py

```
1  #!/usr/bin/env python3
2  # -*- coding: utf-8 -*-
3  """
4  Created on Tue Jun 28 16:10:09 2022
5
6  @author: kashishhj
7  """
8
9  # Importing the libraries
10 import numpy as np
11 import pandas as pd
12 import pickle
13
14 dataset = pd.read_csv('population.csv')
15
16 dataset['Population (2020)'].fillna(0, inplace=True)
17
18 dataset['Net Change'].fillna(dataset['Net Change'].mean(), inplace=True)
19
20 X = dataset.iloc[:, :3]
21
22 #Converting words to integer values
23 def convert_to_int(word):
24     word_dict = {'one':1, 'two':2, 'three':3, 'four':4, 'five':5, 'six':6, 'seven':7, 'eight':8,
25                 'nine':9, 'ten':10, 'eleven':11, 'twelve':12, 'zero':0, 0: 0}
26     return word_dict[word]
27
28 #X['Population (2020)'] = X['Population (2020)'].apply(lambda x : convert_to_int(x))
29
30 y = dataset.iloc[:, -1]
31
32 from sklearn.linear_model import LinearRegression
33 regressor = LinearRegression()
34
35 #Fitting model with trainig data
36 regressor.fit(X, y)
37
38 # Saving model to disk
39 pickle.dump(regressor, open('model.pkl', 'wb'))
40
41 # Loading model to compare the results
42 model = pickle.load(open('model.pkl', 'rb'))
43 print(model.predict([[2, 2200, 5]]))
44
```

STEP 5 : run in terminal using “python app.py”

```
(base) kashishhj@Kashishs-MBP-2 Desktop % python 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 fsevents reloader
* Debugger is active!
* Debugger PIN: 170-514-534
127.0.0.1 - - [28/Jun/2022 21:00:57] "GET / HTTP/1.1" 500 -
```

STEP 6 : use “<http://127.0.0.1:5000/>” to open the web server on the local device

