

Week4: Deployment on Flask

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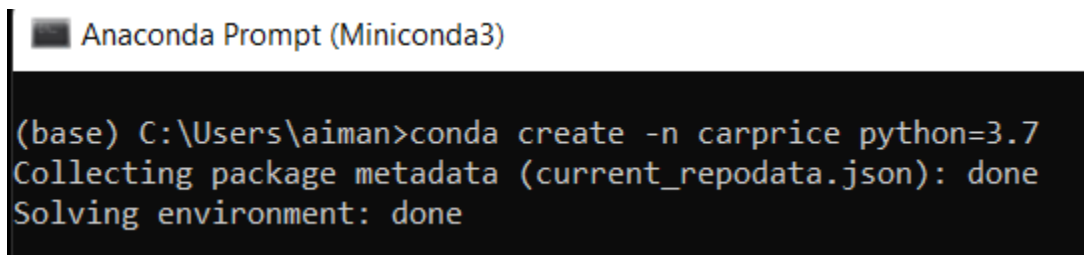
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1. **Creating and new environment and activating the environment:** First, I created a new environment in Anaconda Prompt by using the command below:

- conda create -n carprice python=3.7

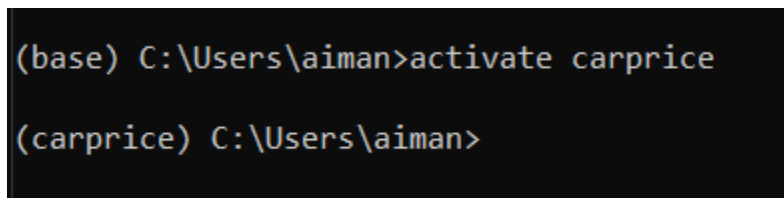


```
Anaconda Prompt (Miniconda3)

(base) C:\Users\aiman>conda create -n carprice python=3.7
Collecting package metadata (current_repodata.json): done
Solving environment: done
```

Then I activated the environment by using the command below:

- activate carprice



```
(base) C:\Users\aiman>activate carprice

(carprice) C:\Users\aiman>
```

2. **Running jupyter notebook in that particular environment:** Then I wrote the following commands in Anaconda Prompt to run the jupyter notebook:

- activate carprice
- cd OneDrive
- cd Documents
- cd Week 4

Since the files of this assignment were saved in Week 4 folder in Documents, I need to access the folder location to run the jupyter notebook to create a model on the car dataset.

```
Anaconda Prompt (Miniconda3) - jupyter notebook

(base) C:\Users\aiman>activate carprice

(carprice) C:\Users\aiman>cd OneDrive

(carprice) C:\Users\aiman\OneDrive>cd Documents

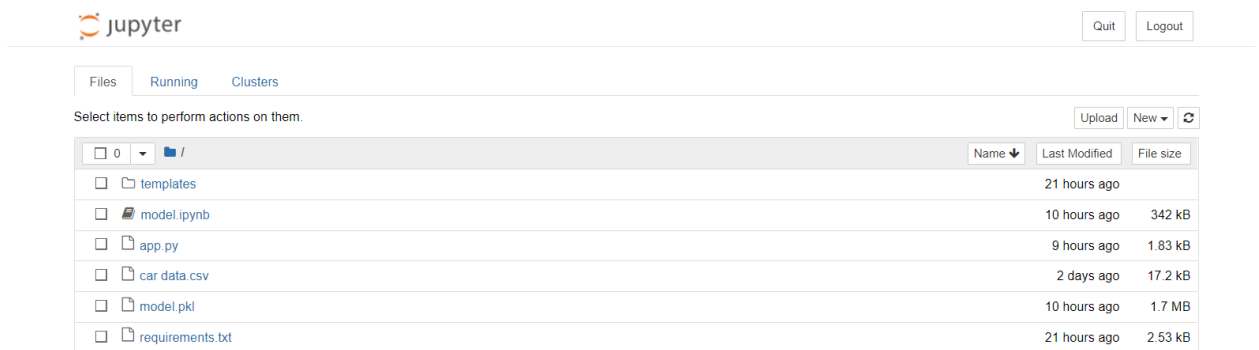
(carprice) C:\Users\aiman\OneDrive\Documents>cd Week 4

(carprice) C:\Users\aiman\OneDrive\Documents\Week 4>jupyter notebook
[I 20:31:34.441 NotebookApp] Serving notebooks from local directory: C:\Users\aiman\OneDrive\Documents\Week 4
[I 20:31:34.441 NotebookApp] Jupyter Notebook 6.4.11 is running at:
[I 20:31:34.441 NotebookApp] http://localhost:8888/?token=859d3fd07900f2b8e0431457297348c225c04b50a445ddce
[I 20:31:34.442 NotebookApp] or http://127.0.0.1:8888/?token=859d3fd07900f2b8e0431457297348c225c04b50a445ddce
[I 20:31:34.442 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 20:31:34.506 NotebookApp]

To access the notebook, open this file in a browser:
    file:///C:/Users/aiman/AppData/Roaming/jupyter/runtime/nbserver-14456-open.html
Or copy and paste one of these URLs:
    http://localhost:8888/?token=859d3fd07900f2b8e0431457297348c225c04b50a445ddce
    or http://127.0.0.1:8888/?token=859d3fd07900f2b8e0431457297348c225c04b50a445ddce
```

However, The dataset was a car dataset with different features of different car models. The dataset was downloaded from kaggle ([Vehicle dataset | Kaggle](#)).

After writing the commands, the jupyter notebook opened in the browser as shown below:



- 3. Creating a Machine Learning model for the dataset:** Then I applied a few exploratory data analysis techniques to the dataset and implemented a Random Forest model to predict the selling price of the cars based on the other features. After implementing the model, I created a pickle file at the end of the notebook as shown below to store all the information of the data.

```
In [50]: import pickle
         file = open('model.pkl', 'wb')
         pickle.dump(rf, file)
```



4. **Creating the requirements.txt file:** Then I created the requirements.txt file to view all the libraries that were required to build the model in jupyter notebook by using the commands below:

- activate carprice
- cd OneDrive
- cd Documents
- cd Week 4



5. **Creating the frontend using html:** Then I wrote codes to create the frontend of the website using html in Visual studio Code and saved the file as app.py in that particular folder.



6. **Installing the required libraries in Anaconda Prompt:** I installed required libraries such as flask, sklearn before running the app.py file.

```
Anaconda Prompt (Miniconda3) - python app.py

(base) C:\Users\aiman>pip install flask
Collecting flask
  Using cached Flask-2.1.2-py3-none-any.whl (95 kB)
Requirement already satisfied: Jinja2>=3.0 in c:\programdata\miniconda3\lib\site-packages (from flask) (3.1.2)
Collecting click>=8.0
  Using cached click-8.1.3-py3-none-any.whl (96 kB)
Collecting itsdangerous>=2.0
  Using cached itsdangerous-2.1.2-py3-none-any.whl (15 kB)
Collecting Werkzeug>=2.0
  Using cached Werkzeug-2.1.2-py3-none-any.whl (224 kB)
Collecting importlib-metadata>=3.6.0; python_version < "3.10"
  Using cached importlib_metadata-4.11.4-py3-none-any.whl (18 kB)
Requirement already satisfied: MarkupSafe>=2.0 in c:\programdata\miniconda3\lib\site-packages (from Jinja2>=3.0->flask) (2.1.1)
Requirement already satisfied: colorama; platform_system == "Windows" in c:\programdata\miniconda3\lib\site-packages (from click>=8.0->flask) (0.4.4)
Requirement already satisfied: zipp>=0.5 in c:\programdata\miniconda3\lib\site-packages (from importlib-metadata>=3.6.0; python_version < "3.10"->flask) (3.8.0)
Installing collected packages: click, itsdangerous, Werkzeug, importlib-metadata, flask
Successfully installed Werkzeug-2.1.2 click-8.1.3 flask-2.1.2 importlib-metadata-4.11.4 itsdangerous-2.1.2

(base) C:\Users\aiman>pip install sklearn
Requirement already satisfied: sklearn in c:\programdata\miniconda3\lib\site-packages (0.0)
Requirement already satisfied: scikit-learn in c:\programdata\miniconda3\lib\site-packages (from sklearn) (1.1.1)
Requirement already satisfied: numpy>=1.17.3 in c:\programdata\miniconda3\lib\site-packages (from scikit-learn->sklearn) (1.22.4)
Requirement already satisfied: threadpoolctl>=2.0.0 in c:\programdata\miniconda3\lib\site-packages (from scikit-learn->sklearn) (3.1.0)
Requirement already satisfied: scipy>=1.3.2 in c:\programdata\miniconda3\lib\site-packages (from scikit-learn->sklearn)
```

7. **Running app.py in Anaconda Prompt:** Then I wrote the command to run the app.py file as shown below:

```
- python app.py
Anaconda Prompt (Miniconda3) - python app.py

(base) C:\Users\aiman\OneDrive\Documents>cd Week 4

(base) C:\Users\aiman\OneDrive\Documents\Week 4>python app.py
C:\ProgramData\Miniconda3\lib\site-packages\sklearn\base.py:329: UserWarning: Trying to unpickle estimator DecisionTreeRegressor from version 1.0.2 when using version 1.1.1. This might lead to breaking code or invalid results. Use at your own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-limitations
  warnings.warn(
C:\ProgramData\Miniconda3\lib\site-packages\sklearn\base.py:329: UserWarning: Trying to unpickle estimator RandomForestRegressor from version 1.0.2 when using version 1.1.1. This might lead to breaking code or invalid results. Use at your own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-limitations
  warnings.warn(
* 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 stat
C:\ProgramData\Miniconda3\lib\site-packages\sklearn\base.py:329: UserWarning: Trying to unpickle estimator DecisionTreeRegressor from version 1.0.2 when using version 1.1.1. This might lead to breaking code or invalid results. Use at your own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-limitations
  warnings.warn(
C:\ProgramData\Miniconda3\lib\site-packages\sklearn\base.py:329: UserWarning: Trying to unpickle estimator RandomForestRegressor from version 1.0.2 when using version 1.1.1. This might lead to breaking code or invalid results. Use at your own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-limitations
  warnings.warn(
Installing collected packages: click, itsdangerous, Werkzeug, importlib-metadata, flask
```

Then I copy pasted the given link (<http://127.0.0.1:5000/>) on the browser and got the website to input data for car price prediction.

Predicting the Selling Price of Cars

Please provide the following information below:

Year

What is the Showroom Price?(In lakhs)

How Many Kilometers Driven?

How much owners previously had the car(0 or 1 or 2) ?

Enter the Fuel type:

Petrol ▾

Are you a Dealer or an Individual?

Dealer ▾

8. **Providing necessary information to get the selling price:** Then I provided the required information to get the selling price of a car and got the result when I clicked on the “Get the Selling Price” button.

Please provide the following information below:

Year

2014

What is the Showroom Price?(In lakhs)

5.59

How Many Kilometers Driven?

27000

How much owners previously had the car(0 or 1 or 2) ?

0

Enter the Fuel type:

Petrol ▾

Are you a Dealer or an Individual?

Dealer ▾

Enter the Transmission type:

Manual C ▾

Get the Selling Price

You Can Sell The Car at 4.12