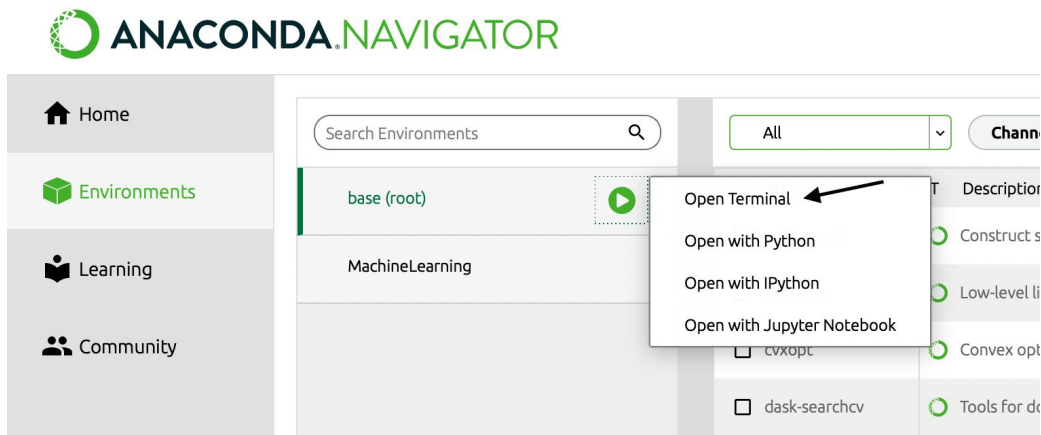


Implementing Streamlit On A Machine Learning Algorithm Using Anaconda

- Aniket Mare

Installing Libraries and Tools



Use the command 'pip install streamlit' in your Anaconda Terminal to install the streamlit library.



```
(base) aniketmare@Anikets-MacBook-Pro ~ % pip install streamlit
```

*Open Anaconda Navigator as Administrator if installation throws error.

Install Spyder IDE and Qt Console.

 Qt Console ↗ 5.3.0 PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more. Launch	 Spyder ↗ 5.1.5 Scientific PYTHON Development Environment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features Launch
--	--

Install Pickle Library using 'pip install pickle-mixin'.

Saving the machine learning model

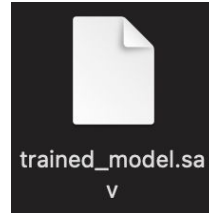
Import Pickle in the notebook which has your model and then save the model using the following command:

Saving the model ¶

```
In [11]: import pickle  
filename = 'trained_model.sav'  
pickle.dump(regressor, open(filename, 'wb'))
```

← Name of the model

The model will be saved as follows:




Creating the Web App Using Streamlit

Open the Spyder IDE and create a file named webapp.py.

Import the required libraries and load the previously saved model using the following commands.

```
import numpy as np
import pickle
import streamlit as st

# loading the saved model
loaded_model = pickle.load(open('/Users/aniketmare/Work/Car_CO2_emissions/trained_model.sav', 'rb'))
```



Give the path to where the trained_model.sav is in YOUR computer.

Write the functions to accept feature values and display the result/ prediction given by the model

```
def main():  
  
    #title  
    st.title('Co2 Emissions Prediction')  
  
    #taking input  
    Enginesize = st.number_input('Engine Size')  
    Cylinders = st.number_input('Cylinders')  
    Fuelconsumption = st.number_input('Fuel Consumption')  
  
    #prediction  
    emission = ''  
  
    #button  
    if st.button("CO2 Emissions"):  
        emission = prediction([Enginesize, Cylinders, Fuelconsumption])  
  
    st.success(emission)  
  
if __name__ == '__main__':  
    main()
```

```
# prediction functions

def prediction(input_data):

    # changing the input data to numpy array
    input_data_as_numpy_array = np.asarray(input_data)

    # reshape the array as we are predicting for one instance
    input_data_reshaped = input_data_as_numpy_array.reshape(1,-1)

    prediction = loaded_model.predict(input_data_reshaped)

    #print(prediction)
    return "Co2 Emission:", int(prediction)
```


Running the Streamlit WebApp

Use the command 'streamlit run (path of the webapp)' in the terminal to run your webapp.

```
(MachineLearning) aniketmare@Anikets-MacBook-Pro ~ % streamlit run /Users/aniketmare/Work/Car_CO2_emissions/webapp.py
```

Give the path to where the webapp.py file is in your local machine.

Use the dataset used to train the model, to test the results given by the web app.



Co2 Emissions Prediction

Engine Size

2.40 - +

Cylinders

4.00 - +

Fuel Consumption

9.60 - +

CO2 Emissions

('Co2 Emission:', 213)

	ENGINE SIZE	CYLINDERS	FUEL CONSUMPTION_COMB	CO2 EMISSIONS
0	2.0	4	8.5	196
1	2.4	4	9.6	221
2	1.5	4	5.9	136
3	3.5	6	11.1	255
4	3.5	6	10.6	244