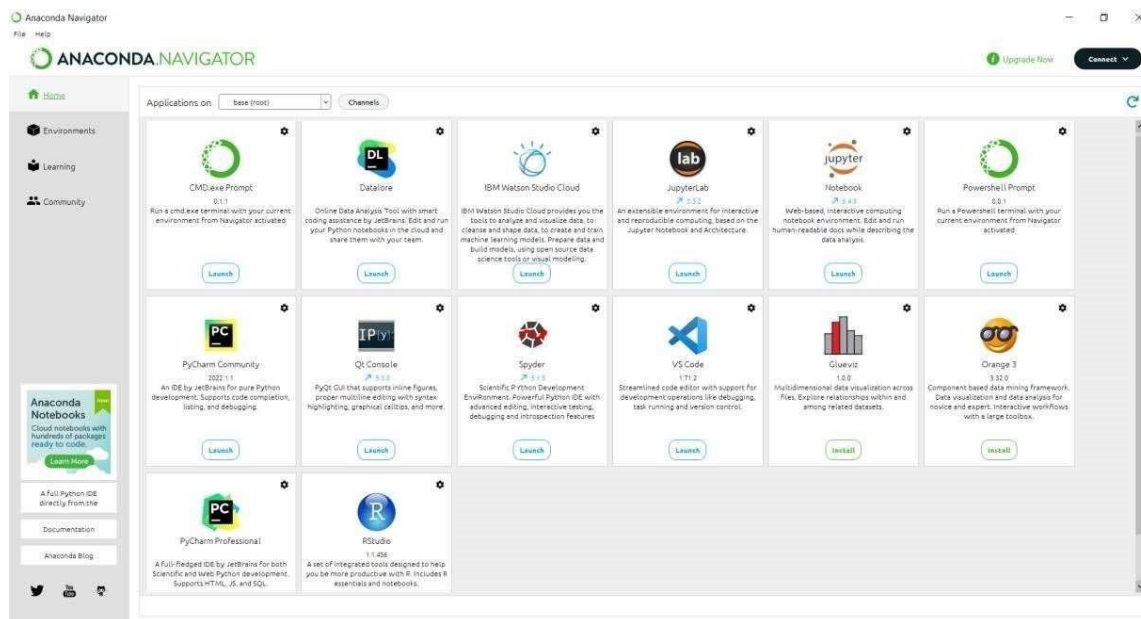


Trip Based Modelling of Fuel Consumption in Modern Fleet Vehicles Using Machine Learning

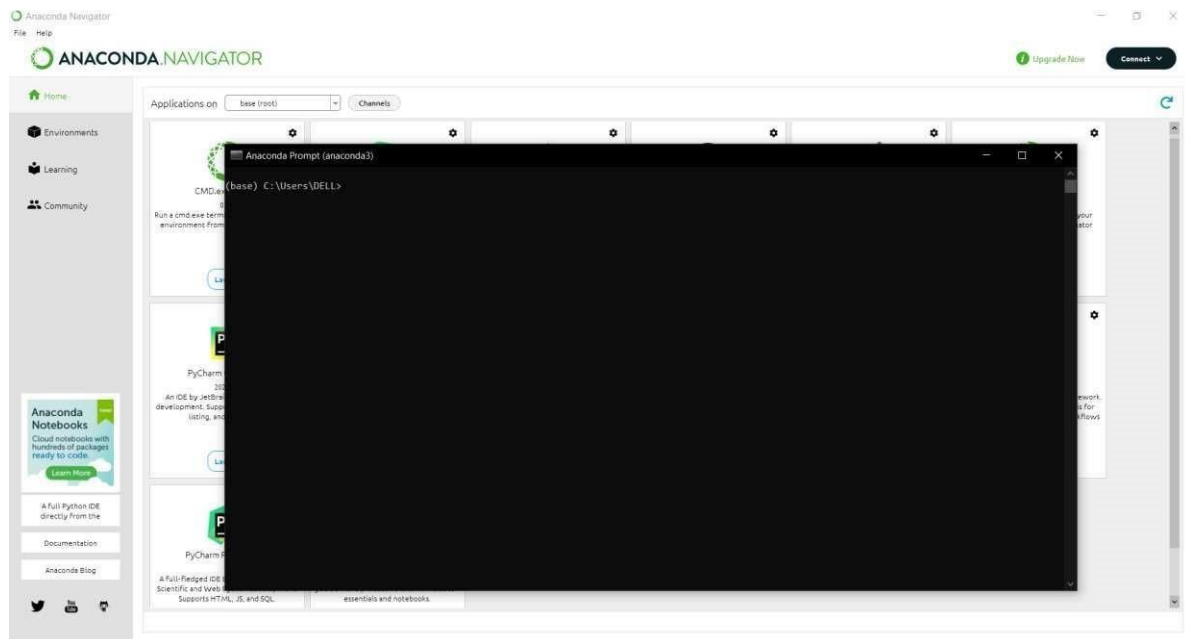
Team ID : PNT2022TMID18784

Installing python package

Step 1: Open the anaconda navigator.



Step 2 : Open the CMD.exe prompt

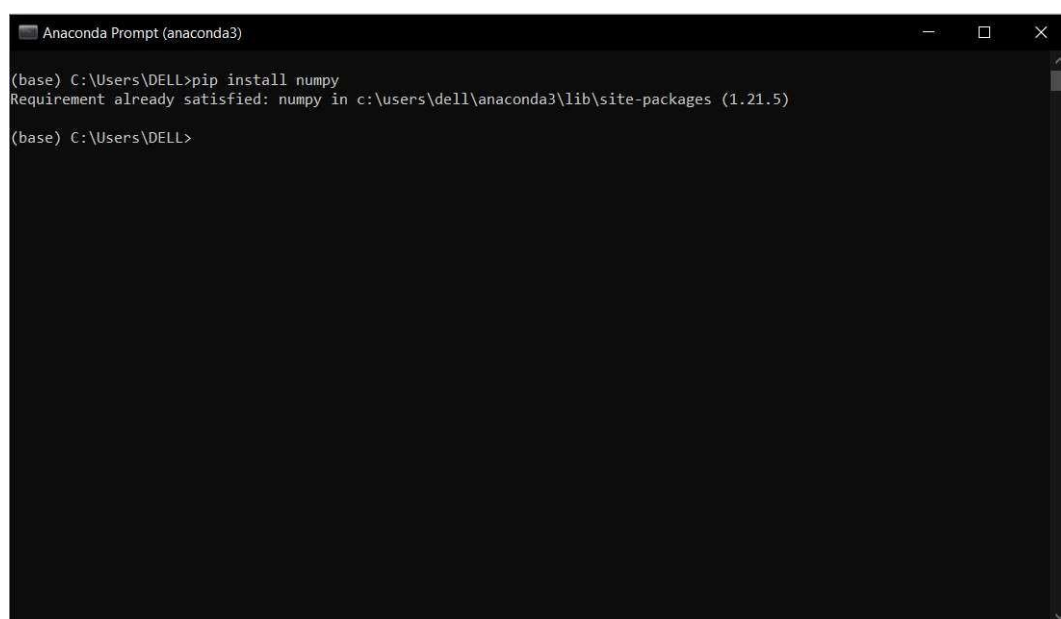


Step 3: Install the NUMPY package .

Command: pip install numpy

Numpy:

This package is used to perform numerical computations. This package is pre-installed in anaconda .NumPy is used for working with arrays. NumPy is short for "Numerical Python"

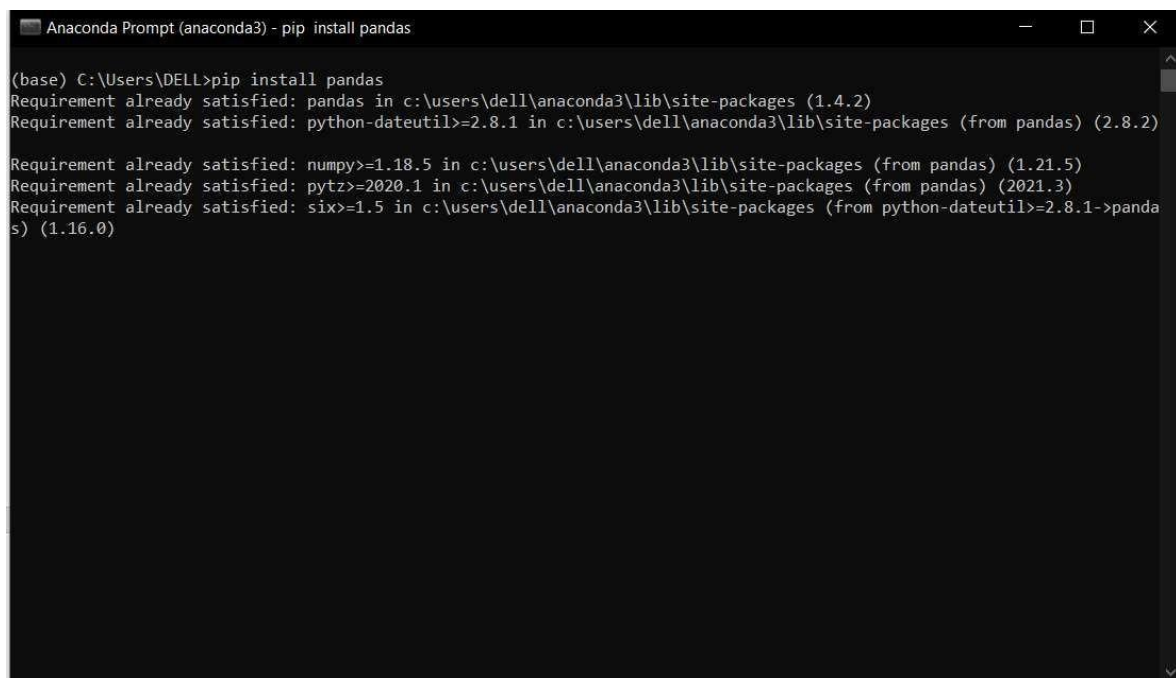


Step 4: Install the pandas package

Command: pip install pandas

Pandas :

Pandas is one of the most widely used python libraries in data science. It provides high-performance, easy to use structures, and data analysis tools. This package is pre- installed in anaconda. is an open-source library that is built on top of NumPy library. It is a Python package that offers various data structures and operations for manipulating numerical data and time series. It is mainly popular for importing and analysing data much easier. Pandas is fast and it has high- performance & productivity for users.

A screenshot of the Anaconda Prompt terminal window. The title bar reads "Anaconda Prompt (anaconda3) - pip install pandas". The terminal shows the command "(base) C:\Users\DELL>pip install pandas" and the following output: "Requirement already satisfied: pandas in c:\users\dell\anaconda3\lib\site-packages (1.4.2)", "Requirement already satisfied: python-dateutil>=2.8.1 in c:\users\dell\anaconda3\lib\site-packages (from pandas) (2.8.2)", "Requirement already satisfied: numpy>=1.18.5 in c:\users\dell\anaconda3\lib\site-packages (from pandas) (1.21.5)", "Requirement already satisfied: pytz>=2020.1 in c:\users\dell\anaconda3\lib\site-packages (from pandas) (2021.3)", and "Requirement already satisfied: six>=1.5 in c:\users\dell\anaconda3\lib\site-packages (from python-dateutil>=2.8.1->pandas) (1.16.0)".

```
Anaconda Prompt (anaconda3) - pip install pandas
(base) C:\Users\DELL>pip install pandas
Requirement already satisfied: pandas in c:\users\dell\anaconda3\lib\site-packages (1.4.2)
Requirement already satisfied: python-dateutil>=2.8.1 in c:\users\dell\anaconda3\lib\site-packages (from pandas) (2.8.2)
Requirement already satisfied: numpy>=1.18.5 in c:\users\dell\anaconda3\lib\site-packages (from pandas) (1.21.5)
Requirement already satisfied: pytz>=2020.1 in c:\users\dell\anaconda3\lib\site-packages (from pandas) (2021.3)
Requirement already satisfied: six>=1.5 in c:\users\dell\anaconda3\lib\site-packages (from python-dateutil>=2.8.1->pandas) (1.16.0)
```

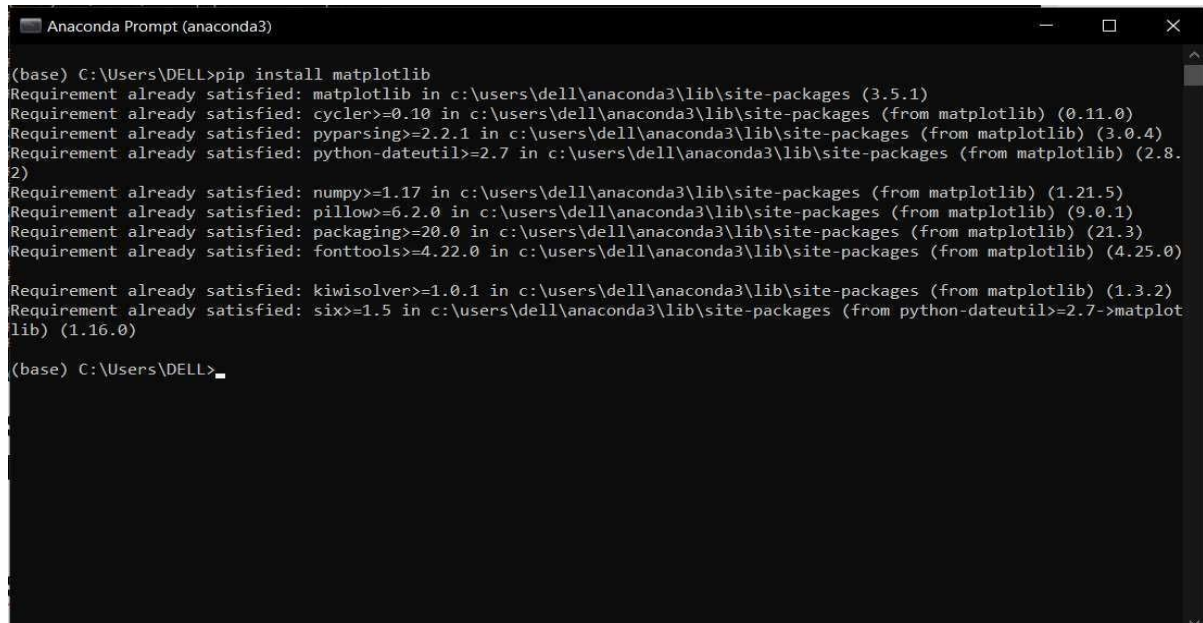
Step 5: install the Matplotlib package

Command: Pip install Matplotlib

Matplotlib :

Matplotlib is a comprehensive library for creating static, animated, and interactive visualizations in Python. This package is pre-installed in anaconda .Matplotlib is an amazing visualization library in Python for 2D plots of arrays. Matplotlib is a multi-platform data

visualization library built on NumPy arrays and designed to work with the broader SciPy stack. It was introduced by John Hunter in the year 2002.



```

Anaconda Prompt (anaconda3)

(base) C:\Users\DELL>pip install matplotlib
Requirement already satisfied: matplotlib in c:\users\dell\anaconda3\lib\site-packages (3.5.1)
Requirement already satisfied: cycler>=0.10 in c:\users\dell\anaconda3\lib\site-packages (from matplotlib) (0.11.0)
Requirement already satisfied: pyparsing>=2.2.1 in c:\users\dell\anaconda3\lib\site-packages (from matplotlib) (3.0.4)
Requirement already satisfied: python-dateutil>=2.7 in c:\users\dell\anaconda3\lib\site-packages (from matplotlib) (2.8.2)
Requirement already satisfied: numpy>=1.17 in c:\users\dell\anaconda3\lib\site-packages (from matplotlib) (1.21.5)
Requirement already satisfied: pillow>=6.2.0 in c:\users\dell\anaconda3\lib\site-packages (from matplotlib) (9.0.1)
Requirement already satisfied: packaging>=20.0 in c:\users\dell\anaconda3\lib\site-packages (from matplotlib) (21.3)
Requirement already satisfied: fonttools>=4.22.0 in c:\users\dell\anaconda3\lib\site-packages (from matplotlib) (4.25.0)
Requirement already satisfied: kiwisolver>=1.0.1 in c:\users\dell\anaconda3\lib\site-packages (from matplotlib) (1.3.2)
Requirement already satisfied: six>=1.5 in c:\users\dell\anaconda3\lib\site-packages (from python-dateutil>=2.7->matplotlib) (1.16.0)

(base) C:\Users\DELL>
```

Step 6: Install the Scikit-learn package

Command: Pip install Scikit-learn

Scikit-learn :

This is a machine learning library for the Python programming language. This package is pre-installed in anaconda. Scikit learn in python is mostly used in python for focusing on the modelling. It simply focused on modelling not focused on loading the data.

```
Anaconda Prompt (anaconda3)

(base) C:\Users\DELL>pip install scikit-learn
Requirement already satisfied: scikit-learn in c:\users\dell\anaconda3\lib\site-packages (1.0.2)
Requirement already satisfied: joblib>=0.11 in c:\users\dell\anaconda3\lib\site-packages (from scikit-learn) (1.1.0)
Requirement already satisfied: numpy>=1.14.6 in c:\users\dell\anaconda3\lib\site-packages (from scikit-learn) (1.21.5)
Requirement already satisfied: scipy>=1.1.0 in c:\users\dell\anaconda3\lib\site-packages (from scikit-learn) (1.7.3)
Requirement already satisfied: threadpoolctl>=2.0.0 in c:\users\dell\anaconda3\lib\site-packages (from scikit-learn) (2.2.0)

(base) C:\Users\DELL>
```

Step 7: Install the Flask package

Command: Pip install Flask

```
Anaconda Prompt (anaconda3)

(base) C:\Users\DELL>pip install flask
Requirement already satisfied: flask in c:\users\dell\anaconda3\lib\site-packages (1.1.2)
Requirement already satisfied: click>=5.1 in c:\users\dell\anaconda3\lib\site-packages (from flask) (8.0.4)
Requirement already satisfied: Werkzeug>=0.15 in c:\users\dell\anaconda3\lib\site-packages (from flask) (2.0.3)
Requirement already satisfied: Jinja2>=2.10.1 in c:\users\dell\anaconda3\lib\site-packages (from flask) (2.11.3)
Requirement already satisfied: itsdangerous>=0.24 in c:\users\dell\anaconda3\lib\site-packages (from flask) (2.0.1)
Requirement already satisfied: colorama in c:\users\dell\anaconda3\lib\site-packages (from click>=5.1->flask) (0.4.4)
Requirement already satisfied: MarkupSafe>=0.23 in c:\users\dell\anaconda3\lib\site-packages (from Jinja2>=2.10.1->flask) (2.0.1)

(base) C:\Users\DELL>
```

Flask:

Flask is a lightweight WSGI web application framework. Flask is a web application framework written in Python. Armin Ronacher, who leads an international group of Python enthusiasts named Pocco, develops it. Flask is based on Werkzeug WSGI toolkit and Jinja2 template engine. Both are Pocco projects.

