Project Objectives :

The main objective of the this project is to build a model to predict the used car's value and also create an decision making model whether to Buy/Sell the car or not.

By the end of the project we will,

1. You'll be able to understand the problem to classify if it is a regression or a classification kind of problem.
2. You will be able to know how to pre-process/clean the data using different data pre-processing techniques.
3. Applying different algorithms according to the dataset
4. You will be able to know how to evaluate the model.
5. You will be able to build web applications using the Flask framework.

Project Flow :

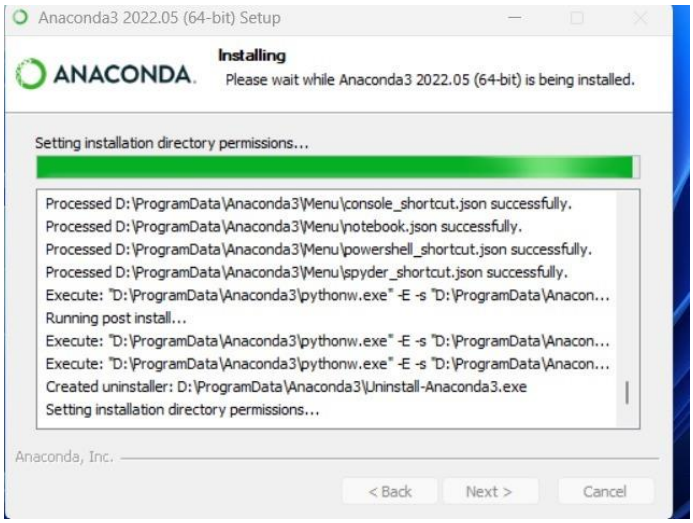
- The user interacts with the UI (User Interface) to enter the input features
- Entered input features are analysed by the model which is integrated
- Once the model analyzed the input, the prediction is showcased on the UI
- Report of the car is generated as a pdf on the demand of the user
- A decision is given to the user whether to Buy/Sell this car

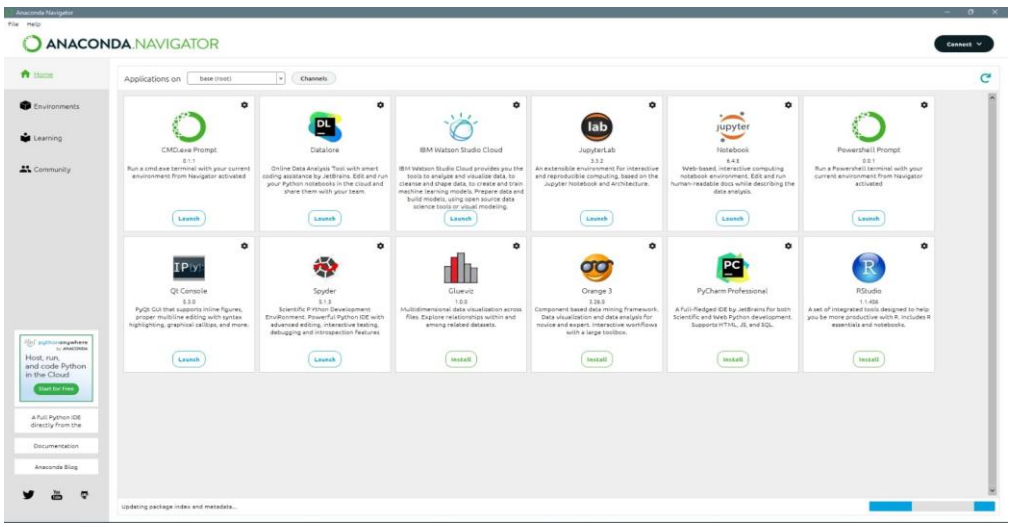
To accomplish this, we have to complete all the activities and tasks listed below

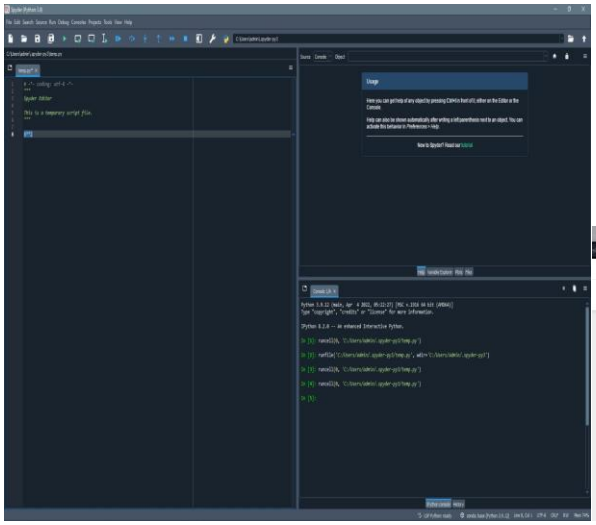
- ✓ Download the dataset.
- ✓ Preprocess or clean the data.
- ✓ Analyze the pre-processed data.
- ✓ Train the machine with preprocessed data using an appropriate machine learning algorithm.
- ✓ Save the model and its dependencies.
- ✓ Build a Web application using Flask that integrates with the model built.

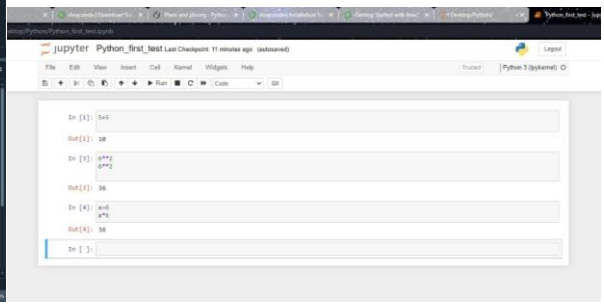
Pre – Requisites :

Step 1 : To install the anaconda navigator



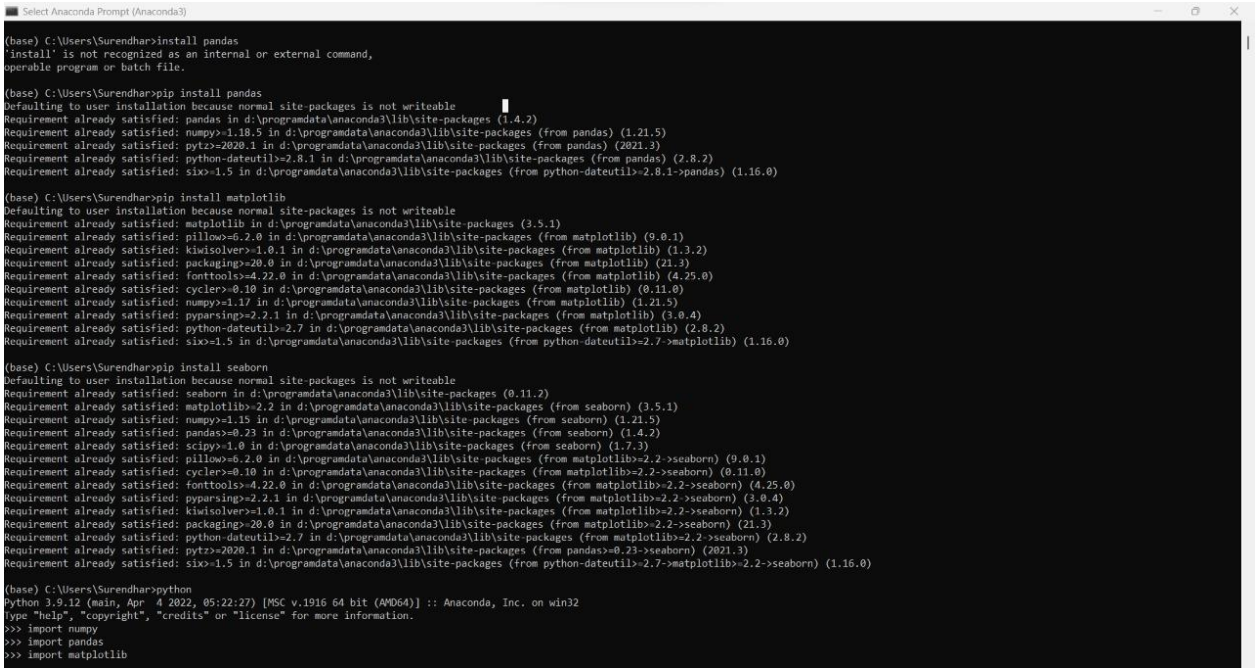






Step 2 : To install the Following packages

- ✓ *Sklearn – pip install scikit-learn*
- ✓ *Numpy – pip install numpy*
- ✓ *Pandas – pip install pandas*
- ✓ *Matplotlib – pip install matplotlib*
- ✓ *Flask – pip install Flask*



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Select Anaconda Prompt (Anaconda3)

(base) C:\Users\Surendhar>install pandas
'install' is not recognized as an internal or external command,
operable program or batch file.

(base) C:\Users\Surendhar>pip install pandas
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: pandas in d:\programdata\anaconda3\lib\site-packages (1.4.2)
Requirement already satisfied: numpy>=1.18.5 in d:\programdata\anaconda3\lib\site-packages (from pandas) (1.21.5)
Requirement already satisfied: pytz>=2020.1 in d:\programdata\anaconda3\lib\site-packages (from pandas) (2021.3)
Requirement already satisfied: python-dateutil>=2.8.1 in d:\programdata\anaconda3\lib\site-packages (from pandas) (2.8.2)
Requirement already satisfied: six>=1.5 in d:\programdata\anaconda3\lib\site-packages (from python-dateutil>=2.8.1->pandas) (1.16.0)

(base) C:\Users\Surendhar>pip install matplotlib
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: matplotlib in d:\programdata\anaconda3\lib\site-packages (3.5.1)
Requirement already satisfied: pillow>=6.2.0 in d:\programdata\anaconda3\lib\site-packages (from matplotlib) (9.0.1)
Requirement already satisfied: kiwisolver>=1.0.1 in d:\programdata\anaconda3\lib\site-packages (from matplotlib) (1.3.2)
Requirement already satisfied: packaging>=20.0 in d:\programdata\anaconda3\lib\site-packages (from matplotlib) (21.3)
Requirement already satisfied: fonttools>=4.22.0 in d:\programdata\anaconda3\lib\site-packages (from matplotlib) (4.25.0)
Requirement already satisfied: cycler>=0.10 in d:\programdata\anaconda3\lib\site-packages (from matplotlib) (0.11.0)
Requirement already satisfied: numpy>=1.17 in d:\programdata\anaconda3\lib\site-packages (from matplotlib) (1.21.5)
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Requirement already satisfied: python-dateutil>=2.7 in d:\programdata\anaconda3\lib\site-packages (from matplotlib) (2.8.2)
Requirement already satisfied: six>=1.5 in d:\programdata\anaconda3\lib\site-packages (from python-dateutil>=2.7->matplotlib) (1.16.0)

(base) C:\Users\Surendhar>pip install seaborn
Defaulting to user installation because normal site-packages is not writeable
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Requirement already satisfied: matplotlib>=2.2 in d:\programdata\anaconda3\lib\site-packages (from seaborn) (3.5.1)
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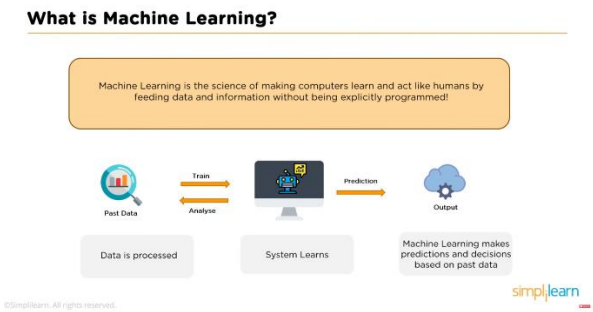
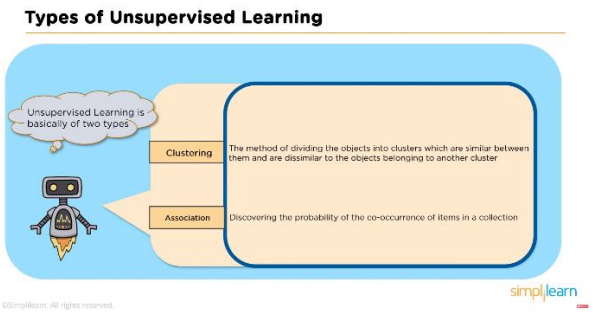
Requirement already satisfied: six>=1.5 in d:\programdata\anaconda3\lib\site-packages (from python-dateutil>=2.7->matplotlib>=2.2->seaborn) (1.16.0)

(base) C:\Users\Surendhar>python
Python 3.9.12 (main, Apr  4 2022, 05:22:27) [MSC v.1916 64 bit (AMD64)] :: Anaconda, Inc. on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import numpy
>>> import pandas
>>> import matplotlib
```

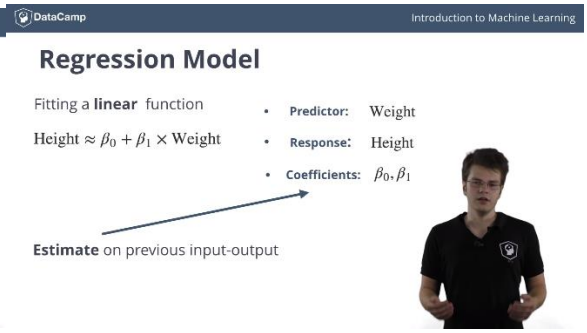
Prior Knowledge :

1. Supervised and unsupervised learning

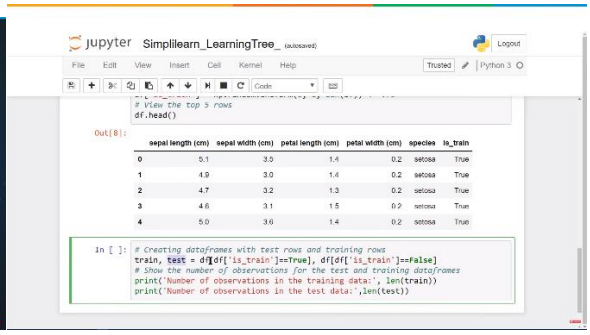




2. Regression Classification and Clustering



3. Random Forest Regressor



4. Flask :