Prior Knowledge

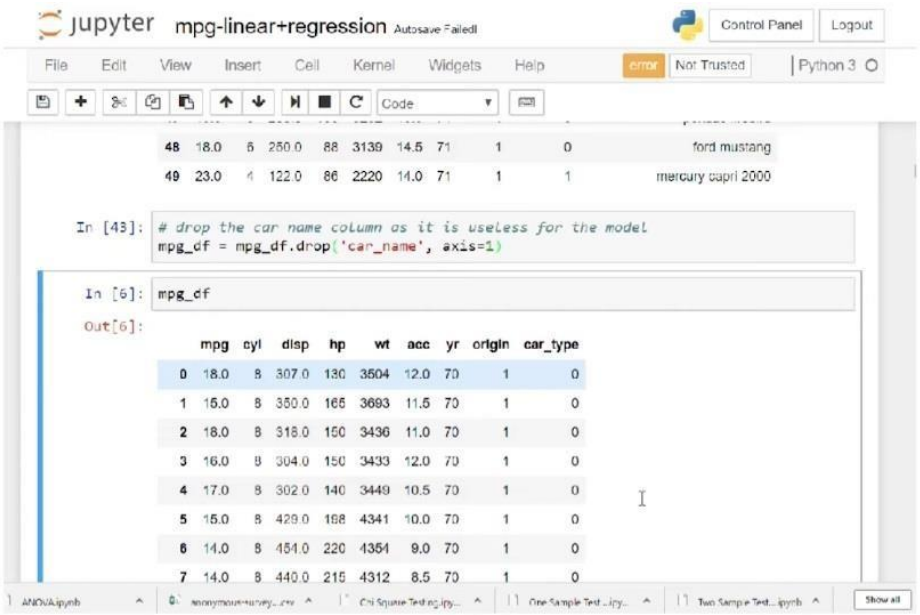
Date	4 October 2022
Team Id	PNT2022TMID21248
Project Name	Smart Lender-Applicant Credibility Prediction for Loan Approval

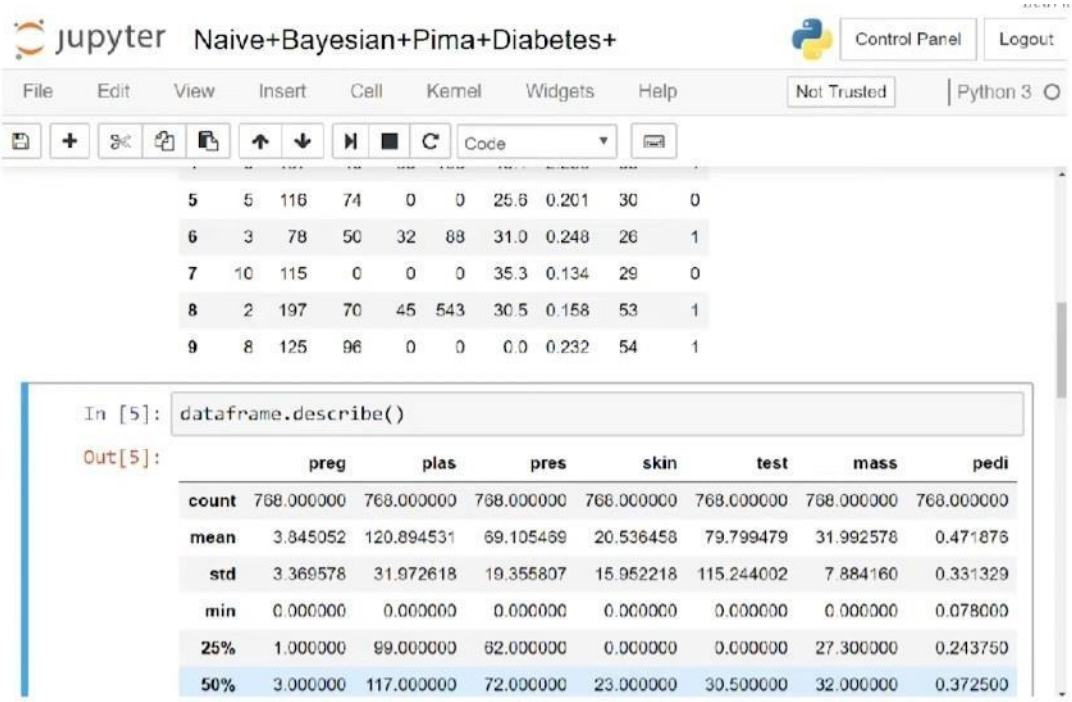
Machine Learning Concepts:

Machine Learning is **an application of artificial intelligence where a computer/machine learns from the past experiences (input data) and makes future predictions.**

Supervised Learning:

Supervised learning, also known as supervised machine learning, is **a subcategory of machine learning and artificial intelligence**. It is defined by its use of labeled datasets to train algorithms that to classify data or predict outcomes accurately.

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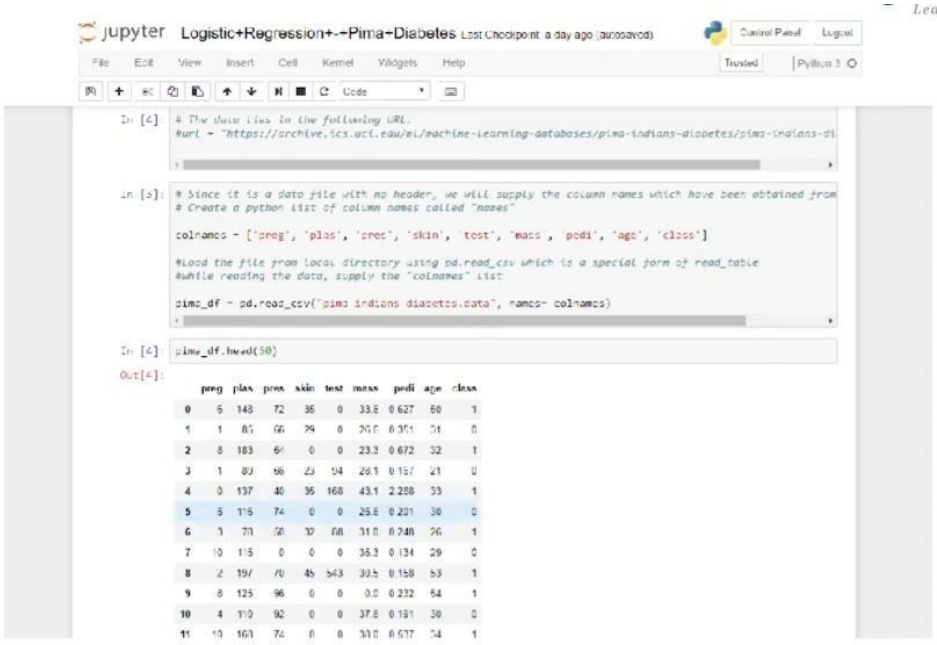
5 5 116 74 0 0 25.6 0.201 30 0
6 3 78 50 32 88 31.0 0.248 26 1
7 10 115 0 0 0 35.3 0.134 29 0
8 2 197 70 45 543 30.5 0.158 53 1
9 8 125 96 0 0 0.0 0.232 54 1
In [5]: dataframe.describe()
Out[5]:
preg plas pres skin test mass pedi
count 768.000000 768.000000 768.000000 768.000000 768.000000 768.000000 768.000000
mean 3.845052 120.894531 69.105469 20.536458 79.799479 31.992578 0.471876
std 3.369578 31.972618 19.355807 15.952218 115.244002 7.884160 0.331329
min 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.078000
25% 1.000000 99.000000 62.000000 0.000000 0.000000 27.300000 0.243750
50% 3.000000 117.000000 72.000000 23.000000 30.500000 32.000000 0.372500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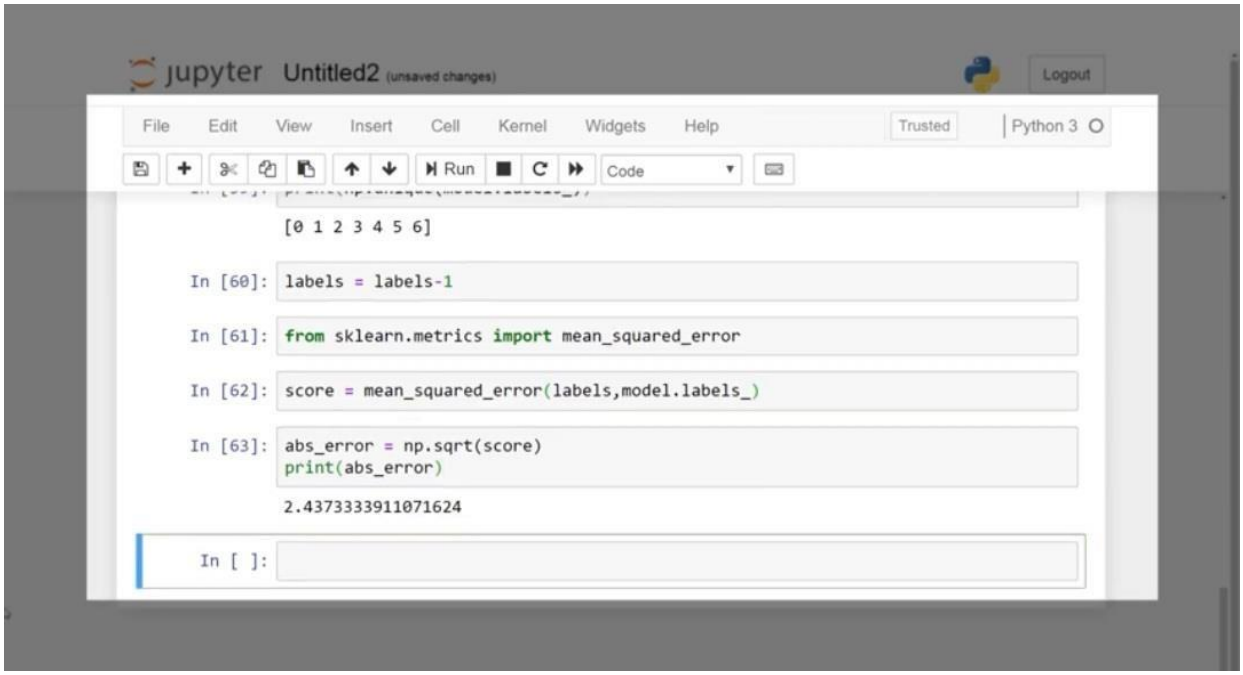
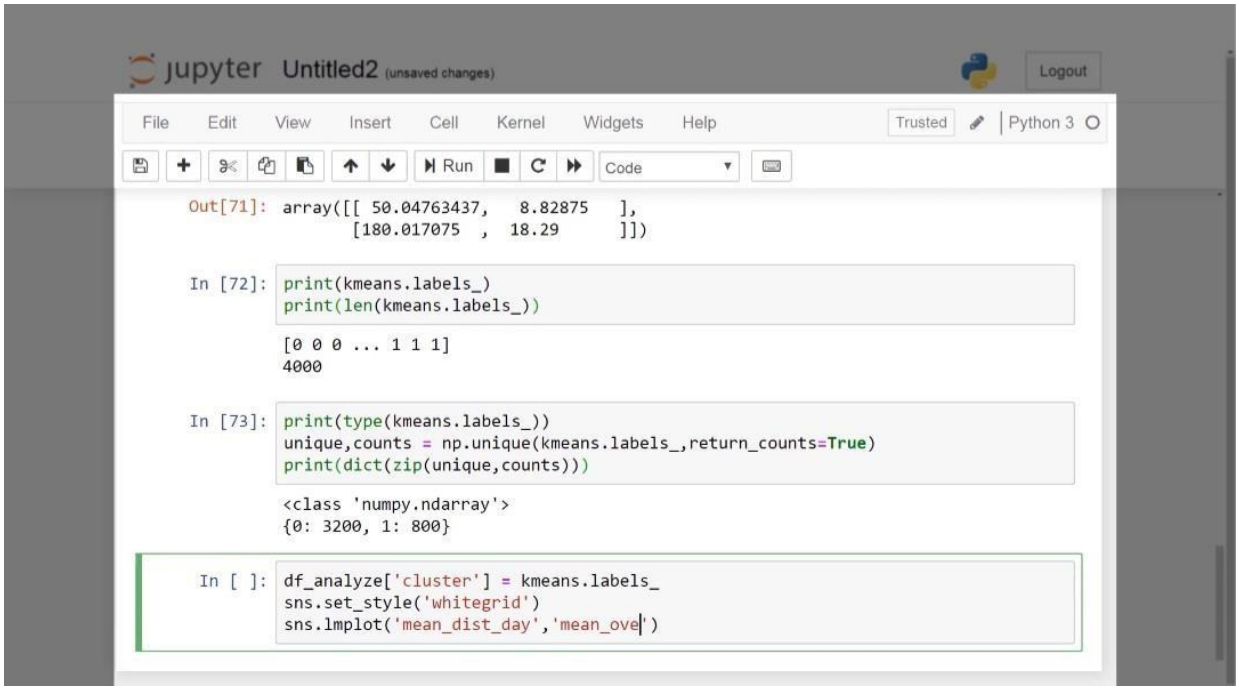
Python 3
Code
In [4]: # The data files in the following URL.
#url = "https://archive.ics.uci.edu/ml/machine-learning-databases/pima-indians-diabetes/pima-indians-di
In [5]: # Since it is a data file with no header, we will supply the column names which have been obtained from
# Create a python list of column names called "names"
colnames = ['preg', 'plas', 'pres', 'skin', 'test', 'mass', 'pedi', 'age', 'class']
#Load the file from local directory using pd.read_csv which is a special form of read_table
#while reading the data, supply the "colnames" list
pima_df = pd.read_csv("pima-indians-diabetes.data", names= colnames)
In [6]: pima_df.head(50)
Out[6]:
preg plas pres skin test mass pedi age class
0 6 148 72 35 0 33.6 0.627 50 1
1 1 85 66 29 0 26.6 0.351 31 0
2 8 183 64 0 0 23.3 0.672 32 1
3 1 89 66 23 94 28.1 0.167 21 0
4 0 137 40 35 168 43.1 2.288 33 1
5 5 116 74 0 0 25.6 0.201 30 0
6 3 78 50 32 88 31.0 0.248 26 1
7 10 115 0 0 0 35.3 0.134 29 0
8 2 197 70 45 543 30.5 0.158 53 1
9 8 125 96 0 0 0.0 0.232 54 1
10 4 110 92 0 0 37.6 0.191 30 0
11 10 168 74 0 0 38.0 0.537 34 1

UnSupervised Learning:

supervised learning, also known as unsupervised machine learning, uses machine learning algorithms to analyze and cluster unlabeled datasets**. These algorithms discover hidden patterns or data groupings without the need for human intervention.**

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Python 3
Run
Code
Out[71]: array([[50.04763437, 8.82875],
[180.017075 , 18.29]])
In [72]: print(kmeans.labels_)
print(len(kmeans.labels_))
[0 0 0 ... 1 1 1]
4000
In [73]: print(type(kmeans.labels_))
unique,counts = np.unique(kmeans.labels_,return_counts=True)
print(dict(zip(unique,counts)))
<class 'numpy.ndarray'>
{0: 3200, 1: 800}
In [ ]: df_analyze['cluster'] = kmeans.labels_
sns.set_style('whitegrid')
sns.lmplot('mean_dist_day','mean_ove')