**UDAY KUMAR KAMASANI**

**700738157**

**ML ASSIGNMENT 2**

**1. Pandas**

1. Read the provided CSV file ‘data.csv’. <https://drive.google.com/drive/folders/1h8C3mLsso-R-sIOLsvoYwPLzy2fJ4IOF?usp=sharing>

2. Show the basic statistical description about the data.

3. Check if the data has null values. a. Replace the null values with the mean

4. Select at least two columns and aggregate the data using: min, max, count, mean.

5. Filter the dataframe to select the rows with calories values between 500 and1000.

6. Filter the dataframe to select the rows with calories values > 500 and pulse.

7. Create a new “df\_modified” dataframe that contains all the columns from df except for “Maxpulse”.

8. Delete the “Maxpulse” column from the main df dataframe

9. Convert the datatype of Calories column to int datatype.

10. Using pandas create a scatter plot for the two columns (Duration and Calories).

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated with medium confidenceA screenshot of a computer

Description automatically generated

A screen shot of a computer

Description automatically generated with medium confidence

**2. Scikit-learn**

1. Implement Naïve Bayes method using scikit-learnlibrary.

a. Use the glass dataset available in Link also provided in your assignment. b. Use train\_test\_split to create training and testing part.

2. Evaluate the model on testing part using score and classification\_report(y\_true, y\_pred)

1. Implement linear SVM method using scikit library

a. Use the glass dataset available in Link also provided in your assignment.

b. Use train\_test\_split to create training and testing part.

2. Evaluate the model on testing part using score and classification\_report(y\_true, y\_pred)

Do at least two visualizations to describe or show correlations in the Glass Dataset.

Which algorithm you got better accuracy? Can you justify why?

A screenshot of a computer

Description automatically generated with medium confidence

A screenshot of a computer screen

Description automatically generated with low confidence

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

**Justification:**

We got better accuracy for Naïve Bayes method which is 0.8372093023255814. Naive Bayes analysis works well with probabilistic concepts where as Linear SVM works better with linear regression logics. But to perform more accurately SVM requires large amounts of data to train and test the data. So, due to the amount of data Naive Bayes algorith gives better accuracy compared to Linear SVM.

GIT HUB LINK :

<https://github.com/uday2909/ML-ASSIGNMENT-2.git>

VIDEO RECORDING LINK:

https://drive.google.com/file/d/1IFL84jhl\_PdkwoaZJ3DbpzQJHNnPkoHK/view?usp=drive\_link