**Naïve Bayes Classifier**

Naïve bayes project: in this project we used 2.7 python interpret and PyCharm 2017 IDE.

We used the following liberties: **Tkinter, CSV, OS**.

The GUI have been built with Tkinter tools, we implemented simple interface for the user with severity labels buttons etc.…

The Program can manage input errors such as: invalid path, empty files, missing files also the program will show the user the relevant dialog messages according to the errors and to correct program steps.

The classifier model that manufactured in Naïve bayes class contains the following logic and functions:

1. **is\_empty**: Boolean function that’s verify if the loaded file in not empty

2. **read\_file\_to\_list**: function that’s stores the entered directory path

3. **build**: function that’s build the classifier model and loads all necessary files from the directory path.

3.1 **read\_structure**: function will conclude the model structure that the classifier will define

3.2 next step is reading the train and saving the data to list

4. **classify**: function gets bins as argument and verify its suitability rising error if needs to

4.1 loads test file and saving the data to list

4.2 **fill\_empty**: function that’s fills empty values using **get\_average** for numeric values and **get\_common** for categories values

4.3 **get\_average**: function calculates the avg of numeric column in train data set

4.4 **get\_common**: function computes the most common element in list

4.5 **to\_numeric**: function casting string values to float for future calculation

4.6 **discretize**: function creating bins intervals and discretize in each numeric value in train set according to the correct bin index (making labels ‘1’,’2’)

4.7 **min\_in\_column**: function finding the min value in specific column

4.8 **max\_in\_column**: function finding the max value in specific column

4.9 **total\_class**: function that compute the frequency of specific class value in the data

5. **bayes**: Performs Bayes classification with Laplacian fix using its formula