Classification:

- classifies Data into Different pails / classes/ Groups.
- use to predict from which Dataset the Input Data belongs to.

Binary classification:-

- Process or task of classification in, which a given Data is being classified into Two classes.
- Basically a kind of prediction about which of two groups the thing belongs to.
- use Some Algorithms to Do the task.
  - Logistic Regression
  - K-Nearest Neighbors
  - Decision Tree
  - Support vectorMachine
  - Naive Bayes

Precision:

In Binary classification, (Yes/No) refers to a Model's ability to correctly Interpret positive observations.

Recall:

- Sensitivity
- To measure how "Sensitive" the classifies is to Detecting positive cases.

F1 Score:

- Thought of as a weighted average of precision & recall, with the best value being 1 and the worst being 0.

- Precision & Recall also make an equal Contribution to the F1 Ranking.

we have a chicago dataset -> from portal

The Dataset Attributes are:-

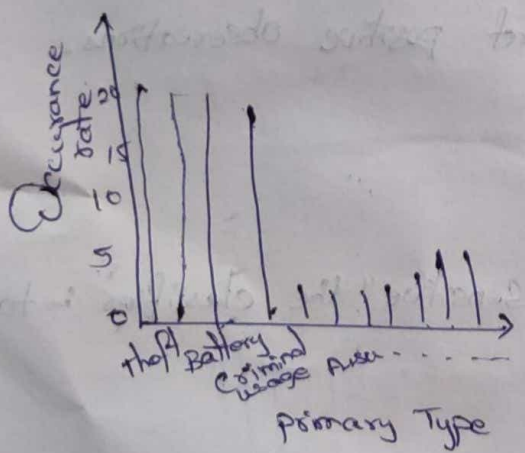
ID, Case number, Date, Block, IUCR, Primary Type, Description, Location Description, Arrest, Domestic, Beat, District, Ward, Community Area, FBI Code, X coordinate, Y coordinate, Year, Updated on, Latitude, Longitude, Location.

→ Next we Display the Primary Type.

And we Data preprocessing.

After that done a Data visualizing

Display a Bar Graph for primary Type (Type of Crime)



And Classifieg the Location Description.

And Bar Graph for Score of Crime, Hour Crime Occured, Day Crime Occured, Month Crime Occured, Year Crime Occured, Consider,

Major Crime -> Theft,
Battery,
Criminal Damage,
Narcotics,
Others.

Display Bar Graph for Normalized Crime Types by Location, and also with Time, Day, Month, year

Applying Binary classification, Display the Graph with Latitude, Longitude, closet_station, House_below_Poverty, Unemployed, under18_over64, Income, Hardship Index.

Using Normalized z-Score :-

We predict their is Serve or not for Latitude, Longitude, Districts $D_1, D_{10}, D_{11}, D_{12}, D_{13}, D_{14}, D_{15}, D_{18}, D_{19}, D_{22}, D_{25}, D_3, D_4, D_5, D_6, D_9$, Timblock 0, 12, 15, 18, 21, 3, 6, 9, Weekday - Monday, Tue, Wed, Thu, Fri, Sat, Sun; Closest_station, Income, Hardship Index, under18_over64, unemployed, House_below_poverty, location Description, Time : 3-6am, 9-12pm, 12 to 3pm, Location street, apartment.

Using Binary class classification, we prediction is that Serve or not Serve, Display with Bar chart.

Next, we doing Multiclass classification.