***CLASSIFICATION v/s CLUSTERING***

**CLASSIFICATION:**

* Process of classifying the input instances based on their corresponding class labels
* It has labels so there is need of training and testing dataset for verifying the model created
* Used for supervised learning
* More complex as compared to clustering3
* Classification examples are Logistic regression, Naive Bayes classifier, Support vector machines, etc.

**CLUSTERING:**

* Grouping the instances based on their similarity without the help of class labels
* There is no need of training and testing dataset
* Used for unsupervised learning
* Less complex as compared to classification
* Clustering examples are k-means clustering algorithm, Fuzzy c-means clustering algorithm, Gaussian (EM) clustering algorithm, etc

***CLASSIFICATION v/s REGRESSION***

**CLASSIFICATION:**

* In Classification, the target variables are discrete.
* We try to find the best possible decision boundary which can separate the two classes with the maximum possible separation
* Input Data are independent variables and categorical dependent variable.
* Objective is to Predict categorical/class labels.
* Example use cases are Spam detection, image recognition, sentiment analysis

**REGRESSION:**

* In Regression, the target variables are continuous.
* We try to find the best-fit line which can represent the overall trend in the data.
* Input Data are Independent variables and continuous dependent variable.
* Objective is to Predicting continuous numerical values.
* Example use cases are Stock price prediction, house price prediction, demand forecasting.