# KNN-Clasifier Algorithm

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# #Dataset Link From Kaggle

https://www.kaggle.com/datasets/saurabh00007/iriscsv

# #GitHub Link

https://github.com/YashGitHubExplorer/AI_DA2_21BPS1632

- Contains the .ipynb file
- Iris.csv file dataset

# #KNN-Clasifier Algorithm

o K-Nearest Neighbour is one of the simplest Machine Learning algorithms based on Supervised Learning technique.

o K-NN algorithm assumes the similarity between the new case/data and available cases and put the new case into the category that is most similar to the available categories.

o K-NN algorithm stores all the available data and classifies a new data point based on the similarity. This means when new data appears then it can be easily classified into a well suite category by using K- NN algorithm.

o K-NN algorithm can be used for Regression as well as for Classification but mostly it is used for the Classification problems.

o K-NN is a **non-parametric algorithm**, which means it does not make any assumption on underlying data.

o It is also called a **lazy learner algorithm** because it does not learn from the training set immediately instead it stores the dataset and at the time of classification, it performs an action on the dataset.

- KNN algorithm at the training phase just stores the dataset and when it gets new data, then it classifies that data into a category that is much similar to the new data.
- **Example:** Suppose, we have an image of a creature that looks similar to cat and dog, but we want to know either it is a cat or dog. So for this identification, we can use the KNN algorithm, as it works on a similarity measure. Our KNN model will find the similar features of the new data set to the cats and dogs images and based on the most similar features it will put it in either cat or dog category.

# #Why do we need KNN-Clasifier Algorithm?

Suppose there are two categories, i.e., Category A and Category B, and we have a new data point x1, so this data point will lie in which of these categories. To solve this type of problem, we need a K-NN algorithm. With the help of K-NN, we can easily identify the category or class of a particular dataset. Consider the below diagram: