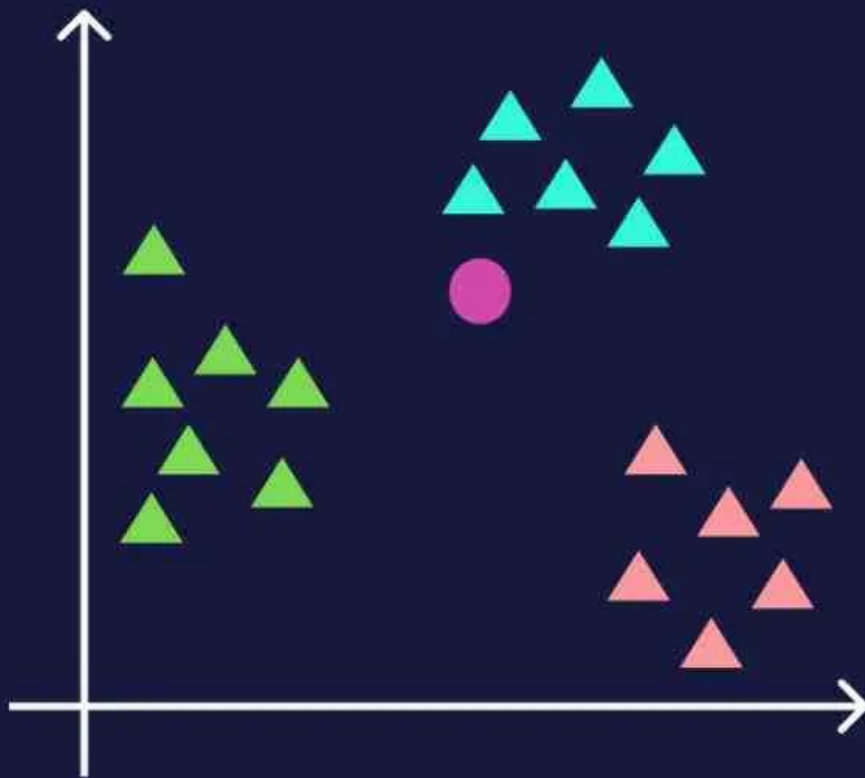# K-Nearest Neighbours

What is KNN?

K-NN is a non parametric and lazy learning algorithm.

K-Nearest Neighbor is a simple algorithm that stores all the available cases and classifies the new data or case based on a similarity measure.

→

KNN Classification:

An object is classed by a majority vote of its neighbours, with the object being assigned to the class most popular among its nearest k neighbor.

If k=1, then the object is simply assigned to the class of that one nearest neighbor.

The K-NN algorithm requires the following steps to be taken:

- Select the number K of the neighbors
- Calculate the Euclidean distance of K number of neighbors
- Take the K nearest neighbors as per the calculated Euclidean distance.
- Among these k neighbors, count the number of the data points in each category.
- Assign the new data points to that category for which the number of the neighbor is maximum.

we need to classify the new circle into one of the 3 groups.
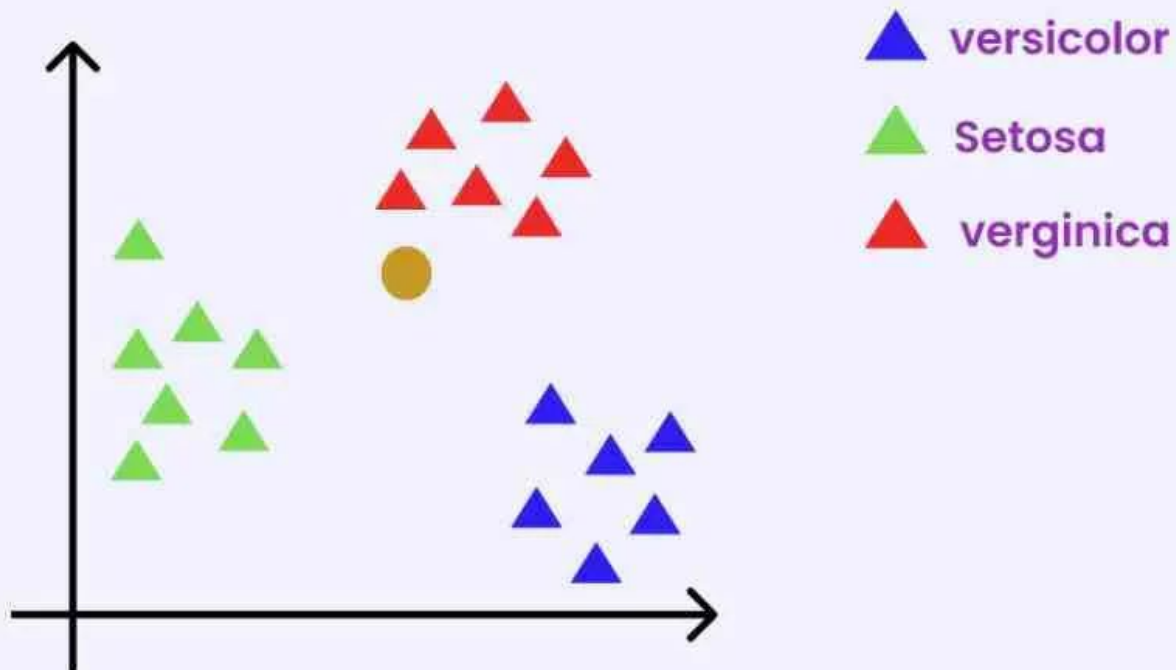
Depending on the K value, find the distance between the new point and older points

classify into the group which has nearest distance.

Let's take Iris dataset

versicolor

Setosa

verginica

we need to classify the flowers into three categories based on **sepal width and length.**

Load iris dataset:

```python
import pandas as pd
from sklearn.datasets import load_iris
iris=load_iris()
```

creating a KNN classifier:

We do this after creating a data frame, splitting test, train data, buiilding features data frame and target data frame

```python
from sklearn.neighbours import kNeighboursClassifier
knn=KNeighboursclassifier(n_neighbors=3)
knn.fit(X_train,y_train)
```

Did you find it useful ?

Let us know in the comments