**SET 2**

* Suppose we want to classify a new customer as "Valuable" or "Not Valuable" based on their age and annual spending. We have the following training data:

Customer Age Annual Spending Value Label

A 30 $10 Valuable

B 25 $5 Not Valuable

C 40 $15 Valuable

D 20 $3 Not Valuable

E 35 $12 Valuable

We want to classify a new customer (F) who is 28 years old and spends $8 annually.

Ans)

We take the k value as 3 i.e., K=3

Then by using the Eculidiean Distance we can calculate the distance between them   
  
Given (28, 8)

1) root((28-30)power 2 + (8-10)power 2) value is 2.8

similarly we canm calculate the values for other values also

2) 4.24

3) 13.8

4) 9.4  
5)8.06

so we take the values for the index 1,2,4 in the above table 1 is valuable and 2 is not valuable and 4 is not valuable so the new customer also Non - Valuable  
  
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* How does the K-Nearest Neighbors (KNN) algorithm function, and what is its fundamental concept (list 5 Steps)?

Ans)

Step-1 : First take the data set   
Step-2 : After we take the K value for how many values to find the neighbour  
Step-3: Then we calculate the distance between the points by using different methods   
 Ex: Eculidian distance, Manhattan Distance and MInkowkik distance  
Step-4: Then it doesnt need to train the function it saves the data and gives the prediction at the test data

Step-5: After the distance calculation we take the three neighbours based on their label data we can say that new classifier belongs to which category

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* List some real world examples of knn and explain it

Ans)

Amazon, Zomato, Netflex..., etc

Medical Diagonsis

Marks of the Student..,etc

1) In Amazon we search for items on our interest based on the search items it suggests some realted items to us it works based on KNN algorithm and we use the amazon in our real life it is one of the best example  
  
2) Similarly in zomato based on our food items it give some suggestions to order the food   
and in also netflex we can watch the action movies it suggests the related movie or we watch the comedy movies it give the suggestions related to comdey movies  
  
3) In the medical based on certain syntoms we can say that this person is effected by this illness   
  
4) If the person have the symtoms like cold anmd cough and high temperature we say that the person is effected by fever  
  
5) Based on some marks related to pass or fail we can precdict the new person marks is either pass or fail