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(10)

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LECTURE - 49

K-NN REGRESSION:

KNN Regression is a non-parametric method that is, in an intuitive manner, approximates the association between independent variables and the continuous outcomes by averaging the observations in the same neighbourhood.

STEPS INVOLVED IN K-NN REGRESSION:

STEP-1: Load the data set.

STEP-2: Initialize K to your chosen number of neighbors.

STEP-3: Calculate the distance between the query point and the current point from that data.

STEP-4: Add the distance and the index of the point to an ordered collection.

STEP-5: Sort the ordered collection of distances and indices from smallest to largest i.e., in ascending order by the distances.

STEP-6: Pick the first 'k' entries from the sorted collection.

STEP-7: Get the labels of the selected 'k' entries.

STEP-8: As it is regression, it returns the mean of the 'k' labels.

*→ If it is classification, it returns the mode of the 'k' labels.

In this,

As we are looking for the nearest distances we go with the distances

Over here, we have real values instead of discrete values.

For Example,

$$\text{If } k=5 \Rightarrow \frac{\sum (y_1, y_2, y_3, y_4, y_5)}{5}$$

The above one gives (or) represents the Predictor variable of x_q where

$x_q \rightarrow$ MEAN OF K-NN