* What is the Elbow Method and how does it determine the best K value for KNN?

Ans)

Eblow method is used to calculiate the K value.  
It performs the calculation of ecah data point

For Suppose, we take values from(1 to 10)

It perform the calculation for each data point from k=1,k=2.......k=10

Then it draw the graph based on the data points.

Based on the dgraph it pick the K value this represents the Elbow method

Fit :-

If the data points is large it reduces the variance and it gives the best fit.

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* List at least three ADAS (Advanced Driver Assistance Systems) features where KNN is applied and explain why it is suitable.

Ans)

1) Driver Drowness

2)Identifying the Traffic signals  
  
3)Predentent Detection

4)Object Detection

We use the KNN in the above cases where in the case of traffic it can findout the patterns and find the colors and person according to the signal. and we give the assistance to the driver and some instuructions and signals before.

KNN is applied in different sectors

1) Fraud Detection

2) Medical Diagonsis

3) Amazon,Netflex

4)ADAS

It is suitable because we can provide the assistance to prevents the mistakes and give some suggests based on our interests and it is suitable for classification and regression models it predects the unknow with the help to K value and decides the value belons to which category

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* Given two vectors A = [1, 2, 3] and B = [4, 0, 5], calculate the Cosine Similarity between them.

Ans)

Formula : - Cos = 1-cosine

a.b/||a|| ||b||

||a|| = summation of ai whole square

||b|| = summation of bi whole square

final value after calculation ~ 0.792