In [ ]:

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Q1. What is the main difference between the Euclidean distance metric and the
Manhattan distance metric in KNN? How might this difference affect the
performance of a KNN classifier or regressor?
Ans -Euclidean distance is the shortest path between source and destination
which is a straight line as shown in .but Manhattan distance is sum of all the
real distances between source(s) and destination(d) and each distance are alwa
the straight lines
We mean by the 'best distance metric' (in this review) is the one that allows
the KNN to classify test examples with the highest precision, recall and
accuracy, i.e. the one that gives best performance of the KNN in terms of
accuracy.


Q2. How do you choose the optimal value of k for a KNN classifier or regressor
What techniques can be used to determine the optimal k value?
Ans 2- we have no proper method for select k value while select the k value we
need follow below thing

1. Square Root Method: Take square root of the number of samples in the traini

2. Cross Validation Method: We should also use cross validation to find out th

K=1, 2, 3... As K increases, the error usually goes down, then stabilizes, and

3. Domain Knowledge also plays a vital role while choosing the optimum value o

4. K should be an odd number.



Q3. How does the choice of distance metric affect the performance of a KNN cla
what situations might you choose one distance metric over the other?
Ans 3-We mean by the 'best distance metric' (in this review) is the one that
allows the KNN to classify test examples with the highest precision, recall an
accuracy, i.e. the one that gives best performance of the KNN in terms of
accuracy


Q4. What are some common hyperparameters in KNN classifiers and regressors, an
the performance of the model? How might you go about tuning these hyperparamet
model performance?

Ans 4-The most important hyperparameter for KNN is the number of neighbors
(n_neighbors). Test values between at least 1 and 21, perhaps just the odd
numbers. It may also be interesting to test different distance metrics (metric
for choosing the composition of the neighborhood.


Q5. What are some potential drawbacks of using KNN as a classifier or regresso
overcome these drawbacks to improve the performance of the model?
Ans 5-KNN is sensitive/drawback to outliers and missing values and hence we
first need to impute the missing values and get rid of the outliers before app
KNN algorithm.
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