***K-NN Revision/Interview***

**Explain about K-Nearest Neighbors?**

**Failure cases of KNN?**

**Define Distance measures: Euclidean(L2) , Manhattan(L1), Minkowski,Hamming**

**What is Cosine Distance & Cosine Similarity?**

**How to measure the effectiveness of k-NN?**

**How to handle Overfitting and Underfitting in KNN?**

**Need for Cross validation?**

**What is K-fold cross validation?**

**What is Time based splitting?**

**Explain k-NN for regression?**

**Weighted k-NN ?**

**How to build a kd-tree.?**

**Find nearest neighbors using kd-tree**

**What is Locality sensitive Hashing (LSH)?**

**LSH for cosine similarity?**

**LSH for euclidean distance?**

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**Explain about K-Nearest Neighbors?**

https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2927/k-nearest-neighbours-geometric-intuition-with-a-toy-example/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**Failure cases of KNN?**

https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2928/failure-cases-of-knn/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**Define Distance measures: Euclidean(L2) , Manhattan(L1), Minkowski, Hamming**

https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2929/distance-measures-euclideanl2-manhattanl1-minkowski-hamming/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**What is Cosine Distance & Cosine Similarity?**

https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2930/cosine-distance-cosine-similarity/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**How to measure the effectiveness of k-NN?**

https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2931/how-to-measure-the-effectiveness-of-k-nn/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**Limitations of KNN?**

https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2933/knn-limitations/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**How to handle Overfitting and Underfitting in KNN?**

https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2935/overfitting-and-underfitting/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**Need for Cross validation?**

https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2936/need-for-cross-validation/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**What is K-fold cross validation?**https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2937/k-fold-cross-validation/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**What is Time based splitting?**https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2940/time-based-splitting/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**Explain k-NN for regression?**https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2941/k-nn-for-regression/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**Weighted k-NN ?**https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2942/weighted-k-nn/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**How to build a kd-tree.?**https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2945/how-to-build-a-kd-tree/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**Find nearest neighbors using kd-tree**https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2946/find-nearest-neighbours-using-kd-tree/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**What is Locality sensitive Hashing (LSH)?**(

Hashing vs LSH?https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2949/hashing-vs-lsh/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**LSH for cosine similarity?**

https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2950/lsh-for-cosine-similarity/3/module-3-foundations-of-natural-language-processing-and-machine-learning

**LSH for euclidean distance?**

https://www.appliedaicourse.com/lecture/11/applied-machine-learning-online-course/2951/lsh-for-euclidean-distance/3/module-3-foundations-of-natural-language-processing-and-machine-learning

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***Interview***

**In k-means or kNN, we use euclidean distance to calculate the distance between nearest neighbours. Why not manhattan distance ?**

**(**https://www.analyticsvidhya.com/blog/2017/09/30-questions-test-k-nearest-neighbors-algorithm/)

**How to test and know whether or not we have overfitting problem?**

(https://www.appliedaicourse.com/course/applied-ai-course-online/lessons/how-to-determine-overfitting-and-underfitting/)

**How is kNN different from k-means clustering?**

(https://stats.stackexchange.com/questions/56500/what-are-the-main-differences-between-k-means-and-k-nearest-neighbours)

**Can you explain the difference between a Test Set and a Validation Set?**

**(**https://stackoverflow.com/questions/2976452/whats-is-the-difference-between-train-validation-and-test-set-in-neural-netwo)

**How can you avoid overfitting in KNN?**

**(**https://www.appliedaicourse.com/course/applied-ai-course-online/lessons/how-to-determine-overfitting-and-underfitting/)