Week 1: K means Clustering

(Total video duration is nearly 1 hour 46 mins. You will be required to spend 60 - 75 minutes/day along with practicing datasets and quizzes)

"Unsupervised Learning uses similarities of data points to categories with minimalistic labelling. In this course, we will learn the most commonly used Unsupervised learning methodologies, Clustering and Dimensionality Reduction.".

Learning Outcomes from Week-1:

- K Means clustering
- Clustering
- Distance measures – Manhattan, Euclidean, Chebyshev, Minkowski
- Types of clustering
- Distance calculations
- Cluster definition
- Lloyd's algorithm
- Elbow method
- Importance of scaling
- More distance measures – Mahalanobis,Jaccard distance
- Strength & amp; Weakness of K Means clustering
- Visual analysis

Mentor Session Duration:
2 hours

Faculty Name:
Dr. Kumar Muthuraman

No. of videos:
11

S.no	Video Name	Duration of the video(min)	Conceptual or Hands On
1.1	Machine learning 101 - Refresher	6.25	Conceptual
1.2	Introduction to Clustering	16.56	Conceptual
1.3	Types of Clustering	13.13	Conceptual
1.4	K Means Clustering	13.47	Conceptual
1.5	K Means Clustering Hands-on	12.02	Conceptual + Hands on
1.6	Importance of Scaling	17.08	Conceptual

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S.no	Video Name	Duration of the video(min)	Conceptual or Hands On
1.7	Applications of Clustering	4.05	Conceptual
1.8	Advantages & Disadvantages of K- means Clustering	4.31	Conceptual
1.9	Silhouette coefficient for K means	8.01	Conceptual
1.10	Visual Analysis of clustering	5.20	Conceptual
1.11	Dynamic Clustering	4.09	Conceptual

Few textbooks that you can refer to:

- https://jakevdp.github.io/PythonDataScienceHandbook/
- Python Machine Learning by Sebastian Raschka and Vahid Mirjalili
- The Elements of Statistical Learning
- Approaching Any Machine Learning problem by Abhishek Thakur
- Hands-on Unsupervised Learning using Python by Ankur Patel