SESSION PLAN

Session Name	Machine Learning: Clustering/ k-means

Learning Outcomes

- Differentiate between supervised and unsupervised methods
- Know the different types of unsupervised methods
- Understand how K-means and hierarchical clustering works
- Solve unsupervised problems using clustering

Prerequisites for the Student ● Machine Learning: Clustering/ k-means - Go through the concept and solve the tasks and assessments.	

Student Activities

- Ask learners what they have learned from the concept?
- Overview of Machine Learning: Clustering/ k-means
    - K-Means clustering
    - Hierarchical Clustering
- Blog on Clustering: https://medium.com/data-science-group-iitr/clustering-described-63e62833099e
- Hierarchical clustering intuition:https://www.youtube.com/watch?v=0jPGHniVVNc
- Assume, you want to cluster 7 observations into 3 clusters using K-Means clustering algorithm.
  After first iteration clusters, C1, C2, C3 has the following observations:
    - C1: {(3,3), (5,5), (7,7)}
    - C2: {(0,6), (6,0)}
    - C3: {(6,6), (10,10)}
  What will be the cluster centroids if you want to proceed for the second iteration?
- Practice problem on Machine Learning: Clustering/ k-means
    - Refer the GitHub repo for problems
- Quiz on Machine Learning: Clustering/ k-means.
- Questions and Discussion on doubts - AMA

Next Session

- Concept - Challenges in Machine Learning
- Key topics to be highlighted - highlight where they would need to spend more time and importance w.r.t Data Science.
    - Different error metrics
    - Dealing with Imbalanced data
    - Dealing with small datasets
    - Values of K in K-Fold Validation
    - Optimal classifier choice