Unsupervised Learning – Hierarchical Clustering and PCA

**Learning Objectives of the session:**

* Gauging learner’s understanding on the topic of the week.
* Understanding the concepts clarity of the learners on
  + Hierarchical clustering, distance calculation, dendograms, cophenetic corr.
  + PCA, Co-variance matrix, improving SNR through PCA and dimensionality reduction
* Case Studies (Hands on) on the topics mentioned.
* Doubts redressal, industry perspective and practices.
* Summary of the sessions’s learning.

**Structure of the Session**

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| **Time Distribution of 2 hours** | **Topic** | **Detail** |
| 10 mins | * **Gauge learner’s understanding** on Hierarchical Clustering and PCA | * Connectivity based clustering * Distance calculations * Dendograms, cophenetic correlation * Principal component co-variance matrix * Improving SNR through PCA * PCA for dimensionality reduction |
| 20 mins | * Concepts clarity of the covered topics | * Above mentioned topics |
| 60 mins | * Case studies on Hierarchical clustering and PCA | * Vehicle data * Bank note authentication dataset |
| 25 mins | * Doubts clearance * Industry perspective on the mentioned topics * Buffer |  |
| 5 mins | * Summarize the session |  |