

MACHINE LEARNING SESSION 4

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Jan 29, 2021



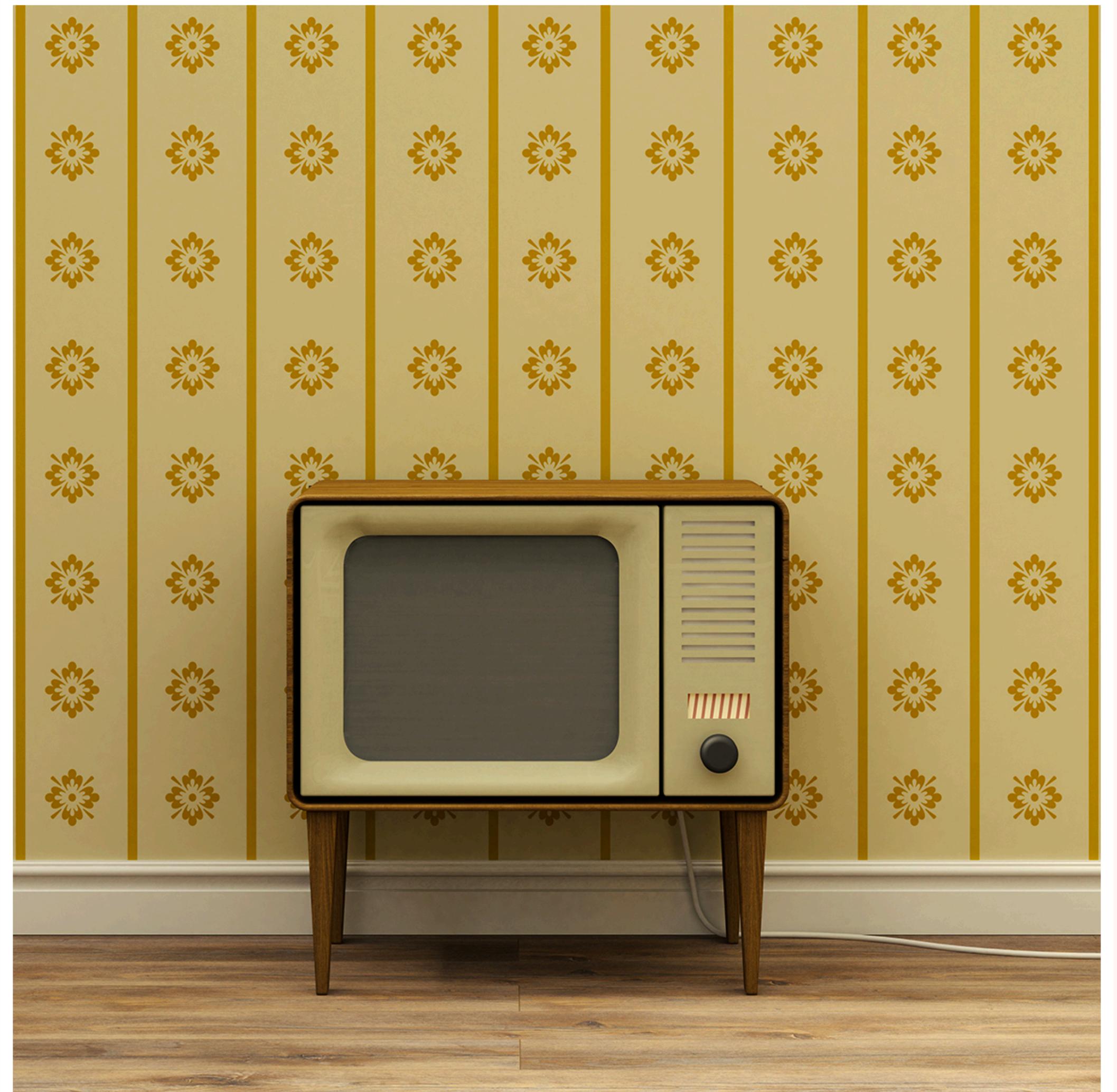
AGENDA FOR THE SESSIONS

Session	Date	Agenda
1	Jan 8, 2021	Introduction to ML
2	Jan 15, 2021	Supervised Learning - 1
3	Jan 22, 2021	Supervised Learning - 2
4	Jan 29, 2021	Unsupervised Learning - 1
5	Feb 05, 2021	Unsupervised Learning - 2

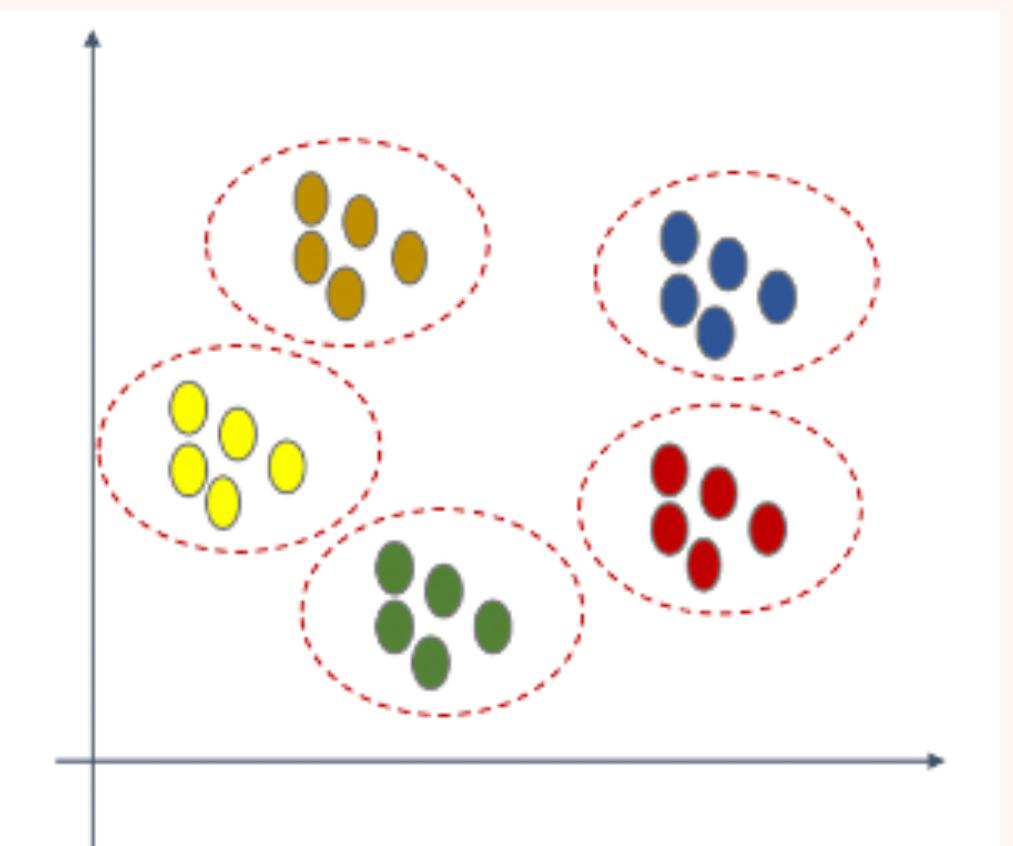
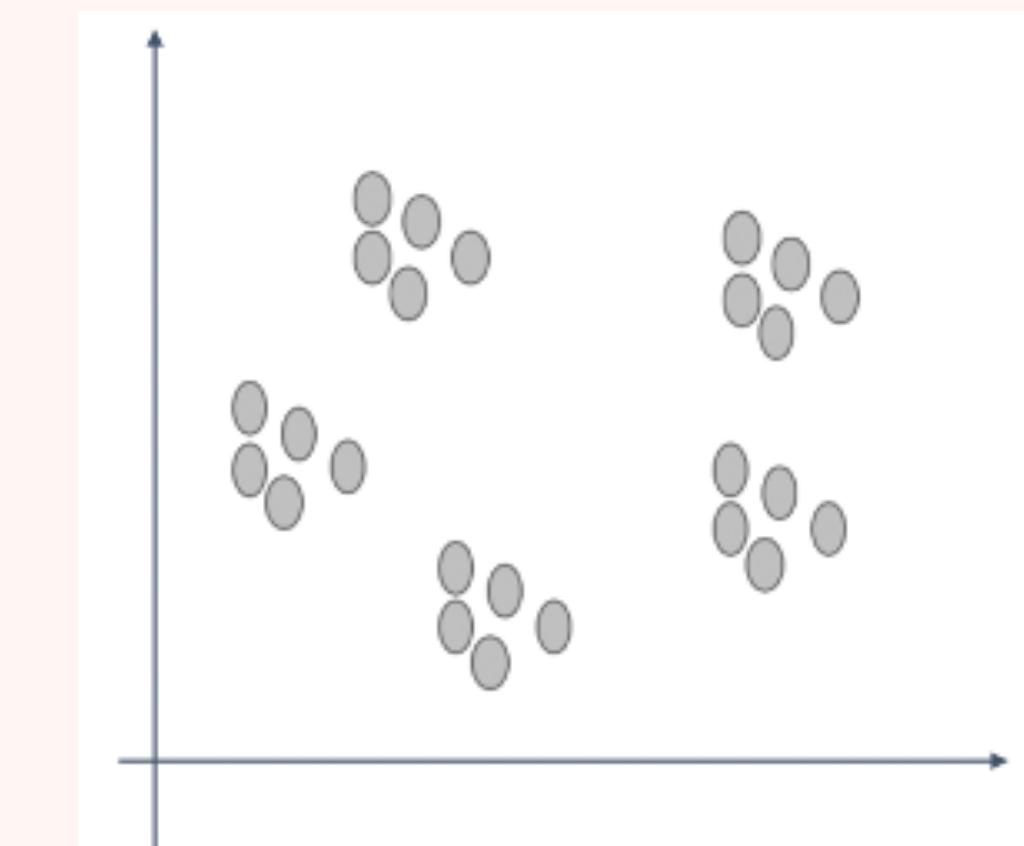
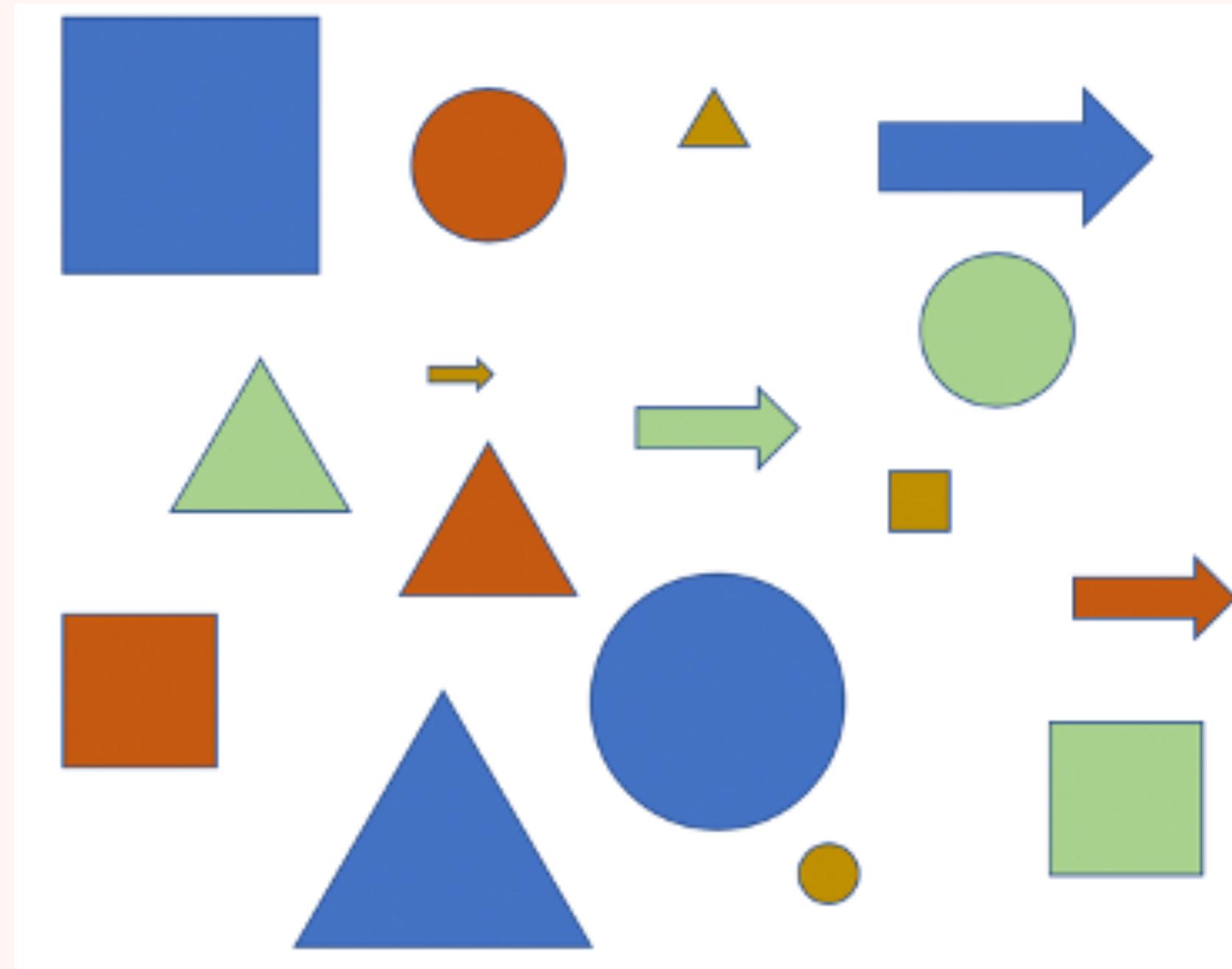


QUESTIONS WE WILL DISCUSS TODAY

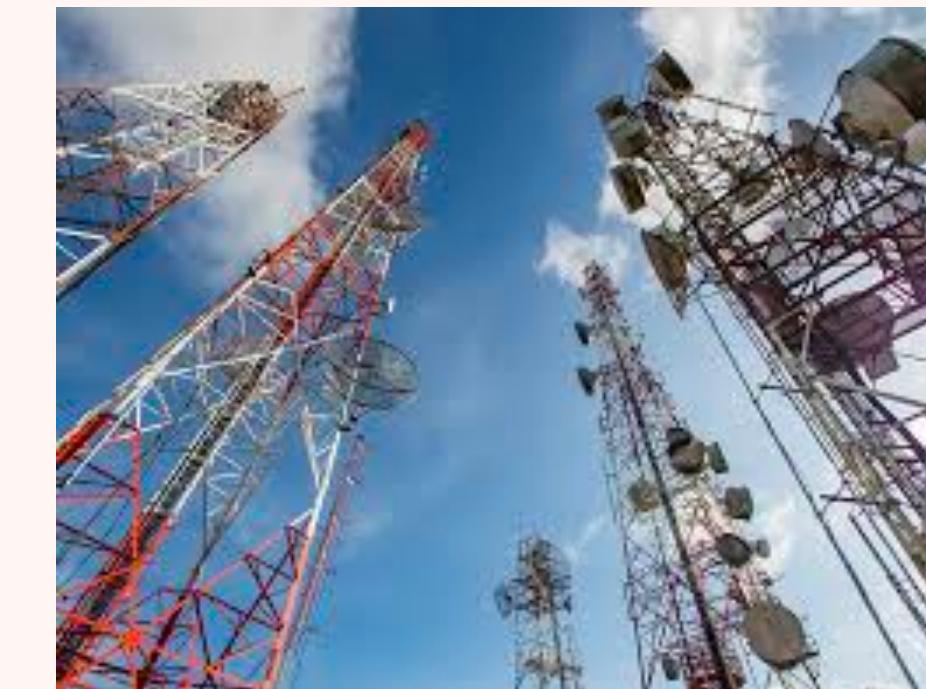
- Unsupervised Learning
- Use Cases of unsupervised learning
- Unsupervised algorithms
- kMeans clustering
- Hierarchical clustering
- Python Implementations



There is no target variable in unsupervised algorithms



Use cases of unsupervised learning algorithms



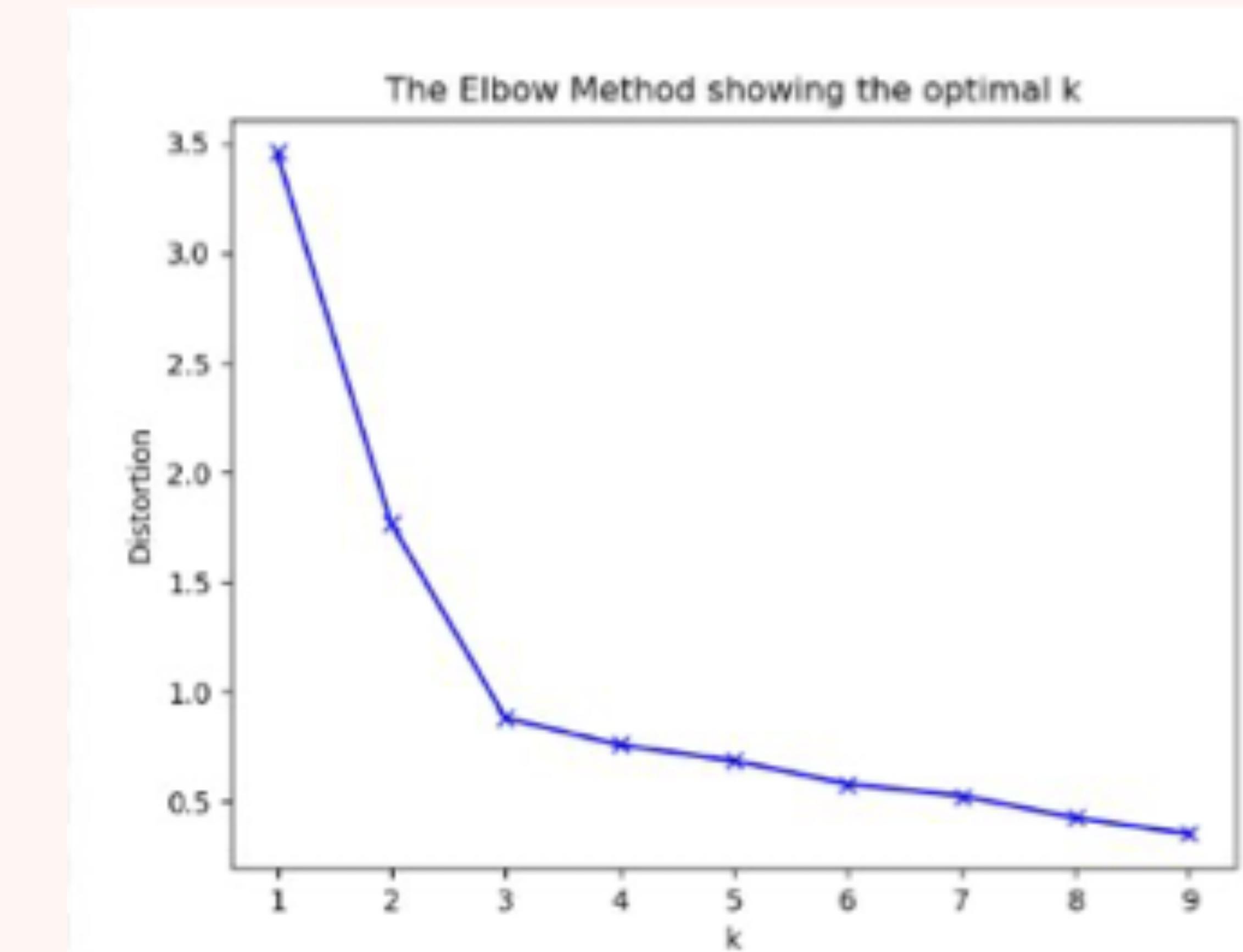
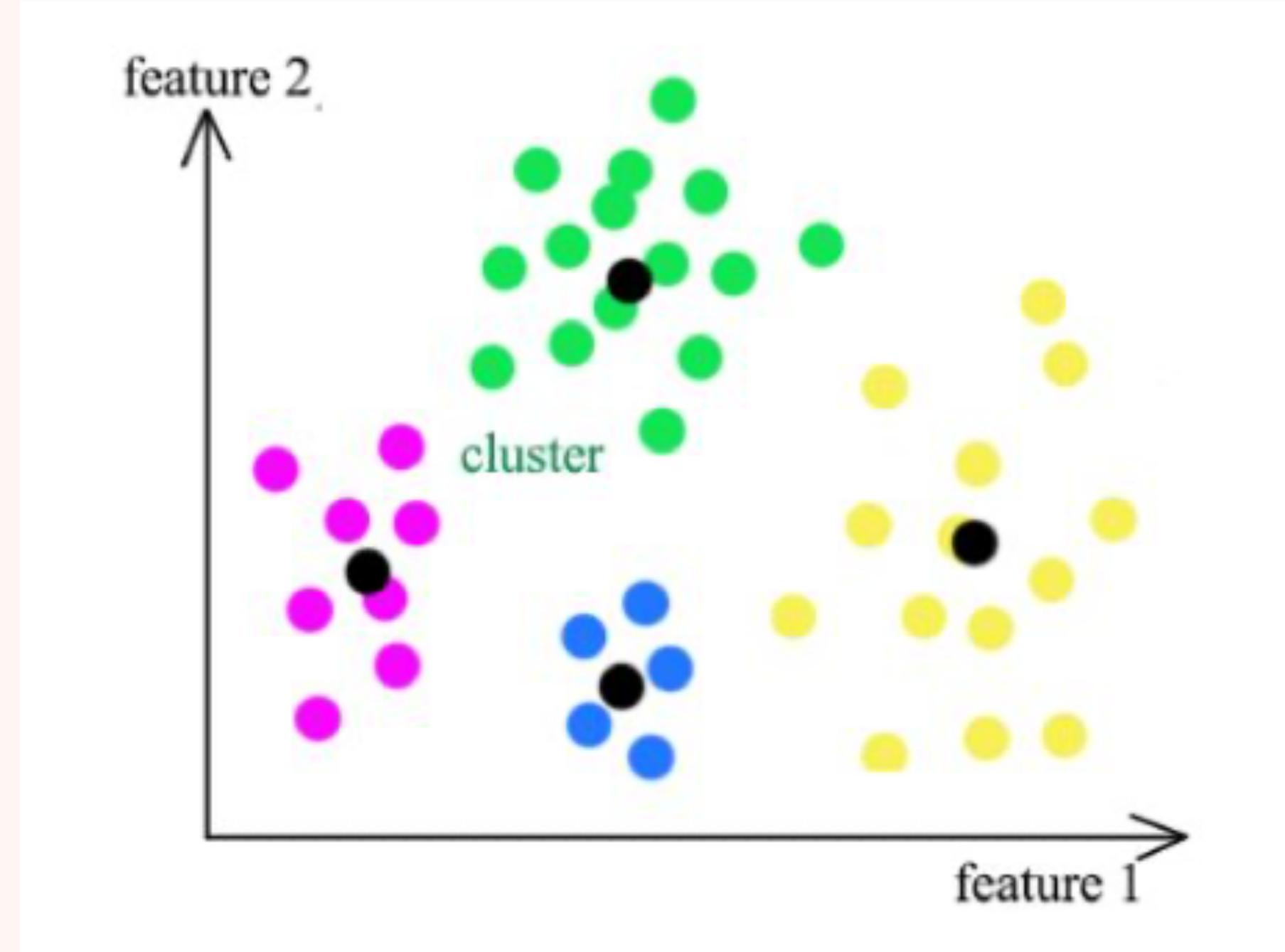
There are quite a few unsupervised learning algorithms

- Clustering algorithms
 - k-means clustering
 - Hierarchical clustering
 - DB Scan clustering
 - Spectral clustering
 - Principal component analysis
 - Singular Value Decomposition
 - Association rules
 - t-SNE (t-distributed stochastic neighbour embedding)
 - Autoencoders
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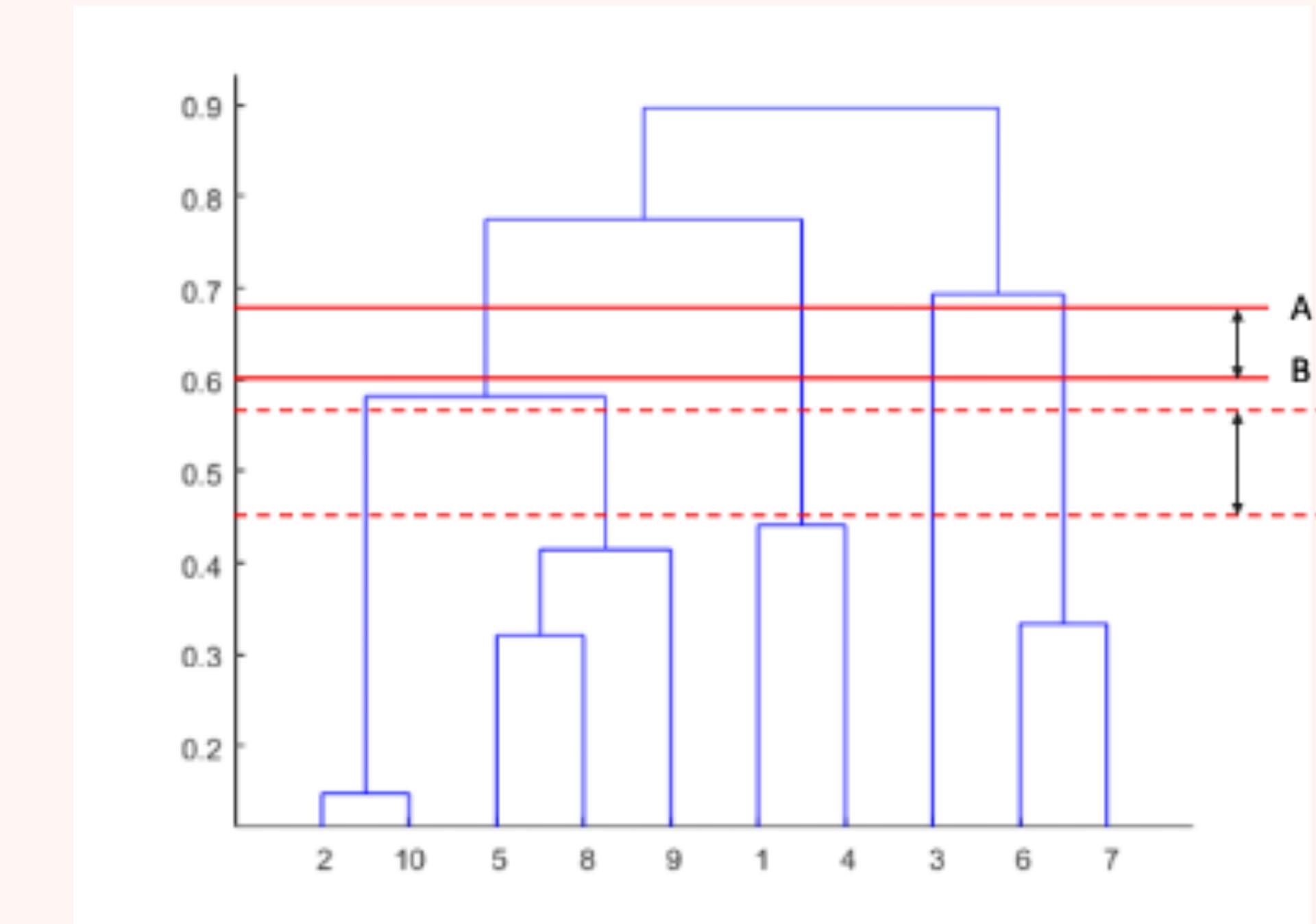
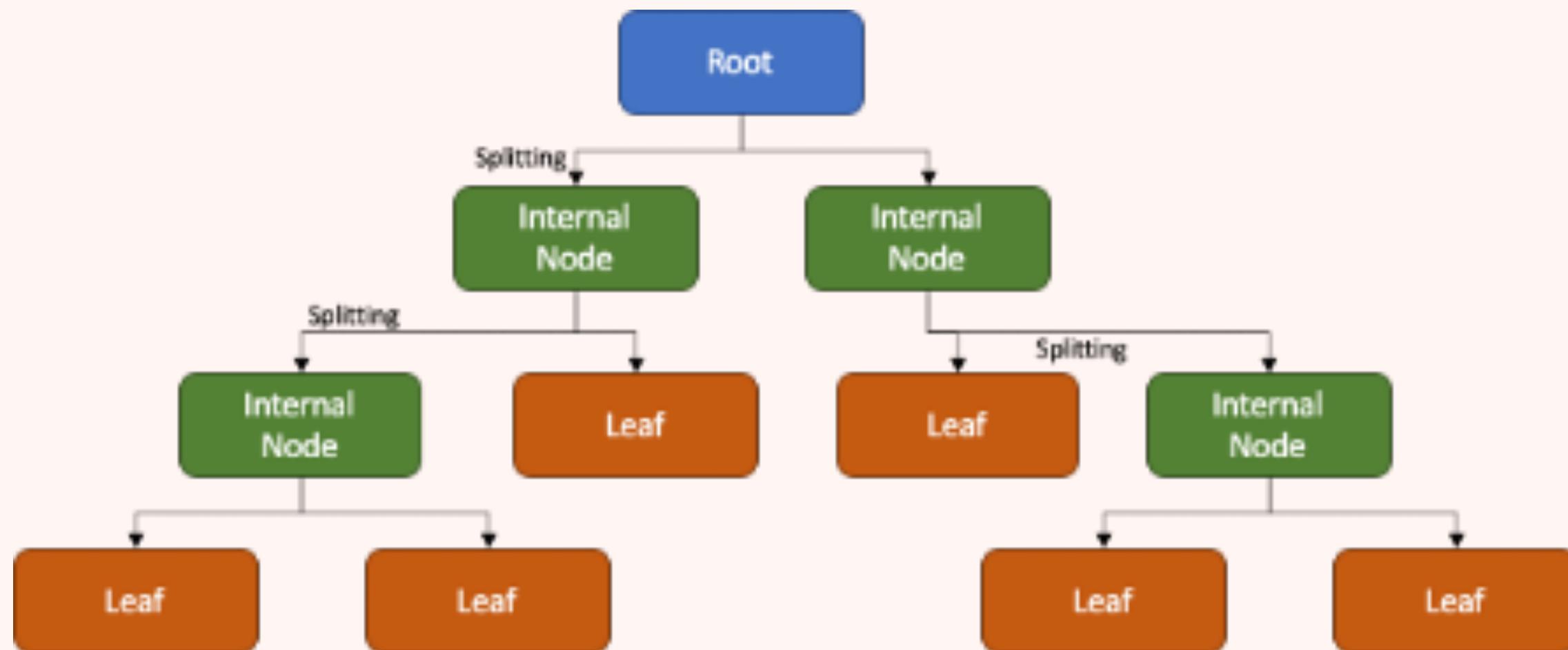
Clustering techniques can be classified as below

S. No.	Clustering methodology	A brief description of the method	Example
1	Centroid based clustering	Distance from a defined centroid	k-means
2	Density based models	Data points are connected in dense regions in a vector space	DBSCAN, OPTICS
3	Connectivity based clustering	Distance connectivity is the modus operandi	Hierarchical clustering, BIRCH
4	Distribution models	Modelling is based on statistical distributions	Gaussian Mixture models
5	Deep learning models	Unsupervised neural network based	Self-organizing maps

kMeans algorithm is one of the most popular algorithm



Hierarchical clustering is also very popular method



Time to hit the code!

QUESTIONS PLEASE



THANKS!

