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Recap: Boosting Technique

- Theory, why
- Mathematics
- Practical implementation
- Hometask → Adaboost Reg.

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Agenda :- * SVM → Support Vector Machin

(M.L.) Basics → deep lean

* Unsupervised ML Algorithm

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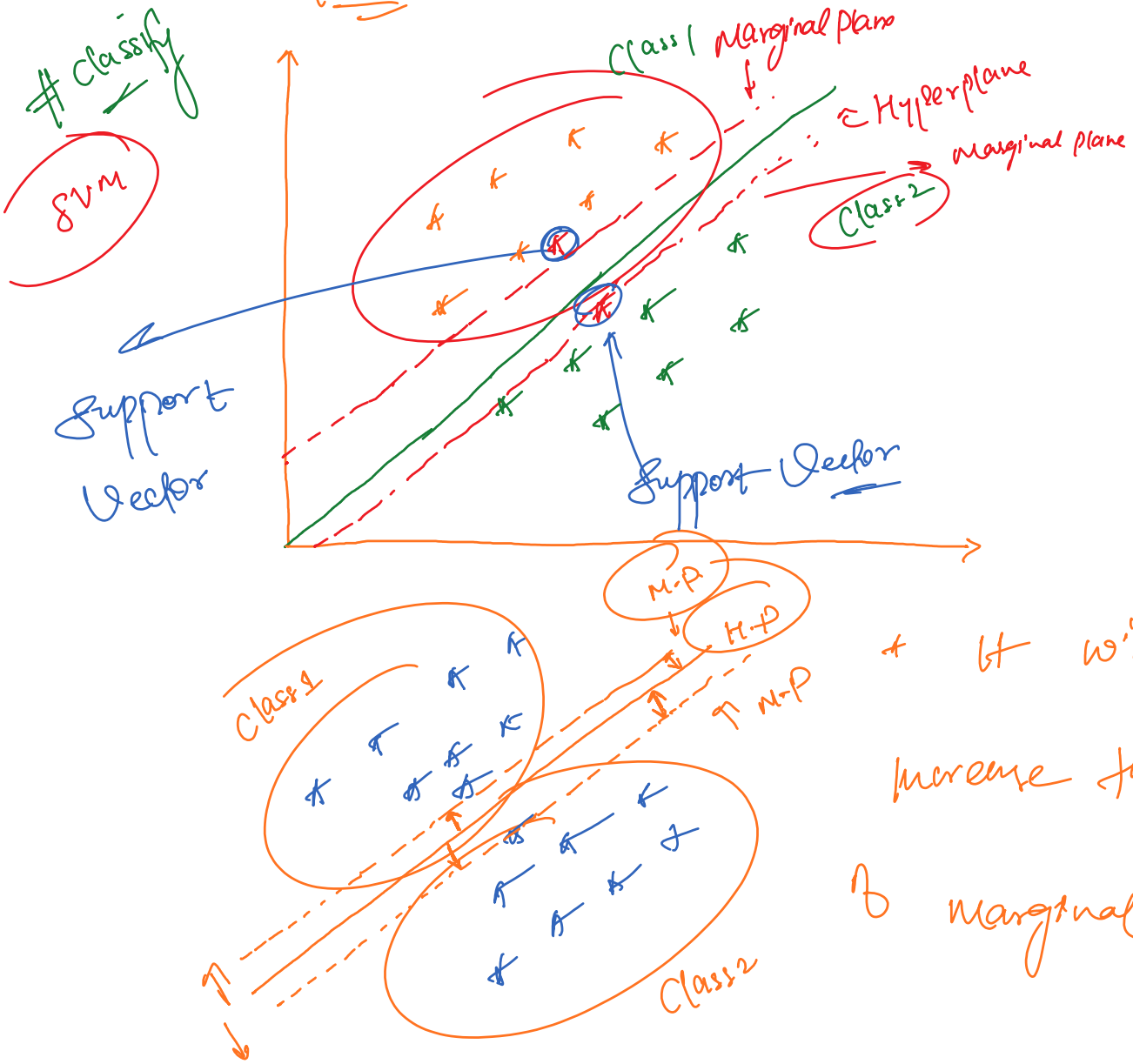
Support Vector Machine (SVM) Algo

* It is a Supervised ML Algo.
* Basically we use it for Classification problems.
* Here we try to separate the boundary of the respective classes.

Classify



* It will try to increase the distance b/w Marginal Plane

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Unsupervised ML Algorithm

* This type of ML Algo. will not have the target column / Output column.

* So In Unsupervised ML we will be making Clusters → grouping of similar type of objects.

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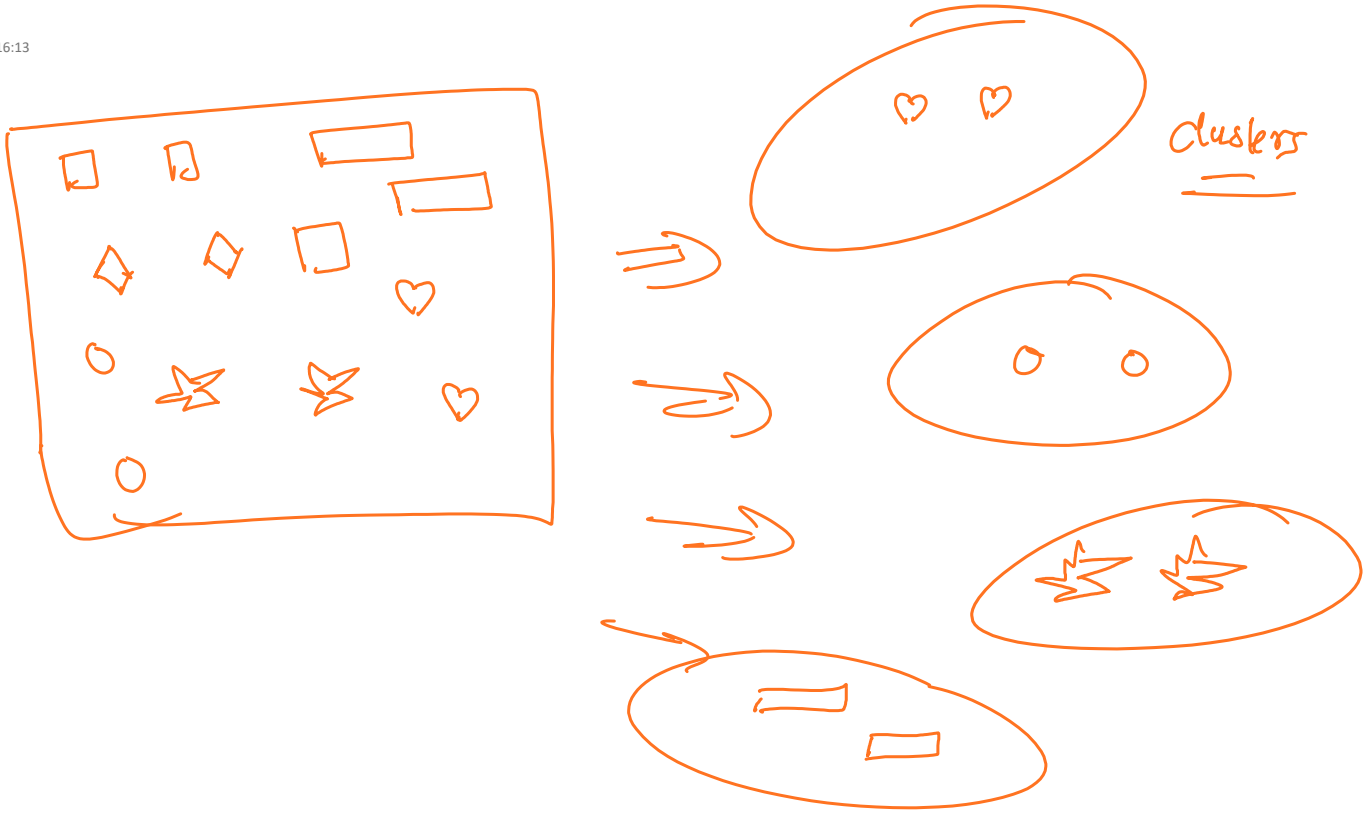

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Q: Which ML Algo we will use to form the clusters ?

Ans: K-Means Clustering ML Algo.

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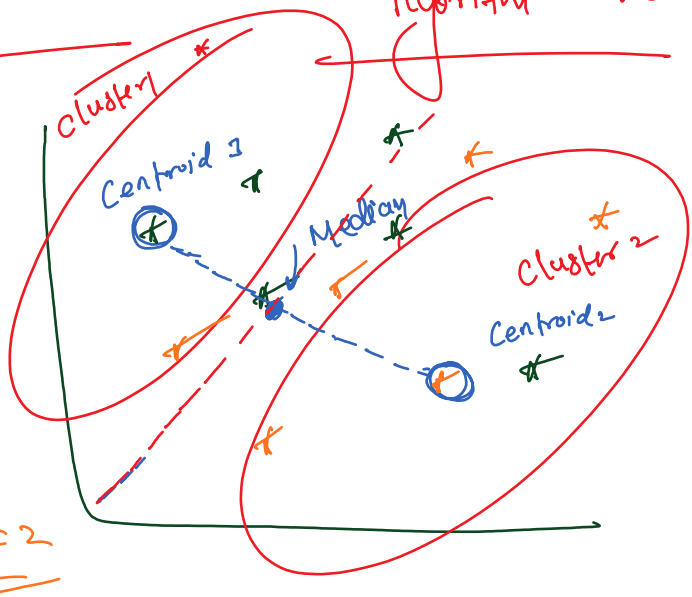
K- Means ML Algo.

* It is a unsupervised ML Algorithm.
* It forms the cluster for similar type of object.
* It is also called as Clustering algorithm.

How K- Means ML Algorithm Works:-

(1) Select the value of K.

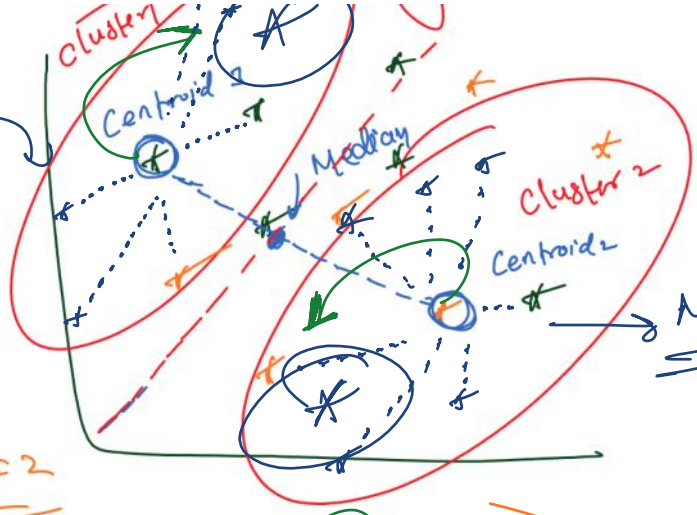
Let's say K=2



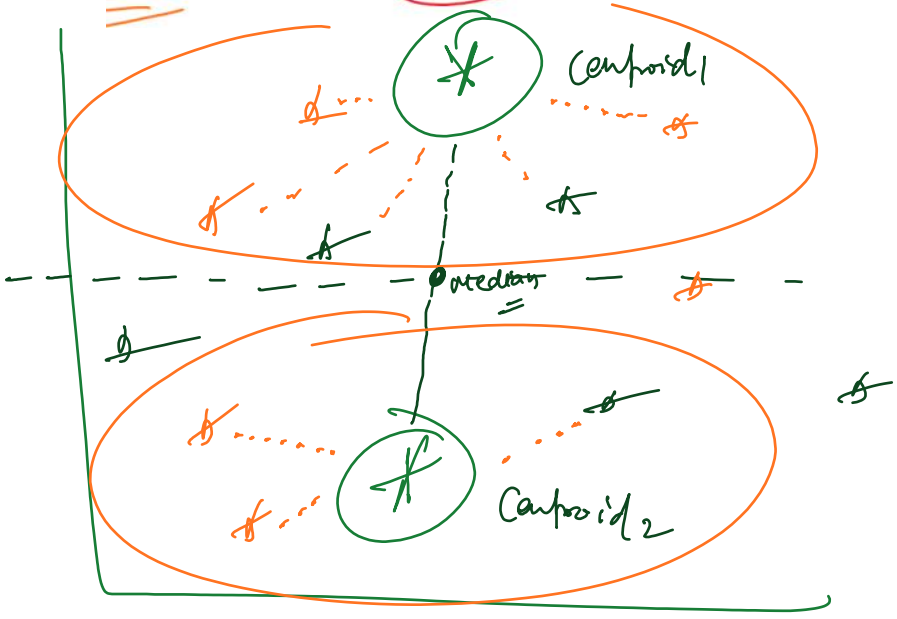
(2) We will Calculate the new Centroid, To Calculate new Centroid we will take the help of Medoid.

(3)

Mean of euclidean distance.



→ Mean of euclidean distance



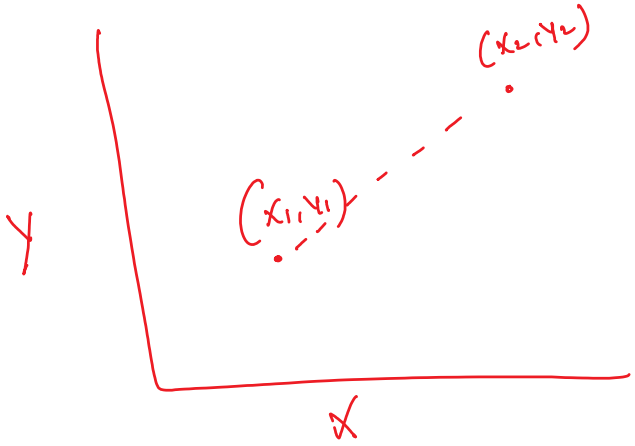
K = 2

K = 2

Now

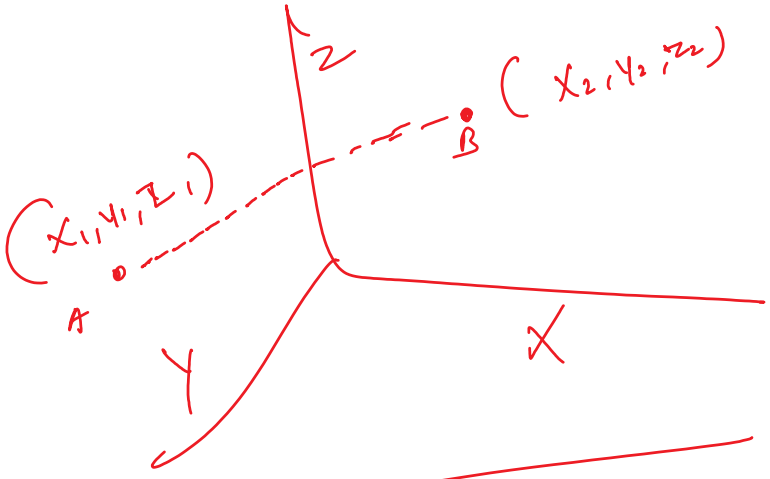
④ So this is an iterative process and keeps on going until we get perfect clusters.

Euclidean distance: To find distance b/w two points in Coordinate system (2d, 3d, 4d--)



$$dis = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

3d



$$dis(A,B) : \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2}$$

Ans