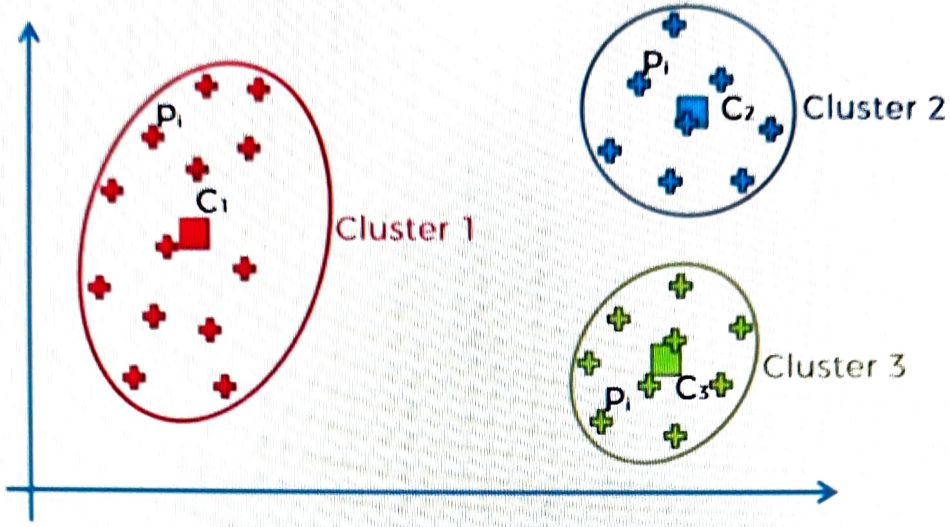
K-Means Intuition: Choosing the right number of clusters

Emmanuel Kamins algorithm which was lots of fun.

Choosing the right number of clusters



to be three then the result will look something like this.

Choosing the right number of clusters

$$WCSS = \sum_{P_i \text{ in Cluster 1}} \text{distance}(P_i, C_1)^2 + \sum_{P_i \text{ in Cluster 2}} \text{distance}(P_i, C_2)^2 + \sum_{P_i \text{ in Cluster 3}} \text{distance}(P_i, C_3)^2$$

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At first glance this formula might look a bit overwhelming or complex but in reality it's super simple

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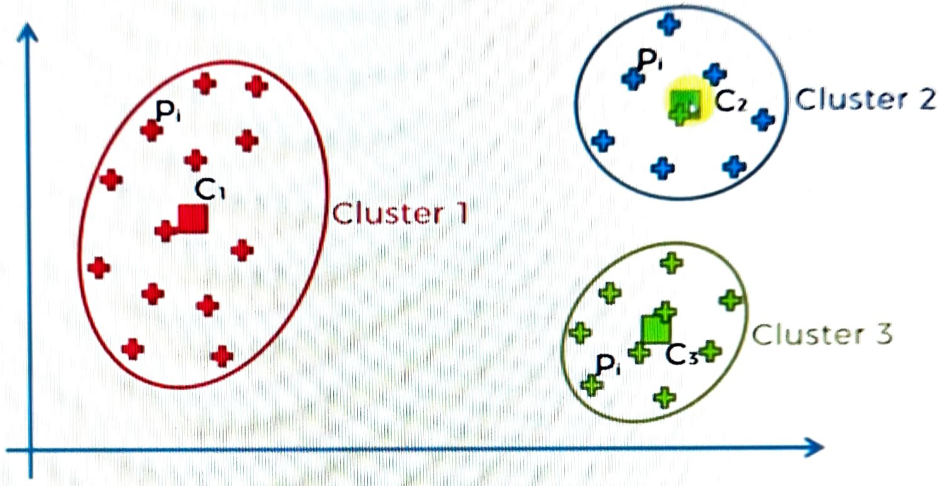

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to every single point so to that point then we're square with squaring it to that point then risk wearing

Section 1: Welcome to the course! Here we will help you get started in the best conditions.

13 / 14 | 42min

Section 2: ---------- Part 1: Data Preprocessing ----------

Choosing the right number of clusters

Rewind...

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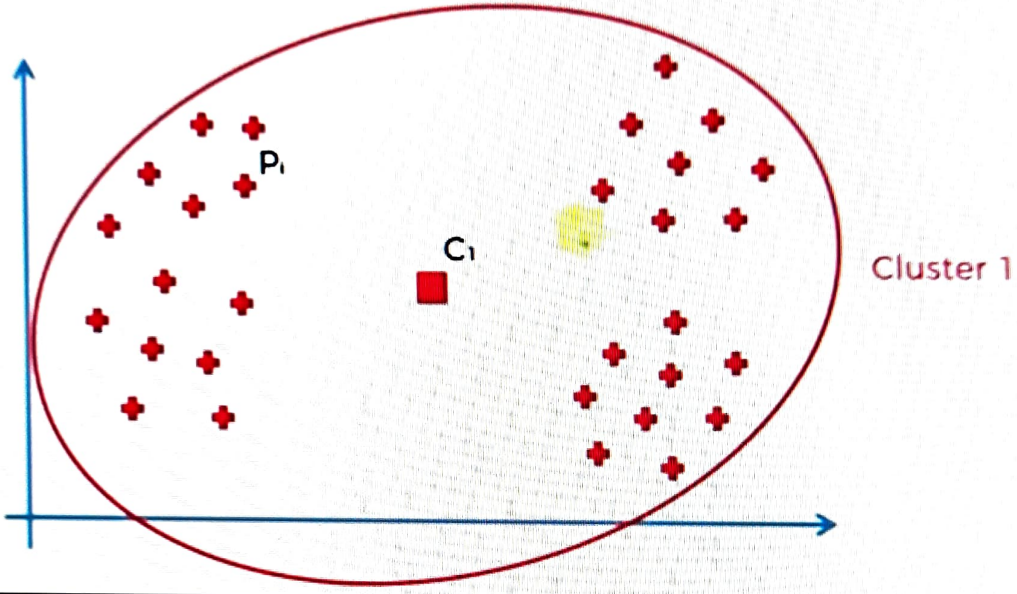
it's going to change as we increase the number of clusters.

Choosing the right number of clusters



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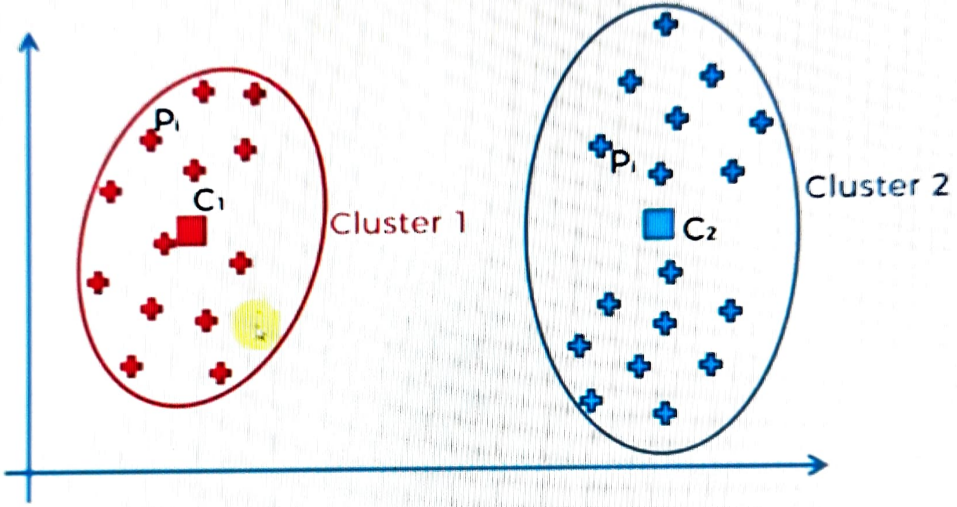
$\text{ance}(P_i, C_1)^2$

to reach towards it.

Choosing the right number of clusters



$$\sum \text{distance}(P_i, C_2)^2$$

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All you have to do is just calculate distance to this centroid as it gets less and then for the Central

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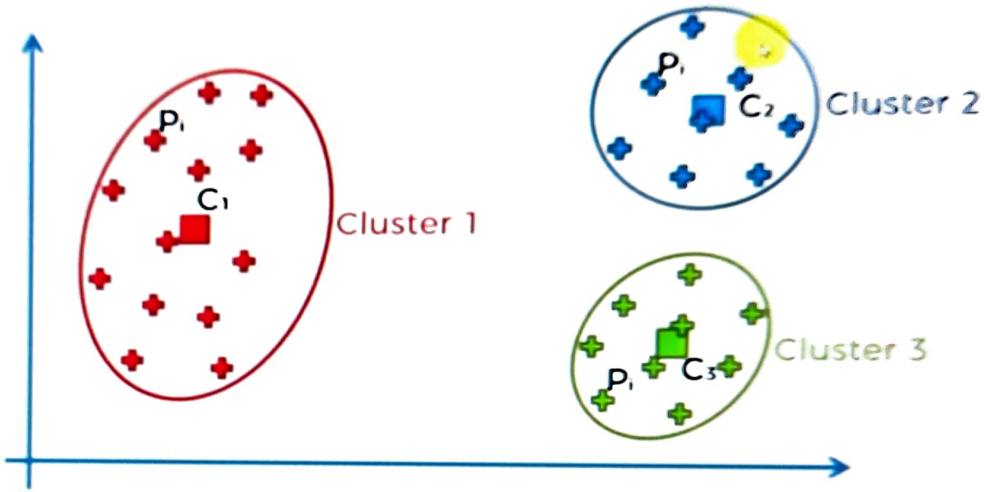

$$\text{WCSS} = \sum_{P_i \text{ in Cluster 1}} \text{distance}(P_i, C_1)^2 + \sum_{P_i \text{ in Cluster 2}} \text{distance}(P_i, C_2)^2 + \sum_{P_i \text{ in Cluster 3}} \text{distance}(P_i, C_3)^2$$

Machine Lea... DataScience

These two sums have changed so now it's sort of a one cluster.

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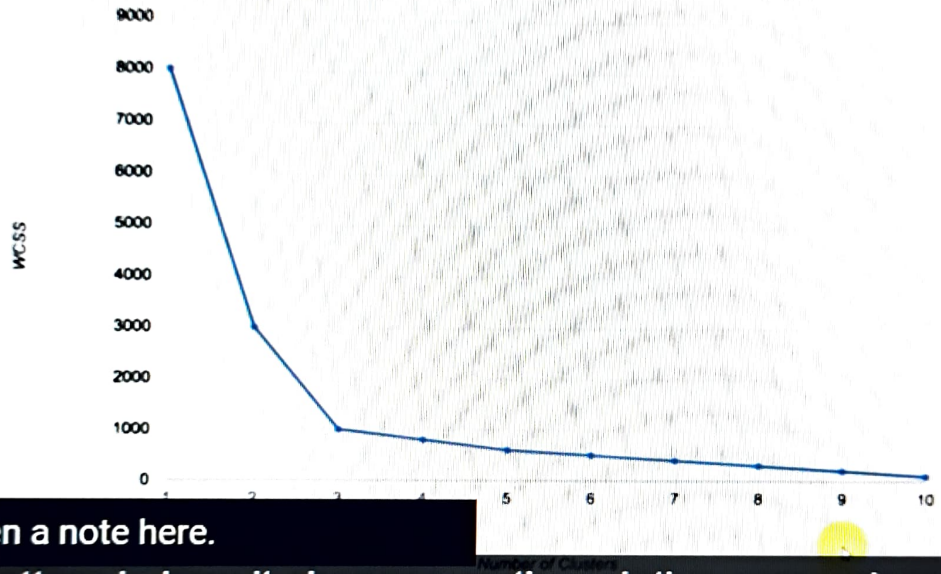

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What matters is how it changes so the relative comparison between different k means clustering methods

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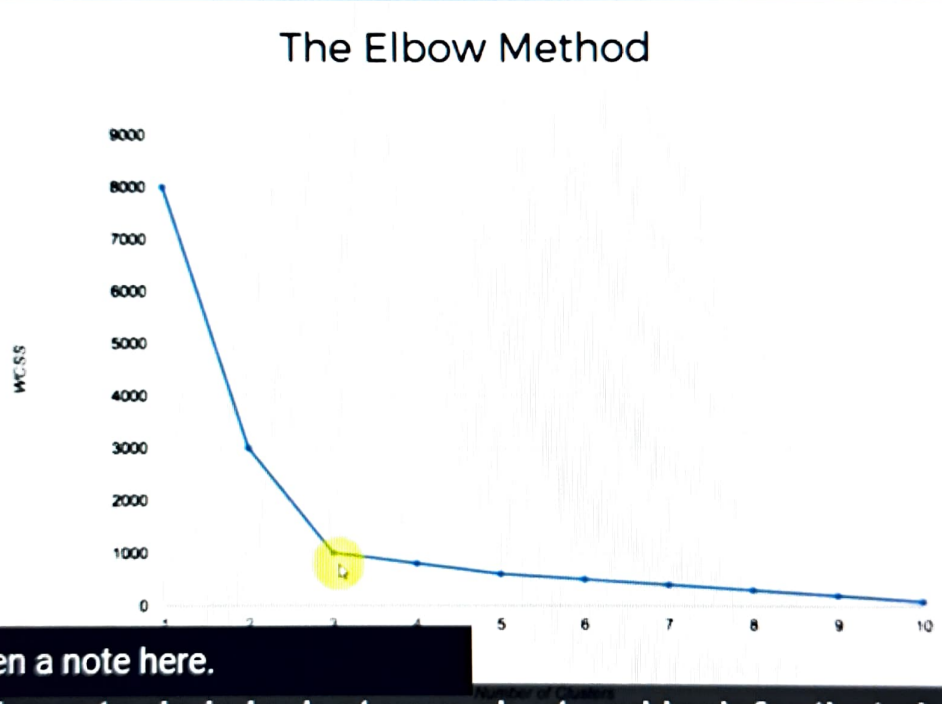

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All you have to do is look at your chart and look for that change or that's kind of like it does look

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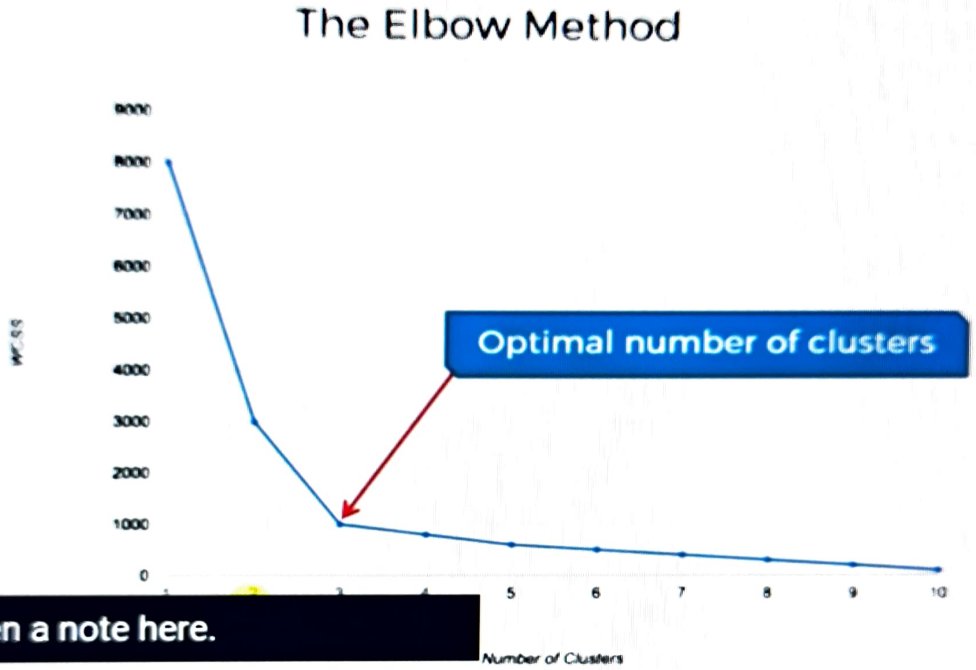

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And as you can imagine this method is quite arbitrary.