# **Stats-Quest**

## **K-Means Clustering Algorithm**

Chart, diagram

Description automatically generatedChart

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Description automatically generated

Diagram

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Chart

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Chart, diagram

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Chart

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Diagram

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Chart, diagram

Description automatically generated with medium confidenceChart, box and whisker chart

Description automatically generatedChart, box and whisker chart

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Chart, box and whisker chart

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1st attemptChart, bubble chart

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2nd attemptChart, box and whisker chart

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3rd attemptChart, timeline, box and whisker chart

Description automatically generatedAt this point, K-Means Clustering knows the 2nd cluster attempt is best so far. But don’t it’s the best from over-all.

## **How to Pick K-Value**

Chart

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Chart, line chart, box and whisker chart

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Chart

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Chart, timeline, box and whisker chart

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Chart, schematic, box and whisker chart

Description automatically generated

Graphical user interface, text, application

Description automatically generated

Diagram

Description automatically generated with medium confidence

## **K-Means vs Hierarchical Clustering**

Box and whisker chart

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## **K-Means Clustering and 2-Dimensional Data**

## **K-Means Clustering and Heatmaps**

# **i-Neuron**

Text

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Text, letter

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Text, letter

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Text, letter

Description automatically generatedGraphical user interface, text, application

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## **Implementation**

Graphical user interface, text, application

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Data-setChart, scatter chart

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Initializing random centroidsGraphical user interface, text, application, email

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Chart, scatter chart

Description automatically generated  
Graphical user interface, text, application

Description automatically generated Graphical user interface, application

Description automatically generated Text

Description automatically generated with low confidence

Chart, scatter chart

Description automatically generated  
Now the random centroids are moved to centre of the cluster.

Graphical user interface, text, application, email

Description automatically generatedChart, scatter chart

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated  
A picture containing text

Description automatically generated

Chart, scatter chart

Description automatically generated

Chart, scatter chart

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Now the random centroid has reached the exact centre of their respective cluster.

How to Choose optimal K-value(i.e number of groups)???

Chart, line chart

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Text

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Shape

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After k=5, there is slow degradation. So choosing K=5.

A picture containing calendar

Description automatically generatedText

Description automatically generatedText

Description automatically generated with medium confidenceA picture containing text

Description automatically generatedGraphical user interface

Description automatically generated with low confidenceChart

Description automatically generated

## **Changes and Improvements in K-Means**

## **Silhouette Clustering**

Diagram

Description automatically generatedA picture containing text

Description automatically generatedCalendar

Description automatically generated with medium confidence

Text

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Text

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Text

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<https://towardsdatascience.com/understanding-k-means-k-means-and-k-medoids-clustering-algorithms-ad9c9fbf47ca>

<https://towardsdatascience.com/silhouette-method-better-than-elbow-method-to-find-optimal-clusters-378d62ff6891>