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Machine Learning internship

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Introduction

Instructions

Select an Industry

Module 1

Module 2

Module 3

Module 4

Module 5

Module 6

Interview   🔒

My Jupyter Notebook

Module 6

Clustering for Diversification analysis

Clustering is a method of unsupervised learning and is a common technique for statistical data analysis used in many fields.

Clustering is a Machine Learning technique that involves the grouping of data points. Given a set of data points, we can use a clustering algorithm to classify each data point into a specific group. In theory, data points that are in the same group should have similar properties and/or features, while data points in different groups should have highly dissimilar properties and/or features.

In financial Markets, Cluster analysis is a technique used to group sets of objects that share similar characteristics. It is common in statistics, but investors will use the approach to build a diversified portfolio. Stocks that exhibit high correlations in returns fall into one basket, those slightly less correlated in another, and so on, until each stock is placed into a category.
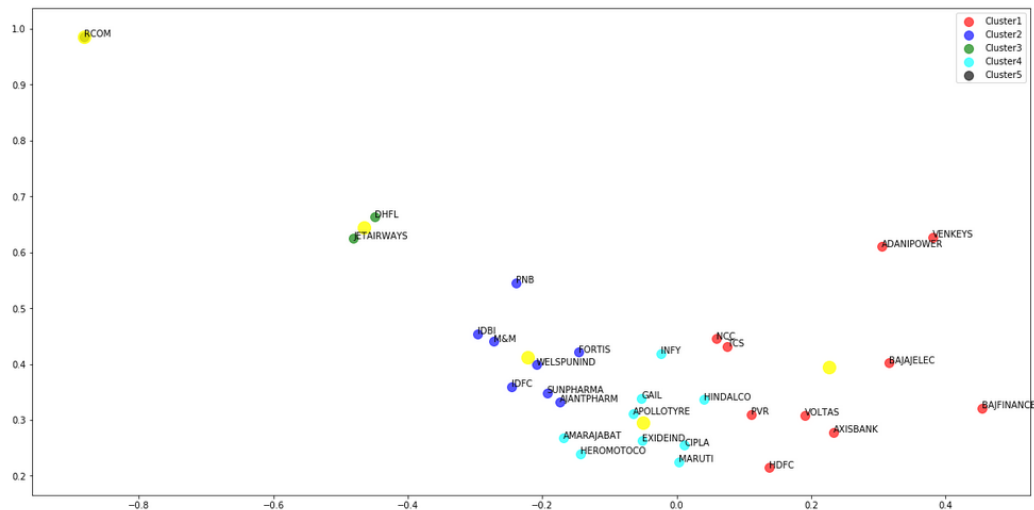
Problem Statements

6.1 Create a table/data frame with the closing prices of 30 different stocks, with 10 from each of the caps

6.2 Calculate average annual percentage return and volatility of all 30 stocks over a theoretical one year period

6.3 Cluster the 30 stocks according to their mean annual Volatilities and Returns using K-means clustering. Identify the optimum number of clusters using the Elbow curve method

6.4 Prepare a separate Data frame to show which stocks belong to the same cluster

Submit

Before you proceed, please take this quick quiz on Module five and six for us to assess your learning

Getting stuck and need a little guidance? Get access to the guidance program (https://careerlauncher.com/cl-online/ProductDesc.jsp?prodeid=0K4XsvNcqbM%3D& prodCat=DATA%20ANALYTICS&prodGroup=Online%20Coaching) from our machine learning faculty!