← Go Back to Unsupervised Learning

Course Content

Course Outline

Consider the following common business questions:

1. *Can I group my customers or products into different groups to get the best return on my marketing investment?*

2. *Can I organise my documents to understand the theme of the text, compare it with other documents and classify it*

3. Can I create a team on the basis of the performance of players to beat the competition

Such questions come under the realm of unsupervised learning and can be answered with the help of clustering algorithms.

Overview

Till now you have learned about supervised learning algorithms where the target label for each observation was already available. Many times target labels will not be available to us, so in such a scenario, we use unsupervised learning algorithms.

In real life, it is easier to get unlabeled data than labelled data. This adds to the tedious task of manual intervention to use any prediction methodology. **Unsupervised Learning** identifies patterns in the dataset containing data points that are neither classified nor labelled.

In this course, we will learn the most commonly used Unsupervised learning methodologies like K-means Clustering, Hierarchical Clustering, and Dimensionality Reduction.

Course Objectives

After completing this course, you will be able to:

- observe the similarities and dissimilarities between data points by identifying patterns and grouping them based on different attributes of the business
- represent a multivariate data table as a smaller set of variables without losing much of the information

Topics Covered

Week	Module	Name of the topic
1	K-Means Clustering	• Introduction to Clustering • Types of Clustering • K-means Clustering • Importance of Scaling • Silhouette Score • Visual Analysis of Clustering
2	Hierarchical Clustering & PCA	• Hierarchical Clustering • Cophenetic Correlation • Introduction to Dimensionality Reduction • Principal Component Analysis

Learning Material

Week	Module	No. of videos	Total duration	No. of Test Your Understanding Quizzes	No. of Weekly Graded Quizzes	No. of Practice Exercises
1	K-Means Clustering	10	~1.5 hours	10	1	1
1	Hierarchical Clustering & PCA	7	~2.0 hours	7	1	2

Project

A graded project is to be submitted by the learners at the end of the course.

The project is about a consultancy firm "Trade and Ahead" that provides its customers with personalized investment strategies. The data comprises stock price and some financial indicators for a few companies listed on the New York Stock Exchange. The objective is to analyse the data, group the stocks based on the attributes provided, and share insights about the characteristics of each group which help develop an optimised portfolio for different kinds of investors.

Power Ahead!

Next >