

A 2-Day Hands-on Masterclass on R Programming - using AI to gain insights from Market Segmentation

machine learning concepts covered: agglomerative clustering, k-means clustering, PCA

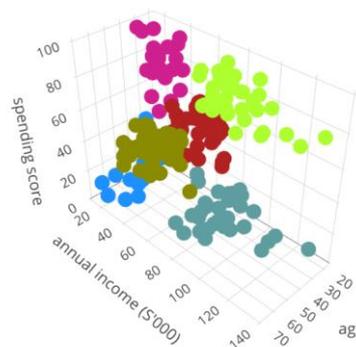
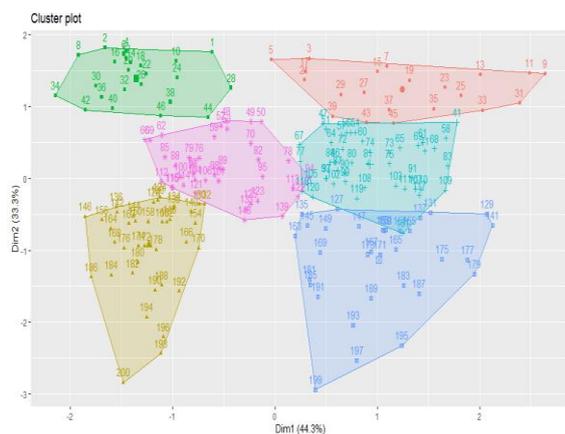
Course Content / Brief synopsis:

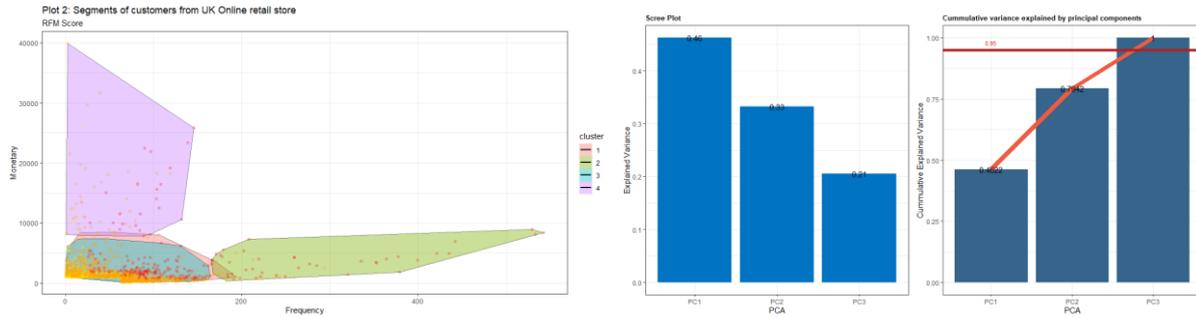
The amount of data being harvested is ever increasing, and data is fast replacing oil as the world's most valuable resource. Tech titans – Facebook, Amazon, Apple, Netflix, and Google/Alphabet – collectively known as the FAANG, have exceeded three trillion U.S. dollars in combined market value. Their source of wealth comes from their applying analytics on their massive data troves that allows them to capture enormous economic gains.

This course endeavours to equip learners with the essentials of R programming, a powerful statistical and machine learning tool at the heart of data science and data analytics. Learners will learn how to use R to tease out hidden patterns in the data, generate insights and unlock its value.

This is a hands-on course, designed to illustrate how to perform market segmentation using cluster analysis, an AI/machine learning algorithm. The key workhorses are the agglomerative clustering and the k-means clustering algorithms. Both algorithms segregate data into different groups based on certain distance measure. The power of these algorithms can be further enhanced using Principal Component Analysis (PCA), another machine learning algorithm that specializes in reducing complex dataset into fewer key dimensions. In this course, we shall be dissecting these powerful algorithms, understanding their intricate mechanisms and how they work under the hood, and applying them to conduct market segmentation.

Additionally, learners will also acquire the skillsets to visualize and communicate insights to stakeholders using ggplot2, a powerful data visualization library in R. The twin-combination of cluster analysis with data visualization can facilitate effective data story-telling on the derived insights for decision-making.





Level: Basic-Intermediate

Who Should Attend

- Existing professionals looking to acquire analytics skillsets to future-proof their careers.
- Forward-thinking professionals looking to quickly pick up the essentials of machine learning algorithms so as to transform and make an impact to their organisations.
- Curious individuals (including nerds) who wishes to seek a technical understanding of data analytics using machine learning algorithms.
- Suitable for executives / managers in the marketing and strategic planning roles.

Topics

- manipulate, clean and enrich raw data into more usable formats;
- discover hidden patterns in the enriched datasets using cluster analysis (a popular AI/Machine Learning algorithm);
- perform data visualization on the results of cluster analysis;
- connect the dots, interpret and derive actionable insights to facilitate decision making

Learning Outcomes

At the end of this course, participants should be able to:

- Generate enriched data from a real-world raw dataset.
- Perform cluster analysis on the processed dataset to find viable market segments
- Visualise the results of cluster analysis, and communicate the insights to stakeholders.

Schedule

Day 1

Time	Agenda
10:00 – 11:30	<ul style="list-style-type: none"> Course Overview & warm-up; Installation of R & R studio; Registration of R Studio Cloud Introduction to data analytics Basic R manipulations and data structures
11:30 – 11:45	Break
11:45 – 13:00	R programming – data wrangling. Learners will learn how to:

	<ul style="list-style-type: none"> - Clean up and prepare data for analysis; - Filter data based on certain conditions; - Apply these concepts to process and analyse a real-world dataset
13:00 – 14:00	Lunch
14:00 – 15:00	R programming – data visualization. Learners will learn how to: <ul style="list-style-type: none"> - Use proper visualization tools to analyse, derive, and communicate insights; - Create common visualization plots using GGplot2; - Apply these concepts to analyse a real-world dataset
15:00 – 15:15	Break
15:15 – 17:00	Understanding agglomerative clustering, and applying it to perform market segmentation and sense-making on a real-world dataset

Day 2

Time	Agenda
10.00 – 11.30	Understanding k-means clustering, and applying it to perform market segmentation and sense-making on a real-world dataset.
11.30 – 11:45	Break
11:45 – 13:00	Understanding the concept of dimensionality reduction using Principal Component Analysis (PCA).
13:00 – 14:00	Lunch
14:00 – 15.15	Applying PCA on a complex real-world dataset to tease out key insights using fewer dimensions.
15:15 – 15:30	Break
15:30 – 17:00	Combining PCA and Cluster analysis to conduct advanced market segmentation.

Note: Participations are expected to download and install FREE data analytic tools (R software and R Studio) into their computer during this masterclass.

Requirements

- Attendees ideally should have some knowledge of analytics and R, but learners without such knowledge are welcomed as well, so long as they have GCE 'O' Levels as minimal entry requirement.
- Attendees have to bring along their own (personal) laptop, with at least 8 GB RAM. Attendees are discouraged from bringing corporate laptops to the course as there may be restrictions in installing R software and its packages.
- The recommended set-up: one monitor that is connected to their personal laptop and set-up using extended screen format. This can enable learners to view the codes from the trainer clearly on one screen, while performing the necessary coding on another. Additionally, learners can also share-screen easily with the trainer should they encounter difficulties during the lesson.

Other details

Date:	Typically, on first week of every month, but course commencement depends on whether minimal class size is met.
Time:	10am – 5pm over 2 days (12hrs in total)
Venue:	Online
Fee per person:	S\$2,000 nett
For more information	contact@ann-sense.com