

SELF-PACED

R FOR DATA ANALYSIS AND MACHINE LEARNING (INTERMEDIATE)



COURSE OVERVIEW

This course gives a comprehensive introduction to R, a popular programming language for statistical analysis and data visualization. You will learn the fundamentals of R programming, starting from the basics of variables, data types, and operators. Programming concepts like loops, conditionals, and functions. You will understand data structures in R, learn data manipulation and data analysis in R. Work with various R libraries like dplyr, ggplot2. Visualize data in R. Hands-on coding exercises to equip with the skills to handle data manipulation, analysis, and visualization tasks.

COURSE OBJECTIVE

The R Programming for Beginners course aims to equip participants with a solid foundation in R programming language. Through this course, learners will understand the fundamentals of R, including variables, data types, and operators. They will explore essential programming concepts like loops and conditionals, and gain proficiency in working with data structures such as vectors, matrices, and data frames. Participants will learn how to manipulate and transform data, create visualizations, and apply statistical analysis techniques using R. By the end of the course, learners will have developed basic programming skills, a deep understanding of R's capabilities, and the ability to tackle data analysis tasks with confidence.

WHAT YOU WILL LEARN

Upon completion of the course, participants will have developed a strong grasp of R programming, enabling them to proficiently handle data manipulation, perform basic statistical analysis, and create impactful data visualizations. Equipped with these skills, participants will be well-prepared to embark on a career in data analysis or data science, using R as their primary tool. This course serves as a fundamental stepping stone, providing participants with the essential knowledge and abilities needed to succeed in the field.



COURSE SKILL SET.

- 1) R Programming
- 2) Data Manipulation
- 3) Statistical Analysis
- 4) Data Visualization
- 5) Problem-Solving
- 6) Data Cleaning
- 7) Data Exploration
- 8) Data Wrangling

Instructor- Priyanka Sharma | Trainer (Subject Expert) Future Skill Academy

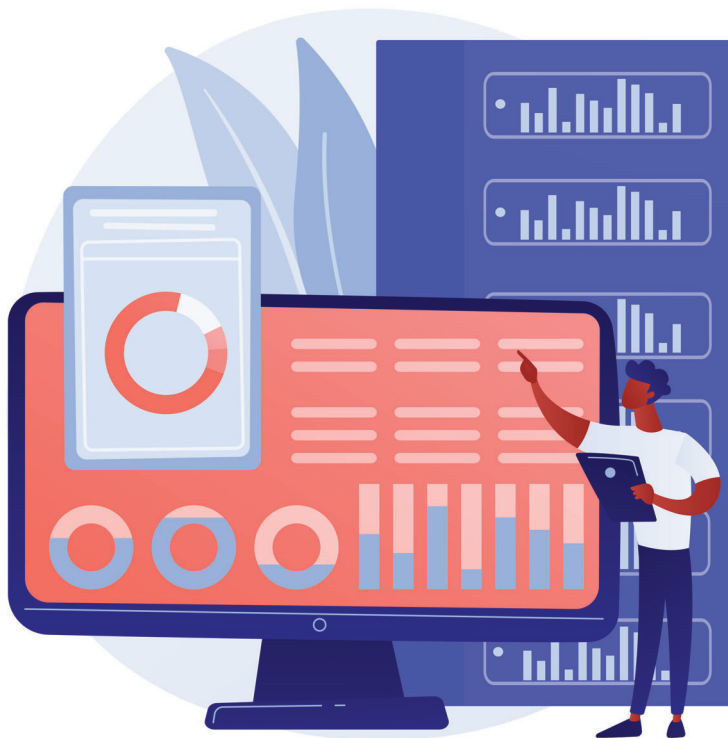
Duration- 2 Weeks

Eligibility- Any graduate with a Science stream

No. of Modules – 06 Modules

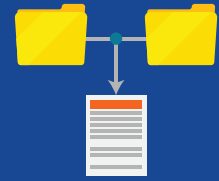
Language - English

Shareable certificate- Yes

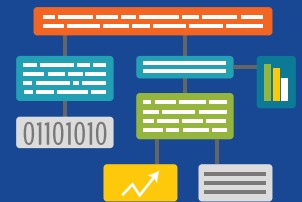


PROGRAM SYLLABUS

- Module 01 Introduction to R Programming
- Session 1.1 Introduction to R Programming Language, R Advantages and Disadvantages
- Session 1.2 Applications and Career Opportunities in R Programming Language
- Session 1.3 Set Up and Installation of R



- Module 02 Basics of R Programming
- Session 2.1 Section Introduction
- Session 2.2 Understanding Data Types in R
- Session 2.3 Understanding and Assigning variables in R
- Session 2.4 Control Structures in R
- Session 2.5 Loop Statements in R
- Session 2.6 Practical Exercise 'for' and 'while' loop in R
- Session 2.7 Understanding if, if-else statements, and else-if statements
- Session 2.8 Practical Exercise on if, if-else statements
- Session 2.9 Practical Exercise on else-if statements in R
- Session 2.10 Understanding Repeat, Break, Next Statements in R
- Session 2.11 Practical Exercise on Repeat, Break, and Next Statements in R



- Module 03 Data Types and Data Structure in R
- Session 3.1 Section Introduction
- Session 3.2 Introduction to Data Structures in R
- Session 3.3 What are Arrays and Vectors in R?
- Session 3.4 Working with Vectors
- Session 3.5 Working with Arrays
- Session 3.6 What is Matrix? Working with Matrix
- Session 3.7 What are Lists? Working with lists in R
- Session 3.8 What is a data frame? Working with data frame in R
- Session 3.9 What are Factors? Working with Factors.
- Session 3.10 Summary of Data Structures in R



- Module 04 File Handling in R
- Session 4.1 Section Introduction
- Session 4.2 What is Data, Types of Data

- Session 4.3 Import and Export data in Excel
- Session 4.4 Import and Export data in CSV
- Session 4.5 Import and Export data in JSON



Module 05 Data Manipulation in R using Data Set

- Session 5.1 Section Introduction
- Session 5.2 Tidy Verse Introduction
- Session 5.3 dplyr Introduction, understanding the Pipe %% Operator
- Session 5.4 Understanding the Data set , Working with Data
- Session 5.5 Understanding arrange() function with practical exercise
- Session 5.6 Understanding filter() function with practical exercise
- Session 5.7 Understanding select() function with practical exercise
- Session 5.8 Understanding summarize() function with practical exercise
- Session 5.9 Understanding mutate() function with practical exercise
- Session 5.10 Understanding group_by() function with practical demonstration



Module 06 Data Visualization Capstone Project

- Session 6.1 Section Introduction
- Session 6.2 What is Data Visualization? Introduction to ggplot2
- Session 6.3 Understanding Layers in ggplot2
- Session 6.4 Overview of mtcars dataset
- Session 6.5 Understanding Bar Charts
- Session 6.6 Visualizing Data with Bar Charts
- Session 6.7 Understanding Scatter Plots
- Session 6.8 Working with Scatter Plots in R
- Session 6.9 Understanding Box Plots
- Session 6.10 Working with Box Plots in R
- Session 6.11 Understanding Pie Charts
- Session 6.12 Visualizing Data With Pie Charts



Module 7 Capstone Project in R

- session 7.1 Project Introduction and Objectives
- session 7.2 Data Exploration and Analysis

- session 7.3 Understanding the Count Function
- session 7.4 Sub-setting the Data
- session 7.5 Data Manipulation using dplyr, arrange, and filter function
- session 7.6 Data Manipulation using select function
- session 7.7 Removing and Dropping Columns
- session 7.8 Dealing with Null values
- session 7.9 Data Manipulation using group by function
- session 7.10 Mutate function for Data Manipulation
- session 7.11 Data Visualization using Bar Plots and Box Plot
- session 7.12 Data Visualization using Pie Charts
- session 7.13 Understanding Relationships using Scatter Plots
- session 7.14 Adding Layers to Count Plot



- Module 8 Introduction to Machine Learning
- session 8.1 Section Introduction
- session 8.2 Introduction to Machine Learning, Applications of Machine Learning
- session 8.3 Supervised Machine Learning
- session 8.4 Unsupervised Machine Learning
- session 8.5 Reinforcement Learning
- session 8.6 Machine Learning Life Cycle
- session 8.7 Understanding Bias and Variance in Machine Learning





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