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SELF-PACED

CERTIFICATE IN R PROGRAMMING FOR BEGINNERS

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

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 1 Introduction to R Programming
Session 1.1 Introduction to R Programming Language, R Advantages and Disadvantages
Session 1.2 Applications and Career Opportunites in R Programming Language
session 1.3 Set Up and Installation of R

Module 2 Basics of R Programming
Session 2.1 Section Introduction
Section 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 3 Data Types and Data Structure in R
Session 3.1 Section Introduction
Section 3.2 Introduction to Data Structures in R
Section 3.3 What are Arrays and Vectors in R?
Section 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 4 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 5 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 6 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 Visualizaing Data With Pie Charts

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