R Programming Course Outline (Python Style)

Course Information

Version: 1.0

Effective From: January 2024

Online Hours: 36

Self-Study Hours: 12

Weeks: 6

Sessions per Week: 3

Total Sessions: 18

Project Sessions: S1 to S6

Week-wise Session Schedule

Week 1: R - TL1, R - TL2, R - TL3

Week 2: R - TL4, R - TL5, R - TL6

Week 3: R - TL7, R - TL8, R - TL9

Week 4: R - TL10, R - TL11, R - TL12

Week 5: R - TL13, R - TL14, R - TL15

Week 6: R - TL16, R - TL17, R - TL18

Session Coverage

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R - TL1: Introduction to R, Business Analytics overview

R - TL2: R basics: data types, operators, control structures

R - TL3: Lab: Lessons 1-2

R - TL4: Data Structures in R

R - TL5: Lab: Data Structures

R - TL6: Data Visualization with base graphics and ggplot2

R - TL7: Hypothesis Testing Basics

R - TL8: Lab: Hypothesis Testing I

R - TL9: Advanced Hypothesis Testing (parametric & non-parametric)

R - TL10: Lab: Hypothesis Testing II

R - TL11: Regression Analysis (Linear, Non-linear, PCA)

R - TL12: Lab: Regression Analysis

R - TL13: Classification: Logistic Regression, SVM, KNN, Naive Bayes

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R - TL14: Lab: Classification I

R - TL15: Classification Continued: Decision Trees, Random Forests

R - TL16: Lab: Classification II

R - TL17: Clustering and Association Rule Mining (Apriori)

R - TL18: Lab: Clustering & Association

Module Resources

Videos: Concept and skill demos

Datasets: Used in lab sessions

Installation Guide: R environment setup

Lab Guide: Lab instructions and exercises

Projects: Guidance and solutions

Assessments

Practice Projects: Assigned for post-class work

Final Assessment:

- Duration: 2 hours
- Questions: 102 (Multiple Choice)
- Features: Can pause/restart; time deducted accordingly

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Library References

1. Beginning R: The Statistical Programming Language by Mark Gardener

2. R Programming for Beginners by Sandip Rakshit

3. R for Data Science by Hadley Wickham, Garrett Grolemund