



# Big Data Analytics (Programming with R)

HPE Certificate of Competency (CoC) Program - Associate Level  
Exam Coverage

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## Modules

### Module 1 – Introduction to Business Analytics

- Introduction to Business Analytics & its Features
- Types of Business Analytics
- Business Analytics Case Studies
- Business Decisions
- Business Intelligence
- Data Science and its importance

### Module 2 - Introduction to R

- Introduction to R
- Understanding R
- Using R to illustrate the basic concepts
- Installing R and RStudio
- Integrated Development Environments (IDEs) for R
- Using R Console
- Scripting in R
- R Workplace and Packages
- Distributed R
  - Introduction
  - Installation
  - Programming Concepts

### Module 3 - R Programming

- Introduction
- Operators in R (Arithmetic, Relational, Logical, Assignment)
- Basic and Advance Data Types
- Loops and Conditional Statement in R
- Commands to Run an R Script and a Batch Script
- Functions in R
- String Manipulation in R
- Dplyr Package – An Overview
- Installing Dplyr
- Functions of the Dplyr package

### Module 4 - R Data Structure

- Types of Data Structures in R
- Vectors
- Scalars
- Matrices

- Arrays
- Data Frames
- Factors
- Lists
- Elements of the Different Data Structures in R
- Acceptable Formats to Import and Export Data in R

#### **Module 5 - Data Visualization**

- Graphics in R
- Types of Graphics
- Basic elements of graph
- Methods to Save Graphics as Files
- Procedure to Export Graphs in RStudio

#### **Module 6 - R Connection with Database**

- Introduction to RDBMS
- Introduction to MySql
- R packages to connect to database
- Data analysis of data from database

#### **Module 7 – Debugging in R**

- Introduction to Debugging
- Important Function to Debug

#### **Module 8 - Statistics in R**

- Introduction to Statistics
- Types of Data
- Qualitative vs Quantitative Analysis
- Hypothesis Testing in R
- Need of Hypothesis Testing in Businesses
- Test of mean
- Test of variance
- Chi-square Test
- Non-parametric Test
- Linear Regression
- Basics of Classification
- Basics of Clustering