Certified Data Analytics (R) Specialist (CDAS)

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DURATION

4 Days

COURSE OBJECTIVES

This course is designed for professionals who aspire to learn an open source R tool for Analytics. Certified R Analytics Specialist covers the concept of Business Analytics and its strategic importance to any organization. You will understand how cutting-edge businesses use data to optimize marketing, maximize revenue, make operations efficient, and make hiring and management decisions so that you can apply these strategies to your own company or business. Participants will learn how to address business needs through the use of analytics, how some organizations have done it and what has been done to achieve them. Conducted interactively with case studies and real business problems, participants can also expect to learn the basic principles, concepts, techniques and tools used in business analytics. Also, covers different types of business analytics with real life use cases including descriptive analytics and predictive analytics.

JOB ROLES IN NICF / TARGETED AUDIENCE

- Data Analyst - Statistics and Mining
- Data Analyst - Text Analytics
- Big Data Analyst
- Database Administrator
- IHL Students

PRE-REQUISITES

Participants are preferred to have some understanding/knowledge of R programming

PROGRAM STRUCTURE

This is a 4-day intensive training program with the following assessment components.

Component 1. Written Examination (MCQ)

Component 2. Project Work Component (PWC)

These components are individual based. Participants will need to obtain 70% in both the components in order to qualify for this certification. If the participant fails one of the components, they will not pass the course and have to re-take that particular failed component. If they fail both components, they will have to re-take the assessment.

COURSE SESSION SCHEDULE

Day 1	**Session 1 (9:00 – 10:30)**	**Session 2 (10:40 – 11.10)**	**Session 3 (12:10 – 15:10)**	**Session 4 (15:10 – 18:10)**
	Introduction of Business Analytics	Introduction of Business Analytics	Introduction to R	Data Structures, Operators and Functions in R
Day 2	**Session 1 (9:00 – 10:00)**	**Session 2 (10:10 – 12.10)**	**Session 3 (13:10 – 18:10)**	
	Data Structures, Operators and Functions in R	Exploring and Visualizing Data in R	NoSQL Database with R for Data Analysis	
Day 3	**Session 1 (9:00 – 10:00)**	**Session 2 (10:10 – 12.10)**	**Session 3 (13:10 – 17:40)**	**Session 4 (17:40 – 18:10)**
	NoSQL Database with R for Data Analysis	Big Data Analysis in R	Data Mining in R	Predictive Modelling in R
Day 4	**Session 1 (9:00 – 10:30)**	**Session 2 (10:40 – 12:40)**	**Session 3 (13:40 – 15:40)**	**Session 4 (15:40 – 18:10)**
	Predictive Modelling in R	Predictive Modelling in R	R Applications	CDAS examination

COURSE OUTLINE

Unit 1: Introduction of Business Analytics

- What is Business Analytics?
- Importance of Business Analytics
- Types of Business Analytics
- Business Analytics tools

Unit 2: Introduction to R

- What is R?
- Installation Procedure of R Cmdr. and RStudio interface.
- R Libraries
- Create and Execute R Scripts
- Working with R Objects
- Obtain help while using R

Unit 3: Data Structures, Operators and Functions in R

- Vector
- Matrices
- Data Frames
- Lists
- Factors
- Types of Operators
- Built-in Functions

Unit 4: Exploring and Visualizing Data in R

- Import Data into R
- Analyze and Visualize data in R
- Pie chart

- Bar plot
- Scatterplot
- Histogram

Unit 5: NoSQL Database with R for Data Analysis

- Introduction to NoSQL Databases
- Types of NoSQL Databases
- CouchDB
- Cassandra
- MongoDB
- Installation of MongoDB
- Import data into MongoDB
- Install RMongo package
- Write R Script
- Perform Data Analysis

Unit 6: Big Data Analysis in R

- RHadoop
- RStorm

Unit 7: Data Mining in R

- Introduction to Data Mining.
- Clustering and its Application.
- Clustering Techniques.

Unit 8: Predictive Modelling in R

- Introduction to Predictive Modelling

- Linear Regression
- Logistic Regression
- Neural Networks
- Support Vector Machines
- K-nearest neighbor Classification
- Decision trees

Unit 9: R Applications

- Medical Image Analysis
- Natural Language Processing
- Credit Risk Analysis
- Time series modeling and geospatial analysis
- Statistical Analysis

HANDS-ON

Participants will also be exposed to various software tools in the market for analytics and would be having hands on session on R analytical tool. The course would be ideal for professionals/executives to gain an insight on the analytics, how to align to the business vision and get the value out of it.

WRITTEN ASSESSMENT

As part of the written examination, each participant will be assessed individually on the last day of the training for their understanding of the subject matter and ability to evaluate, choose and apply them in specific context and also the ability to identify and manage risks. The assessment focuses on higher levels of learning in Bloom's taxonomy: Application, Analysis, Synthesis and Evaluation.

This written examination will primarily consist of 40 multiple choice questions spanning various aspects as covered in the program. It is an individual, competency-based assessment.

COURSE OUTCOME

1. Acquire knowledge on Data Analytics and its impact on enterprises with several real use cases and examples
2. Gain a good understanding about statistical and analytical methods that make up the backbone of data science
3. Acquire knowledge on key Data Mining & Predictive Modelling techniques and implement using R Script /Rattle Package
4. Gain complete understanding of Big Data Landscape and how NoSQL databases playing key role in Analytics
5. Get Skilled in NoSQL DB: MongoDB & learn to query on Document based (JSON/BSON) data
6. Get hands-on experience in in R Programming, MongoDB

EXAM PREPARATION

The objective of the certification examination is to evaluate the knowledge and skills acquired by the participants during the course. The weightage in key topics of the course as follows:

- Introduction to Business Analytics [10%]
- Introduction to R [10%]
- Data Structures, Operators and Functions in R [10%]
- Exploring and Visualizing Data in R [10%]
- NoSQL Database with R for Data Analysis [15%]
- Big Data Analysis in R [15%]
- Data Mining in R [10%]
- Predictive Modelling in R [15%]
- R Applications [5%]

Tools/Software used:

- R
- MongoDB