

DATA SCIENCE

Introduction to Data Science, Use cases, Need of Business Analytics, Data Science Life Cycle, Different tools available for Data Science.

1) R Programming

1.1 Introduction to R

1.2 Installation of R

- Windows Installation
- Linux Installation

Installing R and R-Studio, R packages, R Operators, if statements and loops (for, while, repeat, break, next), switch case

1.3 Types of Datatype

- Arrays
- Data Frames
- Lists
- Factors

R Data Structure (Vector, Scalar, Matrices, Array, Data frame, List), Functions, Apply Functions

1.4 Types of Variables

1.5 Types of Operators

- Arithmetic operator
- Logical Operator
- Relational Operator

1.6 Types of control statements:

- If statement
- If else statement
- if else if statement
- switch statement

1.7 Types of Loops :

- for loop
- while loop
- nested loop

1.8 Function Declaration

- Function declaration with parameters
- Function declaration without parameters

1.9 R Data Interface

1.10 R Charts and Graphs

- Pie Chart
- Bar chart
- Line graph

1.11 R statistics

Terminologies of Statistics ,Measures of Centres, Measures of Spread, Probability, Normal Distribution, Binary Distribution

1.12 Machine learning algorithms

- classification

the act or process of classifying

- clustering

form a cluster or clusters.

- regression

a return to a former or less developed state.

2)PYTHON

1.1 Introduction to Python

- What is Python and history of Python?
- Unique features of Python
- Python-2 and Python-3 differences
- Install Python and Environment Setup
- First Python Program
- Python Identifiers, Keywords and Indentation
- Comments and document interlude in Python
- Command line arguments
- Getting User Input
- Python Data Types
- What are variables?
- Python Core objects and Functions
- Number and Maths
- Week 1 Assignments

1.2 List, Ranges & Tuples in Python

- Introduction to list, tuples, ranges
- Lists in Python
- More About Lists
- Understanding Iterators

- Generators,Comprehensions and Lambda Expressions
- Introduction to generators,yields
- Generators and Yield
- Next and Ranges
- Understanding and using Ranges
- More About Ranges
- Ordered Sets with tuples

1.3 Python Dictionaries and Sets

- Introducing to the section
- Python Dictionaries
- More on Dictionaries
- Introducing to Sets
- Python Sets Examples

1.4 Input and Output in Python

- Reading and writing text files
- writing Text Files
- Appending to Files and Challenge
- Writing Binary Files Manually
- Using Pickle to Write Binary Files

1.5 Python built in function

-Python packages functions(Numpy,Pandas,Scipy)

-Defining and calling Function

-The anonymous Functions

- Loops and statement in Python

-Python Modules & Packages

1.6 Python Object Oriented

- Formal presentation of object oriented programming

-Topping up topics like: Abstraction, Encapsulation, Inheritance, Polymorphism,

-Creating Classes and Objects

-Accessing attributes

-Built-In Class Attributes

-Destroying Objects

1.7 Python Exceptions Handling

-What is Exception?

-Handling an exception

-try....except...else

-try-finally clause

-Argument of an Exception

-Python Standard Exceptions

-Raising an exceptions

-User-Defined Exceptions

1.8 Machine learning algorithms

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