InfoCepts – CDE - Foundation training

2 weeks (10 days)

Phase -2: Foundation (Total duration: 10 days/ 2 weeks)

Learner pre-requisite: Foundational knowledge on programming, databases.

Module 1: Python programming (Duration 6 days)

Objective to provide Python programming as a platform for further technologies. This learning can be extended to REST API, Analytics and other such programming using Python if required.

Program Name Python programming

Introduction to Python

- Introduction to python programming
- Working with the python interpreter
- Numbers and expressions
- Variables and statements
- Conditional statements and loop
- Handling user input
- Python syntax, style and coding conventions

Working with Strings

- An overview of strings in python
- String operators
- Built-in string methods

Lists and Tuples

- Common sequence operations
- Manipulation of Lists
- Manipulation of Tuples

Working with dictionaries

- Introduction to dictionaries
- Creating, assigning, updating dictionaries
- Dictionary operators, functions and built-in methods

Functions

- Creating user-defined functions
- Passing functions
- Formal arguments
- Recursion
- Variable-length arguments
- Variable scope

- Variable-length keyword - arguments

File handling

- Reading from files
- Writing to files
- Working with CSV files
- Processing excel files
- Processing xml files

Errors and exception handling

- Introduction to exceptions
- Detecting and handling exceptions
- Exceptions as Strings and Classes
- Raising exceptions
- Creating exceptions
- Standard exceptions

Overview of Standard Library

- *os
- sys
- math
- filecmp
- random
- datetime
- time
- re

Object Oriented Python Programming

- Introduction to OOP's concepts
- Class & Object
- Inheritance
- Multiple inheritance
- Class methods
- Examples

Serialization

- Introduction
- Json
- Pickle
- Unpickle

Working with Database

- Introduction
- Installing required libraries
- Working with relational database – MySQL
- Performing CURD – Create, Update, Read & Delete using MySQL
- Working with NoSQL database – MongoDB
- Performing CURD – Create, Update, Read & Delete using MongoDB
- Logging all actions

Hands-on with assignments

Basics of Linux/Bash (1 Day)

- Why Linux?
- Basic Linux commands
- Understanding of Linux Commands
- Linux File Structure and permissions
- Shell Scription Introduction

Hands-on with assignments

Module 3: Big Data Essentials & Hadoop Ecosystem (1 day)

Introduction to Big Data

- Big Data Analytics
- What is Big Data
- Four Vs of Big Data
- Challenges of Traditional System
- Distributed Systems/ Distributed Computing

Introduction to Hadoop

- Components of Hadoop Ecosystem
- Commercial Hadoop Distributions
- Compute Clusters
- Apache Hadoop
- Types of Analysis That Use Hadoop
- Apache Hadoop Ecosystem
- Hadoop 1.x vs Hadoop 2.x

Questions for participants to decide if Bigdata Solution is needed for the given scenario.

Module 4: Cloud computing & security fundamentals (1.5 days)

Basics of Virtualization

- Introduction to Virtualization
- Why Virtualization is required?
- What is VMWare/Hypervisors
- What is Multi-tenancy?

Basics of Networking

- Why Networking is required?
- Classes in IPv4/IPV6
- Private Address Vs Public Address
- Elastic IP Addresses

Basics of JSON/YAML

- What is JSON?
- What is YAML?
- How to use JSON and YAML?
- Writing JSON to YAML/ YAML to JSON

Cloud Security

- What is cloud security?
- Public, Private and Hybrid Clouds
- Shared Security Concepts
- Data Security on Cloud
- Data at REST
- Data in MOTION

- Encryption/Decryption
- Is cloud security a concern?
- How secure should you make your application?

Scenario-based questions for participants.

Note:

1- All topics and technology areas covered will have accompanying hands-on except for few areas which are purely thereotical concepts

2- Assessment will be done based module completion MCQ and project work completion.

3- All learners will be provided with virtual or cloud based access for software environment and lab practice.

5- No physical exchange of material is provided.

6- Learners are not needed to input or output data or files from their base machines.