



## Python Course Content

### 1. Introduction - Programming concepts

- Introduction to programming
- Understanding algorithm
- Understanding data structures
- Understanding syntax and semantics
- Understanding errors and bugs
- Understanding development environments
- Understanding testing needs

### 2. Introduction to Python

- Introduction to Python
- Uses of Python
- Features of Python
- Basic history of Python
- Python versions
- Difference between Python and other programming languages.

### 3. Environment setup

- Downloading Python
- Python setup
- Exploring IDE
- Understanding interactive mode
- Understanding Non-interactive mode
- IPython, PIP, SPYDER

### 4. Assignments – I

- Writing algorithms
- Writing your first program
- Comments
- Multiline statements
- Executing in interactive mode
- Executing in Non-interactive mode



## 5. Python Variables

- Understanding data types
- Understanding variables
- Understanding identifiers
- Numbers
- Strings
- List
- Tuple
- Set
- Dict

## 6. Python operators

- Arithmetic operators
- Comparison operators
- Logical operators
- Bitwise operators
- Assignment operators
- Special operators
- Membership operators

## 7. Assignments – II

- Working with Strings
- Working with List
- Deep copy and shallow copy
- Working with Tuples
- Working with Dict
- Working with Set
- Working with Operators
- Type conversions
- Output formatting
- Input from user
- Working with importing modules



## 8. Conditional flow constructs

- If Statement
- If..else
- if...elif...else

## 9. Loops

- For loops
- Range
- For loops with else
- Range function
- While loop
- While with else
- Break statement
- Continue statement
- Pass statement

## 10. Functions

- Type of functions
- Define function
- Function arguments
- Types of arguments
- Default arguments
- Keyword arguments
- Arbitrary arguments
- Anonymous functions
- Lambda functions
- Filter
- map

## 11. Assignments – III

- Working with conditions
- Working with loops
- Working with break
- Working with continue
- Working with pass
- Working with functions



## 12. Modules

- Design modules
- Developing modules
- Importing modules
- Import with rename
- Using from ..import
- Module searching

## 13. Assignments – IV

- Design a game program
- Develop a game program

## 14. File I/O

- Working with files
- Reading files
- Writing files

## 15. Assignments – V

- Working with files
- Search string in files
- Extract information from files

## 16. Exception handling

- Errors and Exceptions
- Built-in Exceptions
- Handling Exceptions
- Catching Specific Exceptions
- Raising Exceptions
- try...finally
- User-Defined Exception

## 17. Regular Expression

- Character matching
- Extracting data
- Searching
- Escape character

## 18. Class and Objects

- Namespace and Scope
- Defining a Class



- `__init__`
- Self object
- Creating an Object
- Constructors
- Deleting Attributes and Objects
- Inheritance
- Multiple inheritance
- Super keyword
- Iterators and Generators

## 19. Assignments – VI

- Working with classes
- Working with constructors
- Working with Inheritance
- Project

## 20. Database access

- Python connector
- MySQL Query
- CRUD Operations
- Querying data with fetchone
- Querying data with fetchall
- Querying data with fetchmany

## 21. Introduction to OS module

- Working with Files
- Working with Directories
- File operations
- Working with shutil

## 22. Use web service

- eXtensible Markup Language – XML
- Parsing XML
- Parsing Nodes
- JavaScript Object Notation – JSON
- Parsing JSON
- Application Programming Interfaces
- Security and API usage



- Application using Web Services

## 23. Data Visualization

- Setting matplotlib
- Different types of charts
- Drawing charts
- Drawing charts from internet data
- Drawing charts from pandas data



### **1) QlikSense Implementing Architecture**

#### 1. Database Connectivity



- SQL Queries
  - SQL Tables
  - ODBC/JDBC
  - DSN Creation
2. Qlikview Memory Management
  3. QVD Layer
    - Database connection in Qlikview
    - Fetching Data from Qlikview
    - Generations of QVD
    - Fetch data from other data sources in Qlik
  4. Transformation Layer
    - Identifying Facts and dimensions
    - Creation of Data Model

### **1) Data Modelling**

- Dimensions /Measure
- Facts
- Schemas
- Best Practices
- Link table vs concatenate
- Normalization

### **3) Scripting and Functions**

1. Point in Time Reporting
  - Current Year
  - Previous Year
  - YTD
  - MTD
2. Chart Function
  - Range
  - Aggr
  - Class
  - Pick
  - Above
  - Below
3. Scripting Functions
  - Control Statement



- If else
- For loop
- Switch Case
- Other Functions
  - Apply Map
  - Match
  - Look up
  - Wild match
  - Interval match
  - Firstsorted Value
  - FieldValue
  - Exists
  - Isnull
  - Date functions
  - Time functions
  - Aggregated functions
  - Peek
  - Previous
  - Rec no
  - Row no
- Techniques
  - Joins
  - Group By
  - Order By
  - Keep
  - Concatenation
  - Variables
  - Let
  - Set

#### **4) Qlik Sense Server**

1. QlikSense Server Components
  - QlikSense server
  - Hub: (Way in which QlikSense app is accessed on web)
2. QMC





- Licenses and Tokens
- Central Proxies
- Virtual Proxies
- Certificates
- User directory
- Apps
- Content Libraries
- Data Connection
- App Objects
- Stream
- Tasks
- Users
- Audit
- Security Rules
- Extensions
- Repositories
- Schedulers
  - Scripting techniques
  - Optimization in scripting
  - Applying Business logic
  - Creating Calendar
  - Types of Load

### 3. Visualization

- Identifying KPIS for the business
- Layouts and colours
- Bookmark

## 5) Qlik Sense Project Management Process

### 1. Business Understanding – Ground work to be done before project

- Domain/Sector Understanding
- Understanding the specific processes which generate the required data (for e.g. Billing, Processing, hospital, ,Manufacture sector,Financesector)hospital,Manufacturingsector,Finance sector)
- Understanding the technology (ERP sector) which capture data from a business stand point



- Clearly understanding the KPIs and the business terminology
2. Requirement Gathering
    - Reports
    - KPIs
    - Presentations
    - Email
    - Daily/Monthly/YTD views
    - Dashboards
    - User Role Specific
    - Document Template
  3. Technical Architecture
    - Server configuration
    - Ports
    - Authentication
  4. Development Governance
    - Status Reports – Weekly (formats attached)
    - Tracking the project plan
    - Timesheet
  5. Testing
    - Unit Testing – at the time of development
    - Test Cases formats
  6. UAT
  7. User Presentation/Demos
  8. KT and Adoption Techniques and Support related
    - Detailing of each charts – Dashboard

## 6) Qlik Visualization

1. QlikSense Visualization Concepts
  - Variables
  - Example Chart with all properties used including benchmarking
  - Qlik Properties
  - Sample Application
  - Extensions (deployment etc.) in QlikSense
  - Document properties & Sheet properties
  - Sample Application for Both QlikView/QlikSense



2. Things to check

- Spell check
- Font Consistency
- Colour
- Layout Consistency
- Chart Text

**7) Moste Advance topic in Qlik sense(Market)**

1. Extension Creation
2. Meshup Implementation
3. Single-sign-on(Most Demand for this topic in Qlik market)



**LEARN IT HUB**