

## **Summary:**

Python course duration will be for 14 hours (daily 1hr 30 min). It will cover Basics & Advanced Python, Flask and Implementing ETL pipeline project using Apache Airflow with Docker.

# **Python Contents**

## **Day-1**

- 1.) What is Python?
- 2.) Install Python
- 3.) Install PyCharm & ATOM IDE
- 4.) Install MySQL 8
- 5.) First Python Program
- 6.) Comments
- 7.) Python Indentation
- 8.) Numeric DataTypes
- 9.) Complex, Binary, Hexadecimal and Boolean Types
- 10.) Rules for Identifiers

## **Day-2**

- 1.) Sequence Types (String, Slicing, Steps in Slicing, Strip)
- 2.) List, Tuple, Set, Frozen Set, Range type, ByteArray, Dictionary
- 3.) Special Types (None, Escape chars, Constants, del)
- 4.) Operators (Arithmetic, Assignment, Comparison, Logical)
- 5.) Input and Output functions (print, string formatting, input, reading multiple inputs)

## **Day-3**

- 1.) Flow Control Statements (If Else, While, For, Break, Continue)
- 2.) Functions (Function inside another, Return, Recursion, Keyword arguments, default arguments, \*args and \*\*kwargs)
- 3.) Lambdas (Filter, Map, Reduce, Decorator, Generator)
- 4.) Modules (Math module, Random module)

## **Day-4**

- 1.) Object Oriented Programming
- 2.) Class and Object, Parameterized Constructor, Constructor (vs) Method, Getter & Setter, Static
- 3.) Inner Class, Garbage Collection, Destructor
- 4.) Encapsulation, Inheritance, Polymorphism, Abstraction

## **Day-5**

- 1.) Exception Handling Assertions and Logging
- 2.) Files (Read, Write, Pickle, UnPickle, Append, Count Lines)
- 3.) Regular Expressions (Sequence characters, search(), findall(), match(), split(), substitute(), Quantifiers)
- 4.) Date and Time
- 5.) Threads (extends Thread, sleep(), Synchronization (lock and semaphore), wait, notify, Producer Consumer Pattern, Queues)

## **Day-6**

- 1.) Database Operations with MySQL (Read, Fetch, Create, Delete)
- 2.) Numpy (linspace, logspace, Math function, Array comparison, Copying Arrays, Slicing, Multidimensional Arrays)

## **Day-7**

- 1.) Install Docker
- 2.) Creating Docker Hub Account
- 3.) Install setup for Flask & Install Insomnia/Postman
- 4.) Create first REST API with Flask
- 5.) What is JSON
- 6.) How to create stores in our REST API
- 7.) How to create items in each store
- 8.) How to get a specific store and its items
- 9.) How to run a Flask app in a Docker container

## **Day-8**

- 1.) Install Docker
- 2.) Install Apache Airflow
- 3.) What is ETL
- 4.) Tools used in ETL pipeline
- 5.) Architecture of Airflow and Tasks
- 6.) What is DAG
- 7.) What is Operators and types
- 8.) Understanding Compose files
- 9.) Understanding other directories
- 10.) First look of Airflow UI
- 11.) Running default DAG in UI
- 12.) Views in UI (Graph, Tree, Gantt, Code)
- 13.) Understanding DAG definition file
- 14.) DAG files Execution

## **Day-9**

- 1.) Creating an ETL pipeline Python project using Apache Airflow