Session Plan on Basic To Advance Python Programming

(Duration – 10 Days/40 Hrs.)

Time	Day-1	Day-2	Day-3	Day-4	Day-5
Slot-1 (2 Hrs)	**Introduction** **Pre-Training Assessment** **Python Refresher** • Introduction- A Brief History of Python • Python Versions - Installing Python and checking the version of Python • Use of IDLE for Editing Python • Python Reserved Words - Naming Conventions	**Chapter 1 Basics** • Variable Types • Basic Operators • String types: normal, raw and Unicode • String/math operators and expressions **Hands-on**	**Chapter 3 Dictionary and other Data Types** • Dictionary Operation • Dictionary Manipulation • Dictionary Functions. • Use of Collection modules To Construct Named Tuple, Ordered Dictionary. **Hands-on**	**Chapter 5 File Handling** • Opening a text files • Reading and writing to/from text files • b. Reading JSON Data and Converting to a Python Dictionary Format. • c. Converting a Python Dictionary into JSON Format. **Handling Excepting** • Types of Exception • How to handle exception at run time **Hands-on**	**Chapter 7 Functions in Python-Part1** • Syntax of function definition • Formal parameters • Global versus local variables • Passing parameters and returning values **Hands-on**
Slot-2 (2 Hrs)	• Data types • Sequences – ○ list, ○ tuple, ○ set, ○ dictionary. Etc **Hands-on**	**Chapter 2 Lists and other Data Types** •Tuples •List operation and manipulation **Hands-on**	**Chapter 4 Decision making and Flow control** • The if and elif statements • For, while, nested loops • LoopControl Statements: • Break ,Continue • Pass statement **Hands-on**	**Chapter 6 - Module & Packages** • What is a module? • The import statements • Pre-installed Modules • Installing new Modules **Hands-on**	**Chapter 8 lambda Function in Python** • Lambda functions • Built in Functions ○ Map ○ Filter ○ Reduce • *args and **kwargs, **Hands-on**
Quiz	Day1- End - quiz	Day2- End - quiz	Day3- End - quiz	Day4- End - quiz	Day5- End - quiz

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Slot-1 **(2 Hrs)**	**Chapter 9 Classes and Objects -I** • About oops programming • Defining classes • Constructors • Instance methods **Hands-on**	**Chapter 10 - Database Access** • Creating and setting up connection with different database Postgresql,Sqllite3. • Parameterized statements Using Metadata • Connecting to the database • CRUD Operations • Connection and Cursor Objects **Hands-on**	**Chapter 12-Pandas – Overview** • Introduction of Pandas • Setup Jupyter Notebook • Basic Functionalities of a Data Object • Data Structures & Index Operations • Removing of Duplicate Data and Cleaning of Data using Pandas **Hands-on**	**Chapter 14- API – Overview I** • What is an API? • Flask application • HTTP Verbs • REST Principles • Creating our application endpoints **Hands-on**	**Chapter 16 Flask (Web Framework) I** ○ Flask - Home ○ Flask - Overview ○ Flask - Environment ○ Flask - Application ○ Flask - Routing ○ Flask - Variable Rules ○ Flask - URL Building **Hands-on**
Slot-2 **(2 Hrs)**	**Chapter 9 Classes and Objects-II** • Class methods and data • Destructors • Polymorphism • Data Hiding in Python **Hands-on**	**Chapter 11 Numpy Overview** • Introduction of Numpy. • Finding Various Statistical figures like Mean,Median,Mode using numpy and scipy. **Hands-on**	**Chapter 13:- Matplotlib Overview** • Drawing Charts Using pyplot • Creating various Charts Like Pie Chart, Bar Chart, Horizontal Bar Chart. **Hands-on**	**Chapter 15- API – Overview II** • Returning a list of stores • Implementing other endpoints • Calling the API from JavaScript • Using Postman for API testing **Hands-on**	**Chapter 14 Flask -II** • Flask - HTTP Methods • Flask - Templates • Flask - Static Files • Flask - Request Object • Sending Form Data to Template • Flask - Redirect & Errors • **Hands-on** • **Post-Test** • **Learning Analysis & Summary**
Quiz	**Day6- End - quiz**	**Day7- End - quiz**	**Day8- End - quiz**	**Day9- End - quiz**	**Day10- End - Signing off**

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TRAINING PROGRAM 2024-2025

Pre-Requisites

1. Basic knowledge of any Programming Language.
2. Eagerness to learn new innovative things.

Recommendation

It is strongly recommended to bring your own LAPTOP during the training so that you can easily practice the exercises at home.

Who Could Attend this Training?

- Anyone who have interest in this field and have pre-requisite knowledge.

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Lab Setup: -

H/W: -

Processor – i3 or above.

RAM - Minimum 12GB (Recommended).
White board

Projector or led 32 inch or above(offline Batch)

Batch size -18-20.

Software

OS

Window – 10, 64 bit (Most Recommended),

Software's- Python-3.7 or above, VS-Code

- Have permissions to install python packages onto computer.
- Internet connection
- 80% Hands-On with 20% Theory

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Test Cases

1. Understanding and Execution of Python scripts with python containers.
2. Understanding and Execution of Python scripts with conditional statements.
3. Understanding and Execution of Python scripts with loops.
4. Understanding and Execution of Python scripts with operators.
5. Read and write data into files based on conditions.
6. Schedules Python Scripts Automation of Some Daily Tasks within system Using Task Scheduler.
7. Create a GUI with Python.
8. Create executable files for scripting and GUI for windows.
9. Apply CURD operations on databases.
10. Read data from Xlsx and CSV...etc files using Pandas and prepare based on conditions(vlookup,join,search..etc.).
11. Export data into files after pre-processing using Pandas python.

many more etc.

Note: - All the Cases towards to Automation. We will start session from scratch to advance that cover all the required cases.