Objective: "This training will enable participants to use, program & customise python scripts. This is an advanced course taking the learning to a deeper level. Apart from taking a deep dive into core python concepts, this training will also enrich the participants with decent knowledge of using python for regular scripting, Automation, regular expressions, threads and data analysis for different datasets in excel, csv, json etc", testing

Prerequisite

basic Python knowledge

Lab Setup Hardware

PC/Laptop

>= 8gb Ram

>= 20gb free hard disk space

Internet Access (mandatory)

Software Windows machines

any python IDE

Some packages may be needed to install during the course, which will need an active internet connection and installation permissions.

**Table of Contents:**

The training cannot be strictly followed as per the session-wise break up, and trainer will have to introduce some advance concepts early on, as most topics are inter-related. Trainer will pace up & slow down based on speed of participants.

**Day 1**  introduction & agenda of the training

python as a language

Python refresher:

basics

data

variables

type-less

operators

flow controls

print

loop/iterate

data structures

list & tuples

slicing

dictionaries

structuring data

sets & misc.

None & del

flow control

Boolean data type

if elif

for in range

for each

while

functions

definition, scope & return values

important inbuilt functions

function as objects

nesting of functions

return, global, local, nonlocal

modules & packages

creating modules

\_\_init\_\_.py for packages

important libraries

os

sys

datetime

file handling

Files and File Paths

Absolute vs. Relative Paths

os.makedirs() & os.path

split, size, listdir etc

open close

read write

shelve module

**Day 2**

oops

python class

oops implementation

private data

doc string

\_\_init\_\_

class & instance variables

advanced oops

inheritance

super

call & repr

decorators within class

@class @static

operator overloading

defining new functions

addition (+) overloaded

other operators

scope & limitations

regex

match

search

search and replace

regular expression modifiers

option flags, patterns

character classes

grouping with parenthesis

repetition

**Day 3**

concurrent execution

threads

Thread-Local Data

Thread Objects

Lock Objects

mutli processing

exception handling

try except

raise

nesting of try excepts

else clause

finally

advanced function concepts

anonymous functions

lambdas

map & reduce

generators

yield

high order functions

decorators

Serialization

pickle & unpickle

load

dump

json files

load & loads

dump

**Day 4**  data libraries

NumPy

environment

Ndarray Object

Data types & attributes

Numerical ranges

pandas

series

DataFrame

Basic Functionality

Reindexing

Iteration

missing data

concatenation

depth wise exploration

matplotlib

basic plotting

API overview

pyplot

sub plots

bar graphs

pie charts

scatter plots

**Day 5**

Testing in Python

Different frameworks

dependencies

UnitTest

Introduction

setup() teardown()

testsuite class

Assertion

Test Discovery

Skip Test

Exceptions Test

Time Test

Signal Handling

Other framewroks in Python

pyramid

django & flask

Introdution to Data Sciences(briefly):

Python vs R

Scikit & TensorFlow

Machine Learning

Deep Learning

Real Time Project

cumulation of most topics