## Providing all class room practice sessions.

## Duration 45 hours.

## Python Installation

Anaconda installation in Windows and Linux Conda | Python | Ipython | Ipython Notebook | Jupyter Notebook How to create virtual environments to work with multiple versions of python in same machine (Install multiple python apps in same machine.) And Git introduction.

python memory management

How python allocates memory for Integer | List | Strings Object assignment | Reference assignment

## GIT

Features of python

Does python is scripting or programming language | Source code | Compiled code How python command will executes the file | What is Open source? Automatic memory management | Scalability | Dynamic type| protability, platform independent.

Variables , Expressions , Statements

Variable | Variable rules | How to initialize all data types in python int | float | complex, strings | lists | tuples | dictionaries | Boolean | None |arrays | data frames.

Operations

Arithmetic operations | Boolean operations | bitwise operations within the data types | among the data types Expression evaluation |operator presidency | input | print | Format specify | Raw strings Template strings | Type conversion | Binary | octal | hexadecimal integers

conditional statements

If | if else | if else if | pass | indentation | with examples | short cut for if else statements

Wallrus operator: (:=)

Looping statements

For | while | break | continue | for else | while else | with some examples

Functions

How to define function | How to call function | Function memory management (Function name is reference | function is an object) different kinds of arguments (positional | keyword) Different kinds of parameters (mandatory | optional (Default | \*Args | \*\*Kwargs) local | global variables | return yield (Generator | Iterator)| Only positional arguments| only keyword arguments.

Lists | Tuples | Dictionaries | set

Initializations | Functions | Kinds of list assignment

strings

String indexing | string slicing(which will applicable for list | tuples | array | data frame) String functions Will see how to solve some issues by using all the above data types.

Bytes

rawstrings

Modules

File as a module | folder as a module | module path finding | memory management of modules | rules it will follow to search file | rules it will follow to create a .pyc file | how to import a file which is not there in system path | sys module

Files

.txt | .csv | .jpg | .json | .yml, .xml,.pdf programming language working with secondary media | how to read data from file | how to write data into file | how to append data in to file | pickle | json | yml | working with big files |

Memory outage.

Database

How work with sqlite3 DBMS(create database | create table | insert | update | delete) How work with postgres DBMS(create database | create table | insert | update |delete| Sample project (console app) and mongo db

# CONSOLE APP, sample project

Exceptions

Different kinds of errors try | Except | Finally | Else. The need of finally block in app development. How functions and loop statements works with finally block.

Regular Expressions

How to fetch useful information from unstructured string | R.E

Oops

Difference between functions and class | Class memory management(Class object |Data object | Instance) Data binding | Inheritance polymorphism (Operator overloading | Method overloading | Method overriding) Abstraction | Encapsulation | Class method | Instance method |Static method | Singleton

# Rewrite the console app in class

Advance Concepts

List comprehension | Tuples comprehension | Dictionary comprehension | Closure | Decorator | Lambda | Filter | Map |Reduce

Unit test cases

What is setup class? | What is teardown class? | What is setup? | What is teardown? Example unit tests for real time projects.

Logging

Logging methods | Info | Error | Warn and debug | Logging format | Logging basic configuration

## Working with data

Data fetching(files, database, other applications(web scrap, use AN API) – requests, pandas

Data cleaning--- pandas

Analyse it—numpy, pandas

Draw graphs – pandas, matplotlib.

## Collections

Talk on different kinds of collections.

Namesd tuple

Default dict

Count

Dequeue

Multithread, Multiprocess.

## Working with devices:

1) API

2) ssh