

# **FULL STACK SYLLABUS**

## **Python**

### **PART 1 - Basic**

- Introduction
- Why python
- Features
- Syntax - Comments
- Variables, Identifiers, PEP-8, keywords, print(), end, sep
- Data type intro
- Numeric Data Types, type(), Data Swap
- Type Casting
- Operators
- Boolean, Input()
- String intro – single, Double, Multiline/Docstring, len(), Escape Characters, String methods, dir()
- Sequence : String Indexing & Slicing, ranging

## **PART 2 - Foundation**

- Flow control/statements
- Decision making : if, else, elif, nested
- Loops: Iterable, For, range(), While – break, continue, pass, else
- List – list, Mutable/Immutable, methods, nesting, slicing
- Tuple – methods, Packing & Unpacking
- Set – Set methods
- Dictionary – Nested dictionary, methods
- Comprehensions – list, set, dictionary

## **PART 3 – Advanced**

- Functions –types
- Defined\_functions – Arguments, Namespace and Scope
- Built-in ALL functions – (COMPULSORY :map, filter, zip, enumerate, reduce, eval)
- Lambda

- Recursion
- Closure
- Decorator
- Iterator
- Generator
- Generator comprehension
- OOPS: class, object, State, Behavior, Identity
- Class variable
- Instance variable
- Global Local
- Attribute
- Method
- Constructor
- Pillars:
- Inheritance – Single, multiple, multilevel, Hierarchal, Hybrid

- Polymorphism – Overloading(compiletime), Overriding(runtime), super()
- Encapsulation – Access Specifiers : Public, Private, Protected, Getter, Setter
- Data Abstraction – abc library, ABC class, abstract class and method
- @classmethod & @staticmethod

## **PART 4 – Modules**

- Modules – import, as, from, \*
- Module creation, package, builtin libraries, third party libraries, pip
- Datetime, calendar, random, sys, time, os
- File handling – access modes- rename remove subfolders and subdirectories
- Exception Handling – try, except, finally, else, raise, custom exception class, types
- Multithreading, multiprocessing
- Regular Expression

- Database- sqlite3

## **SQL SYLLABUS**

- SQL INTRO
- DBMS
- RDBMS – Normalization
- SQL, MYSQL, MSSQL, POSTGRESQL – Intro
- DDL DML DQL DCL TCL – INTRO
- DDL Queries – CRUD
- INDEX
- Data Types
- Constraints
- DML Queries - CRUD
- DQL Queries
- Operators

- Aggregate Function
- Sub-Queries
- Relations: Foreign Key – One to One, One to Many, Many to One, Many to Many.
- JOINS – Cross Join, Outer Join, Inner Join, Left Join, Right Join, Self Join.
- VIEWS
- Stored Procedures.

## **HTML, CSS, and BOOTSTRAP**

- Web – intro
- Html
- Structural tags
- Table, list
- Basic tags
- Formatting tags
- Media tags
- SVG PNG JPG/JPEG

- Attributes
- Input tags
- Form, form validation, required, max, min
- CSS
- External/internal/inline
- Selectors
- properties
- Bootstrap

## **FRAMEWORK**

- Hardware- cpu, ram, storage
- Bios, kernel, shell, os
- OSI model
- http
- request
- response
- request-response cycle

- https
- http 1, http 1.1, http 2, http 3
- methods
- status code
- headers
- body – raw text json,form-data
- reading http
- parsing http
- requests module
- beautiful soup
- api
- flask
- introduction and overview
- environment
- application
- routing
- URL building
- Templates



- Restapi – restful
- Postman, thunderclient, swagger
- static files
- ORM – SQLALCHEMY
- request object
- sending form data to template
- make response
- cookies
- sessions
- JWT
- Oauth2
- redirect and errors
- message flashing
- file uploading
- blueprint
- extensions
- mail
- WTF

## **MISC**

- Git

## **PLACEMENT COMMUNICATION TRAINING**

- Full stack developer intro
- Self intro
- Roles and responsibilities
- webservice
- SOAP
- REST
- HTTP
- XML
- PVM
- Frameworks
- SDLC
- Agile

- Jira
- Team members
- PF info
- Salary info
- Task assignment
- Mail
- Notice period
- Workflow
- Daily activities
  - Covid Relaxation
  - WFH
  - WFO
  - Hybrid
- Company owner / HR / Manager