CJC
Complete Java Classes

Python Syllabus
REGP

1] CORE PYTHON

An Introduction to Python:-

- What is Python and history of Python?
- Features of Python.
- Installation and Working with Python.
- Understanding Python variables.
- Python basic Operators.
- Python Identifiers, Keywords and Indentation.
- Understanding python blocks.
- Command line arguments.
- Getting User Input.
- Python Data Types.
- What are variables?
- Python Core objects and Functions.

Program Flow Control :-

- Conditional blocks using if, else and else if.
- For loops in python.
- For loop using ranges, string, list and dictionaries.
- Use of while loops in python.
- Loop manipulation using pass, continue, break and else.
- Programming using Python conditional and loops block.

Logic Building :-

- Condition Based Problems.
- Looping Related Problems.
- Numeric Logical Problems.
- String Logical Problems.
- Sorting Problems.
- Design Patterns.

List, Ranges, Dictionaries, Tuples and Sets in Python:-

- Introduction.
- Lists in Python
- Understanding Iterators
- Generators ,Comprehensions and Lambda Expressions
- Generators and Yield
- Next and Ranges
- Understanding and using Ranges
- Python Dictionaries
- Dictionary manipulation.
- Ordered Sets with tuples
- Sets
- Python Sets Examples

Performance Assessment – 1

2] ADVANCE PYTHON

File Input and Output in Python:-

- Reading and writing text files.
- Reading config files in python.
- Writing log files in python.

- Understanding built-in functions.
- Writing Binary Files Manually.
- Using Pickle to Write Binary Files.
- Manipulating file pointer using seek.

Object Oriented Programming in Python:-

- OOPs Concepts.
- Concept of class, object and instances.
- Constructor, class attributes and destructors.
- Accessing attributes, Built-In Class Attributes.
- Inheritance
- Polymorphism (overlapping and overloading operators).
- Achieving Abstraction
- Encapsulation

Mini Project - 1

Performance Assessment – 2

Exception Handling in Python:-

- Exceptions Handling Introduction.
- Avoiding code break using exception handling.
- Handling various exceptions using try....except...else.
- Try-finally clause.
- Try-except-finally with return keyword.
- Argument of an Exception and create self-exception class.
- Exception Classes Hierarchy
- Raising an exceptions
- Custom (User-Defined) Exceptions.

Decorators, Iterators and Comprehensions:-

- Iterables
- Generators
- Yielding from the generators
- Inner Functions
- Decorators
- Comprehensions – List, Set & Dict.

Multithreading in Python Programs:-

- What is multithreading?
- Single v/s Multithreaded Apps
- Starting a New Thread.
- Forking threads.
- The Threading Module.
- Class level & Object level Locks
- Synchronizing Threads.

Performance Assessment – 3

Structured Query Language:-

- MYSQL Introduction
- Data Types
- DDL, DML, TCL
- Constraints
- DISTINCT Clause
- WHERE Clause
- MYSQL Conditions (AND, OR, BOOLEAN, LIKE, IN)
- MYSQL Functions (MIN, MAX, AVG, SUM, COUNT)
- ORDER BY Clause

- GROUP BY Clause
- Relationships in SQL
- Joins in SQL

Mini Project - 2

Python Database Connectivity (PDBC):-

- SQL Database connection using python.
- Install the MySQL dB and other Packages
- DML and DDL Operations with Databases.
- Performing Transactions.
- Handling Database Errors.
- Disconnecting Database.
- CRUD Operation Project using PDBC.

Mini Project - 3

3] ORM Tool

SQLAlchemy - Object Relational Mapper :-

- ORM Introduction
- SQLAlchemy Overview.
- SQLAlchemy over PDBC.
- Advantages of SQLAlchemy.
- Classical Way of Mapping
- Declarative Way of Mapping
- DML and DDL Operations with Database.
- Queries in SQLAlchemy.
- Applying Filters

Mini Project - 4

Performance Assessment – 4

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