



CORE PYTHON

Syllabus



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1] 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.



2] 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.

3] Logic Building :-

Condition Based

Problems. -Looping

Related Problems. -

Numeric Logical

Problems. - String Logical

Problems. -Sorting

Problems.

Design Patterns.



4] 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

5] 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 (overriding and overloading).
- Achieving Abstraction
- Encapsulation

Mini Project-1

Performance Assessment - 2

Programmers Concept



6] 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
- Exception Classes Hierarchy
- Raising an exceptions
- Custom (User-Defined) Exceptions.

7] 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

8] Decorators, Iterators and Comprehensions

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



9] 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

10] Structured Query Language:-

MYSQL Introduction

Data Types

DDL, DML, TCL

Constraints

DISTINCT Clause

WHERE Clause

Pattern identification using wildcard operators

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

11] Python DatabaseConnectivity (PDBC)

SQL Database connection using python.

Install the MySQL dB and other Packages

DML and DDL Operations with Databases.

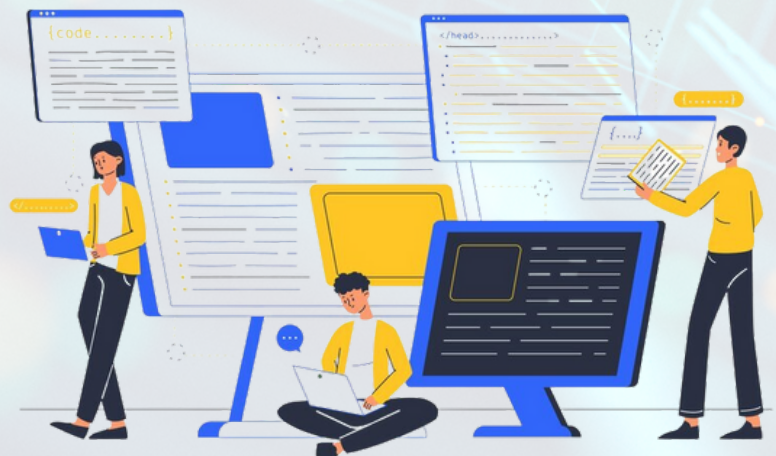
Performing Transactions.

Handling Database Errors.

Disconnecting Database.

CRUD Operation Project using PDBC.

Mini Project - 3



12] 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



13) HTML 5:-

Introduction

Basic Formatting Tags

Grouping Using Div Span

Lists

Images

Hyperlink

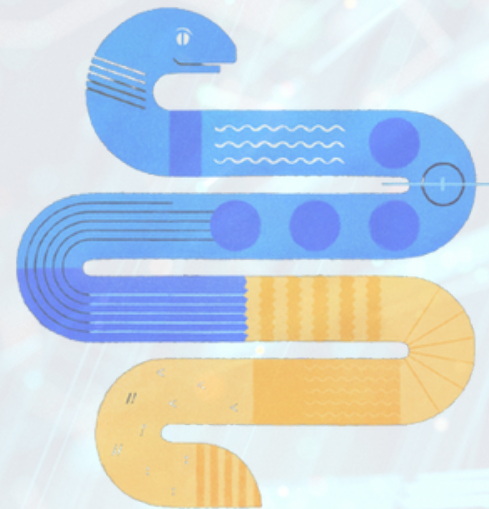
Table

Iframe

Form

Headers

Miscellaneous



14) CSS2:-

Introduction

Syntax

Selectors

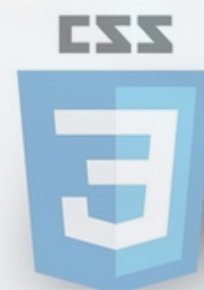
Color Background Cursor Text Fonts

Lists Tables

Box Model

Display

Positioning Floats



```
body {
font: x-small;
background: #f0f0f0;
color: black;
margin: 0;
padding: 0;
```

15)JavaScript:-

Introduction

JS in HTML

HTML DOM (Document Object Model)

JS Console.

JS Debugging JS var & Arrays

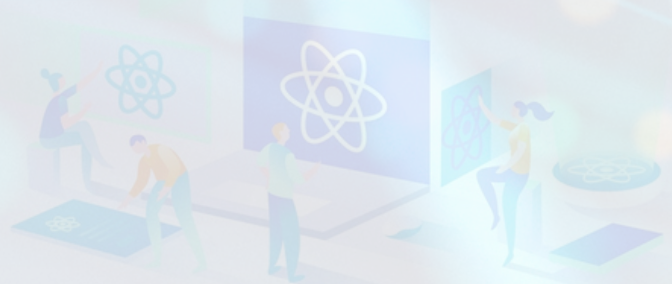
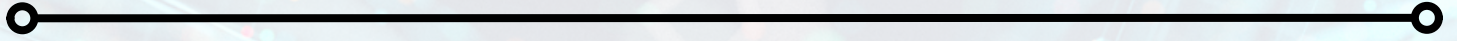
JS Objects & Functions

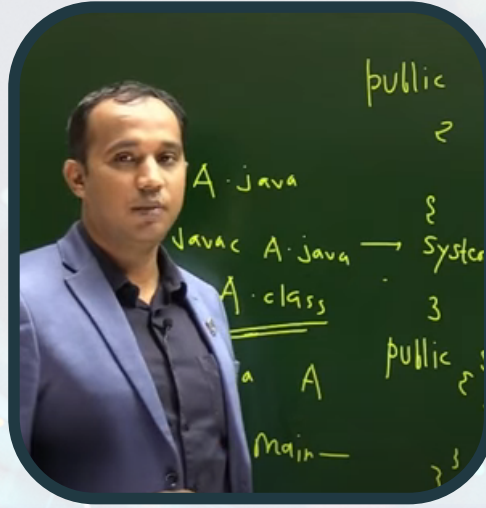
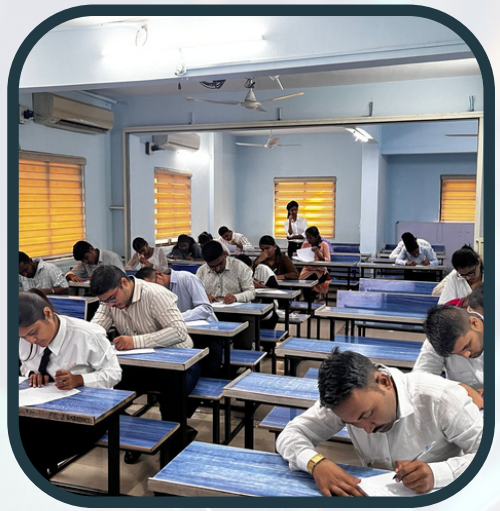
JS dialog boxes

JS JSON

HTML Attributes

Mini project 7





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