



## Diploma In Python

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### C course content

#### ✚ Basics content of C Language

- What is C language
- History of C Language
- Features of C Language
- How to Install C
- The Structure of a C Program ➤ How to Write C Programs?
- Compilation process in C
- Printf() and scanf() in C

#### ✚ C language Overview

- Variables in C and Its Types
- Data Types in C
- C language Keywords
- Identifiers in C and their type
- Role of operator in C language

- Comments in C and their Types
- Format Specifier in C language
- Escape sequence
- (ASCII) American Standard Code for information interchange values in C
- Role of constraints in C
- The Types of Literals that exist in C programs
- Importance of Tokens in C
- Boolean Data Type in C
- Static keyword in C
- Role of programming errors in C and their types
- Role of compile time and run time error in C
- Conditional operator in C language
- Bitwise operator in C and their types

#### ✚ Control Statements Which Used C Language:

- The IF.....ELSE Statement in C and variants of if statement in C language
- IF.....ELSE ladder (C switch statement)
- The difference between If ...else and switch statement
- Loops in C programming and their three types
- Do while loop in C
- While loop in C (pre-tested loop)
- For loop in C Language
- Nested loop in C language ➤ Infinite loop in C language ➤ Role of C break statement
- C continue statement
- goto statement in c
- type casting in c

#### ✚ Function in C

- Advantages of C Function and their Types
- Call by value method in C and call by reference method in C
- Recursion process in C
- Storage classes in C and their Four types

#### ✚ Array in C

- Array: what and why?

- 1D arrays
- 2D arrays
- Multi Dimensional array
- Dynamic arrays

#### ✚ Pointers in C

- Pointers in C and declaring a pointer
- Double pointer in C
- Dangling pointer in C
- sizeof() operator in c
- Constraint pointer in c and their syntax
- Void pointer in c
- Dereference pointer (indirection operator) in C and why we use

#### ✚ Dynamic memory in C

- The concept of dynamic memory allocation in c language and their 4 types of functions

#### ✚ String Handling in C

- gets() puts() function in C
- Role of string function
- String Length: strlen function in C language
- The strcpy function
- String concatenation: strcat()
- Compare string function in c .....strcmp()
- The reverse string function.....strrev()
- String lowercase function ....strlwr()
- String uppercase function...strupr()
- String strstr()
- Match function in C

## The Structures and union in C

- Advantages of a structure in c
- Defining structure ....typedef keyword in C
- Uses of an array structures in c
- Nested structure in C
- Structure padding in c
- Defining union datatype in c

## + File Management in C

- Introduction of file management and need of file handling in C
- Fprintf() and fscanf() function
- Writing file fputs() function and reading file fgets() function
- fseek() function in c
- rewind() function in c
- ftell() dunction in c

## Dynamic Memory allocation

- ✓ Introduction to Dynamic Memory Allocation
- ✓ Malloc
- ✓ Calloc
- ✓ Realloc
- ✓ Free

## • CPP COURSE CONTENTS

### C++ Overview

- Features of C++ language

- Installation
- Cpp basic input/output operation
- Variable and its syntax
- Datatypes in CPP(Basic,Derived,Enumeration,user defined)
- List of all keywords in cpp
- The Role of an operators
- The role of an Identifier
- Cpp expression

### Control statements of CPP

- Types of statements
- If \_else statement
- Cpp Switch statement
- For loop
- While loop
- Do while loop
- Break statement
- Continue statement
- Goto statement
- Commnet statement

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### Functions in CPP

- call by value and call by reference
- recursion in CPP
- storage classes in cpp

### Arrays In CPP

- Advantages And disadvantages of arrays
- Types of an Arrays
- Passing arrays to Function in cpp
- Multidimensional arrays in cpp

### Pointers Variable in CPP

- Advantages and uses of pointer
- sizeof() operator in cpp
- Array of pointer in cpp
- Void pointer in cpp
- How to create references
- Difference between references and pointers
- Function pointer in cpp
- Memory management in cpp
- Malloc() vs new in cpp
- Free vs delete in cpp

### Object class in cpp

- OOPS concept in cpp
- Object and class in cpp
- Constructor and their types in cpp
- Copy constructor
- Destructor in cpp
- This pointer in cpp
- Static keyword in cpp
- Struct in cpp
- Enumeration data type
- Friend function in cpp

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### Inheritance in cpp

- Advantages and cpp supports five types of inheritance
- Aggregation HAS-A relationship)

### Polymorphism in cpp

- Types of polymorphism
- Overloading (function and operator)
- Types of overloading in cpp
- Overriding function in cpp
- Virtual function

### □ Interfaces in cpp (abstract class)

### □ Data abstraction in cpp

- Name spaces in CPP
- Strings in cpp
  
- Advantages and their classes ✓ Cpp files and streams
- Cpp getlines()
  
- ✓ Cpp int to string

### Functions and Variables

- ✓ Functions: Declaration and Definition
- ✓ Variables: Definition, Declaration, and Scope
- ✓ Variables: Dynamic Creation and Derived Data
- ✓ Arrays and Strings in C++
- ✓ Qualifiers

### Classes in C++

- ✓ Defining Classes in C++
- ✓ Classes and Encapsulation
- ✓ Member Functions
- ✓ Instantiating and Using Classes
- ✓ Using Constructors
- ✓ Multiple Constructors and Initialization Lists
- ✓ Using Destructors to Destroy Instances
- ✓ Friendship

### Operator Overloading

- ✓ Operator Overloading
- ✓ Working with Overloaded Operator Methods

### Initialization and Assignment

- ✓ Initialization vs. Assignment
- ✓ The Copy Constructor
- ✓ Assigning Values
- ✓ Specialized Constructors and Methods
- ✓ Constant and Static Class Members

### Storage Management

- ✓ Memory Allocation
- ✓ Dynamic Allocation: new and delete

### Input and Output in C++ Programs

- ✓ Standard Streams
- ✓ Manipulators
- ✓ Unformatted Input and Output
- ✓ File Input and Output

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## Basic Python

### Introduction

- ✓ History
- ✓ Features
- ✓ Setting up path
- ✓ Working with Python
- ✓ Basic Syntax
- ✓ Variable and Data Types



Operator

### Conditional Statements

- ✓ If
- ✓ If- else Nested
- ✓ if-else

### Looping

- ✓ For
- ✓ While
- ✓ Nested loops

### Control Statements

- ✓ Break
- ✓ Continue
- ✓ Pass

### String Manipulation

- ✓ Accessing Strings
- ✓ Basic Operations

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- ✓ String slices
- ✓ Function and Methods

### Lists

- ✓ Introduction
- ✓ Accessing list
- ✓ Operations
- ✓ Working with lists
- Function and Methods

### Tuple

- ✓ Introduction
- ✓ Accessing tuples
- ✓ Operations
- ✓ Working
- Functions and Methods

### Dictionaries

- ✓ Introduction
- ✓ Accessing values in dictionaries
- ✓ Working with dictionaries
- ✓ Properties
- Functions

### Functions

- ✓ Defining a function
- ✓ Calling a function
- ✓ Types of functions
- ✓ Function Arguments
- ✓ Anonymous functions
- Global and local variables

### Modules

- ✓ Importing module
- ✓ Math module
- ✓ Random module
- ✓ Packages
- Composition

### Input-Output

- ✓ Printing on screen
- ✓
- ✓

Reading data from keyboard  
Opening and closing file

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- ✓ Reading and writing files
- ✓ Functions

### Exception Handling

- ✓ Exception Exception
- ✓ HandlingExcept
- ✓ clause
- ✓ Try ? finally clause
- User Defined Exceptions

### OOPs concept

## Advance Python

- ✓ Class and object
- ✓ Attributes
- ✓ Inheritance
- ✓ Overloading
- ✓ Overriding
- Data hiding

### Regular expressions

- ✓ Match function
- ✓ Search function
- ✓ Matching VS Searching
- ✓ Modifiers
- Patterns

### CGI

- ✓ Introduction
- ✓ Architecture
- ✓ CGI environment variable
- ✓ GET and POST methods
- ✓ Cookies
- File upload

### Database

- ✓ Introduction
- ✓ Connections
- ✓ Executing queries
- ✓ Transactions

Handling error

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## Networking

- ✓ Socket
- ✓ Socket
- ✓ Module
- ✓ Methods
- Client and server
- Internet modules

## Multithreading

- ✓ Thread
- ✓ Starting a thread
- ✓ Threading module
- ✓ Synchronizing threads
- Multithreaded Priority Queue

## GUI Programming

- ✓ Introduction
- ✓ Tkinter programming
- ✓ Tkinter widgets

# Django Framework

## Django Basic Introduction

- Django Introduction
- Django Features
- Django Installation

## Virtual Environment Setup

- Create Virtual Environment
- Set Path
- Create Project using command in terminal

## Django Project

- Django New Project
- Project Command
- Pre-requisite

## Django App

- Django New App
- App Command
- Set App in Settings file
- Check Proper Installation
- New URL file in app

## Django Model

- Django Model Properties
- Create Model class
- Use of Django Model File

## Django View

- Django View Properties
- Create View Functions
- Use of Django View File

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## Django Template

- Django Template Directory
- Where To Create Templates
- Store HTML files in Templates

## URL Mapping

- Django URLs file Properties
- Create path in URLs file
- Use above path in web browser
- Switch new html page

## Static Files Handling

- Django Static folder properties
- Create static folder in app to store static files ex. Text, Images or PDF
- Handle static files in HTML
- Access Content from static files

## Model Forms

- Django html Form using forms model

## Django Forms

- Django Forms Properties
- Create Forms class
- Use of Django Forms File

## Form Validation

- Django Forms input check validation
- Check for valid or invalid fields

## File Upload

- Django File Upload using HTML and store in Project
- Create Field for file upload

## Database Connectivity

- Django Db connection settings
- Django connect with MySQL
- Parameters required to connect with MySQL

## Database Migrations

- Django MySQL Command for migrations



- Django MySQL default table create

Django and Bootstrap

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- Django & Bootstrap Merging
- Bootstrap Links
- Bootstrap Properties
- Bootstrap Component (Button, input, text area, slider, forms, image, alert etc.)

### Django Mail Setup

- Django Send Mail settings
- Django required send mail parameters
- Django sending mails

### Django Default CRUD

- Django MySQL CRUD Operations
- MySQL Create Read Update Delete operations

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## Aptitude syllabus :

### Quantitative Aptitude

- ▶ 1 Problems Based on Ages.
- ▶ 2 Test on Divisibility.
- ▶ 3.Addition and Subtraction.
- ▶ 4.Multiplication.
- ▶ 5.Division.
- ▶ 6.Square root and Cube root.
- ▶ 7.BODMAS Rule.
- ▶ 8.Indices
- ▶ 9. Quadratic Equation.

- ▶ 10. Word problems (Simplification with Profit Questions).
- ▶ 11. HCF and LCM.
- ▶ 12. Average and Percentage .
- ▶ 13. Ratio
- ▶ 14. Time and work.
- ▶ 15. Pipes and Cistern
- ▶ 16. Time and Distance.
- ▶ 17. Boat and Stream
- ▶ 18. Problems on Train.
- ▶ 19. Profit and loss.
- ▶ 20. Probability

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#### Reasoning Aptitude

- ▶ 1. Test on Alphabet
- ▶ 2. Coding-Decoding
- ▶ 3. Letter-Coding
- ▶ 4. Number Symbol Coding
- ▶ 5. Deciphering Message Code
- ▶ 6. Pairs in English Alphabet
- ▶ 7. Blood Relations
- ▶ 8. Number Series.
- ▶ 9. Direction and Distance.
- ▶ 10. Ordering Test
- ▶ 11. Sitting Arrangement
- ▶ 12. Puzzle
- ▶ 13. Input Output

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