CREDO SYSTEMZ

Advance Python Program

Capstone Projects :

Real Time Business Scenario using Advance Python

Bank – ATM Operation

Developing the ATM transactions like checking balance, withdraw, and all other Banking process Using Python OOPS concepts and libraries.

Calculate monthly expenses of your credit card

Download the credit card statement in excel and develop the Python logic to read data from excel using openpyxl and calculate the monthly expenses.

Guessing Game

Develop the Guessing Game Using Python Random Package. The program should generate the random value between 1 to 100 and validate against user input .

Online Quiz Application

Develop a Python GUI app with timed quizzes, multiple-choice questions, score tracking, and leaderboard display.

Hospital Management System

Build a Tkinter/PyQt app to manage patients, doctors, appointments, and billing with database integration.

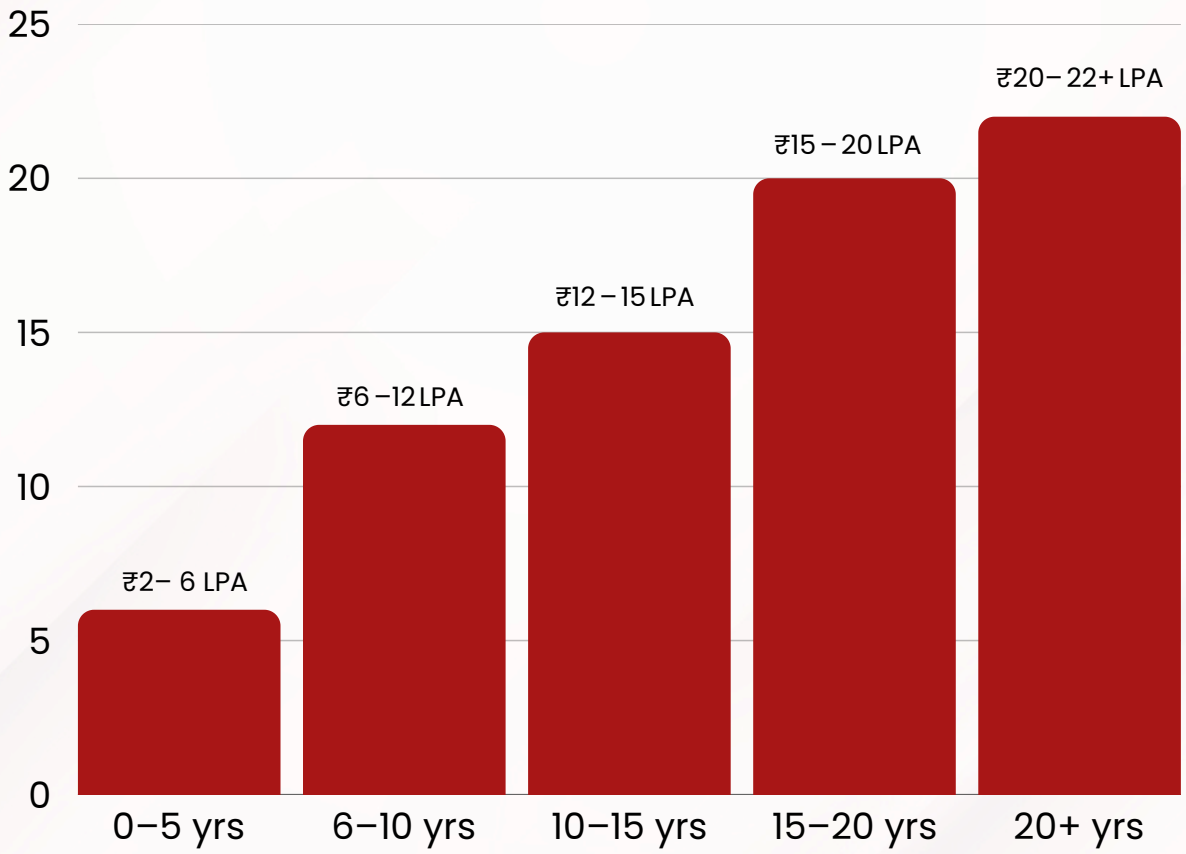
Inventory Management System

Create a GUI app to add, update, and track stock items with real-time reporting and search features.

Python

Opportunities & Demand

- Python Developer
- Web Developer (Python)
- Python Software Developer
- Backend Python Developer
- Python Data Engineer
- Lead Software Engineer (Python)



ADVANCE PYTHON COURSE SYLLABUS

Duration : 25 hrs

Section 1 : Python Introduction & Installation

- What is Python & Languages?
- Why Python?
- Writing your first Python program
- Features and advantages of Python
- Different Python versions (2.x vs 3.x)
- Installing Python
- Application of Python
- Setting up IDEs (IDLE, VS Code, PyCharm, etc.)
- Running Python scripts (command line, interactive mode)

Real-time Practicals

- Install Python and print “Hello, World!”
- List a few real-world applications of Python.
- Write a Python program that prints your name and age.

Section 2 : Syntax, Variables and Data Types

- Python syntax rules & indentation
- Naming conventions
- Variables and dynamic typing
- Built-in data types: int, float, str, bool, complex
- Type checking with type()
- input() function and reading user input
- Type casting (int(), float(), str())

Real-time Practicals

- Create variables for name, age, and height and print them
- Convert int to float and vice versa
- What are the rules for naming a variable in Python?
- Identify the data types: "25", 25.0, True, 'A'
- Write a program that swaps two numbers.

Section 3 : Operators

- Arithmetic operators (+, -, *, /, %, **)
- Comparison operators (==, !=, >, <, >=, <=)
- Logical operators (and, or, not)
- Assignment operators (+=, -=, etc.)
- Bitwise operators (optional / advanced)

Real-time Practicals

- Create a calculator to add, subtract, multiply, and divide two numbers
- Accept user input for age and check eligibility to vote.
- Write a program to get user input for two numbers and display their sum.
- Write a program to find the area of a rectangle from user input.

Section 4 : Control Flow (Conditionals) & Loops (for and while)

- if, elif, else statements
- Nested conditionals
- for loops: iterating over sequences
- while loops and loop control
- break, continue, and else in loops
- Looping with range()
- Comprehensions (basic intro)

Real-time Practicals

- Write a program to find if a number is positive, negative, or zero
- Print even numbers from 1 to 100
- Use while loop to implement a simple menu
- Write a program to check if a number is divisible by 3 and 5.
- Create a program that prints the multiplication table of a number.
- Use a loop to print Fibonacci sequence up to n terms.

Section 5 : Data Structures (List, Tuples, Set, Dictionary)

- Lists: creation, indexing, slicing, methods
- Tuples: immutability and usage
- Sets: unique elements, set operations

- Dictionaries: key-value pairs, methods
- Nested data structures
- Mutable vs Immutable & Examples
- Common functions: len(), sorted(), etc.

Real-time Practicals

- Manage a contact book using a dictionary
- Find unique words in a text with sets
- Combine lists and dictionaries to store student data

Section 6 : Functions and Modules

- Defining functions with def
- Function parameters and return values
- Default & keyword arguments
- *args and **kwargs
- Recursion Function
- Lambda Function
- Importing modules
- Creating and using custom modules
- Built-in modules (math, random, datetime, etc.)

Real-time Practicals

- Write a function to calculate factorial
- Create a module with multiple math functions and import it
- Write a function that checks if a number is prime.
- Write a recursive function to calculate Fibonacci numbers.

Section 7 : Classes and Objects

- Introduction to Object-Oriented Programming (OOP)
- Object-oriented programming basics
- Defining classes and creating objects
- __init__ constructor method
- Instance variables and methods
- Class variables and methods (@classmethod)
- @staticmethod
- __str__ and other dunder methods

Real-time Practicals

- Create a Car class with attributes and methods
- Define a class Student with a method to display details
- Write a class to represent a bank account with deposit and withdraw methods.
- Create a class to store and display employee details.

Section 8 : Inheritance & Abstraction

- Inheriting from a parent class
- Overriding methods
- Using super()
- Abstract classes and methods (abc module)
- When to use abstraction

Real-time Practicals

- Create a base class Person and derive a class Student
- Write a program to show multilevel inheritance with three classes.
- Implement multiple inheritance using two base classes.
- Use super() to call the parent class method.

Section 9 : Polymorphism & Encapsulation

- Concept of polymorphism
- Method overriding and method overloading (Python style)
- Duck typing
- Encapsulation and private/protected variables
- Getters and setters (property decorators)

Real-time Practicals

- Write a program to demonstrate polymorphism with a speak() method in Dog and Cat classes.
- Create a class hierarchy with overridden methods
- Use property decorators to protect data

Section 10 : Exception Handling & File Handling

- Exceptions and errors in Python
- Using try, except, else, finally
- Raising exceptions

- Creating custom exceptions
- Reading and writing text files
- File modes (r, w, a, etc.)

Real-time Practicals

- Read names from a file and print them
- Write user input to a text file

Section 11 : Advanced Python - decorators & Multithreading

- Introduction to decorators
- Writing custom decorators
- Decorators with arguments
- Built-in decorators (@property, etc.)
- Introduction to multithreading
- Threading module basics

Real-time Practicals

- Write a decorator to log function calls
- Create threads to run functions in parallel

Section 12 : Tkinter/GUI Programming

- Introduction to GUI development
- Tkinter basics: windows, labels, buttons
- Layout management (pack, grid)
- Event handling and callbacks
- Adding input fields, menus, and dialogs
- Simple projects (calculator, text editor)

Real-time Practicals

- Build a basic calculator GUI
- Make a to-do list app with add/delete items

Section 13 : Data Analysis (Numpy,panda,matlilapetc)

- Introduction to data analysis workflow
- NumPy arrays and operations

- pandas DataFrames and Series
- Importing/exporting CSV, Excel
- Data cleaning and preprocessing
- Data visualization with matplotlib and seaborn
- Basic statistics and aggregation

Real-time Practicals

- Analyze a CSV file of sales data
- Plot a bar chart of product sales
- Clean missing data

Section 14 : Databases in Python (MysQL, CURD Application)

- What is a database & SQL basics
- Connecting Python to MySQL (mysql-connector / PyMySQL)
- Performing CRUD operations (Create, Read, Update, Delete)
- Parameterized queries to prevent SQL injection
- Using SQLite (optional / bonus)
- Simple console-based CRUD application

Real-time Practicals

- Build a Python app to add, edit, delete records in a MySQL table

Section 15 : GitHub Project & Interview Preparation & Projects

Tools Covered

Python

Open CV

NumPY

Jupyuter

Vs Code

SQL Ide

Git Hub

Matplotlib

Panda

Skills Covered

Data Manipulation

Data Visualisation

GUI

Data Operation

Create Map

PLACEMENT SUCCESS STORIES

	Designation	Company	Package
 Shakthi	Python Developer	TCS TATA CONSULTANCY SERVICES	7.8 LPA
 Anitha	Python Software Developer	Beelogical The Magic of Logic	9.5 LPA
 Kalavathi	Python Backend Developer	IRIS	6.8 LPA
 Keshav	Lead Software Engineer	Capgemini	8.9 LPA
 Moorthy	Python Developer	cognizant	8.6 LPA
 Manoj Kumar	Python Data Engineer	amazon	10.5 LPA

OUR HIRING PARTNERS

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Earn your Copilot Course Completion Certificate

Credo Systemz's certificate is highly recognized by 30K Global companies around the world.

WHAT OUR TRAINEE SAYS?

Ravi Mohan

4.7 ★★★★½

Completed my Core Python course at Credo Systemz — a great learning experience! The mentor helped me start coding from day one with clear, practical guidance

Sanjana

4.2 ★★★★½

The Python training was hands-on and beginner-friendly. Each topic was explained in detail with real-world examples.

Pradeep

5.0 ★★★★★

Excellent curriculum with all the latest Python features covered. It was well-structured and up to industry standards.

Mathumathi

4.9 ★★★★½

Highly recommend this course for Python beginners and career switchers. You get strong mentorship and practical exposure.

Jegan

4.0 ★★★★

I have done Advance python class in credo systems, the classes taken professionals and well organized manner. Very good experience

Maheema

4.5 ★★★★½

Recently I was completed my Core Python course in credo Systemz via Online. it was good experience and sessions were more practical and easy.

CHENNAI

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OVERSEAS

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