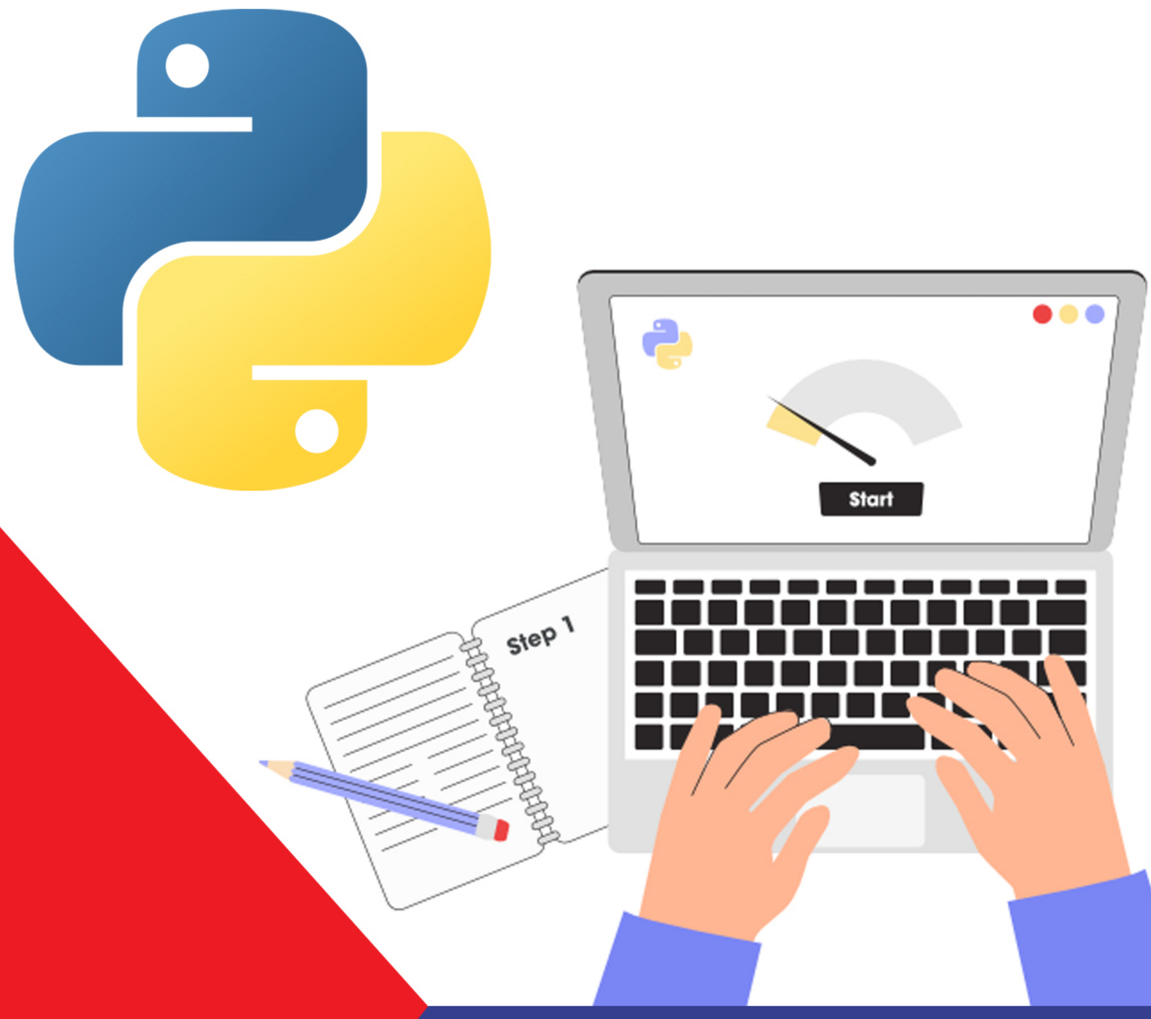
DESTINATION codegnan®



Python
Course Curriculum

Duration: 1 Month

Python Programming

Python Introduction and Setting Up the Environment

- Introduction to programming
- R or Python?
- Why Python for Data Science?
- Different job roles with Python
- Different Python IDEs
- Downloading and setting up the Python environment

Hands-On - Installing Python - IDLE

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Python Basic Syntax and Data Types

- Python input and output operations.
- Comments
- Variables, rules for naming variables
- Basic Data Types in Python
- Typecasting in python

Hands-On - Using comments, variables,data types, and typecasting in python program

Operators in Python

- Arithmetic operators
- Assignment operators
- Comparison operators
- Logical operators
- Identity operators
- Membership Operators
- Bitwise Operators

Hands-On - Working with different data types in a program

Strings in Python

- Creating strings
- String formatting
- Indexing
- Slicing
- String methods

Hands-On - Performing string operations

Tuples

- Syntax to create tuples
- Tuple properties
- Indexing on tuples
- Slicing on tuples
- Tuple methods

Hands-On - Working with Tuples

Lists

- ☑ Creating lists
- ☑ Properties of lists
- ☑ List indexing
- ☑ List slicing
- ☑ List of lists
- ☑ List Methods
- ☑ Adding, Updating & removing elements from lists

Hands-On - Slicing, Indexing, and using methods on lists

Sets

- ☑ The syntax for creating sets
- ☑ Updating sets
- ☑ Set operations and methods
- ☑ Difference between sets, lists, and tuples

Hands-On - Performing set operations in a program

Dictionaries

- ☑ The syntax for creating Dictionaries
- ☑ Storing data in dictionaries
- ☑ Dictionaries keys and values
- ☑ Accessing the elements of dictionaries
- ☑ Dictionary methods

Hands-On - Creating dictionaries and using dictionaries methods

Python Conditional Statements

- ☑ Setting logic with conditional statements
- ☑ If statements
- ☑ If -else statements
- ☑ If-elif-else statements

Hands-On - Setting logic in programs using conditional statements

Loops in Python

- ☑ Iterating with python loops
- ☑ while loop
- ☑ for loop
- ☑ range
- ☑ break
- ☑ continue
- ☑ pass
- ☑ enumerate
- ☑ zip
- ☑ assert

Hands-On - Iterating with loops in python

Getting Started with HackerRank use cases and working on them

- ☑ Solving Level by Level Challenges
- ☑ Assignments to acquire Bronze and Silver Level badges

List and Dictionaries comprehension

- ☑ Why List comprehension
- ☑ The syntax for list comprehension
- ☑ The syntax for dict comprehension

Hands-On - Using List and Dictionary comprehension

Functions

- ☑ What are Functions
- ☑ Modularity and code reusability
- ☑ Creating functions
- ☑ Calling functions
- ☑ Passing Arguments
- ☑ Positional Arguments
- ☑ Keyword Arguments
- ☑ Variable-length arguments (*args)
- ☑ Variable Keyword length arguments (**kargs)
- ☑ Return keyword in python
- ☑ Passing function as an argument
- ☑ Passing function in return
- ☑ Global and local variables
- ☑ Recursion

Hands-On - Creating our own functions, passing arguments, and performing operations

Anonymous Function

- ☑ Lambda
- ☑ Lambda with filter
- ☑ Lambda with map
- ☑ Lambda with reduce

Hands-On - Working with lambda, filter, map, and reduce in python

Generators

- ☑ Creating and using generators

Hands-On - Creating and using generators

Modules

- ☑ Creating modules
- ☑ Importing functions from a different module
- ☑ Importing Variables from different modules
- ☑ Python built-in modules

Hands-On - Creating and importing Modules

Exceptions and Error handling

- ☑ Syntax errors
- ☑ Logical errors
- ☑ Handling errors using try, except and finally

Hands-On - Handling Errors with try and except

Classes and Objects (OOPS)

- ☑ Creating classes & Objects
- ☑ Attributes and methods
- ☑ Understanding __init__ constructor method
- ☑ Class and instance attributes
- ☑ Different types of methods
- ☑ Instance methods
- ☑ Class methods
- ☑ Static methods
- ☑ Inheritance
- ☑ Creating child and parent class
- ☑ Overriding parent methods
- ☑ The super() function
- ☑ Understanding Types of inheritance
- ☑ Single inheritance
- ☑ Multiple Inheritance
- ☑ Multilevel Inheritance
- ☑ Polymorphism
- ☑ Operator overloading

Hands-On - Creating classes, objects. Creating methods and attributes. Working with different methods. Using inheritance and polymorphism.

Packages - Data Analysis

- ☑ Creating packages
- ☑ Importing modules from the package
- ☑ Different ways of importing modules and packages
- ☑ Working on Numpy, Pandas, and Matplotlib

Hands-On - Creating and importing packages

Date and Time

- ☑ time module
- ☑ datetime module
- ☑ time delta
- ☑ formatting date and time
- ☑ strftime()
- ☑ strptime()

Hands-On - working with date and time

Regex

- ☑ Understanding the use of regex
- ☑ re.search()
- ☑ re.compile()
- ☑ re.find()
- ☑ re.split()
- ☑ re.sub()
- ☑ Meta characters and their use

Hands-On - Using regular expression to search patterns

Files

- ☑ Opening file
- ☑ Opening different file types
- ☑ Read,write,close files
- ☑ Opening files in different modes

Hands-On - Reading, Writing, Appending, opening, and closing files.

Web Scraping

- Installing BeautifulSoup
- Understanding web structures
- Chrome devtools
- request
- Scraping data from the web using beautiful soup
- scraping static websites
- Scraping dynamic websites using beautifulsoup

Hands-On - Scraping static and dynamic websites using beautiful soup

Database Access

- Accessing Database using sqlite3 and MySql
- Creating tables
- Insert Values
- Commit changes
- Query
- Update and Delete

Hands-On - Connecting and Querying the database

Working on Data Analysis

- Introduction and Working on Numpy-Multidimensional Arrays
- Working on Pandas - EDA Process
- Data Visualization

APIs the Unsung Hero of the Connected World

- Introduction to APIs
- Accessing Public APIs

Hands-On – Accessing Public Weather APIs and People in Space API

Python for Web Development - Flask

- ☑ Introduction to Python Web Framework Flask
- ☑ Installing Flask
- ☑ Working on GET, POST, PUT, METHODS using Python Flask Framework
- ☑ Working on Templates, render_template function

Hands-on Projects

- ☑ Web Scraping Dynamic Website with multiple pages along with Data Analysis
- ☑ Sending Automated Emails
- ☑ Building a Virtual Assistant with Frontend Interface

[ ] Outcome of the Course:

- ☑ Learner will achieve five star badge in HackerRank
- ☑ Able to Crack any competitive coding question
- ☑ Learner HackerRank rank will be less than 1 Lakh.