

TOPS Technology

Python Fundamentals

Presented By:

Nandni Vala



Introduction to Python

1.Introduction to Python and its Features (simple, high-level, interpreted language).

- **Python** is a powerful, high-level, and easy-to-learn programming language. Created by **Guido van Rossum** and first released in **1991**, Python emphasizes readability and simplicity, making it an ideal choice for both beginners and experienced developers.
- Features:
- **Simple and Easy to Learn :**
- Python's syntax is clear and easy to read, which reduces the learning curve for beginners. The code looks almost like plain English.
- **High-Level Language :**
- As a high-level programming language, Python abstracts away low-level details such as memory management, allowing developers to focus on logic rather than hardware.

➤ **Interpreted Language :**

- Python code is executed line-by-line by an **interpreter**, which eliminates the need for compilation. This makes it easy to test and debug programs.

➤ **Platform-Independent :**

- Python is **cross-platform**, meaning it runs on various operating systems like Windows, Linux, and macOS without modification.

2. History and evolution of Python.

➤ History and Evolution of Python

➤ **Creation (1989-1991):**

- **Guido van Rossum**, a Dutch programmer, started developing Python in 1989 as a hobby project at Centrum Wiskunde & Informatica (CWI) in the Netherlands.
- The goal was to create a simple and readable programming language for scripting and automating tasks, inspired by ABC (a teaching language) and other languages like C, Modula-3, and Unix shell scripting.

3. Advantages of using Python over other programming languages.

- Here are some key advantages of Python over other programming languages, presented briefly:
- **Simplicity and Readability:** Python's syntax is clean and easy to understand, making it beginner-friendly and reducing development time.
- **Versatility:** It supports multiple programming paradigms, including procedural, object-oriented, and functional programming.
- **Cross-Platform Compatibility:** Python runs on various platforms without modification, enhancing flexibility.
- **Strong Community Support:** Its large and active community provides extensive resources, libraries, and help.
- **High Demand:** Python is widely used in data science, machine learning, web development, and more, offering career growth opportunities.

4. Installing Python and setting up the development environment (Anaconda, PyCharm, or VS Code).

1. Install Python

- Download: Visit [Python's official website](#) and download the latest version for your OS.
- Install: Follow the installation wizard and check the box to add Python to the PATH.

Setting Up VS Code

- Download: Visit [VS Code's website](#) and download.
- Install: Add VS Code to PATH during installation.
- Extensions: Install the "Python" extension for IntelliSense, debugging, and environment management.
- Configure: Set the Python interpreter for your workspace and create a virtual environment if needed.

5. Writing and executing your first Python program.

➤ **Using VS Code**

- Create a new .py file (e.g., hello.py) and write:
- Example :
- `print("Hello, World!")`
- Install the Python extension if not done already.
- Press F5 or right-click and select **Run Python File in Terminal**.
- Output:
- Hello, World!