**Introduction to Python Programming Basics**

**Introduction to Python**

Python is a high-level, interpreted, and general-purpose programming language known for its simplicity and readability. Created by **Guido van Rossum** and first released in **1991**, Python has become one of the most popular programming languages due to its versatility and extensive libraries.

**Key Features of Python**

1. **Easy to Learn & Readable Syntax**
   * Python uses indentation (whitespace) to define code blocks, making it highly readable.
   * Its syntax is intuitive and resembles the English language.
2. **Interpreted Language**
   * Python code is executed line by line, making debugging easier.
3. **Cross-Platform Compatibility**
   * Python runs on multiple platforms (Windows, macOS, Linux) without modification.
4. **Extensive Standard Library**
   * Python comes with built-in modules for file handling, web development, data processing, and more.
5. **Dynamically Typed**
   * Variables do not require explicit declaration of data types.
6. **Supports Multiple Paradigms**
   * Python supports **procedural, object-oriented, and functional programming**.
7. **Large Community & Ecosystem**
   * A vast collection of third-party libraries (e.g., NumPy, Pandas, Django, Flask) enhances functionality.

**Applications of Python**

* **Web Development** (Django, Flask)
* **Data Science & Machine Learning** (TensorFlow, PyTorch, Scikit-learn)
* **Automation & Scripting**
* **Game Development** (Pygame)
* **Desktop Applications** (Tkinter, PyQt)
* **Cybersecurity & Ethical Hacking**

**Example: Hello World in Python**

python

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print("Hello, World!")

Python’s simplicity and power make it an excellent choice for beginners and professionals alike. Whether you're developing websites, analyzing data, or automating tasks, Python provides the tools needed to get the job done efficiently.