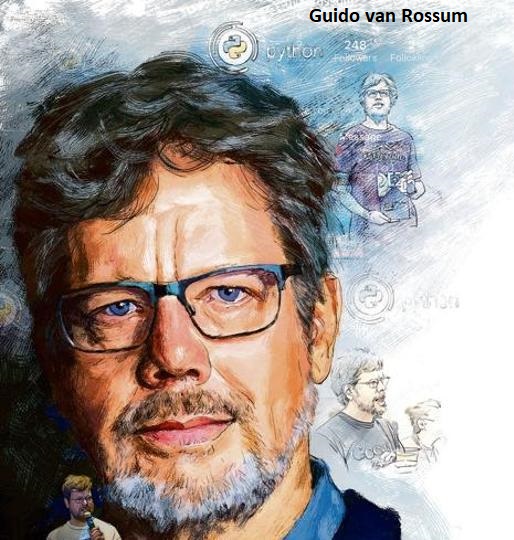
**Module 1: An Introduction to Python**

**What is Python?**

**Python** is a popular, high-level programming language known for its simplicity and readability. It was created by **Guido van Rossum** and first released in **1991**. Python is widely used for web development, data analysis, automation, artificial intelligence, machine learning, **game development** ( 2D games or simple 3D games) and more.



**Why Python?**

**Key Features of Python**

* **Easy to read and write: Python syntax is clean and similar to English.**
* **Interpreted: You don't need to compile Python code; it runs line-by-line.**
* **Dynamically typed: You don’t need to declare variable types.**
* **Versatile: Used in many domains like web development (Django, Flask), data science (Pandas, NumPy), automation (scripts), and more.**
* **Large community and libraries: Thousands of open-source libraries to speed up development.**

**Good to know**

**Python is a powerful yet beginner-friendly language, and it opens the door to many fields like:**

* **🖥️ Web development (Django, Flask)**
* **📊 Data analysis & visualization (Pandas, Matplotlib)**
* **🤖 AI & Machine Learning (TensorFlow, scikit-learn)**
* **🔧 Automation/Scripting (for tasks and workflows)**
* **🎮 Game development (Pygame, Arcade)**
* **🧪 Scientific computing (NumPy, SciPy)**
* **🌐 APIs and web scraping (Requests, BeautifulSoup)**

**Python Syntax compared to other programming languages**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Concept** | **Python** | **C** | **Java** | **JavaScript** |
| **Hello World** | print("Hello, World!") | printf("Hello, World!"); | System.out.println("Hello, World!"); | console.log("Hello, World!"); |
| **Variable** | x = 10 | int x = 10; | int x = 10; | let x = 10; |
| **Data Types** | Dynamic (x = 5) | Static (int x = 5;) | Static (int x = 5;) | Dynamic (let x = 5;) |
| **If Statement** | if x > 0:\n print(x) | if (x > 0) {\n printf("%d", x);\n} | if (x > 0) {\n System.out.println(x);\n} | if (x > 0) {\n console.log(x);\n} |
| **Else Statement** | else:\n print("no") | else {\n printf("no");\n} | else {\n System.out.println("no");\n} | else {\n console.log("no");\n} |
| **For Loop** | for i in range(5):\n print(i) | for (int i=0; i<5; i++) {\n printf(i);\n} | for (int i=0; i<5; i++) {\n System.out.println(i);\n} | for (let i=0; i<5; i++) {\n console.log(i);\n} |
| **Function** | def add(x, y): return x + y | int add(int x, int y) { return x + y; } | int add(int x, int y) { return x + y; } | function add(x, y) { return x + y; } |
| **Comments** | # This is a comment | // This is a comment | // This is a comment | // This is a comment |
| **Block Scope** | Indentation (no {}) | Curly braces {} | Curly braces {} | Curly braces {} |
| **Semicolons** | ❌ Not required | ✅ Required | ✅ Required | Optional but common |

**Python Install**

Go to google and type download python for windows

<https://www.python.org/downloads/>

A screenshot of a computer

AI-generated content may be incorrect.

Click on Download python

Double click on set file downloaded

A screen shot of a computer

AI-generated content may be incorrect.

Click on Customize and installation

A computer screen shot of a computer program

AI-generated content may be incorrect.

Click on Next

It will start installation

after installation go to cmd and type python –-version, it will **show** the python version

**Download Visual Studio Code**

Type Download vs code window in google

<https://code.visualstudio.com/download>

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Click on download window, it start downloading Visual Studio Code set file

Click on I accept the agreement and click on Next

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Select all check box and click on Next

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