What is Python?

Python is a **high-level**, **interpreted**, **general-purpose programming language**, created by **Guido van Rossum** and released in **1991**.

- Features:
  - High readability and clean syntax
  - Dynamically typed
  - Garbage-collected
  - Supports OOP, functional, and procedural paradigms
  - Vast standard and third-party libraries

Why Python?

Python is widely adopted due to:

- **Simplicity**: Easy to write, read, and learn
- **Versatility**: From web development to AI and automation
- **Community Support**: Huge ecosystem and open source
- **Libraries**:
  - Data Science: `pandas`, `numpy`, `matplotlib`
  - ML/AI: `scikit-learn`, `tensorflow`, `keras`, `pytorch`
  - Web: `Django`, `Flask`
  - Automation: `selenium`, `pyautogui`
- **Productivity**: Rapid prototyping and fewer lines of code

When to Use Python?

Python is ideal when:

- Doing **data analysis, ML, AI, or automation**
- Developing **web applications**
- Building **scripts or utilities**
- Teaching **programming fundamentals**

Avoid using Python when:

- You need **high-speed computation** without external tools
- Developing **native mobile apps** (better with Kotlin/Swift)

Installing Python (Skip for Colab users)

Since Google Colab provides a pre-installed Python environment, no installation is needed.

For local use:

1. **Install Python**: https://www.python.org
2. **Install VS Code**: https://code.visualstudio.com
3. **Install Jupyter**:

```
pip install notebook
```

```
### First Program
print("Hello, World!")
```

```
Hello, World!
```