SDEV 1001

Programming Fundamentals

Introduction to Programming - 1

A LEADING POLYTECHNIC COMMITTED TO YOUR SUCCESS

Expectations - What I expect from you

- No Late Assignments

- No Cheating

- Be a good classmate

- Don’t waste your time

- Show up to class

Agenda

On the right is what we will cover today.

What is Programming?
Programming In the Real world
What is Python?
Why use Python?
What does it look like?
Installing Python
Running Python
What other software languages out there?

What is Programming?

Programming is the process of writing instructions that a computer can follow to perform specific tasks. These instructions are written in programming languages and allow us to solve problems, automate tasks, and create software applications.

Programming In the Real World

Programming is everywhere! It powers websites, mobile apps, video games, banking systems, medical devices, and even cars. From social media to scientific research, programming helps shape the modern world.

What is Python?

Python is a popular, high-level programming language known for its simplicity and readability. It is widely used in web development, data analysis, artificial intelligence, automation, and more.

Why Use Python?

- Easy to learn and read
- Large supportive community
- Extensive libraries and frameworks
- Versatile: used in web, data science, automation, and more
- Really great for a lot of different applications
  - Web development (Django, Flask)
  - Data analysis (Pandas, NumPy)
  - Machine learning (TensorFlow, PyTorch)
  - Automation (Scripting, Task automation)

What does it look like?

Here's a simple 10-line Python program:

```
# This program asks for your name and greets you

print("Welcome to Python!")
name = input("What is your name? ")
print("Hello, " + name + "!")

age = input("How old are you? ")
print("You are " + age + " years old.")

print("Let's do some math!")
print("2 + 2 =", 2 + 2)
```

Installing Python

- Visit the official website: https://python.org
- Download the latest version for your operating system (Windows, macOS, Linux)
- Follow the installation instructions provided on the website

Running Python

- Use the built-in IDLE editor or any code editor (e.g., VS Code)
  - You can do this in the terminal or command line and write `python` to start the Python REPL (Read-Eval-Print Loop).
- Run Python scripts from the command line: `python your_script.py`

What Other Software Languages Are Out There?

- JavaScript: Web development
- Java: Enterprise applications, Android
- C/C++: System programming, games
- Ruby, PHP: Web development
- R: Data analysis
- Many more, each with unique strengths and uses

Example

Let’s go run a few examples together