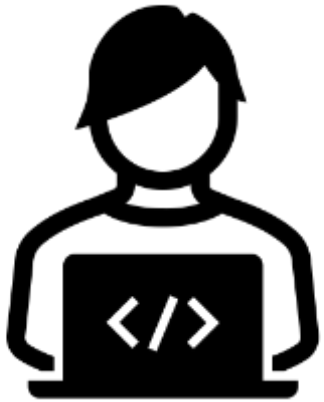


CODING IN THE AGE OF AI: A SHORT PYTHON COURSE

PRESENTER: HOPE ADEGOKE

COURSE OBJECTIVE

This Python course is designed to help you start your programming journey by mastering core Python concepts. We will use simple examples to build your confidence in using the tool.

WHAT YOU WILL LEARN

- Write and run Python code
- Understand variables, data types, and user input
- Use conditions and loops to control program flow
- Create and call functions
- Work with lists and dictionaries
- Understand Package Imports and Management
- Explore foundational concepts like File I/O, Error Handling, and Classes
- **Build a real-world project**

WHAT IS CODING?

Definition: Giving instructions to a computer in a language it understands.

Think of it like:

- Writing down a food recipe
- Providing directions to a destination
- Composing a musical score

Use cases of coding: Websites, Mobile Apps, Video Games, Smart Devices, Data Analysis…

WHY PYTHON?

Simplicity & Readability

- Often called "executable pseudocode" due to its clear, English-like syntax.
- Faster to learn and write compared to many other languages.
- Great for beginners!

Versatility

- Web Development (Django, Flask)
- Data Science & Machine Learning (Pandas, NumPy, Scikit-learn, TensorFlow, PyTorch)
- Automation & Scripting
- Game Development

AI & Machine Learning Compatibility

- **The Go-To Language:** Dominant in the AI/ML community.
- **Rich Ecosystem:** Vast libraries and frameworks specifically designed for AI development.
- **Community Support:** Large and active community for help and resources.

PyCharm

Visual Studio Code

INTEGRATED DEVELOPMENT ENVIRONMENT (IDE)

What is it? An IDE is a software application that provides comprehensive facilities to computer programmers for software development. It normally consists of at least a source code editor, build automation tools, and a debugger.

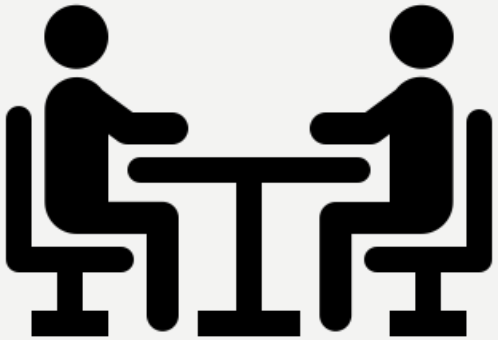
It simplifies the process of coding by combining multiple tools into a single interface. This can include things like a text editor, file management, and the ability to run your code, all in one place.

Examples of IDEs: Visual Studio Code (VS Code), PyCharm, Jupyter Notebook, etc

THE MINDSET OF A PROGRAMMER 

- Think in steps, i.e, break down your tasks logically
- Start small, then build up
- Debugging is part of the process and not a failure
- Let AI help you, but understand what's happening

HOW TO "TALK TO AI" LIKE A CODING PARTNER



Key Prompting Techniques:

- **Be Specific:** Clearly state your goal and constraints (e.g., "Write a Python function to calculate factorial for a non-negative integer, include docstrings and type hints").
- **Provide Context:** Explain the problem you're trying to solve (e.g., "I'm building a simple e-commerce site, and I need a function to validate user email addresses.").
- **Define Output Format:** Specify how you want the AI to respond (e.g., "Provide only the code, no explanations," or "Explain each line of code.").
- **Give Examples:** Show what you want (e.g., "If input is 5, output should be 120.").
- **Iterate and Refine:** Don't expect perfection on the first try. Ask follow-up questions, request modifications, or clarify ambiguities.
- **Break Down Complex Tasks:** For large problems, ask the AI to help you solve smaller components first.

TOOLS SETUP: GETTING STARTED

Your AI Coding Environment: VS Code and Github Copilot.

VS Code is a free, open-source code editor created by Microsoft.

GitHub Copilot is an AI-powered "pair programmer" developed by GitHub and OpenAI.