PYTHON PROGRAMMING FOUNDATIONS:

ENVIRONMENT SETUP & FIRST PROGRAM

all-about-python.co.uk

AGENDA OVERVIEW

This workshop will introduce you to the **fundamentals of Python**, helping you set up the environment and start coding with confidence.

OBJECTIVES

- Learn how to check and install Python
- Choose a suitable text editor
- Set up your environment on Windows

GOALS

- Understand setup on windown PC
- Write your first Python program
- Troubleshoot common programming issues

CHECKING AND INSTALLING PYTHON ON A WINDOWS PC

- Open Command Prompt by pressing Windows + R and typing cmd.
- Type 'python --version' to check if Python is installed and its version.
- If Python is not found, try 'py --version' to check for the Python launcher.
- Use 'where python' command to locate the Python executable on your system.
- Check environment variables with 'echo %PATH%' for Python-related entries.
- Download Python from the official website if it is not installed.

DOWNLOADING AND INSTALLING THE LATEST VERSION OF PYTHON

Downloading Python Installer
Access the official Python website to download the latest version suited for your operating system. https://www.python.org/downloads/

Following Installation Steps
Run the installer and follow the guided setup instructions to install Python correctly.

Adding Python to System Path
Ensure to add Python to your system path when prompted for easy command-line access.

VERIFYING PYTHON INSTALLATION

Essential steps for installing Python and configuring your environment on Windows for seamless coding.

Launching Python Interpreter
Open terminal and type 'python' to start the Python interpreter for interactive coding.

Checking Python Version
Run 'python --version' to display the installed Python version and confirm successful installation.

CHOOSING AND INSTALLING A TEXT EDITOR

POPULAR TEXT EDITORS FOR PYTHON

Debugging Tools

Integrated debugging tools help detect and fix errors efficiently within the editors.

Popular Python Editors

Visual Studio Code, Sublime Text, Atom, and PyCharm are widely used for Python development.

Syntax Highlighting

These editors provide syntax highlighting to improve code readability and debugging.

INSTALLING A TEXT EDITOR ON YOUR COMPUTER

Download from Official Site

Always download the text editor from its official website to ensure safety and authenticity.

Cross-Platform Compatibility

Most text editors support Windows, macOS, and Linux, making installation straightforward across platforms.

Follow Installation Instructions

Carefully follow the installation prompts to correctly set up your text editor on your computer.

FEATURES OF TEXT EDITORS THAT SUPPORT PYTHON CODING

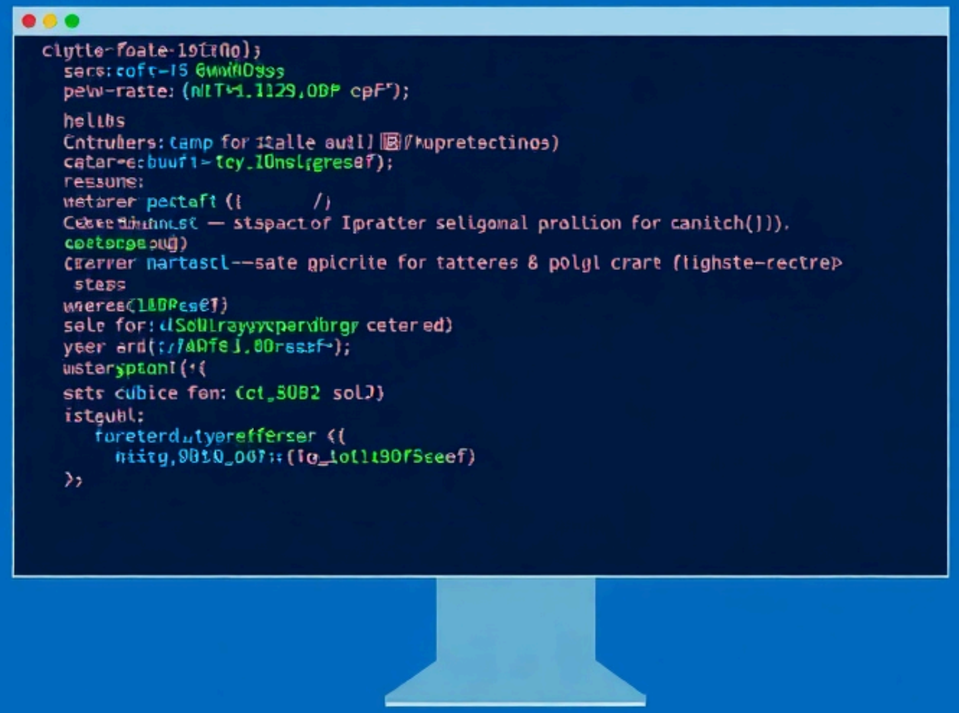
Syntax Highlighting
Syntax highlighting improves code readability by visually differentiating Python code elements.

Code Completion
Code completion speeds up coding by suggesting functions, methods, and variables in real-time.

Linting and Error Detection
Linting detects errors and enforces coding standards, helping prevent bugs before runtime.

Integrated Terminal and Debugging
An integrated terminal and debugging tools allow efficient code testing and error fixing within the editor.

SETTING UP YOUR PROGRAMMING ENVIRONMENT ON WINDOWS



DOWNLOADING VS CODE

- Visit the official VS Code download page for Windows. https://code.visualstudio.com/download
- Click the Windows download button to start downloading.
- Ensure you download from the official source to avoid security risks.

INSTALLING VS CODE

•Open the downloaded .exe installer file.

•Accept the license agreement to proceed.

•Choose installation options, default choices are typically fine.

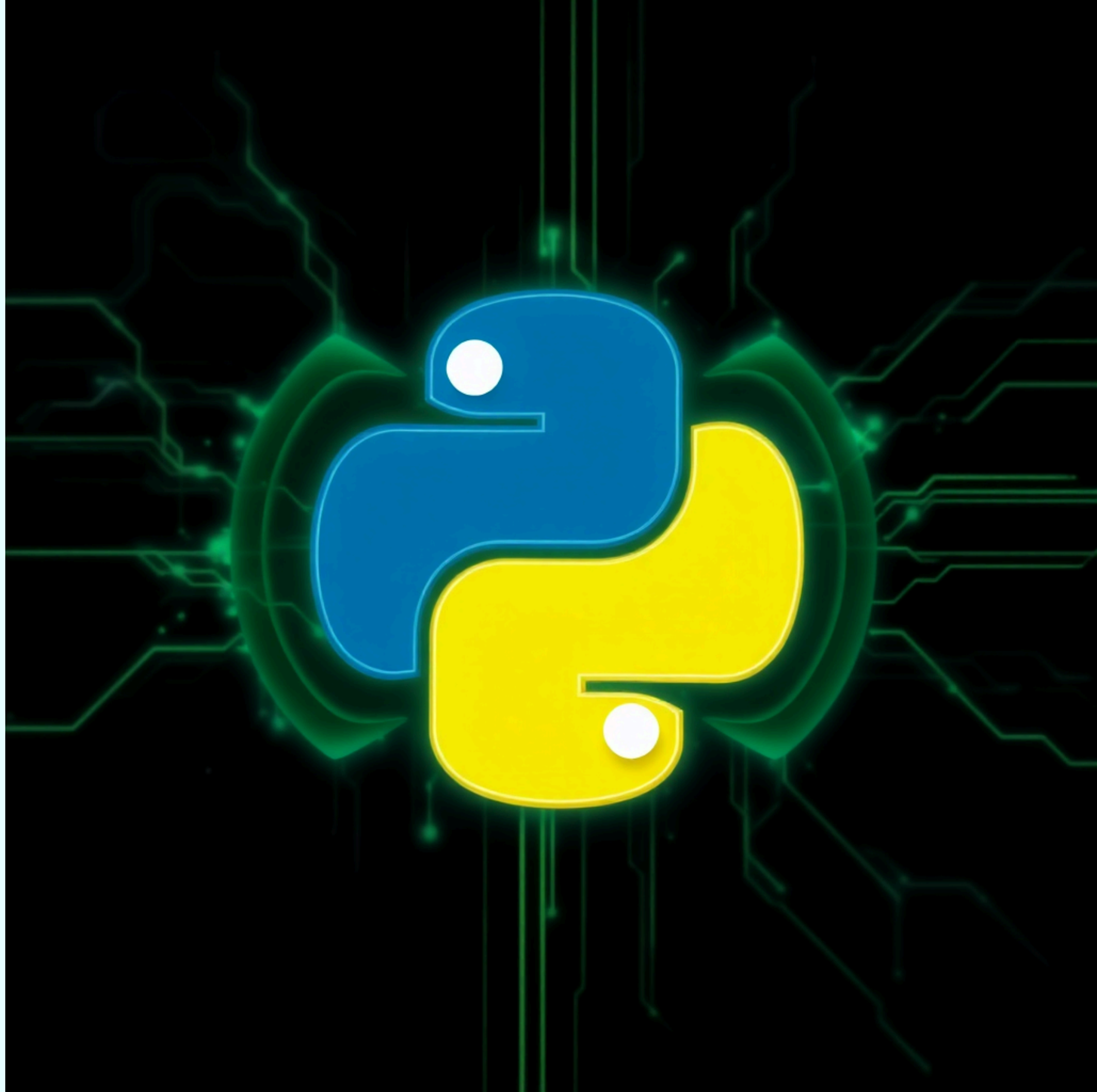
•Click Install and wait for the process to complete.

INSTALLING VS CODE

•Open VS Code and click on the Extensions tab.

•Search for 'Python' and install the extension by Microsoft.

•This extension provides essential Python support and tools.



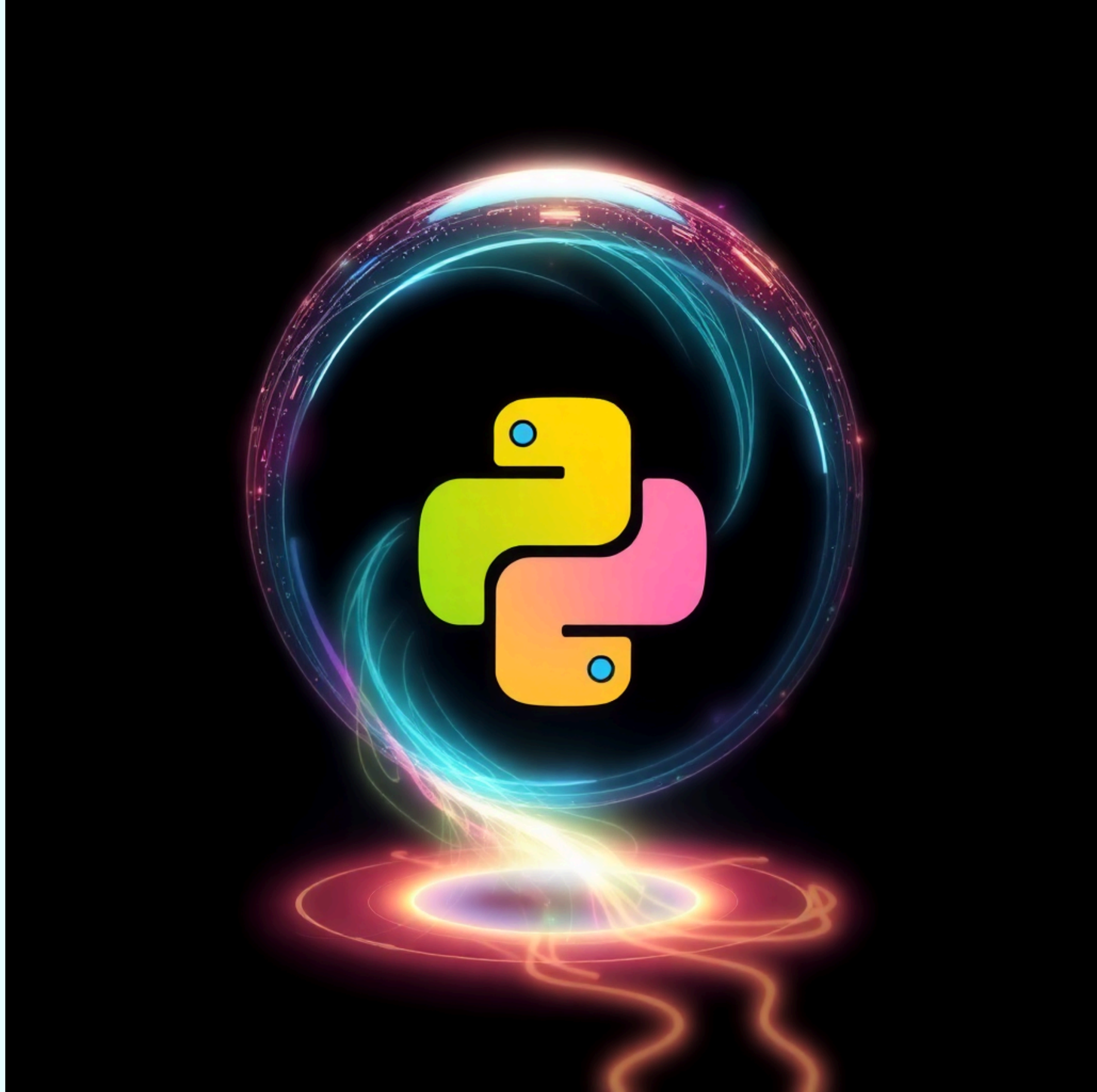
CREATE YOUR PYTHON FILE IN VS CODE

•Open Visual Studio Code to begin creating a new file.

•Use File > New File or press Ctrl+N to start a new document.

•Save the file as hello.py in your chosen folder.

•Type the Python code: print("Hello, world!") to create a simple program.



CREATE YOUR PYTHON FILE IN VS CODE

•Use Ctrl+S to save your Python file before running.

•Locate the Run button (triangle icon) at the editor's top-right corner.

•Click the Run button to execute your script.

•View the output in the Terminal panel at the bottom of VS Code.

TROUBLESHOOTING COMMON INSTALLATION ISSUES

PATH Misconfiguration
Incorrect PATH settings often prevent software from running properly during installation.

Conflicting Python Versions
Multiple Python versions installed can cause conflicts during package installation or execution.

Permission Issues
Lack of proper permissions can block installation processes or access to necessary files.

Error Messages and Documentation
Reviewing error messages and consulting official documentation can effectively resolve installation problems.

UNDERSTANDING THE STRUCTURE OF HELLO WORLD

Sequential Execution
Python executes code line by line, from top to bottom, unless directed otherwise by control structures (like loops or conditionals).

Print Function Usage
The print() function is your go-to tool for displaying output in Python. It sends text (or other data types) to the console.

No Setup Required
One of Python's strengths is its simplicity—especially when starting out. You don't need to declare a main() function or import special libraries to run basic code. Just write your code in a .py file or directly in an interactive shell, and it runs immediately.

CONCLUSION

Python Basics Covered

Steps to install Python and configure the development environment for programming.

Running Your First Program

These editors provide syntax highlighting to improve code readability and debugging.