# Lesson 1 – Overview of Python, Installation, and Creating Your First Python Program with Visual Studio Code

Materials Needed:

* Day\_of\_code Resource Files
* Computer with internet access
* Python installation files (https://www.python.org/downloads/)
* Visual Studio Code installation files (https://code.visualstudio.com/download)

Audience: Beginners with little or no programming experience, suitable for middle school to high school students.

# Overview:

This lesson plan serves as an overview for the installation of Python and the VS Code editor. Understandably all systems are different, and installation can be tricky, so we've included a few additional files that will guide you step by step through this process. This lesson also tasks students with writing their first line of code to test that everything is installed properly.

**Step 1:** Install Python:

* Use the file: Lesson 1 - B – Installing Python for complete instructions.

**Step 2:** Introduction to Python

* Start this portion of the lesson by discussing what Python is and its importance in today's technology-driven world. Use the provided document “Python An Introduction and Its Relevance in the Programming World.docx” for informational purposes.
* Explain that Python is a popular programming language known for its simplicity and versatility.
* Highlight some real-world applications of Python, such as Screen reader (NVDA, web development, data analysis, and artificial intelligence. Use the provided “Lesson 1- C Real\_World\_Python\_Applications.docx” file for information.
* Show examples of Python code and its readability.

**Step 3:** Introduction to Visual Studio Code

* Explain that Visual Studio Code (VS Code) is a popular code editor that makes writing and running Python code easy.
* Instruct students to open their web browsers and go to <https://code.visualstudio.com/download>.
* Guide them through the process of downloading and installing VS Code for their operating system. Use the provided “Lesson 1 – D Getting Started with Visual Studio Code” file.

**Step 4:** Creating a Python Program

* Open VS Code and create a new Python file.
  + When you select new, type in hello\_world.py.
  + Find an appropriate place to save in Windows File Explorer
  + Press Save
  + At this point VS Code should ask if you'd like to download the appropriate Python extension. Select yes when prompted.
* Explain that Python code is executed line by line and walk through the following code together:
* Write a simple "Hello World" program and explain each part of the code.

Copy code

# This is a comment. Comments are not executed by the program.

# They are used to provide explanations and notes to the code.

# The next line is a print statement.

# It is used to display text on the screen.

# In Python, you can use single quotes (' ') or double quotes (" ") to define strings.

# This line prints the text "Hello, World!" to the console.

print("Hello, World!")

# After running this program, you will see the output "Hello, World!" displayed on the screen.

Save the file with a .py extension (e.g., hello.py) in a folder on their computer.

## **Step 5:** Running the Python Program

Offer a demonstration for students to learn how to run the Python program from within VS Code. By default VS code does not have a key binding to simply run code, we will need to setup a Python Keyboard shortcut to quickly run files.

* While in your .py file press Control + K+S to open keyboard shortcuts.
* Then type Python: Run Python File in Terminal. Select it.
* You can then type whatever key binding you want to use to run your code, I used Ctrl + Spacebar.

Ensure students understand the importance of saving their code before running it. Execute the program and demonstrate how the "Hello, World!" message is displayed in the output console.

## **Step 6:** Hands-On Practice

Let students create their own Python program in VS Code, such as printing their name or a simple math calculation. Encourage them to run their programs to see the results.

## **Step 7:** Q&A and Troubleshooting

Address any questions or issues students may have encountered during the hands-on practice.

Provide guidance on common troubleshooting steps, such as checking for typos in the code.

# Conclusion

By the end of this lesson, students will be able to:

* Install Python on their computer.
* Install Visual Studio Code (VS Code).
* Create a simple "Hello World" Python program using VS Code.
* Run the program to see the output.

Encourage students to continue exploring Python and coding in their free time. Mention additional resources, such as online tutorials and coding communities, where they can learn more.

Homework (Optional):

Ask students to come up with a small Python program they'd like to create and bring it to the next class. They can share their programs and discuss their experiences.