Lecture slides - Week 1

Installing Python

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Python Interpreter

How to install Python 3

To install Python 3, follow these steps:

1. Visit the official Python website at https://www.python.org/downloads/.
2. Download the latest Python 3.x installer for your operating system (Windows, macOS, or Linux).
3. Run the installer and follow the on-screen instructions.
4. Make sure to check the option that adds Python to your system's PATH environment variable. This makes it easier to run Python from the command line.
5. Once the installation is complete, open your command prompt or terminal and type "python" to verify that Python 3 has been installed successfully.

What is a Python Source File

A Python source file, also known as a script or module, is a plain text file that contains Python code. These files typically have a ".py" extension. Python source files are used to write and save Python programs or scripts that can be executed to perform specific tasks.

In a Python source file, you can write Python code, including variables, functions, classes, and more. This code can be executed by the Python interpreter to produce the desired output or perform specific operations.

For example, you can create a Python source file named "my_script.py" and write Python code inside it to solve a particular problem or automate a task.

How to Execute a Python File

To execute a Python file, follow these steps:

1. Open your command prompt or terminal.
2. Navigate to the directory where your Python file is located using the "cd" command (change directory).
3. Once you are in the correct directory, you can execute the Python file by typing the following command and pressing Enter:

   ```
   python filename.py
   ```

   Replace "filename.py" with the name of your Python source file.
4. The Python interpreter will execute the code in your file, and you will see the output displayed in the command prompt or terminal.

Writing and Running Python Files in VS Code

Setting up VS Code for Python Development

To write and run Python files in Visual Studio Code, follow these steps:

1. Install Visual Studio Code if you haven't already by downloading it from https://code.visualstudio.com/.
2. Open VS Code and go to the Extensions view by clicking on the Extensions icon in the Activity Bar on the side (or use the shortcut 'Ctrl+Shift+X').
3. Search for the "Python" extension by Microsoft and install it. This extension provides Python language support and debugging capabilities.
4. After installing the Python extension, you may need to select a Python interpreter for your project. Click on the Python version in the bottom status bar and choose an interpreter if prompted. If not, you can do this later in your settings.

Creating a Python File

To create a new Python file in VS Code:

1. Click on "File" in the top-left corner.
2. Select "New File" to create a new, empty file.
3. Save the file with a ".py" extension, for example, "my_script.py". This extension indicates that it's a Python source file.

Now, you're ready to start writing Python code in your new file.

Writing Python Code

Inside your Python file in VS Code, you can start writing Python code. Here's a simple example:

```
# This is a Python comment
print("Hello, World!")
```

You can write and edit your Python code in the VS Code editor, and the Python extension provides syntax highlighting, code suggestions, and other helpful features to assist your coding.

Running Python Code

To run your Python code in VS Code:

1. Open the Python file you want to execute.
2. Right-click inside the editor or use the keyboard shortcut ‘Ctrl+Enter‘ to run the current Python script.
3. The output of your code will be displayed in the integrated terminal within VS Code.

Creating and Running Python Files in QPython on Android

Introduction to QPython

QPython is an Android-based Python programming environment that allows you to write, edit, and execute Python code directly on your Android device. It's a great tool for learning Python and developing Python applications on the go.

In this section, we'll walk you through the process of creating and running Python files in the QPython application on your Android device.

Installing QPython

If you haven't already, you can install QPython on your Android device from the Google Play Store. Follow these steps to install it:

1. Open the Google Play Store on your Android device.
2. Search for "QPython" in the search bar.
3. Locate the QPython app in the search results and click "Install" to download and install it.
4. Once installed, open the QPython app to get started.

Creating a Python File in QPython

To create a new Python file in QPython:

1. Open the QPython app on your Android device.
2. Tap the "Edit" button in the app's main interface to access the code editor.
3. In the code editor, you can start writing your Python code.
4. To save your Python code as a file, tap the three-dot menu icon in the top-right corner and select "Save As."
5. Provide a name for your Python file with the ".py" extension, e.g., "my_script.py," and tap "Save."

Running Python Code in QPython

To run your Python code in QPython:

1. Open the QPython app.
2. In the main interface, tap the "Run" button to execute the currently open Python script.
3. The output of your code will be displayed in the app's output console.
4. You can also use the "Run" menu to execute specific Python files if you have multiple scripts.

QPython provides a user-friendly environment for running Python code on your Android device, making it a versatile tool for mobile Python development.