How to Run this Program

1. **Setup the Environment**:
   * Ensure you have Python installed on your system. You can download it from the official Python website: Python Downloads
   * Create a directory named **files\_to\_scan** where you'll place the files to be scanned.
   * Optionally, create an empty directory named **quarantine**. This directory will be used to quarantine files identified as potential malware.
2. **Populate the files\_to\_scan Directory**:
   * Place some files in the **files\_to\_scan** directory, including at least one file that matches the predefined list of known malicious file hashes. You can create empty files or copy existing files into this directory.
3. **Update the Predefined Malicious Hashes (Optional)**:
   * If you've added a new file to the **files\_to\_scan** directory and want to detect it as potential malware, you need to calculate its MD5 hash and update the **malicious\_hashes** dictionary in the antivirus code with the file name and hash value. Follow the instructions provided earlier for calculating the MD5 hash.
4. **Copy the Antivirus Code**:
   * Copy the provided Python code into a Python file, such as **antivirus.py**. You can use any text editor or Python IDE to create this file.
5. **Run the Antivirus Program**:
   * Open a terminal or command prompt.
   * Navigate to the directory containing your **antivirus.py** file.
   * Run the command **python antivirus.py** to execute the antivirus program.
6. **Monitor the Output**:
   * The program will start real-time scanning of the **files\_to\_scan** directory.
   * It will print messages indicating which files are being scanned and any potential threats detected.
   * The progress percentage will also be displayed, indicating the progress of the scanning process.
7. **Take Action on Detected Threats**:
   * If the antivirus detects a file as potential malware, it will move the file to the **quarantine** directory.
   * You can inspect the quarantined files and take appropriate action, such as deleting or analyzing them further.
8. **Stop the Antivirus Program**:
   * To stop the antivirus program, you can typically press **Ctrl + C** in the terminal where the program is running.