Assignment: Setting Up Your Developer Environment

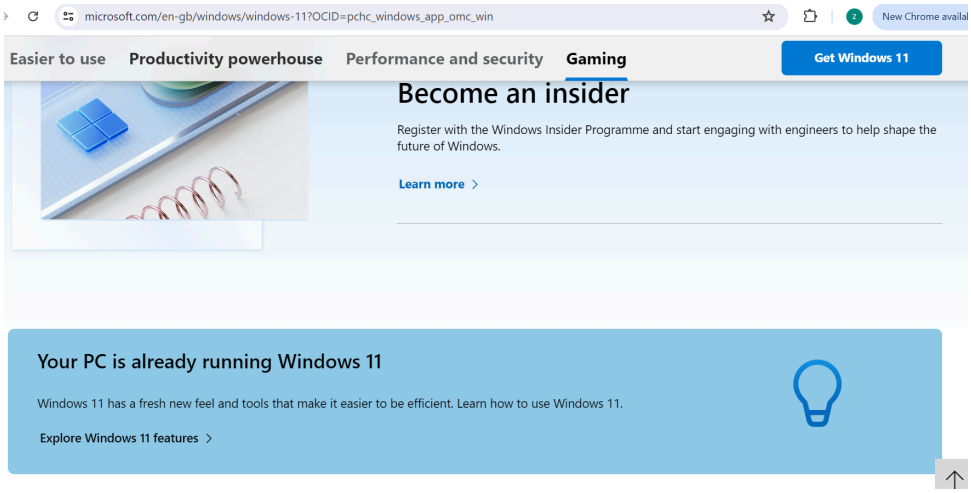
1. Select Your Operating System (OS): Choose an operating system that best suits your preferences and project requirements. Download and Install Windows 11. https://www.microsoft.com/software-download/windows11

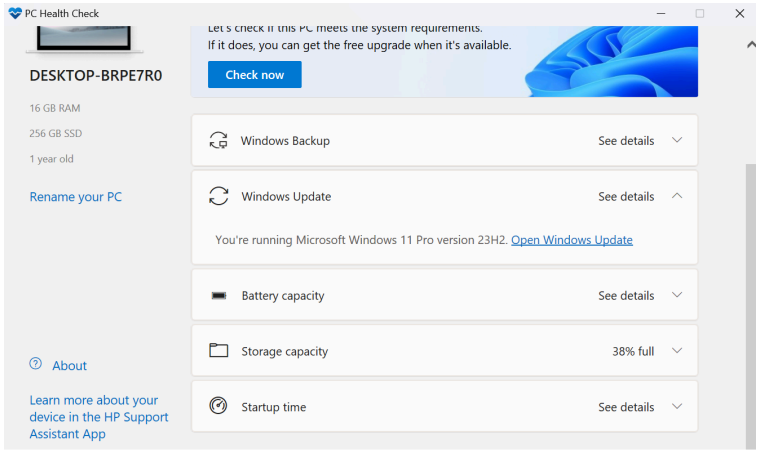
Answer:

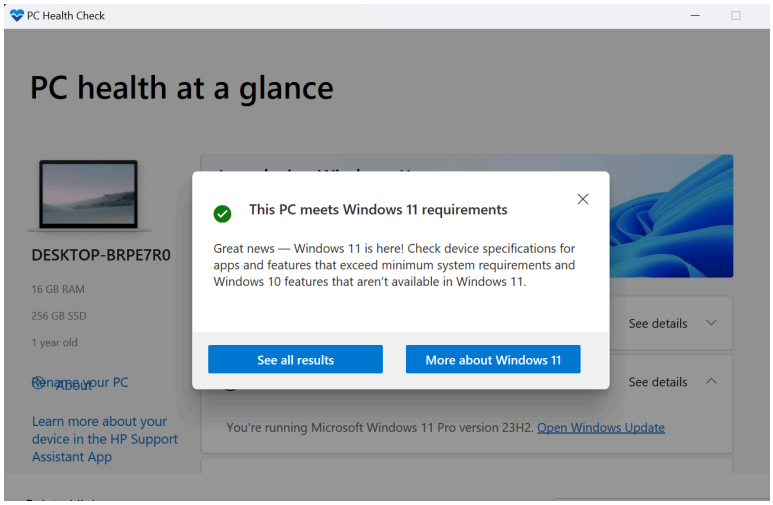
Operating System: Microsoft Windows

How to Download and Install Windows 11

- My PC is Windows 11 Pro,and here is how to download and install Windows 11 anyway.
- Visit: https://www.microsoft.com/software-download/windows11
- Before installing, please refer to the PC Health Check app to confirm your device meets the minimum system requirements for Windows 11.
- If you don't have PC Health Check installed, you can install it by going to https://aka.ms/GetPCHealthCheckApp
- Click check now to see if the PC meets the system's requirement.
- Once confirmed, go ahead and download and install Windows 11







2. Install a Text Editor or Integrated Development Environment (IDE): Select and install a text editor or IDE suitable for your programming languages and workflow. Download and Install Visual Studio Code. https://code.visualstudio.com/Download

Answer

How to download and install Visual Studio Code

a. Go to: https://code.visualstudio.com/Download
b. Click on the download option for Windows.
c. Once the installer is downloaded, locate the downloaded file.
d. Double-click on the installer file to run it.
e. Click on "Yes" to confirm and proceed with the installation.

f. Review the license agreement and click on "I accept the agreement" to proceed.
g. Click on the "Next" button to proceed with the installation.
h. Create a desktop shortcut or adding VS Code to the PATH environment variable.
i. Click on the "Next" button to start the installation process.
j. Once the installation is complete, click on the "Finish" button to exit the setup wizard.
k. After the installation is complete, you can launch Visual Studio Code by double-clicking its icon on the desktop or searching for "Visual Studio Code" in the Start menu.
l. Open VS Code, to a welcome screen.

3. Set Up Version Control System: Install Git and configure it on your local machine. Create a GitHub account for hosting your repositories. Initialize a Git repository for your project and make your first commit. https://github.com

   Ans:

   a. Installing Git

i. Visit https://git-scm.com/download/win

ii. Click to download the latest (2.45.2) 64-bit version of Git for my Windows.

iii.Install Git

iv. In the installer window,click on "Run" to proceed.

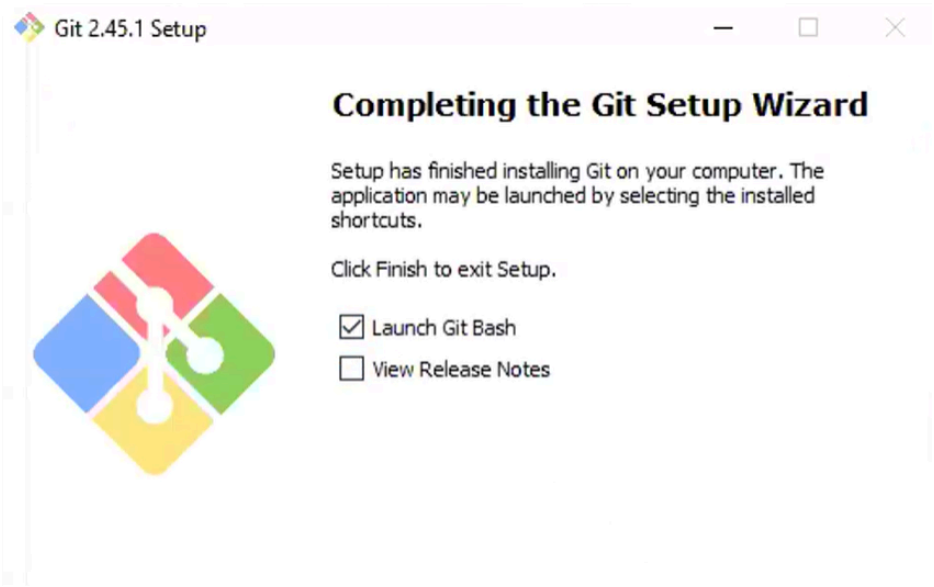
v. Follow the on-screen instructions,by not changing anything and clicking on the next button till you get to the install button then click on it to install Git.

vi. Tick on the Launch Git Bash.

vii. Click finish to complete the Git setup wizard.

Viii. Git bash terminal will open.

Ix. Verify your Git Bash by typing .. git --version on the Git Bash terminal

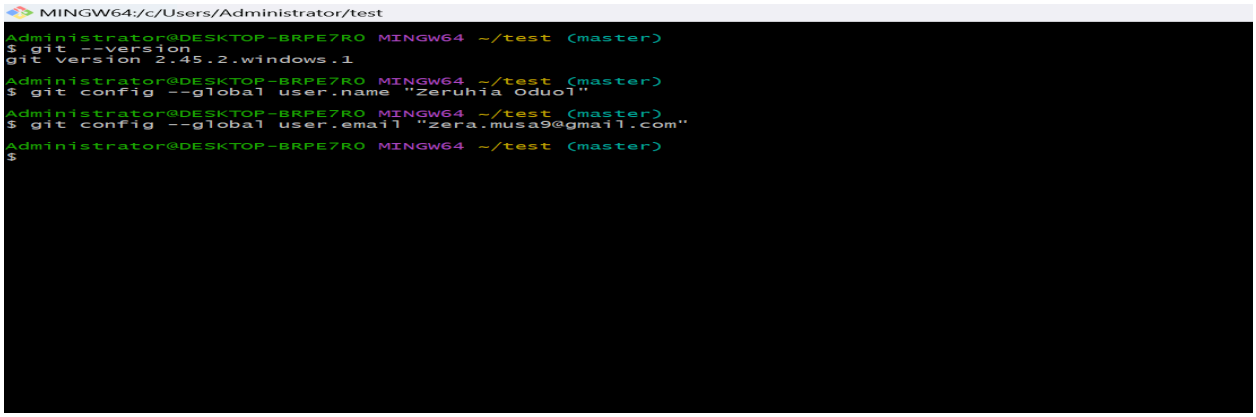


b.Configuring Git in my local machine

i. Open Git bash or a terminal.

ii. Type this command: git config --global user.name "Zeruhia Oduol" then press enter.

iii.Also type this command: git config –global user.email "zera.musa9@gmail.com"



c. Creating a Github Account

i. Visit https://github.com/ and sign up for a new account.

Ii. Put the email used in the global user name and password.

Iii. Follow the prompts and login.

d. Initializing a Git Repository

i. After login in Github, the dashboard page will appear

ii. Click the ‘create repository’ button.

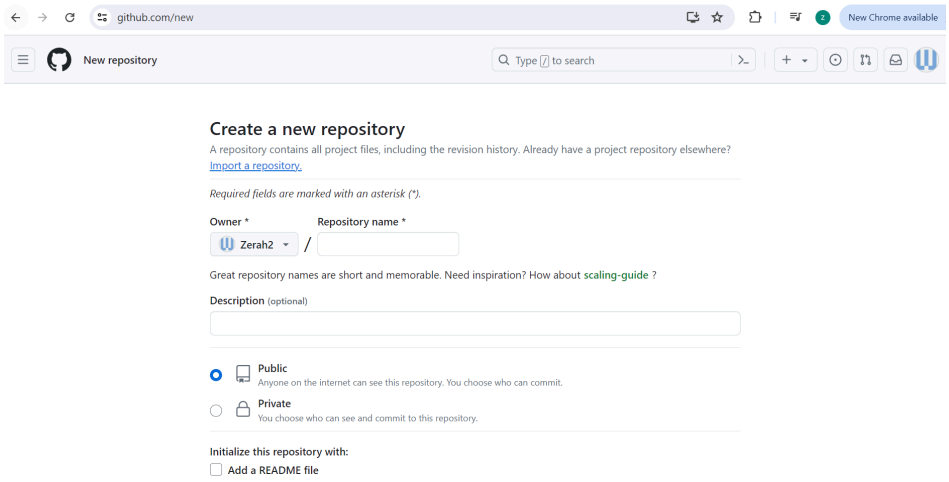
iii. Input name under the repository name.

iv. Description is optional, you can choose to describe what your repo is all about or not.

iv. Choose either a public or private option.

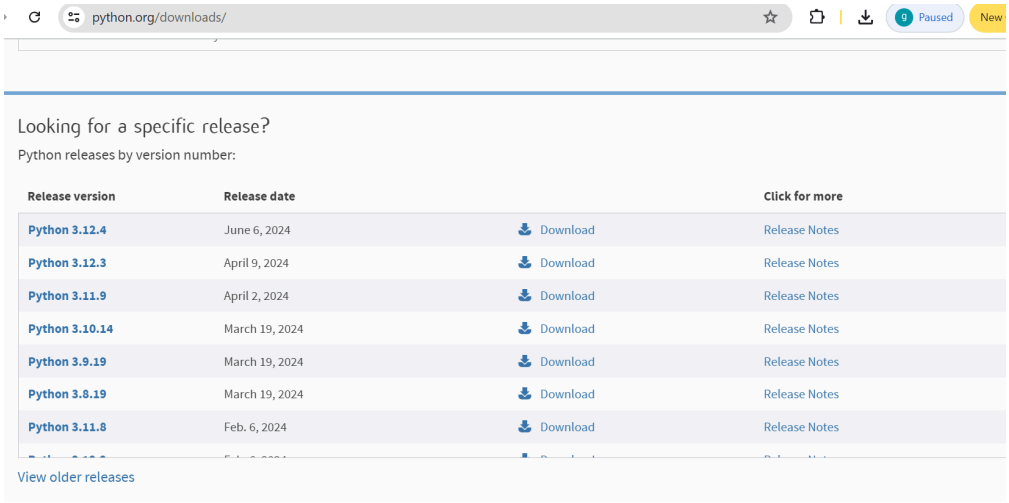
Vi. You can decide to add a Readme file.

Vii. Click on the ‘create repository’ button.



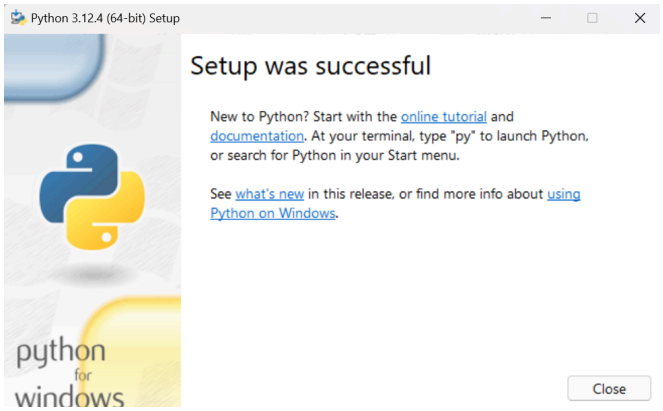
4. Install Necessary Programming Languages and Runtimes: Instal Python from http://wwww.python.org programming language required for your project and install their respective compilers, interpreters, or runtimes. Ensure you have the necessary tools to build and execute your code.

   Answers: Installing Python
   i. Go to the official Python website: https://www.python.org/downloads/
   ii. Download the latest version of python- For my case it's python 3.12.4.
   iii. Once the download is complete, locate the Python installer file in your downloads folder.
   iv. Save the file to local disk C.
   v. Double-click to run the Python download file.

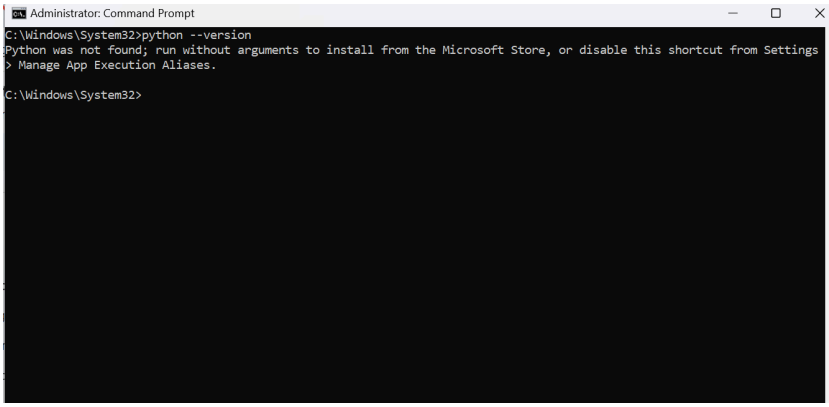


Vi. Select Customize installation and proceed.

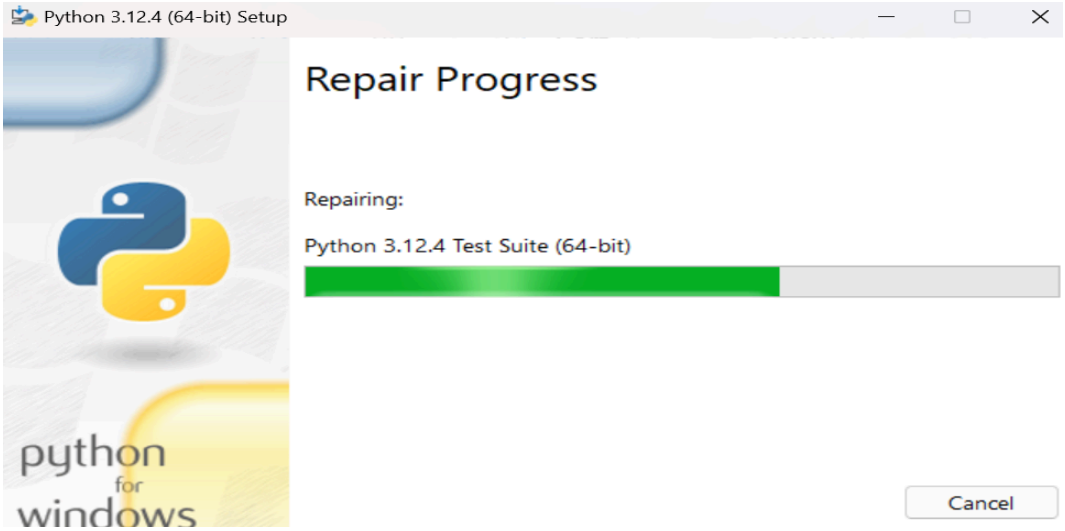
Vii. Click on the Add Path check box, it will set the Python path automatically.



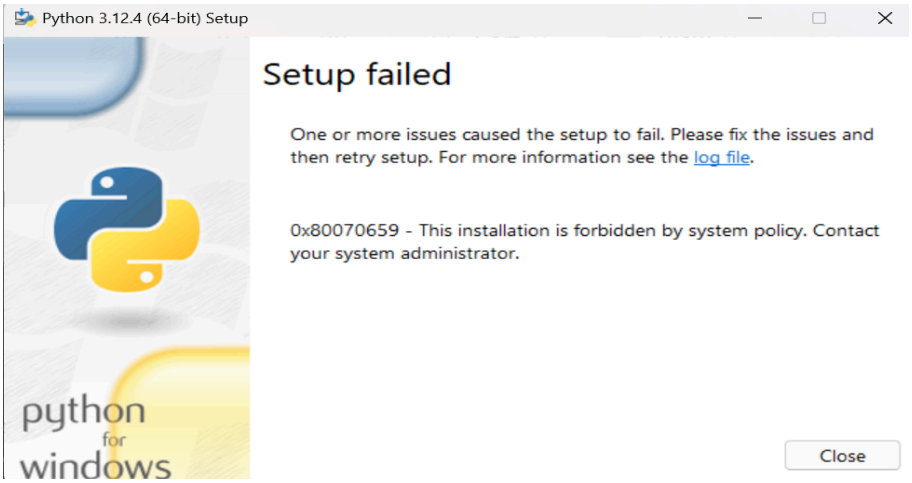
Viii. After installation is finished, run python on the command prompt to verify installation. Type the command python -version. Upon typing the command, python was not found.



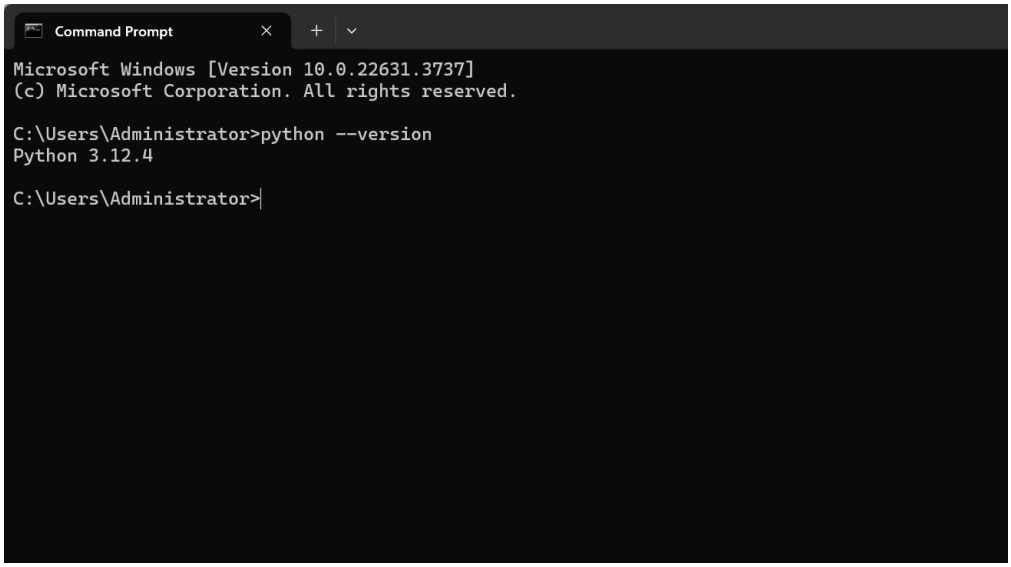
Tried to repair



But set up failed.



I restarted my PC -> Clicked the windows button -> Searched ‘cmd’ for command prompt ->Typed this command python –version and the installation is verified - Version 3.12.4 as the screenshot below.

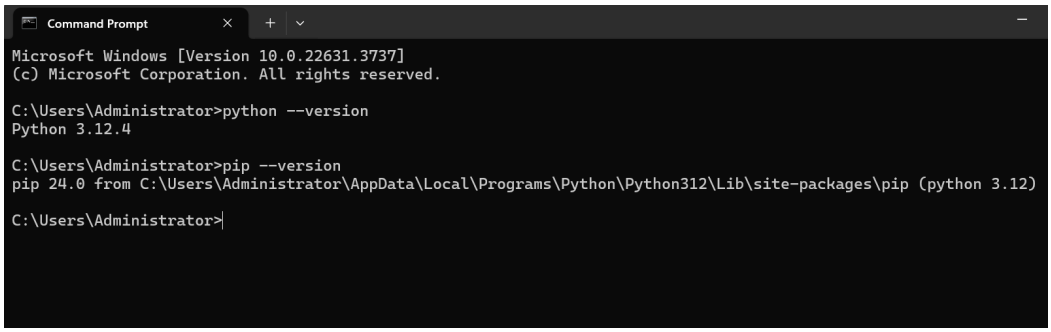


5. Install Package Managers: If applicable, install package managers like pip (Python).

   I. To install pip, you will need to have Python installed on your system. For my case, I already have python installed on my PC therefore, my pip is installed by default.

   Ii. To verify this, I will open the command prompt and type this command ‘pip –version’ and press enter.

   Iii. For my case mine is pip 24.0 as per the screenshot below.



6. Configure a Database (MySQL): Download and install MySQL database. https://dev.mysql.com/downloads/windows/installer/5.7.html

Answering How to download and install MySQL database

i. Open your browser and click on a new tab.

ii. Type mysql community downloads and press enter, alternatively copy and paste this link: https://dev.mysql.com/downloads/windows/installer/5.7.html

iii. Once the link has opened up, ensure it has the Oracle logo at the bottom of the page.
iv. Select version 8.0.37

v. Operating system is ***Windows***, so I'll not change anything.

vi. To download, click on the second link that has *Windows (x86, 32-bit), MSI Installer 8.0.37 296.1M* and click on the download button against it then click on "No thanks, just start my download."

vii. After downloading, unzip it, and double click.

viii. Choose "Full" setup type. This installs all MySQL products and features. Then click the "Next" button to continue.

ix. Click "Execute" to download and install the Products. After finishing the installation, click "Next".

x. Select Custom

xi. Check Requirements" screen: Dont change anything, click "Next".

xii. Installation" screen: See what products that will be installed. Click "Execute" to download and install the Products. After finishing the installation, click "Next".

xiii. "Product Configuration" screen: See what products that will be configured. Click the "MySQL Server 8.0.37" option to configure the MySQL Server. Click the "Next" button. Choose the "Standalone MySQL Server/Classic MySQL Replication" option and click on the "Next" button. In page "Type and Networking" set Config Type to "Development Computer" and "Connectivity" to "TCP/IP" and "Port" to "3006". Then, click the "Next" button.

xiv. Authentication Method" screen: Choose "Use Strong Password Encryption for Authentication". Create a password you'll remember. Click "Next".

Xv. Accounts and Roles" screen: Set a password for the root account. Click "Next".

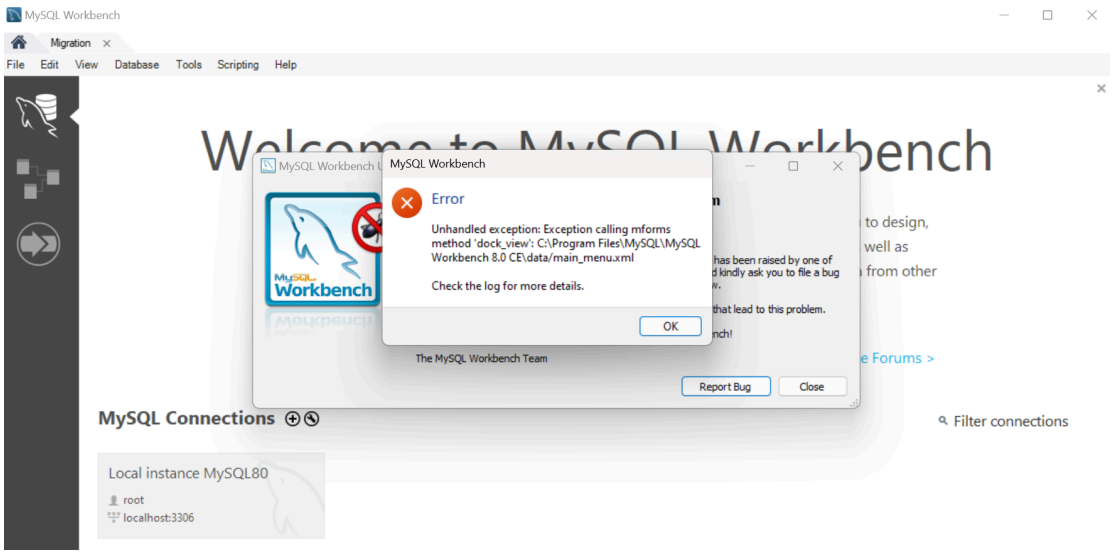
xvi. Windows Service" screen: Here, you configure the Windows Service to start the server. Keep the default setup, then click "Next

xvii. Apply Configuration" screen: Click the "Execute" button to apply the Server configuration. After finishing, click the "Finish" button.

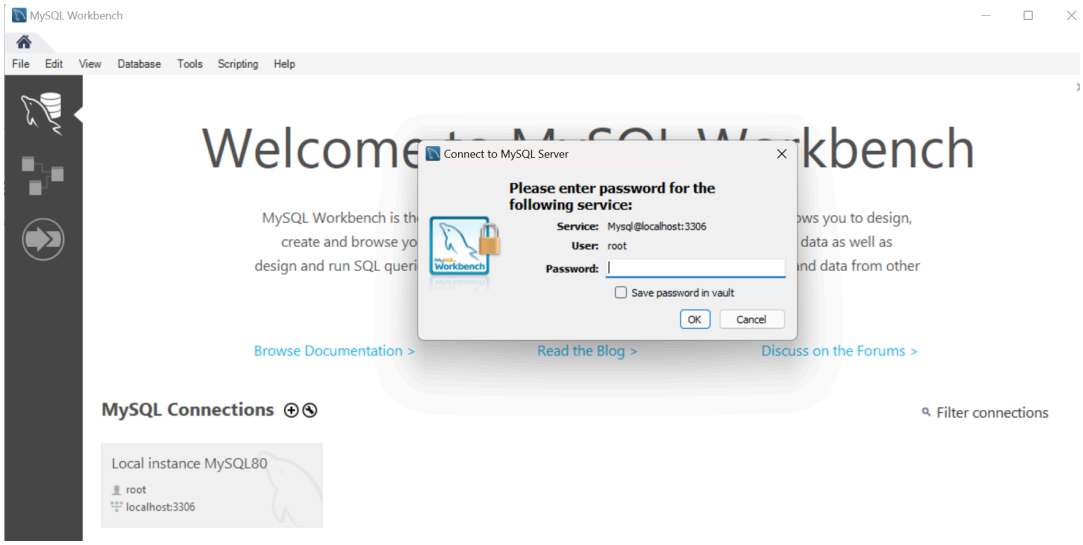
xviii. Product Configuration" screen: See that the Product Configuration is completed. Keep the default setting and click on the "Next" and "Finish" button to complete the MySQL package installation.

xix.Click on "Next", "Finish" and then click the "Next" button.

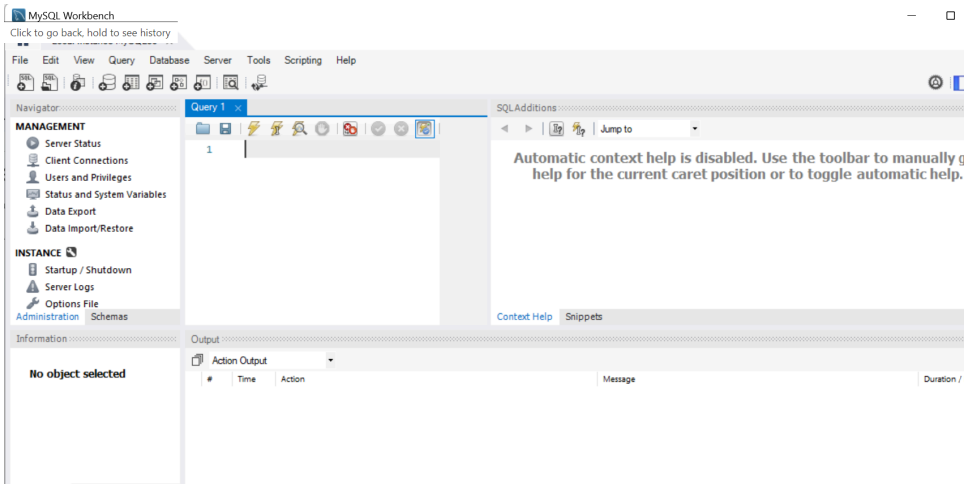
Upon launching mysql workbench, it brought the following error as per the screenshot.



I closed the prompts and restarted my PC -> Clicked the windows icon -> search mysql workbench and clicked open -> I clicked on the Local instance MySQL80 ->A password prompt popped up and I input my password to access MySQL Workbench as per the screenshots below:



Here's MySQL Workbench interface:



7. Set Up Development Environments and Virtualization (Optional): Consider using virtualization tools like Docker or virtual machines to isolate project dependencies and ensure consistent environments across different machines.

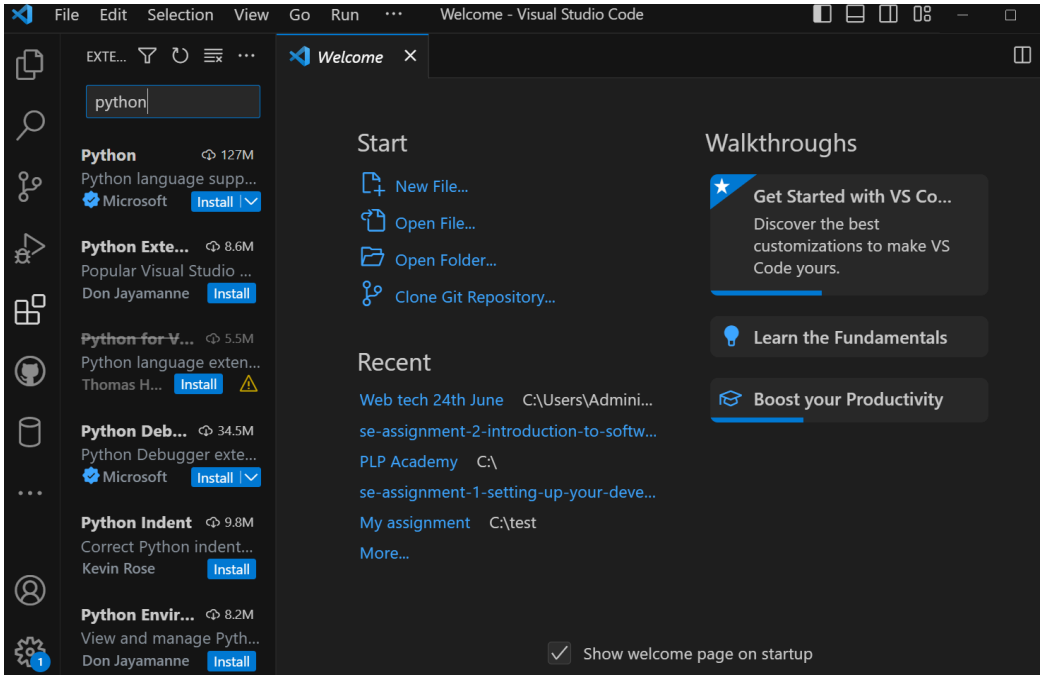
Answer:

Step 1: Installing a Text Editor -Visual Studio Code (VS Code)

Download VS Code: Go to the [Visual Studio Code website] and download the installer for Windows.

li. Run the installer and follow the prompts to install VS Code.

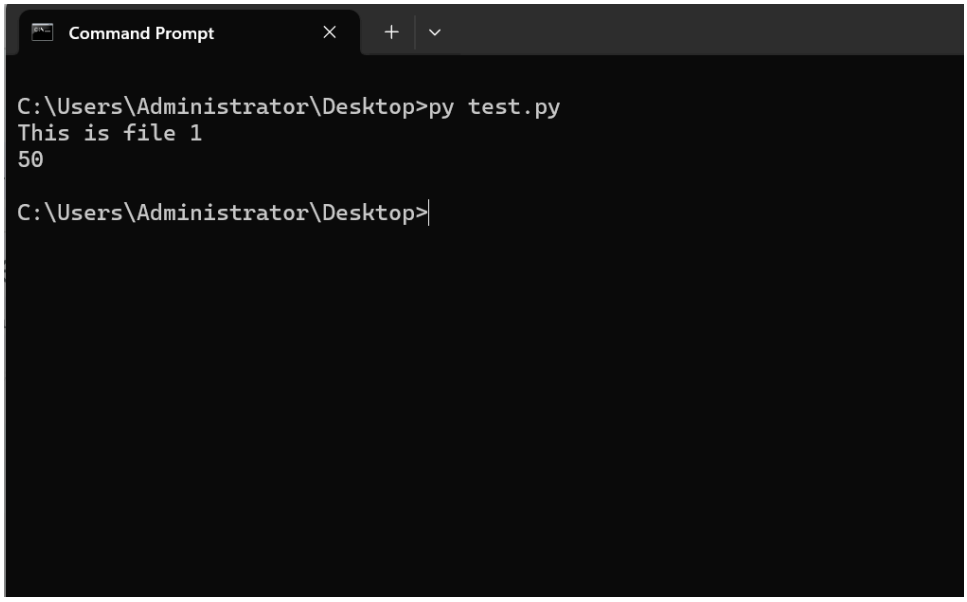
iii. **Install Python Extension**: Open VS Code, go to the Extensions view by clicking on the Extensions icon in the Activity Bar on the side of the window, and search for "Python". Install the Python extension by Microsoft.



Step 2: Setting Up a Virtual Environment

I. Open Command Prompt

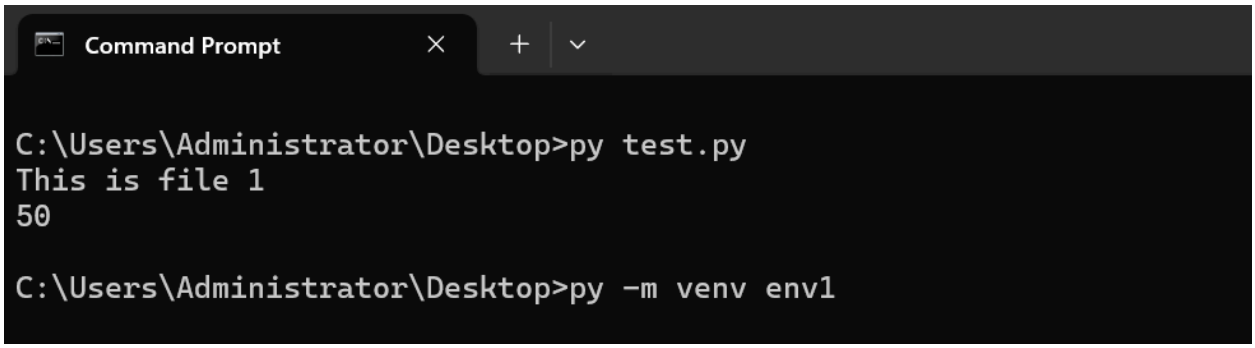
Ii. Use the ‘cd’ command to navigate to your project directory. For example: cd Desktop press enter -> py test.py



Iii. Using a virtual environment ensures that each project has its own dependencies, independent of other projects.

Iv. Run the following command to create a virtual environment; python -m venv venv.

Replace venv with your desired environment name. In my case I have replaced it with ‘env1’



V. Run the following command to activate the virtual environment: .\venv\Scripts\activate.You should see (venv) before your command prompt, indicating the virtual environment is active.

Vi. **Install Dependencies**: Use pip to install any dependencies your project needs. For example Run this command: pip install request

Vii. When you're done, deactivate the virtual environment by running: ‘deactivate’

Using Docker for Virtualization

Step 1: Install Docker Desktop

1. Go to the Docker website: https://docs.docker.com/desktop/install/windows-install/ and download Docker Desktop for Windows.
2. Run the installer and follow the instructions. Make sure to enable the WSL 2 feature if prompted, as it improves performance.

Step 2: Create a Dockerfile: A Dockerfile defines the environment your application will run in.

In your project directory, create a file named *Dockerfile* (without any extension).

Add the following content to the Dockerfile as an example:

 # Use an official Python runtime as a parent image FROM python:3.9-slim

 # Set the working directory in the container WORKDIR /usr/src/app

 # Copy the current directory contents into the container at /usr/src/app COPY . .

 # Install any needed packages specified in requirements.txt RUN pip install --no-cache-dir -r requirements.txt

 # Make port 80 available to the world outside this container EXPOSE 80

 # Define environment variable ENV NAME World

 # Run app.py when the container launches CMD ["python", "app.py"]

Step 3: Build the Docker Image:

1. Open Command Prompt, navigate to your project directory, and run: *docker build -t my-python-app .* This command builds an image named *my-python-app* using the Dockerfile in the current directory.
2. Run the container using the built image: *docker run -p 4000:80 my-python-app .* This command runs the container and maps port 80 in the container to port 4000 on your host machine.

Step 4: Verify Your Application

1. Check the Running Container: Open your web browser and navigate to http://localhost:4000. You should see your application running.

8. Explore Extensions and Plugins: Explore available extensions, plugins, and add-ons for your chosen text editor or IDE to enhance functionality, such as syntax highlighting, linting, code formatting, and version control integration.

   Visual Code Studio

Installing Extensions

- Open VS Code.
- Click on the Extensions icon in the Activity Bar on the side of the window.
- Search for the extension by name, for example, python; and click "Install" .

Using the Command Line:

- Open your terminal or command prompt.
- Use the *code --install-extension* command followed by the extension identifier. For example: code --install-extension ms-python.python
- After installing an extension, you may need to configure it. Open the Command Palette by pressing Ctrl + Shift + P, then type "Preferences: Open Settings (UI)" and select it
- Use the search bar in the settings to find specific configurations for your installed extensions. For example, to configure the Python extension, search for "Python".

Version Control Integration

1. Git
2. Github: GitHub Pull Requests and Issues: Integrate GitHub pull requests and issues into VS Code.

Productivity Enhancements

- Project Management: Project Manager: Easily switch between projects.

File Navigation:

- Autocompletes filenames

Terminal Integration:

- Integrated Terminal: Use the built-in terminal for running commands and scripts.

Update and Manage Extensions

- Check for Updates:

Periodically check for updates to your installed extensions. You can do this by clicking on the gear icon at the bottom left and selecting "Check for Extension Updates".

- **Manage Extensions**:

  Disable or uninstall extensions that you no longer need from the Extensions view by clicking on the gear icon next to the extension and selecting "Disable" or "Uninstall".