

## **ASSIGNMENT 1**

### Setup Development Environment

#Assignment: Setting Up Your Developer Environment

#Objective: This assignment aims to familiarize you with the tools and configurations necessary to set up an efficient developer environment for software engineering projects. Completing this assignment will give you the skills required to set up a robust and productive workspace conducive to coding, debugging, version control, and collaboration.

#Tasks:

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>
  
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>
  - Once downloaded ,run the installer (VSCodeUserSetup-{version}.exe).
  - By default, VS Code is installed under C:\Users\{Username}\AppData\Local\Programs\Microsoft VS Code.
  - The user setup does not require Administrator privileges to run as the location will be under your user Local AppData (LOCALAPPDATA) folder. Since it requires no elevation, the user setup is able to provide a smoother background update experience. This is the preferred way to install VS Code on Windows.
  - Open Visual Studio Code from the Start Menu or desktop shortcut.
  - Once VS Code is running, you can enhance its functionality by installing extensions.
  - Customize your settings by going to File -> Preferences -> Settings.

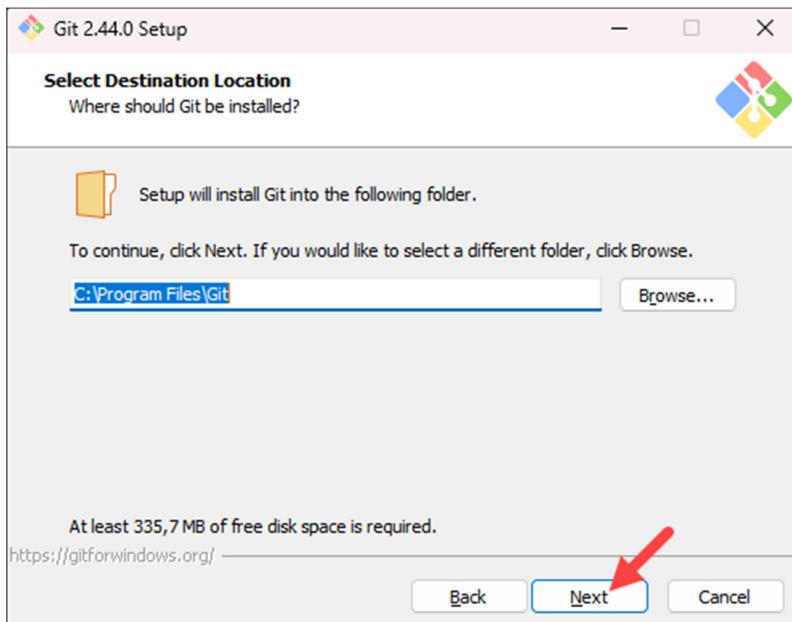
- VS Code ships monthly releases and supports auto-update when a new release is available. If you're prompted by VS Code, accept the newest update and it will be installed (you won't need to do anything else to get the latest bits).
3. Set Up Version Control System: Install Git and configure it on your 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>
- visit . <https://github.com>

The screenshot shows the GitHub 'Downloads' section for Git for Windows. On the left, there's a sidebar with links for 'About', 'Documentation', 'Downloads' (which is highlighted), 'Community', and a note about the 'Pro Git book'. The main content area is titled 'Download for Windows' and contains a large button with the text 'Click here to download'. Below this button, there's descriptive text about the latest 64-bit version (2.44.0) and its release date (about 2 months ago). To the right of this, there's a list of other download options: 'Standalone Installer', '32-bit Git for Windows Setup.', '64-bit Git for Windows Setup.', 'Portable ("thumbdrive edition")', '32-bit Git for Windows Portable.', '64-bit Git for Windows Portable.', and 'Using winget tool'.

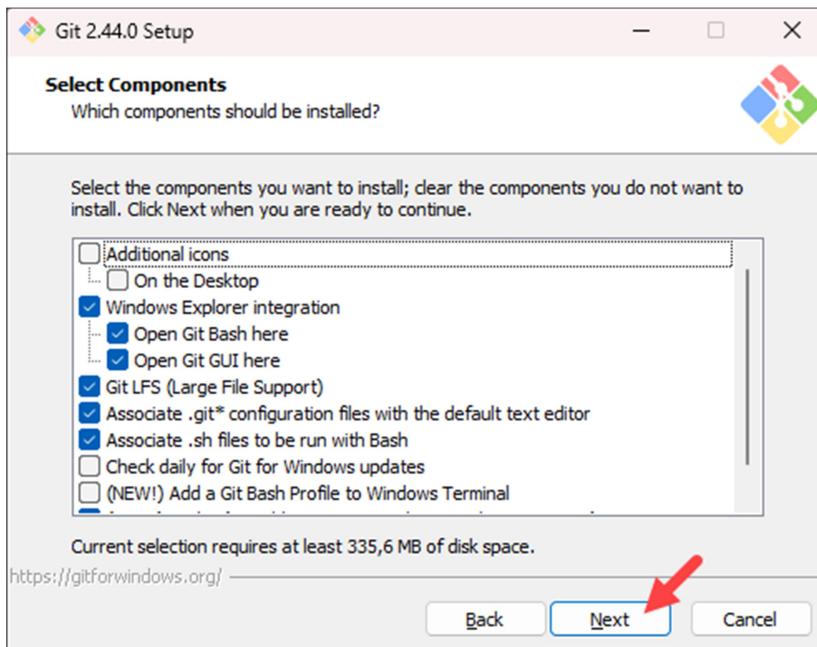
- double click and download the file
- review the GNU general public licence and click **next**



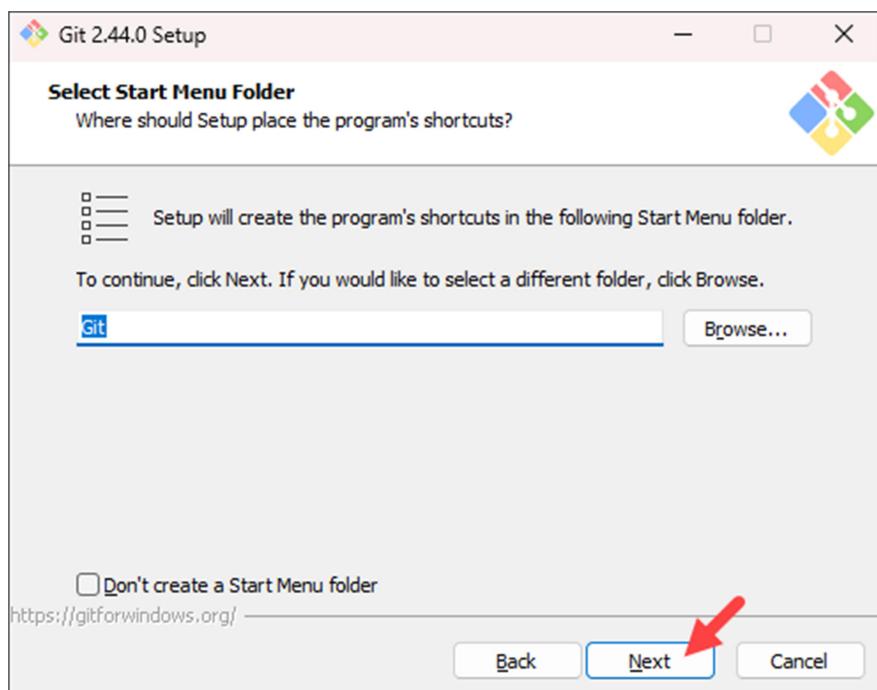
- the installer prompted you to the installer location. Leave the default one and click **next**



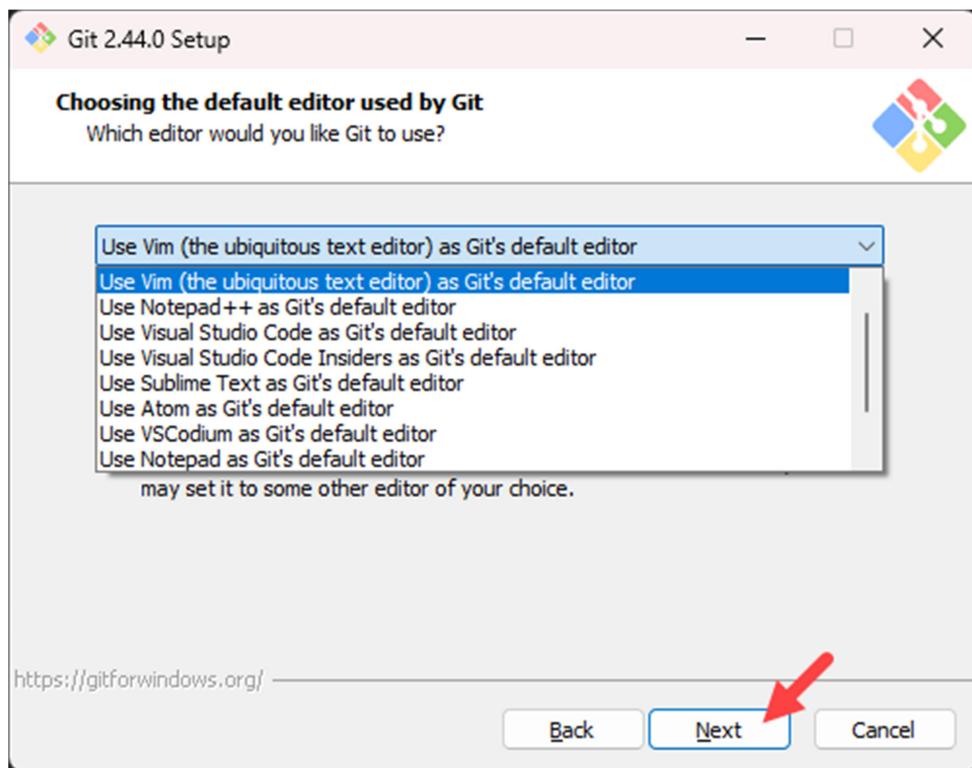
- in the component selection screen leave default and click next

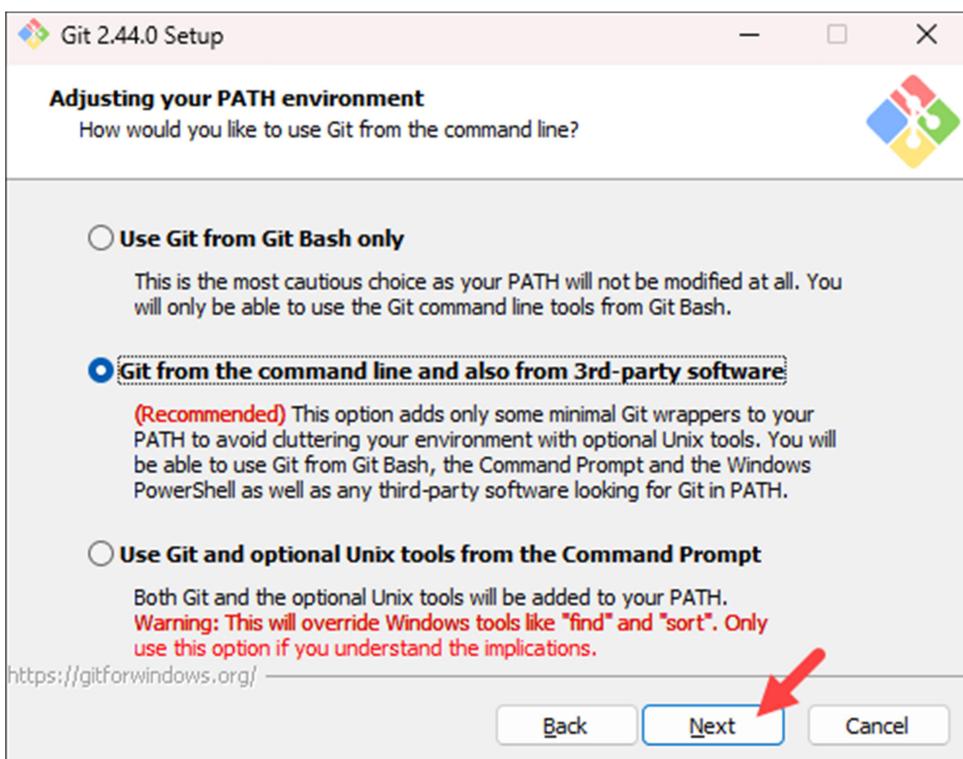
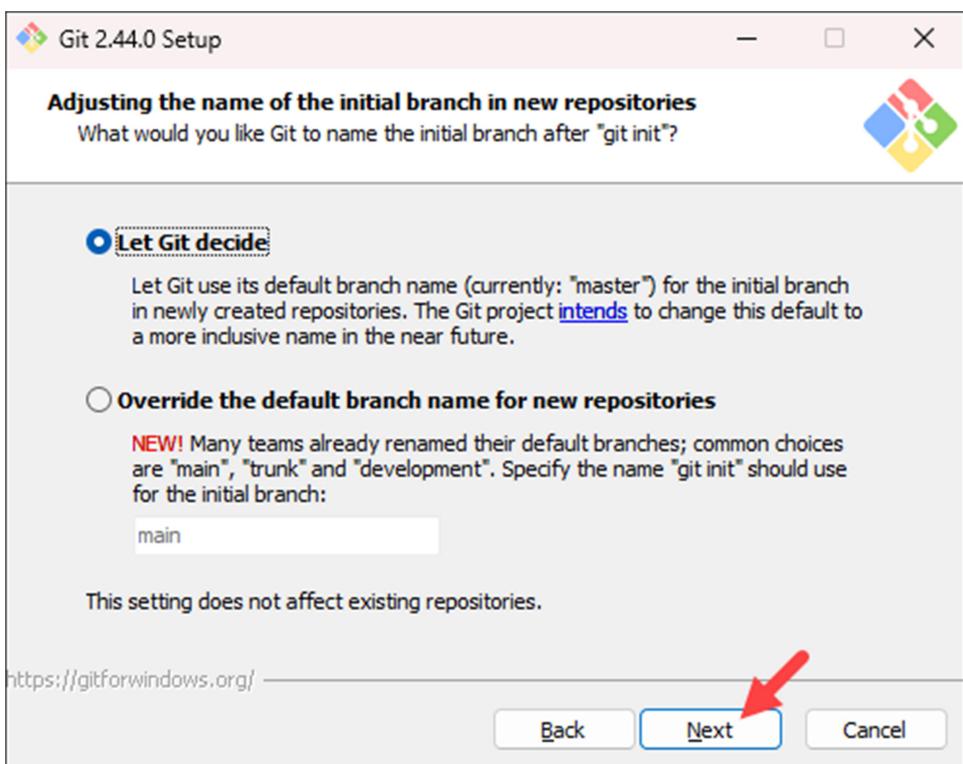


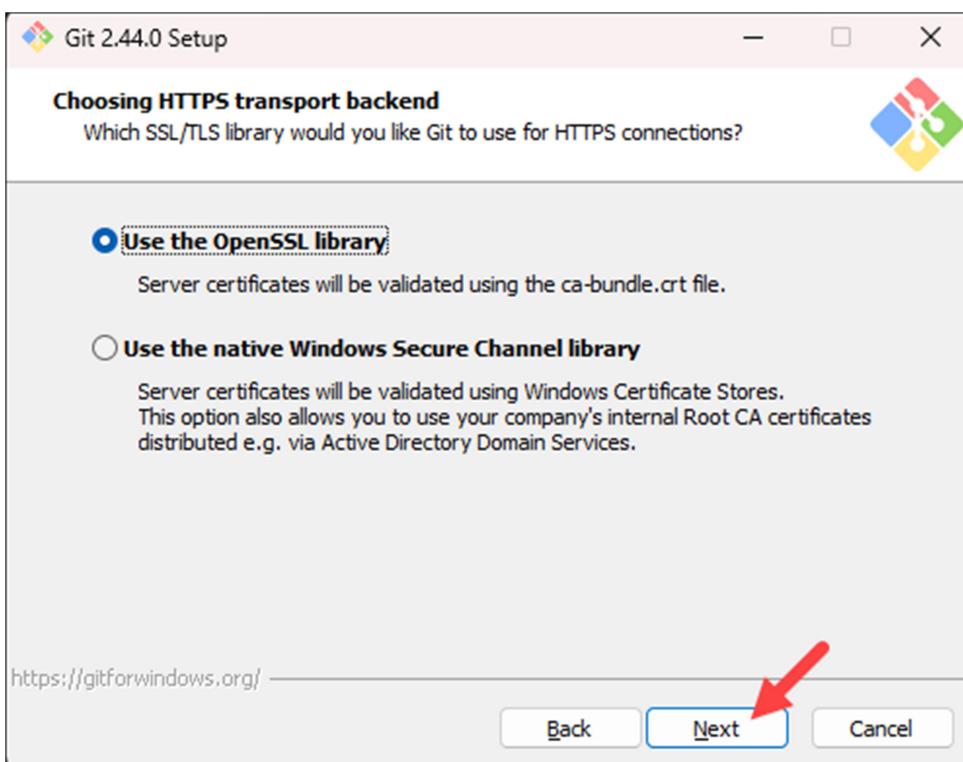
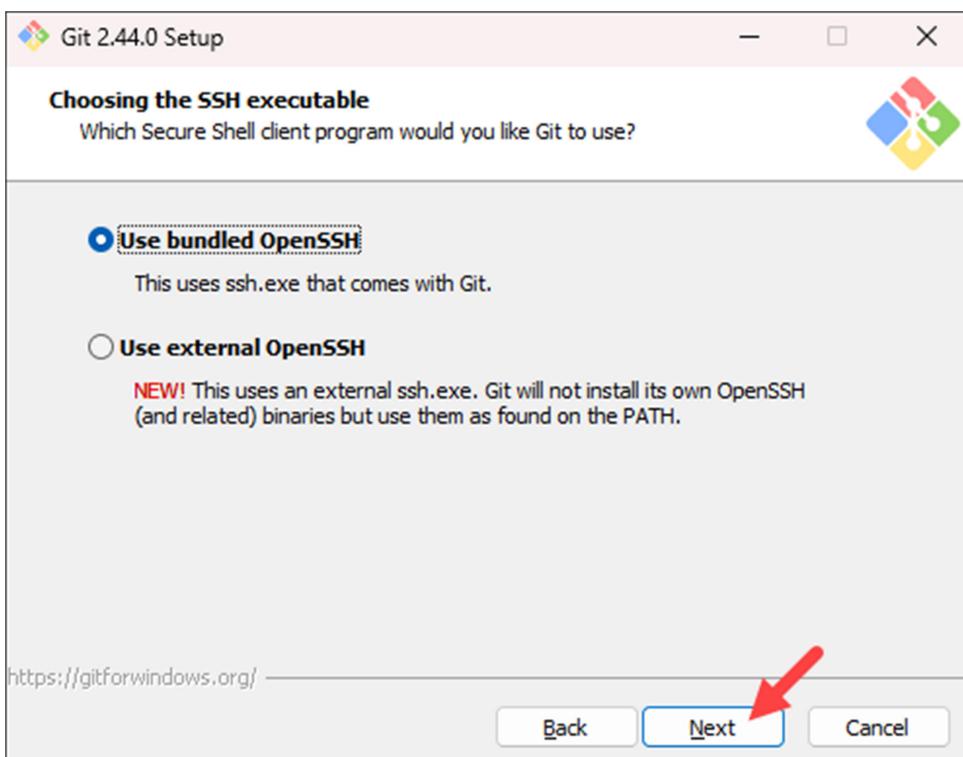
- The installer offers to create a start menu folder. Click Next to accept and proceed to the next step.

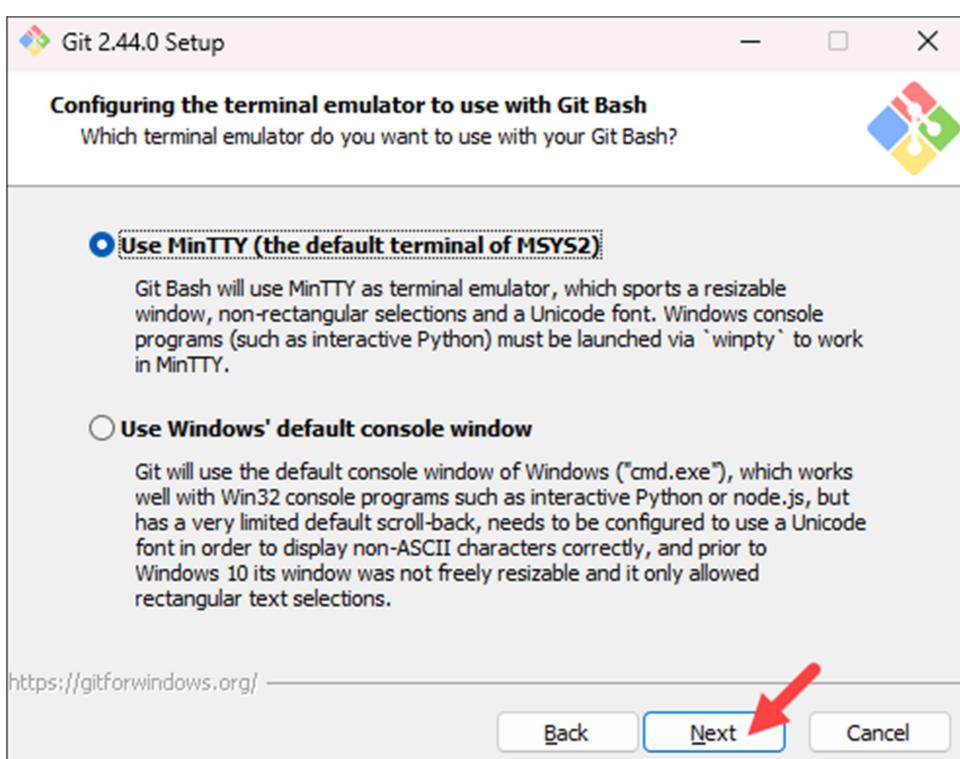
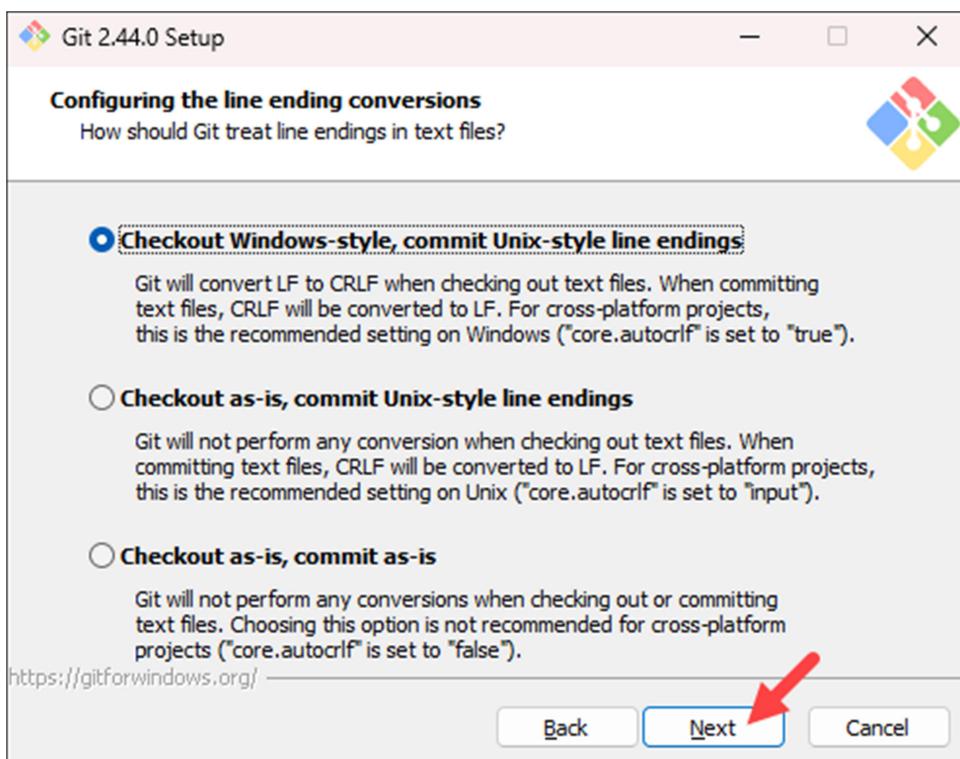


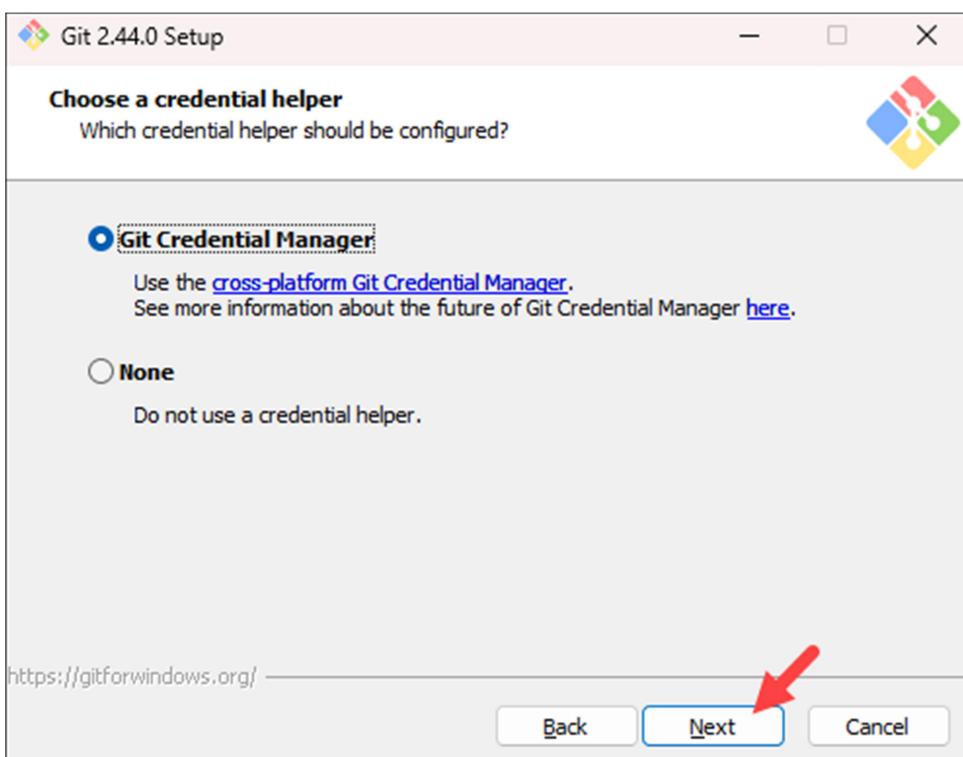
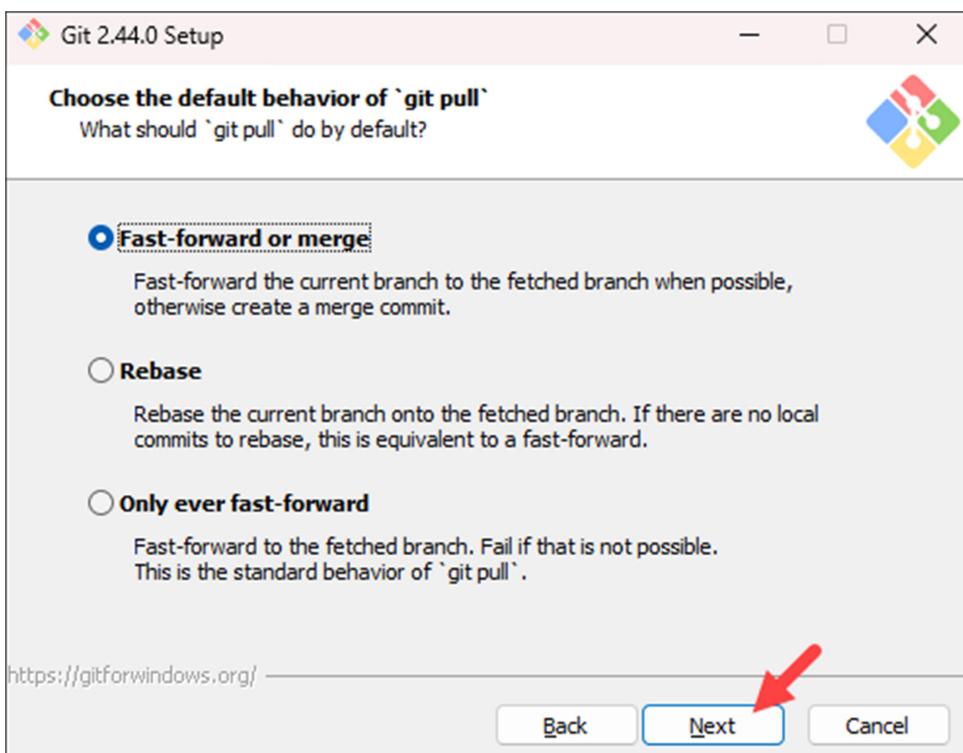
- Select a text editor you want to use with Git. Use the drop-down menu to select Notepad++ and click Next.

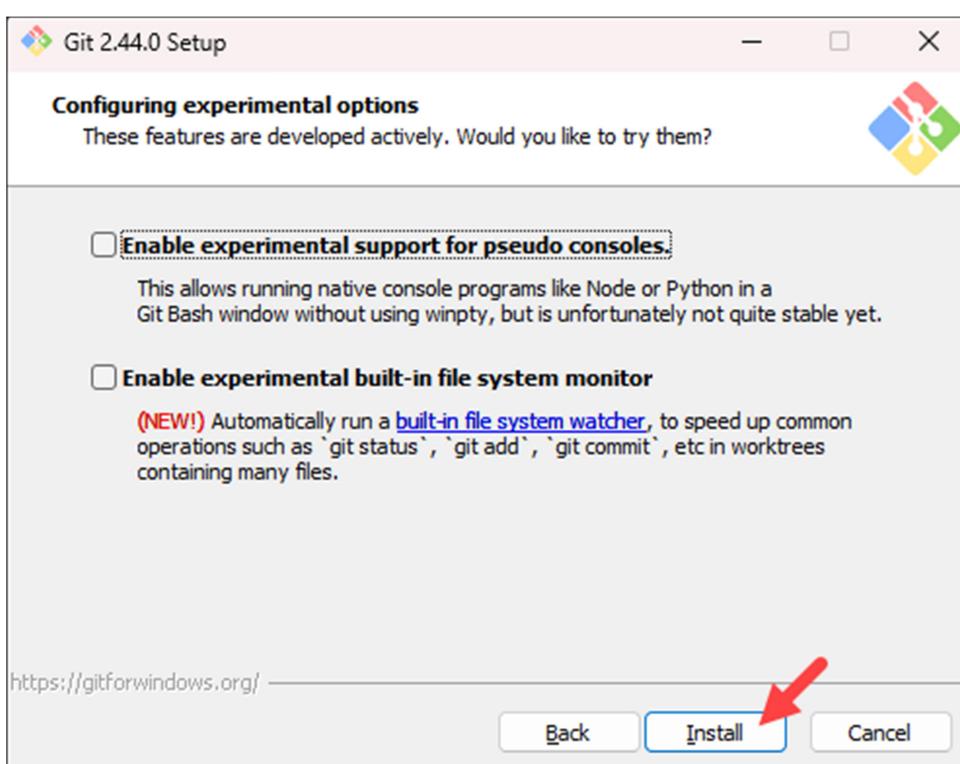
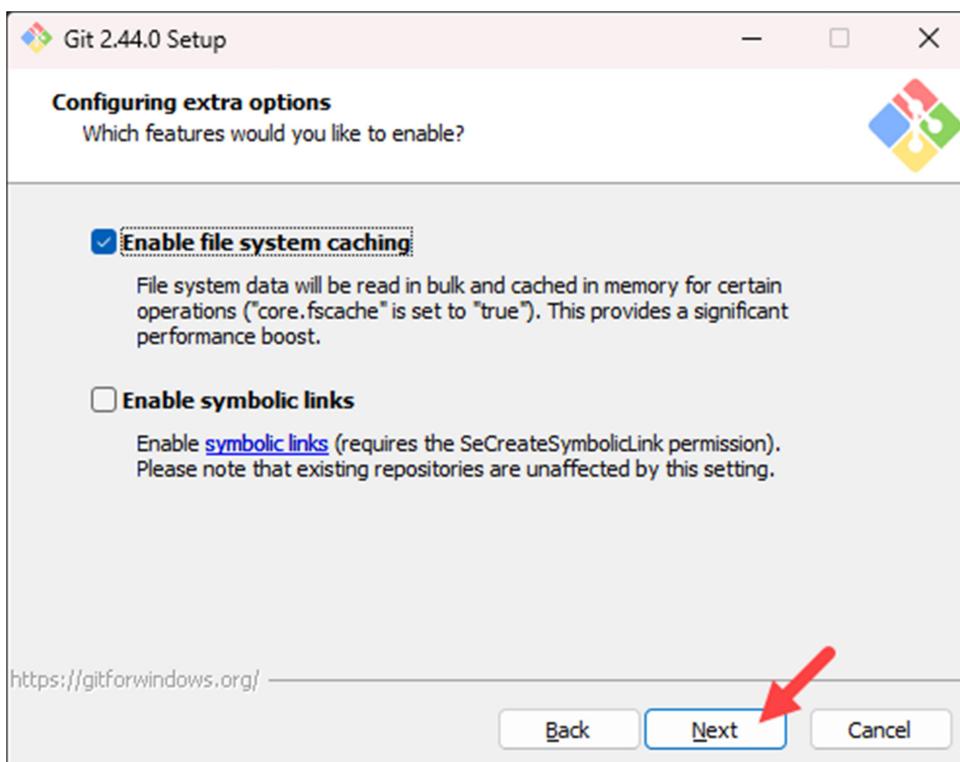


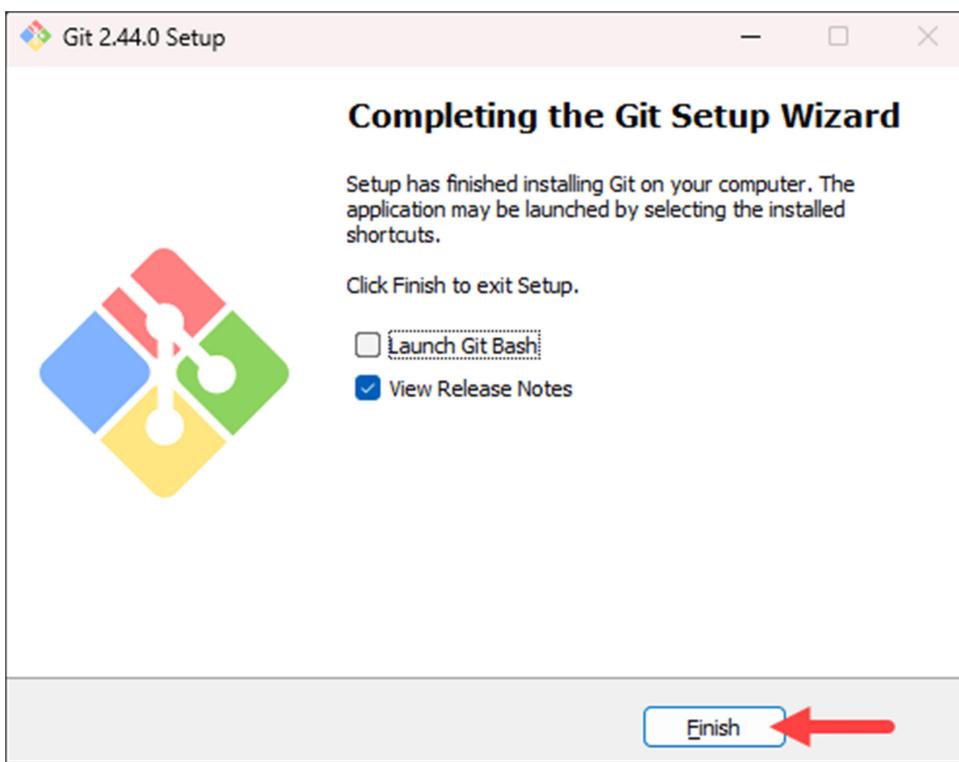












## Configuration

```
hp@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork (master)
$ git --version
git version 2.45.2.windows.1

hp@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork (master)
$ git config --global user.name mariamtondwe

hp@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork (master)
$ git config --global user.email "mariamtondwe1@gmail.com"
```

The screenshot shows a GitHub project page for 'Power Learn Project'. At the top, there's a navigation bar with tabs for Overview, Repositories (9.9k), Projects, Packages, and People. Below the navigation is a large green square icon with a white minus sign in the center. The main title 'Power Learn Project' is displayed in bold black text. Underneath the title, there's a section for 'Popular repositories' showing two items:

- se-assignment-2-introduction-to-software-engineering-muchhiirri** (Public)  
se-assignment-2-introduction-to-software-engineering-muchhiirri created by GitHub Classroom  
2 stars, 2 forks
- python-1** (Public)  
1 star

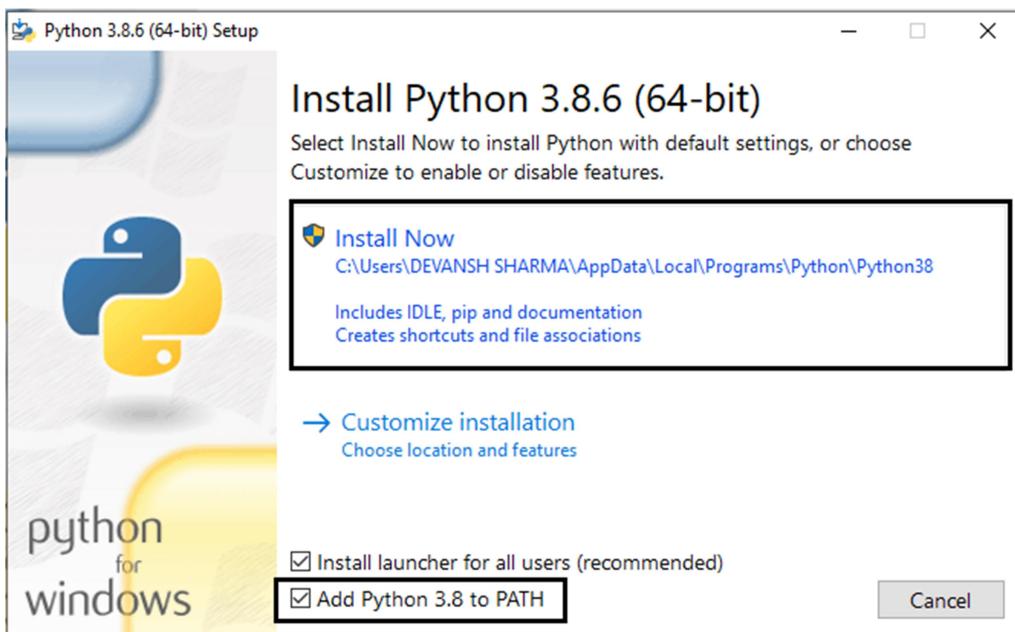
4. Install Necessary Programming Languages and Runtimes: Install Python from <http://www.python.org> programming language required for your project and install their respective compilers, interpreters, or runtimes. Ensure you have the necessary tools to build and execute your code.
- Visit the link <https://www.python.org/downloads/>
  - Select the Python's version to download.

The screenshot shows the Python.org downloads page. The browser address bar indicates the URL is python.org/downloads/. The page header says 'Looking for a specific release?'. Below that, it says 'Python releases by version number:' followed by a table of releases:

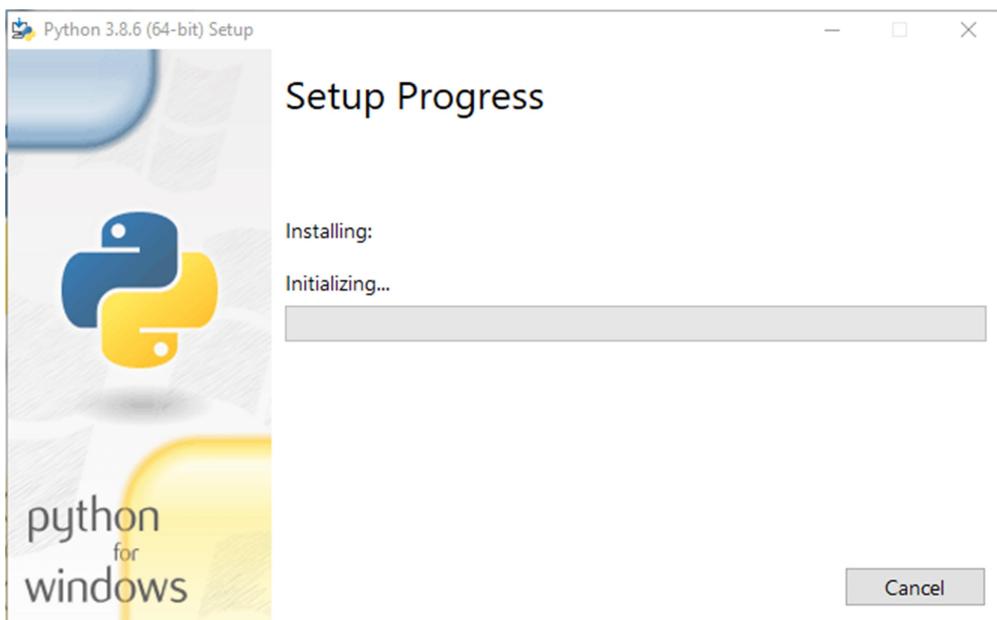
Release version	Release date	Click for more
Python 3.9.0	Oct. 5, 2020	<a href="#">Download</a> <a href="#">Release Notes</a>
Python 3.8.6	Sept. 24, 2020	<a href="#">Download</a> <a href="#">Release Notes</a>
Python 3.5.10	Sept. 5, 2020	<a href="#">Download</a> <a href="#">Release Notes</a>
Python 3.7.9	Aug. 17, 2020	<a href="#">Download</a> <a href="#">Release Notes</a>
Python 3.6.12	Aug. 17, 2020	<a href="#">Download</a> <a href="#">Release Notes</a>
Python 3.8.5	July 20, 2020	<a href="#">Download</a> <a href="#">Release Notes</a>
Python 3.8.4	July 13, 2020	<a href="#">Download</a> <a href="#">Release Notes</a>
Python 3.7.8	June 27, 2020	<a href="#">Download</a> <a href="#">Release Notes</a>

At the bottom of the table, there's a link 'View older releases'.

- Click on the Install Now



- Installation in Process



- run python on the command prompt.

```
Command Prompt
Microsoft Windows [Version 10.0.19045.4529]
(c) Microsoft Corporation. All rights reserved.

C:\Users\hp>python --version
Python 3.12.3
```

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

6. Configure a Database (MySQL): Download and install MySQL database.

<https://dev.mysql.com/downloads/windows/installer/5.7.html>

The screenshot shows the MySQL Installer download page for version 8.0.34. At the top, there are tabs for 'General Availability (GA) Releases' (which is selected), 'Archives', and a search icon. Below the tabs, the title 'MySQL Installer 8.0.34' is displayed. A note states: 'Note: MySQL 8.0 is the final series with MySQL Installer. As of MySQL 8.1, use a MySQL product's MSI or Zip archive for installation. MySQL Server 8.1 and higher also bundle MySQL Configurator, a tool that helps configure MySQL Server.' Under 'Select Version:', a dropdown menu shows '8.0.34'. Under 'Select Operating System:', another dropdown menu shows 'Microsoft Windows'. The main content area lists two download options:

File Type	Version	Size	Action
Windows (x86, 32-bit), MSI Installer (mysql-installer-web-community-8.0.34.0.msi)	8.0.34	2.4M	<a href="#">Download</a>
Windows (x86, 32-bit), MSI Installer (mysql-installer-community-8.0.34.0.msi)	8.0.34	331.3M	<a href="#">Download</a>

At the bottom, a note says: 'We suggest that you use the [MD5 checksums and GnuPG signatures](#) to verify the integrity of the packages you download.'

- On the next page, you'll be prompted to log in or create a MySQL account. You can choose "No thanks, just start my download."

[Login Now](#) or [Sign Up](#) for a free account.

An Oracle Web Account provides you with the following advantages:

- Fast access to MySQL software downloads
- Download technical White Papers and Presentations
- Post messages in the MySQL Discussion Forums
- Report and track bugs in the MySQL bug system

[Login »](#)

using my Oracle Web account

[Sign Up »](#)

for an Oracle Web account

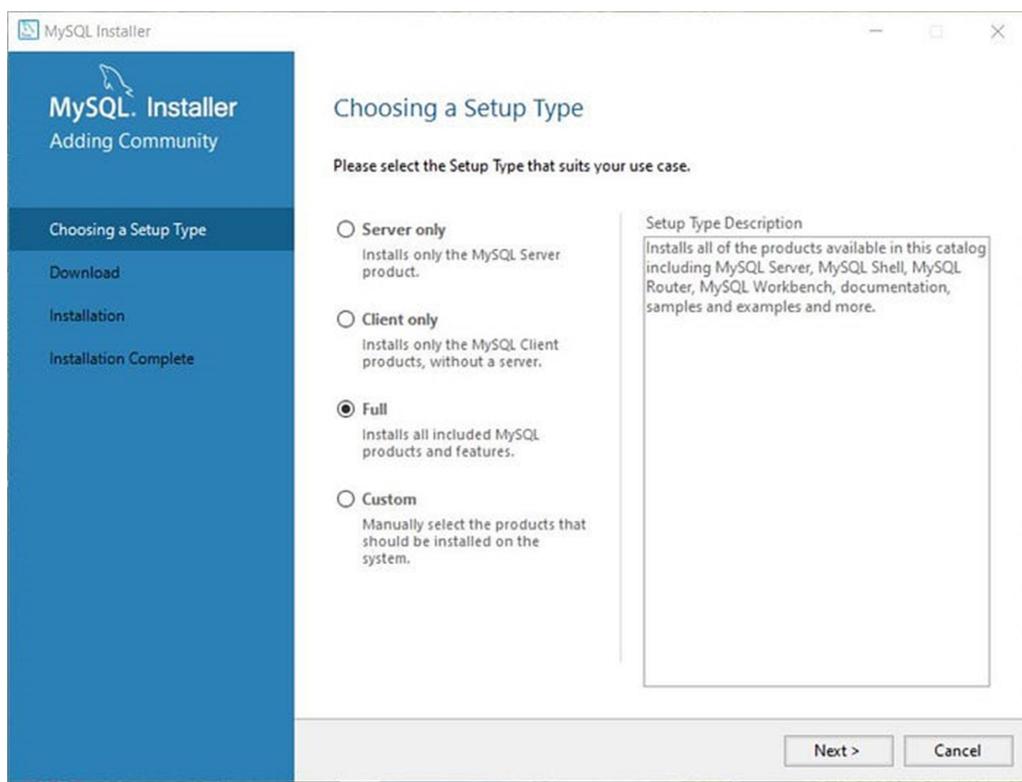
MySQL.com is using Oracle SSO for authentication. If you already have an Oracle Web account, click the Login link. Otherwise, you can signup for a free account by clicking the Sign Up link and following the instructions.

[No thanks, just start my download.](#)

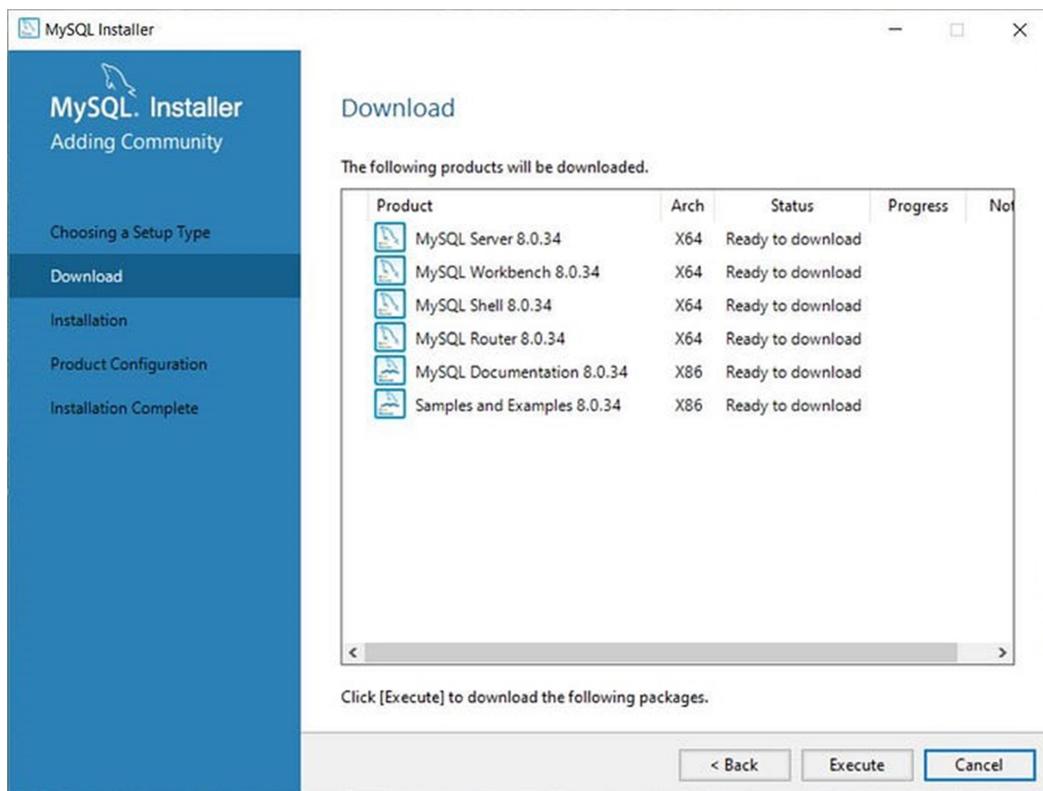
- Locate the installer file you just downloaded and double-click it to run the installer.



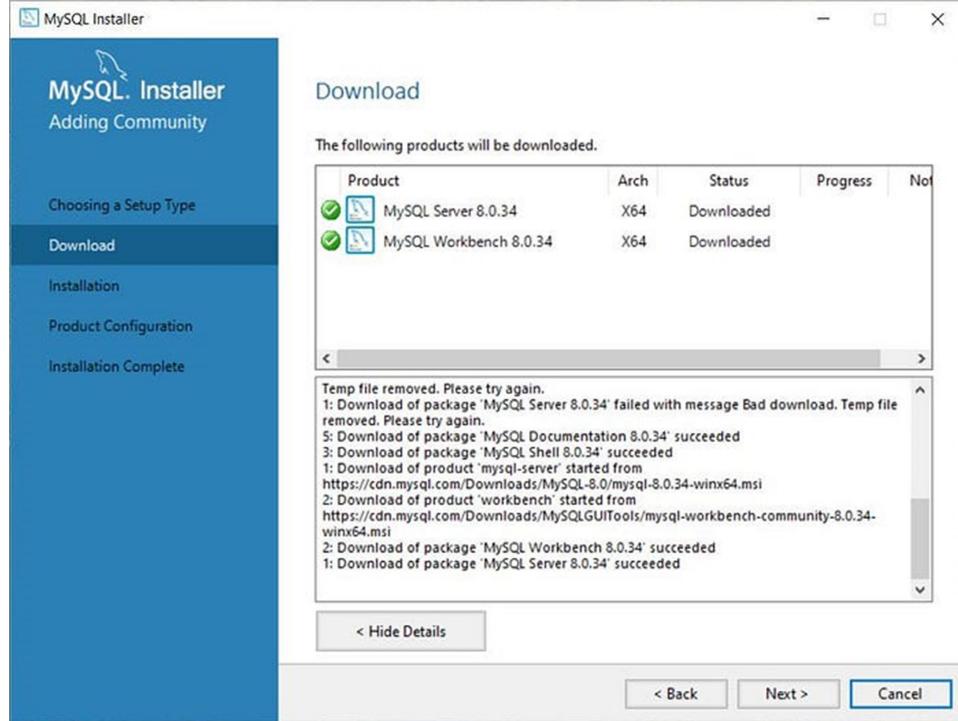
- In the installer window, choose “Full” under “Setup Type.” This option will install MySQL Server, MySQL Workbench and other components, such as documentation and examples. Then click “Next.”



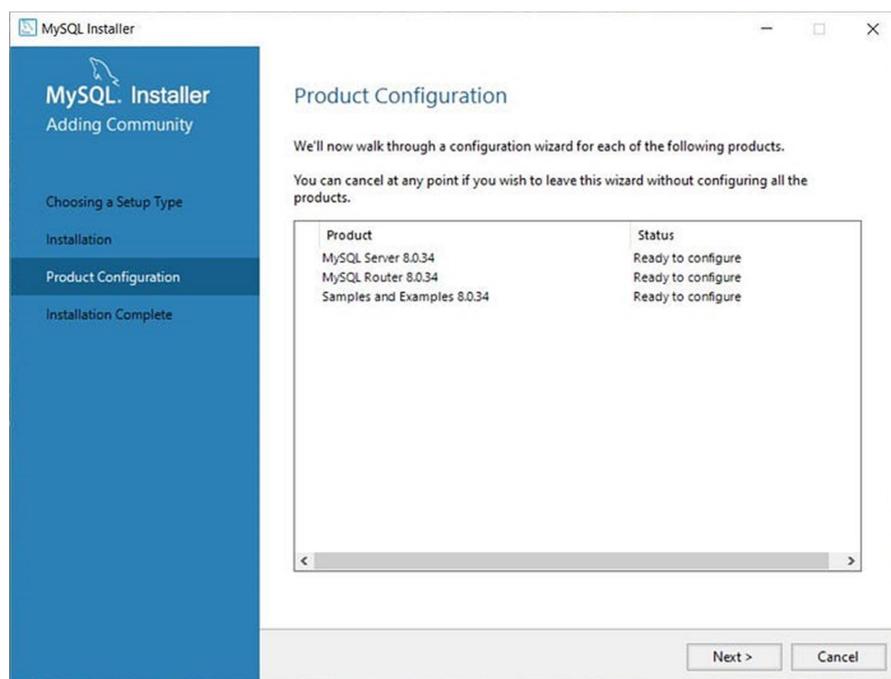
- In the next window, just click “Execute.”



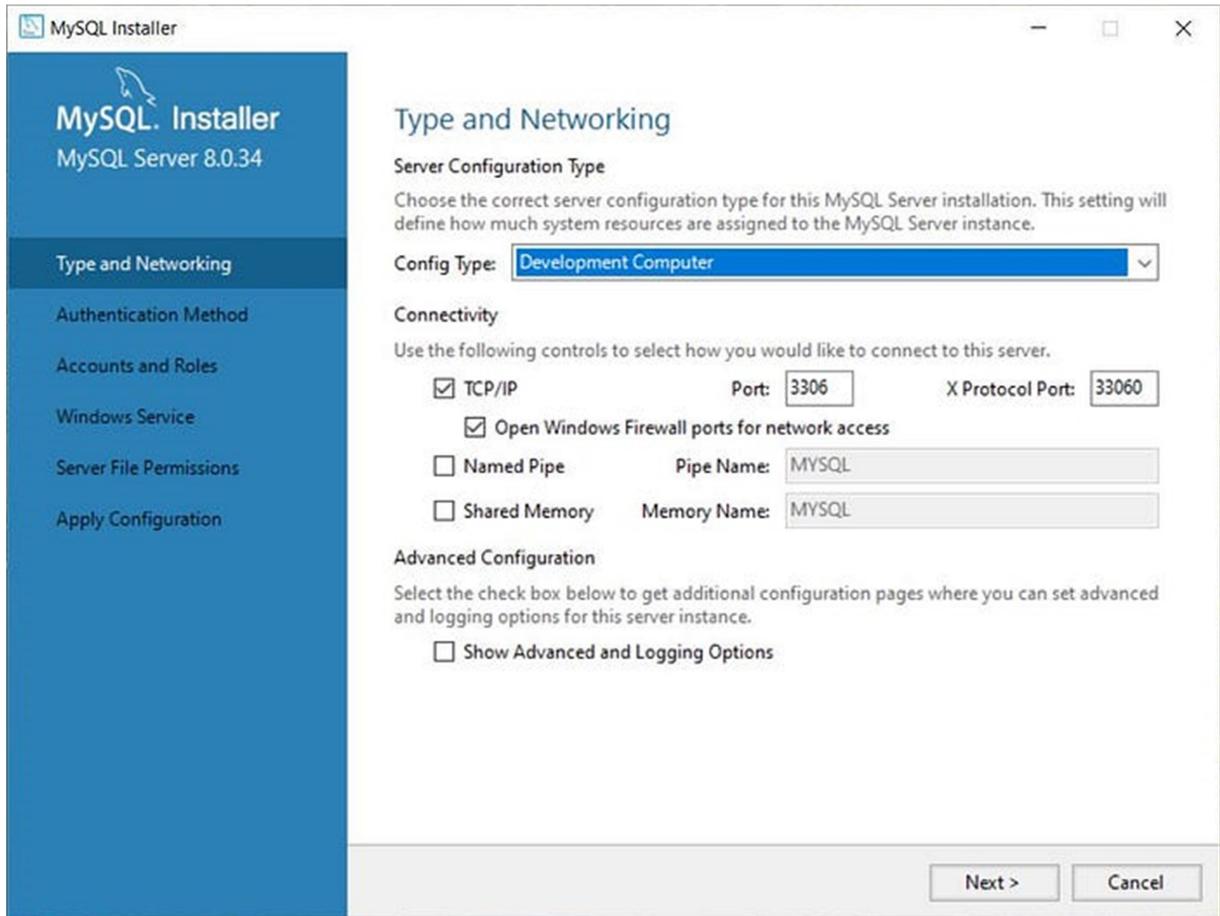
- After all products have been downloaded sucessfully, as indicated by the green checkmark, click “Next.”



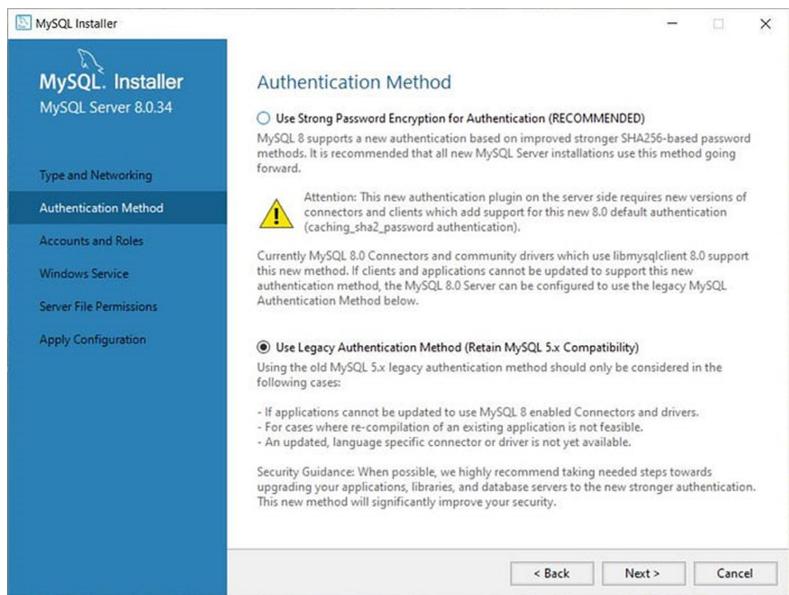
- After all products have been installed sucessfully, click “Next” to start the configuration.



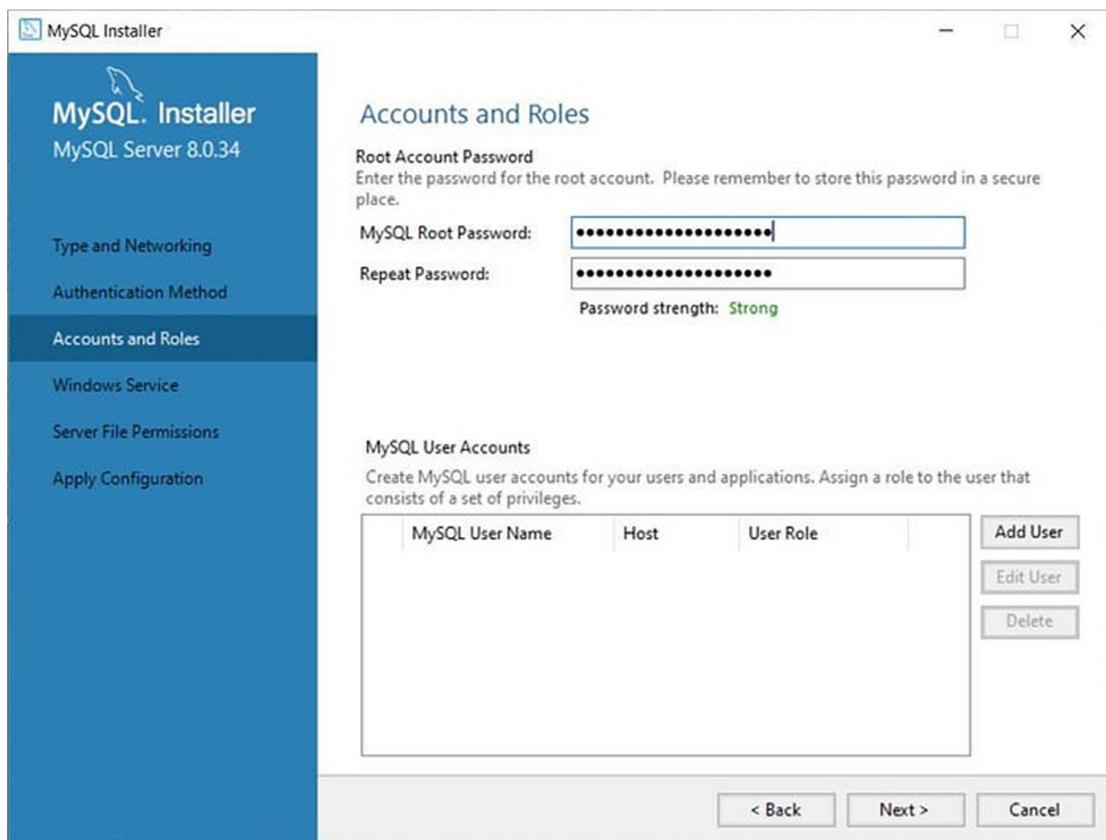
- Under “Type and Networking” choose “Development Computer” as Config Type and leave everything else as is. Then click “Next.”



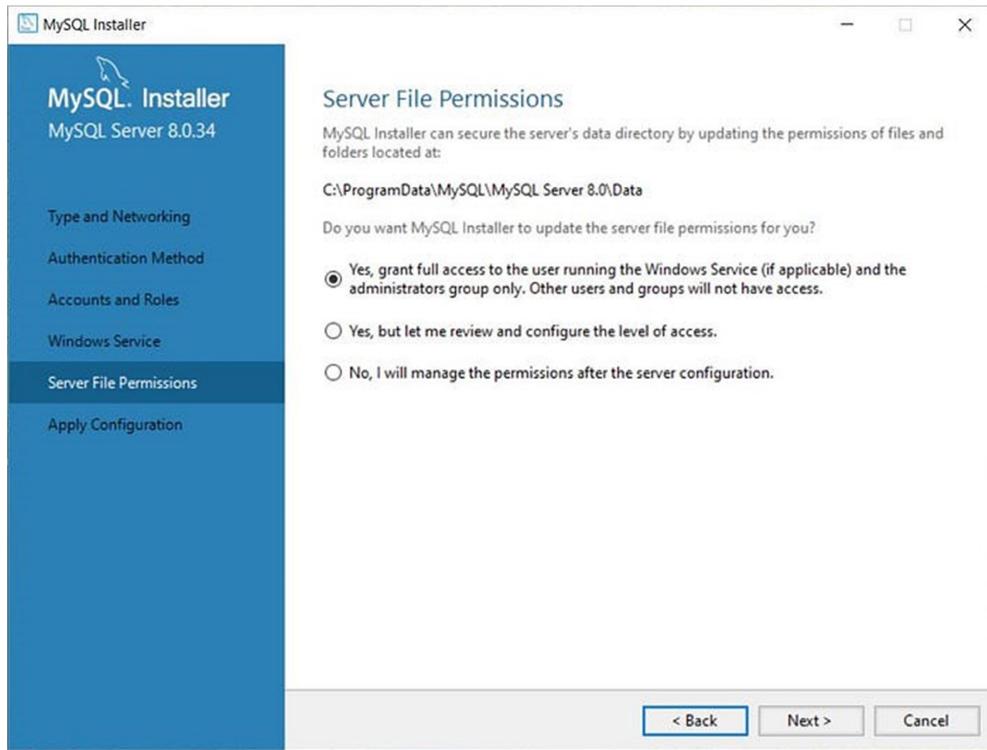
- Next, you will be asked to choose an authentication method. For increased compatibility, choose “Use Legacy Authentication Method” and click “Next.” Choosing “Use Strong Password Encryption” will also work.



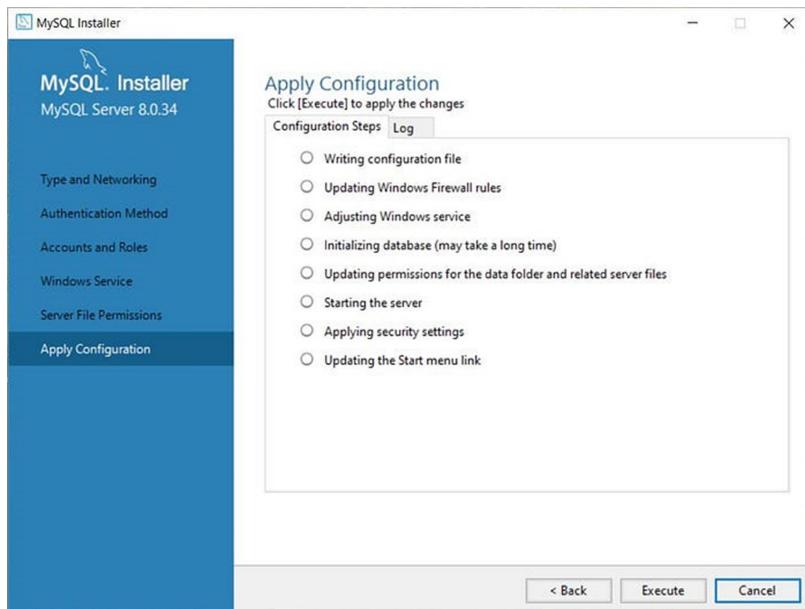
- In the “Account and Roles” window, choose a new password for your root account. Be sure to choose a strong password and enter the password under MySQL Root Password and Repeat Password then click “Next.”



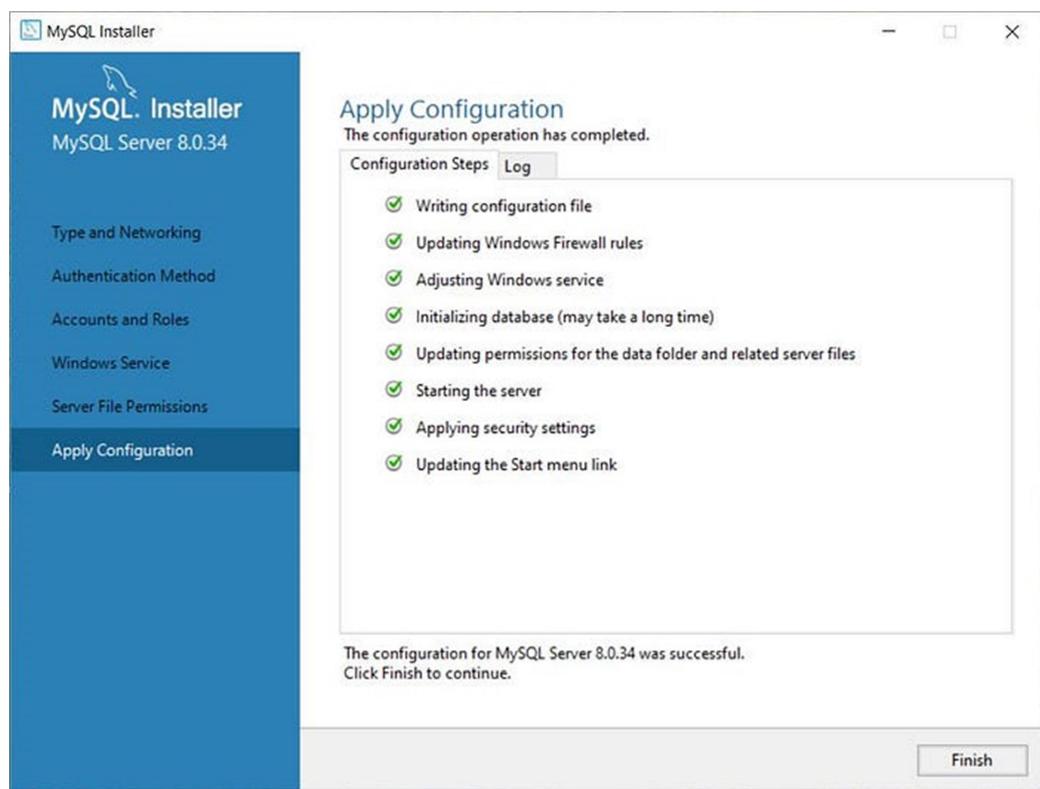
- In the next window, leave everything as is and click “Next.”



- Next, grant full access to let the Installer update server file permissions and click “Next.” Click “Execute” to apply the configuration changes.



- Once the configuration is done (green checkmarks), click “Finish.”



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.

Setting a virtual environment

```
ip@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn (master)
$ pip install virtualenv
Requirement already satisfied: virtualenv in c:\users\hp\appdata\local\programs\
python\python312\lib\site-packages (20.26.3)
Requirement already satisfied: distlib<1,>=0.3.7 in c:\users\hp\appdata\local\pr
ograms\python\python312\lib\site-packages (from virtualenv) (0.3.8)
Requirement already satisfied: filelock<4,>=3.12.2 in c:\users\hp\appdata\local\
programs\python\python312\lib\site-packages (from virtualenv) (3.15.4)
Requirement already satisfied: platformdirs<5,>=3.9.1 in c:\users\hp\appdata\loc
al\programs\python\python312\lib\site-packages (from virtualenv) (4.2.2)

[notice] A new release of pip is available: 24.0 -> 24.1.2
[notice] To update, run: python.exe -m pip install --upgrade pip

ip@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn (master)
$ virtualenv venv
created virtual environment CPython3.12.3.final.0-64 in 44241ms
  creator CPython3Windows(dest=C:\Users\hp\Desktop\maycohotwork\my_projectassgn\
\venv, clear=False, no_vcs_ignore=False, global=False)
    seeder FromAppData(download=False, pip=bundle, via=copy, app_data_dir=C:\Users\
\hp\AppData\Local\pypa\virtualenv)
      added seed packages: pip==24.1
  activators BashActivator,BatchActivator,FishActivator,NushellActivator,PowerSh
ellActivator,PythonActivator

ip@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn (master)
$ .\venv\Scripts\activate
bash: .venvScriptsactivate: command not found

ip@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn (master)
$ cd venv

ip@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn/venv (master)
$ cd Scripts

ip@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn/venv/Scripts (m
aster)
$ ls
activate      activate.nu      deactivate.bat  pip3.12.exe*  python.exe*
activate.bat  activate.ps1     pip-3.12.exe*  pip3.exe*   pythonw.exe*
activate.fish  activate_this.py  pip.exe*       pydoc.bat

ip@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn/venv/Scripts (m
aster)
$ source activate
(venv)
ip@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn/venv/Scripts (m
aster)
$ ls
```

```

hp@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn/venv/Scripts (master)
$ python -m pip install Django
Collecting Django
  Using cached Django-5.0.7-py3-none-any.whl.metadata (4.1 kB)
Collecting asgiref<4,>=3.7.0 (from Django)
  Using cached asgiref-3.8.1-py3-none-any.whl.metadata (9.3 kB)
Collecting sqlparse>=0.3.1 (from Django)
  Using cached sqlparse-0.5.0-py3-none-any.whl.metadata (3.9 kB)
Collecting tzdata (from Django)
  Using cached tzdata-2024.1-py2.py3-none-any.whl.metadata (1.4 kB)
Using cached Django-5.0.7-py3-none-any.whl (8.2 MB)
Using cached asgiref-3.8.1-py3-none-any.whl (23 kB)
Using cached sqlparse-0.5.0-py3-none-any.whl (43 kB)
Using cached tzdata-2024.1-py2.py3-none-any.whl (345 kB)
Installing collected packages: tzdata, sqlparse, asgiref, Django
Successfully installed Django-5.0.7 asgiref-3.8.1 sqlparse-0.5.0 tzdata-2024.1

[notice] A new release of pip is available: 24.1 -> 24.1.2
[notice] To update, run: python.exe -m pip install --upgrade pip
(venv)
hp@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn/venv/Scripts (master)
$ Django admin version
bash: Django: command not found
(venv)
hp@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn/venv/Scripts (master)
$ Django admin --version
bash: Django: command not found
(venv)
hp@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn/venv/Scripts (master)
$ Django-admin --version
5.0.7
(venv)
hp@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn/venv/Scripts (master)
$ django-admin startproject my_projectassgn
(venv)
hp@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn/venv/Scripts (master)
$ django-admin startapp e_commerce
(venv)
hp@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn/venv/Scripts (master)
$ code .
(venv)
hp@LAPTOP-50J9R64E MINGW64 ~/desktop/maycohotwork/my_projectassgn/venv/Scripts (master)
$ |

```

```

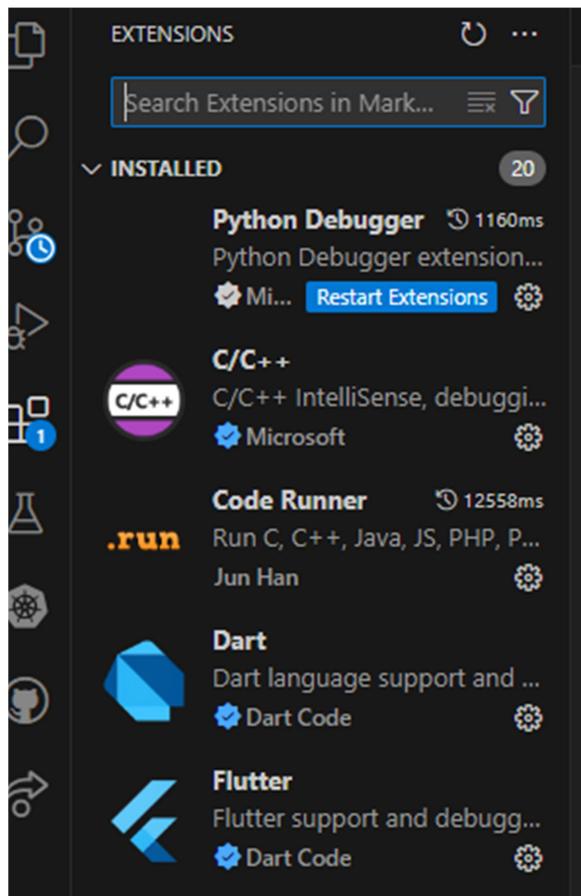
my_projectassgn > manage.py > ...
1  #!/usr/bin/env python
2  """Django's command-line utility for administrative tasks."""
3  import os
4  import sys
5
6
7  def main():
8      """Run administrative tasks."""
9      os.environ.setdefault('DJANGO_SETTINGS_MODULE', 'my_projectassgn.settings')
10     try:
11         from django.core.management import execute_from_command_line
12     except ImportError as exc:
13         raise ImportError(
14             "Couldn't import Django. Are you sure it's installed and "
15             "available on your PYTHONPATH environment variable? Did you "
16             "forget to activate a virtual environment?"
17         ) from exc
18     execute_from_command_line(sys.argv)
19
20
21 if __name__ == '__main__':
22     main()

```

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, linking, code formatting, and version control integration.
- Exploring Extensions and Plugins in Visual Studio Code
    - Open the Extensions View;- Launch Visual Studio Code. Click on the Extensions icon in the Activity Bar on the side of the window.



- Browse and Search for Extensions



- Install Extensions
- Manage Installed Extensions:- View Installed Extensions, You can disable or enable extensions by clicking the gear icon next to the extension and

- selecting Disable or Enable. To uninstall an extension, click the gear icon and select Uninstall.
- some categories of useful extensions you might want to explore are python, JavaScript and Java. For code formatting :-
    - Prettier: An opinionated code formatter that supports many languages.
    - ESLint: Integrates ESLint into VS Code to provide linting and auto-fixing capabilities.
  - Version Control:
    - GitLens: Enhances the built-in Git capabilities with features like blame annotations, code lens, and rich repository viewer.
    - GitHub Pull Requests and Issues: Allows you to manage GitHub pull requests and issues directly within VS Code.
  - Configure Extensions
    - Settings: Many extensions have configurable settings. To configure an extension, go to File -> Preferences -> Settings, and search for the extension's settings.
    - Commands: Some extensions add new commands to the Command Palette (Ctrl+Shift+P or Cmd+Shift+P). You can access these commands by opening the Command Palette and typing the extension's name.
9. Document Your Setup: Create a comprehensive document outlining the steps you've taken to set up your developer environment. Include any configurations, customizations, or troubleshooting steps encountered during the process.

#### #Deliverables:

Document detailing the setup process with step-by-step instructions and screenshots where necessary.

A GitHub repository containing a sample project initialized with Git and any necessary configuration files (e.g., .gitignore).

A reflection on the challenges faced during setup and strategies employed to overcome them.

#Submission: Submit your document and GitHub repository link through the designated platform or email to the instructor by the specified deadline.

**#Evaluation Criteria:\*\***

Completeness and accuracy of setup documentation.

Effectiveness of version control implementation.

Appropriateness of tools selected for the project requirements.

Clarity of reflection on challenges and solutions encountered.

Adherence to submission guidelines and deadlines.

Note: Feel free to reach out for clarification or assistance with any aspect of the assignment.