

Developer Environment Setup

Documentation BY JEFF

KINYANJUI

Windows 11

Sources: Documentations of VSCode, Python, Flutter, Dart, MYSQL, GIT, and

Objective

The objective of this document is to outline the steps taken to set up an efficient developer environment for software engineering projects, including tools for coding, debugging, version control, and collaboration.

Table of Contents

1. Select Your Operating System (OS)
2. Install a Text Editor or Integrated Development Environment (IDE)
3. Set Up Version Control System
4. Install Necessary Programming Languages and Runtimes(Python, Dart, and Flutter)
5. Install-Package Managers
6. Configure a Database (MySQL)
7. Set Up Development Environments and Virtualization (Optional)
8. Explore Extensions and Plugins
9. Document Your Setup
10. Reflection on Challenges

1. Select Your Operating System (OS)

Step 1: Create Windows 11 Installation Media

1. **Download the Media Creation Tool:**
 - a. Go to the [Windows 11 download page](#).
 - b. Under the "Create Windows 11 Installation Media" section, click "Download now".

Create Windows 11 Installation Media

If you want to perform a reinstall or clean install of Windows 11 on a new or used PC, use this option to download the media creation tool to make a bootable USB or DVD.

Before you begin

[Download Now](#)

2. Run the Media Creation Tool:

- a. Open the downloaded Media Creation Tool executable file.
- b. Accept the license terms.



Applicable notices and licence terms

Please read this so you know what you're agreeing to.

MICROSOFT SOFTWARE LICENSE TERMS

MICROSOFT MEDIA CREATION TOOL

IF YOU LIVE IN (OR ARE A BUSINESS WITH A PRINCIPAL PLACE OF BUSINESS IN) THE UNITED STATES, PLEASE READ THE "BINDING ARBITRATION AND CLASS ACTION WAIVER" SECTION BELOW. IT AFFECTS HOW DISPUTES ARE RESOLVED.

These license terms are an agreement between you and Microsoft Corporation (or one of its affiliates). They apply to the software named above and any Microsoft services or software updates (except to the extent such services or updates are accompanied by new or additional terms, in which case those different terms apply prospectively and do not alter your or Microsoft's rights relating to pre-updated software or services). IF YOU COMPLY WITH THESE LICENSE TERMS, YOU HAVE THE RIGHTS BELOW. BY USING THE SOFTWARE, YOU ACCEPT THESE TERMS.

1. INSTALLATION AND USE RIGHTS.

- a) General.** You may install and use one copy of the software to develop and test your applications, and solely for use on Windows. You may make one backup copy of the software.

[Privacy statement](#)

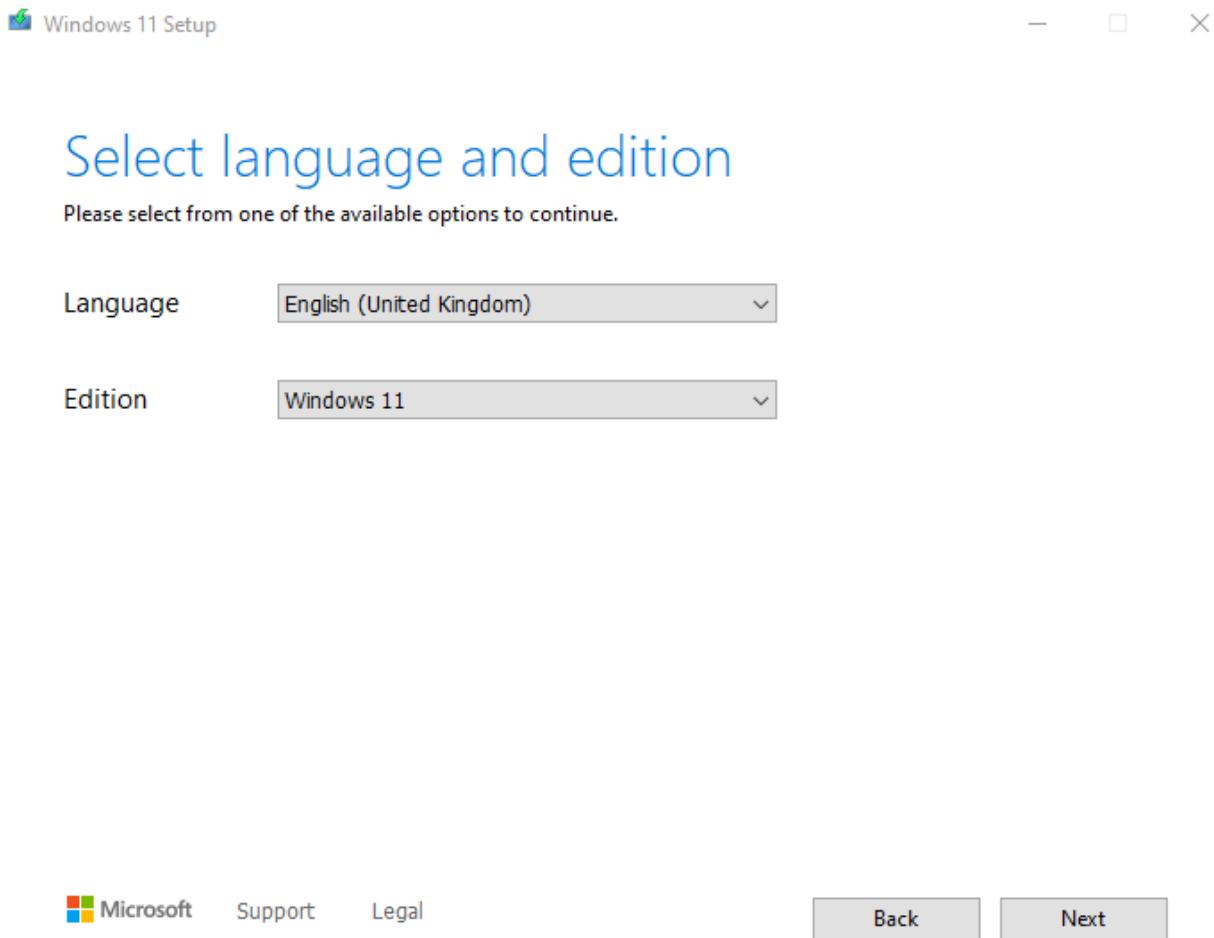
 Microsoft Support Legal

Decline

Accept

3. Set Up the Media Creation Tool:

- a. Choose the language, edition, and architecture (64-bit).



- b. Select "USB flash drive" as the media to use. Alternatively, you can choose "ISO file" if you want to create a bootable DVD.

Choose which media to use

If you want to install Windows 11 on another partition, you need to create and then run the media to install it.

USB flash drive

It needs to be at least 8 GB.

ISO file

You'll need to burn the ISO file to a DVD later.

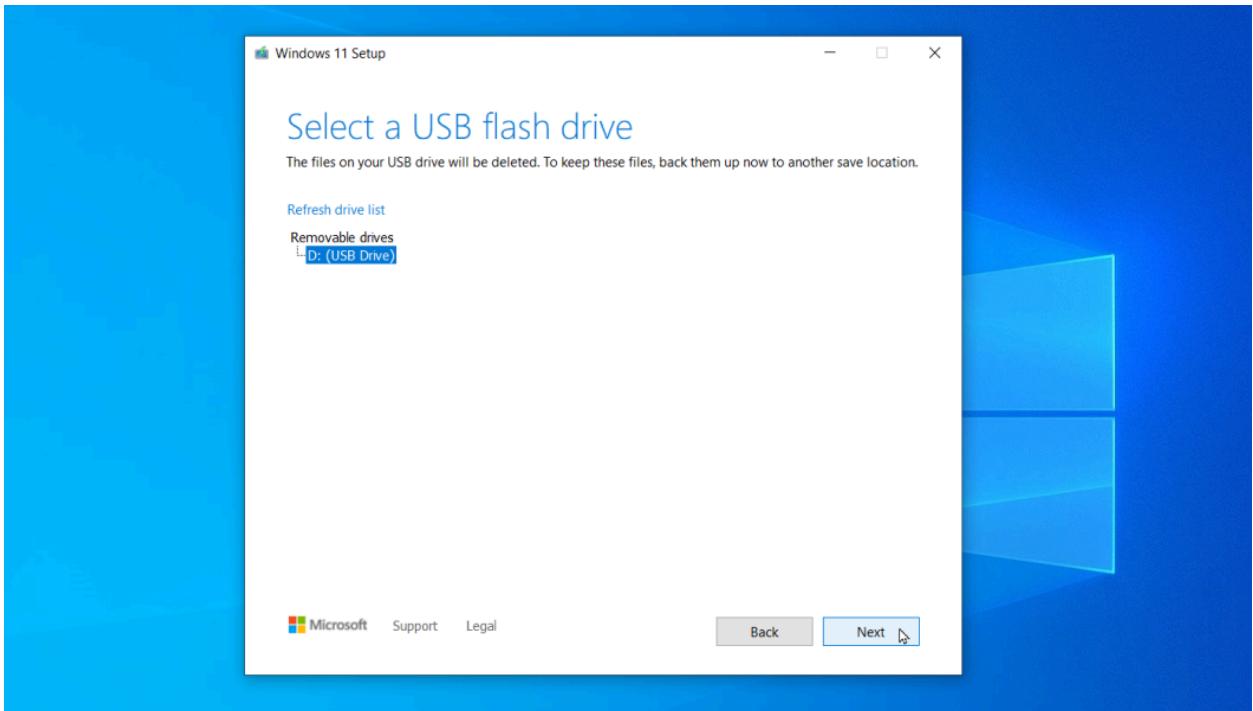


Microsoft Support Legal

Back

Next

4. Create the Installation Media:



- a. Insert a USB flash drive with at least 8 GB of storage.
- b. Select the USB drive from the list and click "Next".

Downloading Windows 11

Feel free to keep using your PC.

- Progress: 0%



Microsoft Support Legal

Back

Next

- c. The tool will download Windows 11 and create the bootable USB drive.
- d. After that click finish

Your USB flash drive is ready

E:\

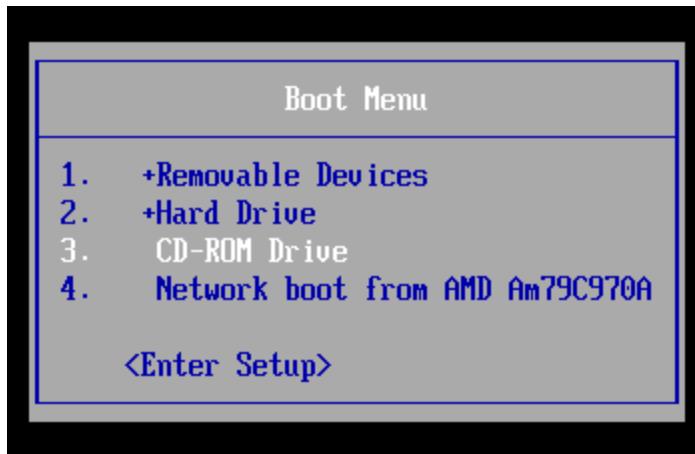
Step 2: Install Windows 11 Using the Installation Media

1. Prepare Your PC:

- Back up all important data.
- Ensure your PC meets the Windows 11 system requirements.

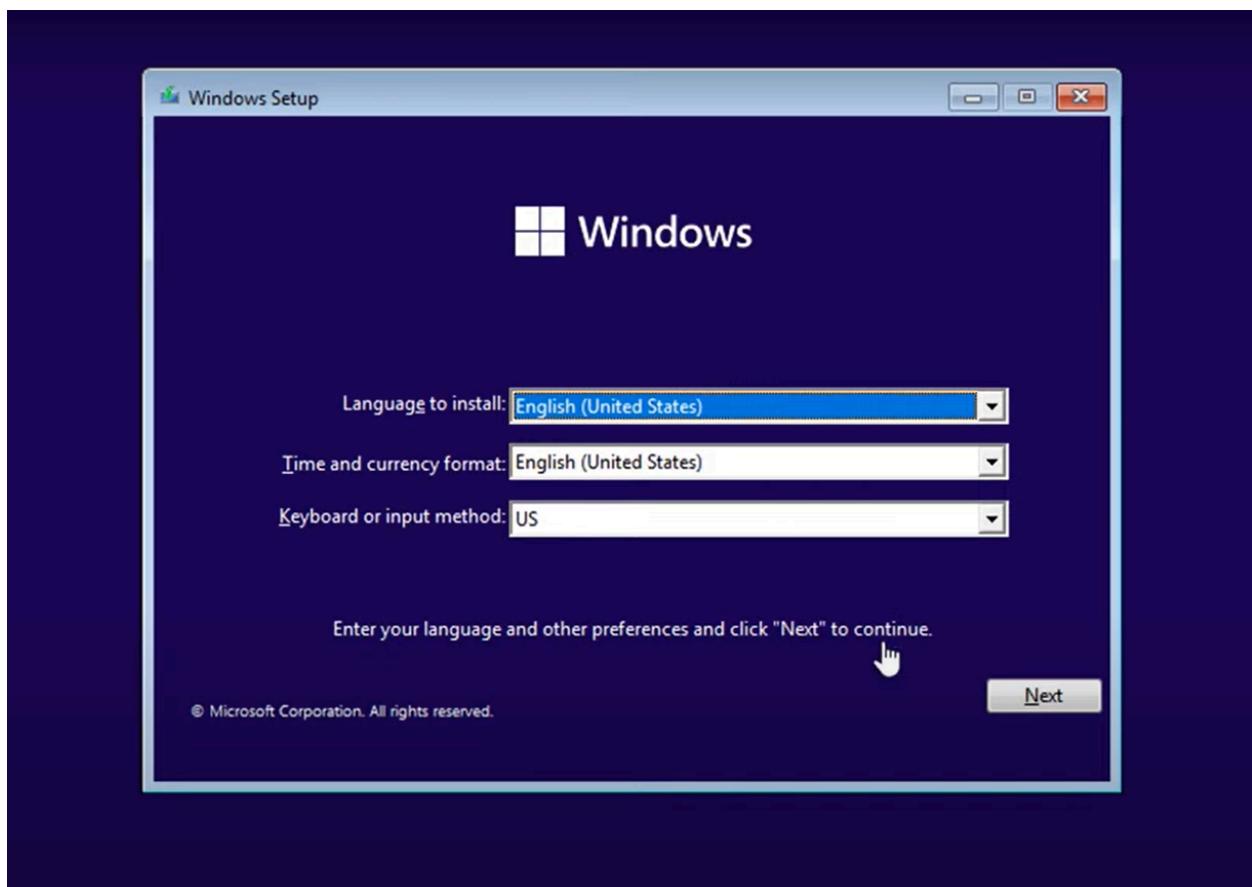
2. Boot from the USB Drive:

- Insert the bootable USB drive into your PC.
- Restart your PC and enter the BIOS/UEFI settings (commonly accessed by pressing a key like F2, F12, Delete, or Esc during startup).
- Change the boot order to boot from the USB drive first.

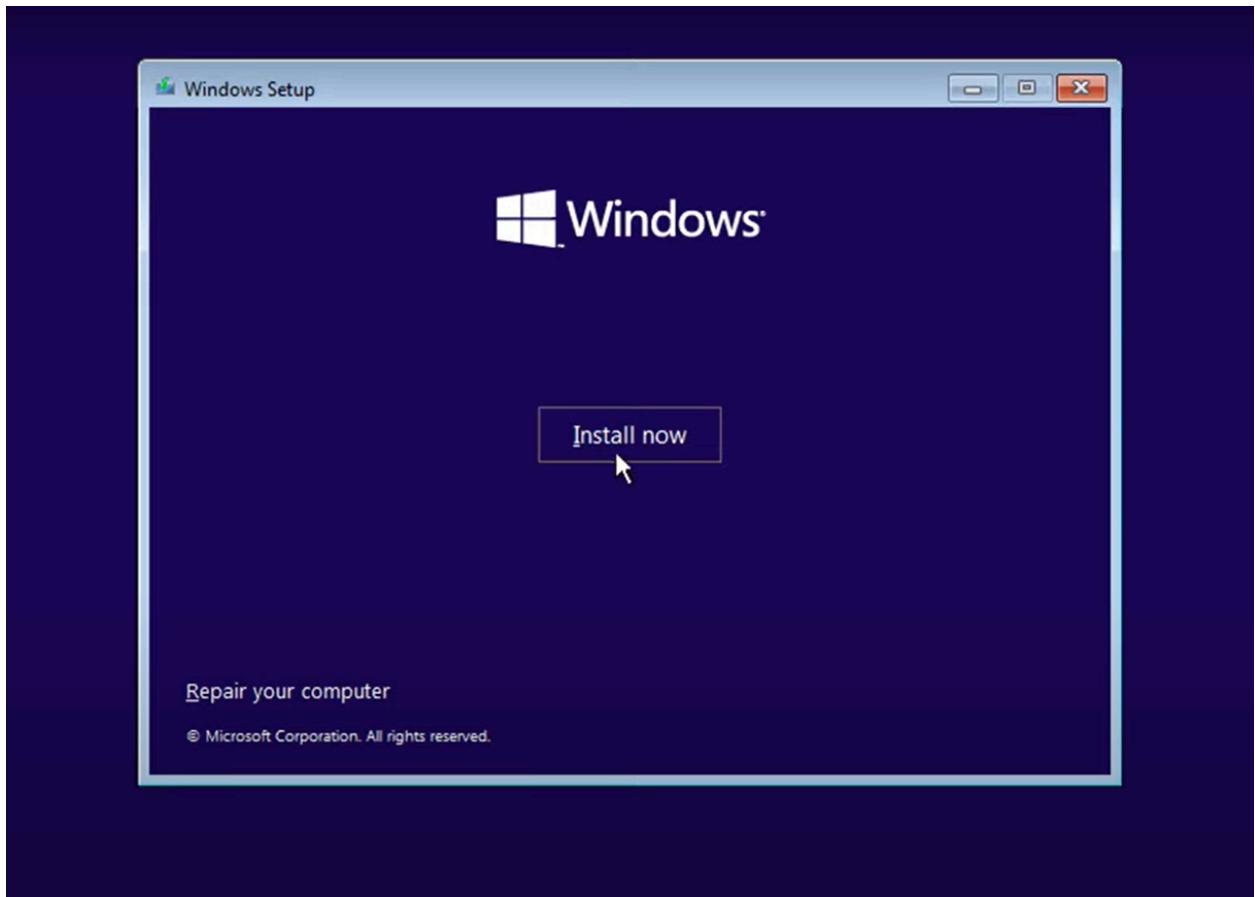


3. Start the Installation Process:

- Save the changes and exit the BIOS/UEFI settings. Your PC should now boot from the USB drive.
- The Windows Setup screen will appear. Select your language, time, and keyboard preferences, and click "Next".

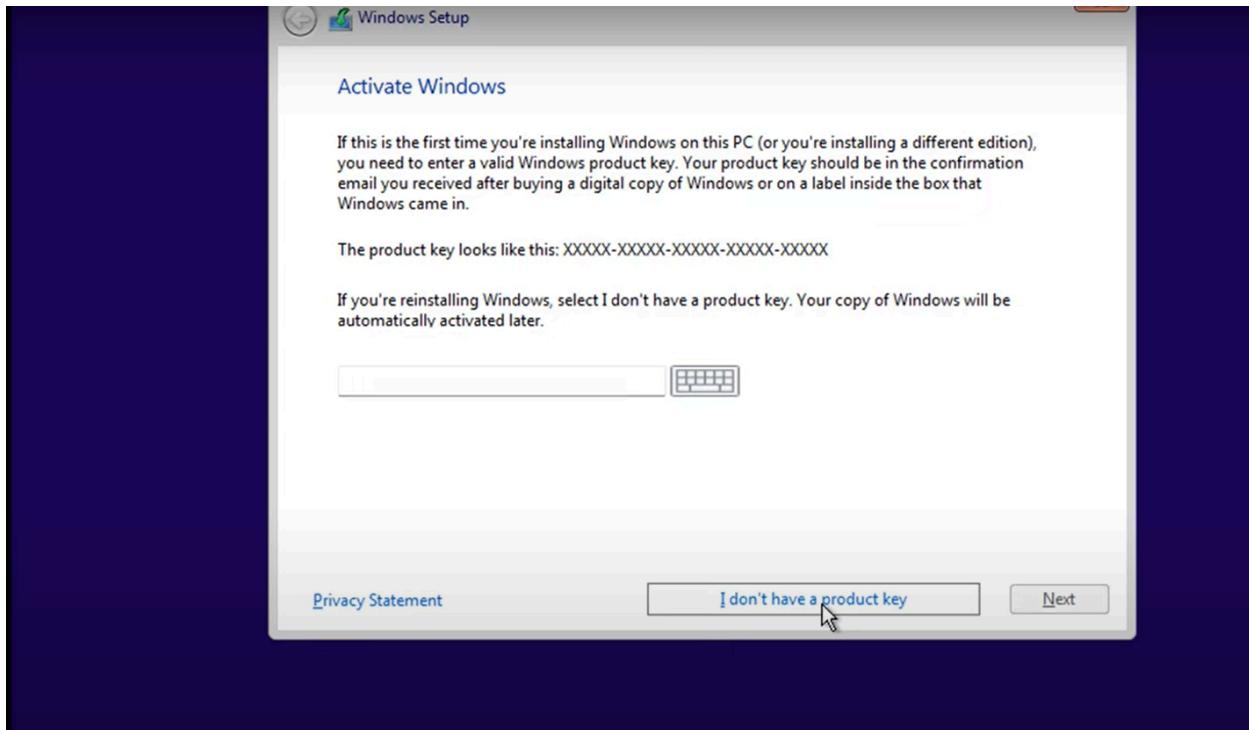


- Click "Install now".



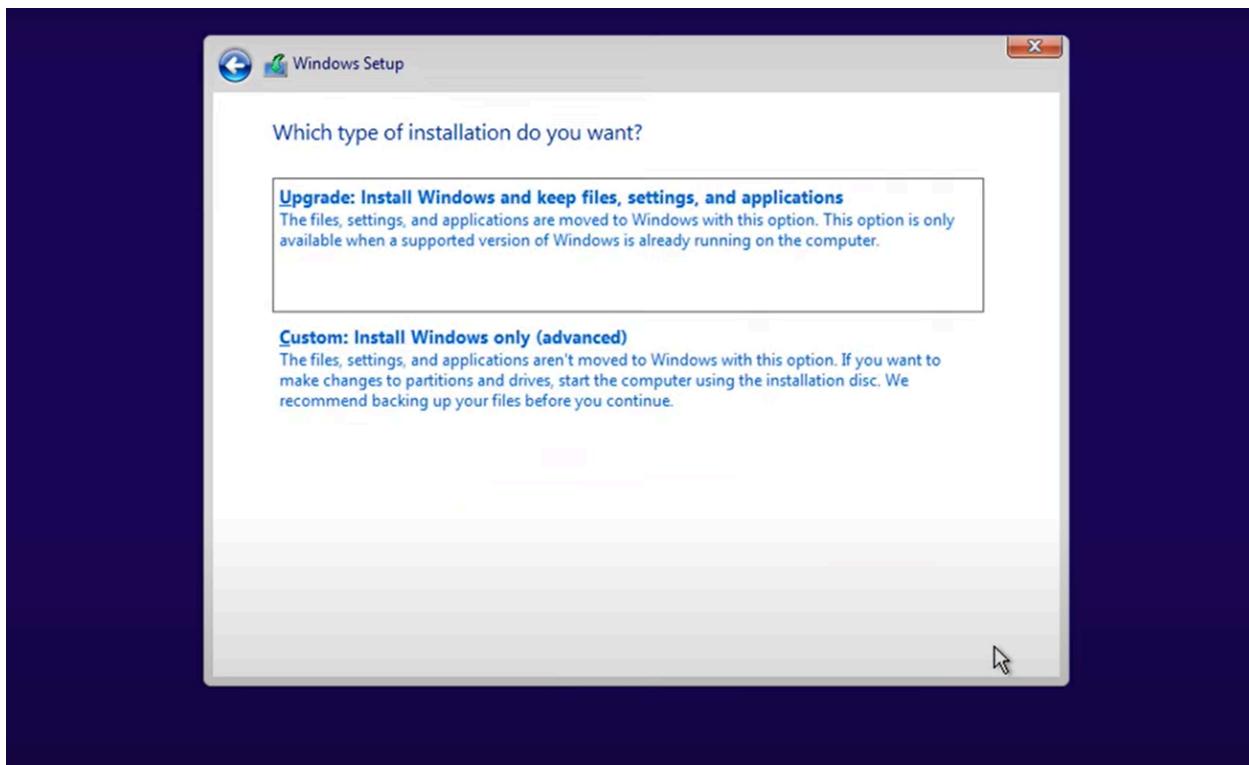
4. Enter Product Key:

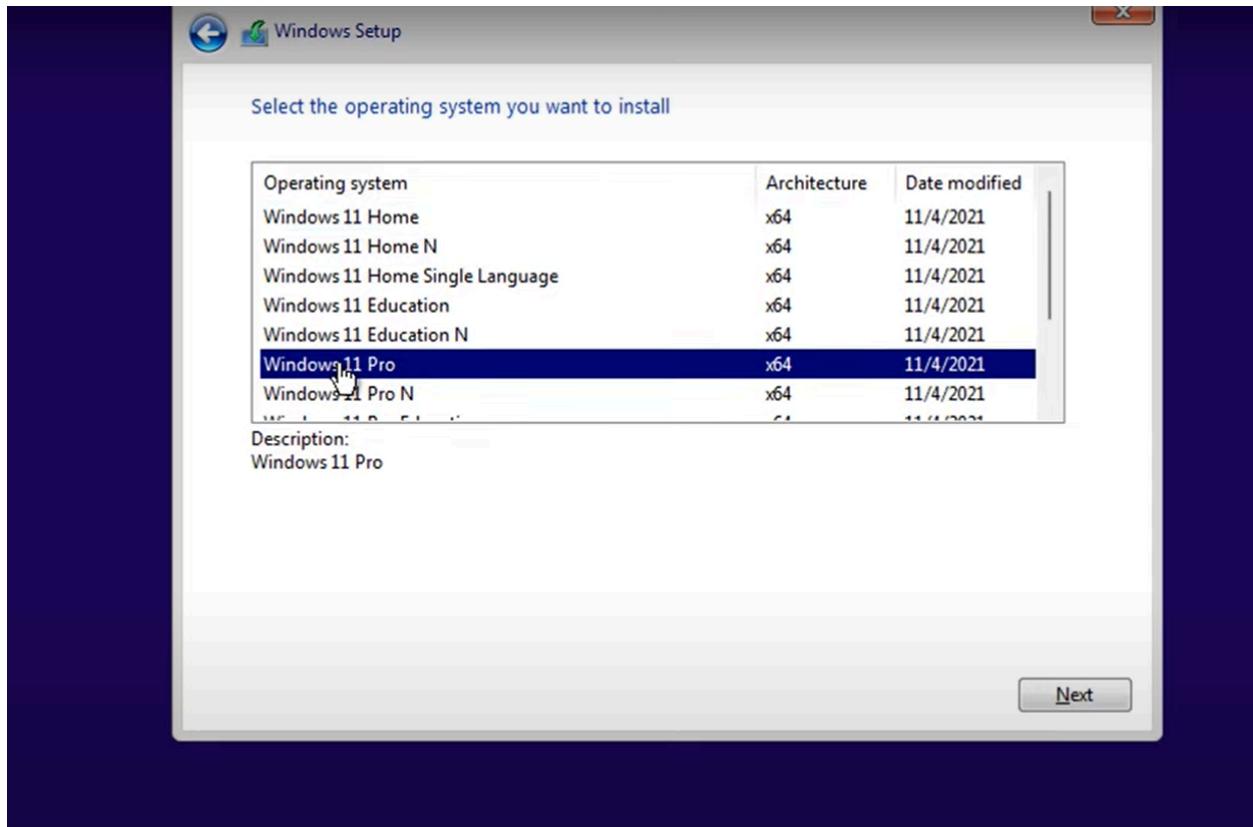
- If prompted, enter your Windows 11 product key. If you are upgrading from Windows 10, you may skip this step as the activation should be automatic.



5. Select Installation Type:

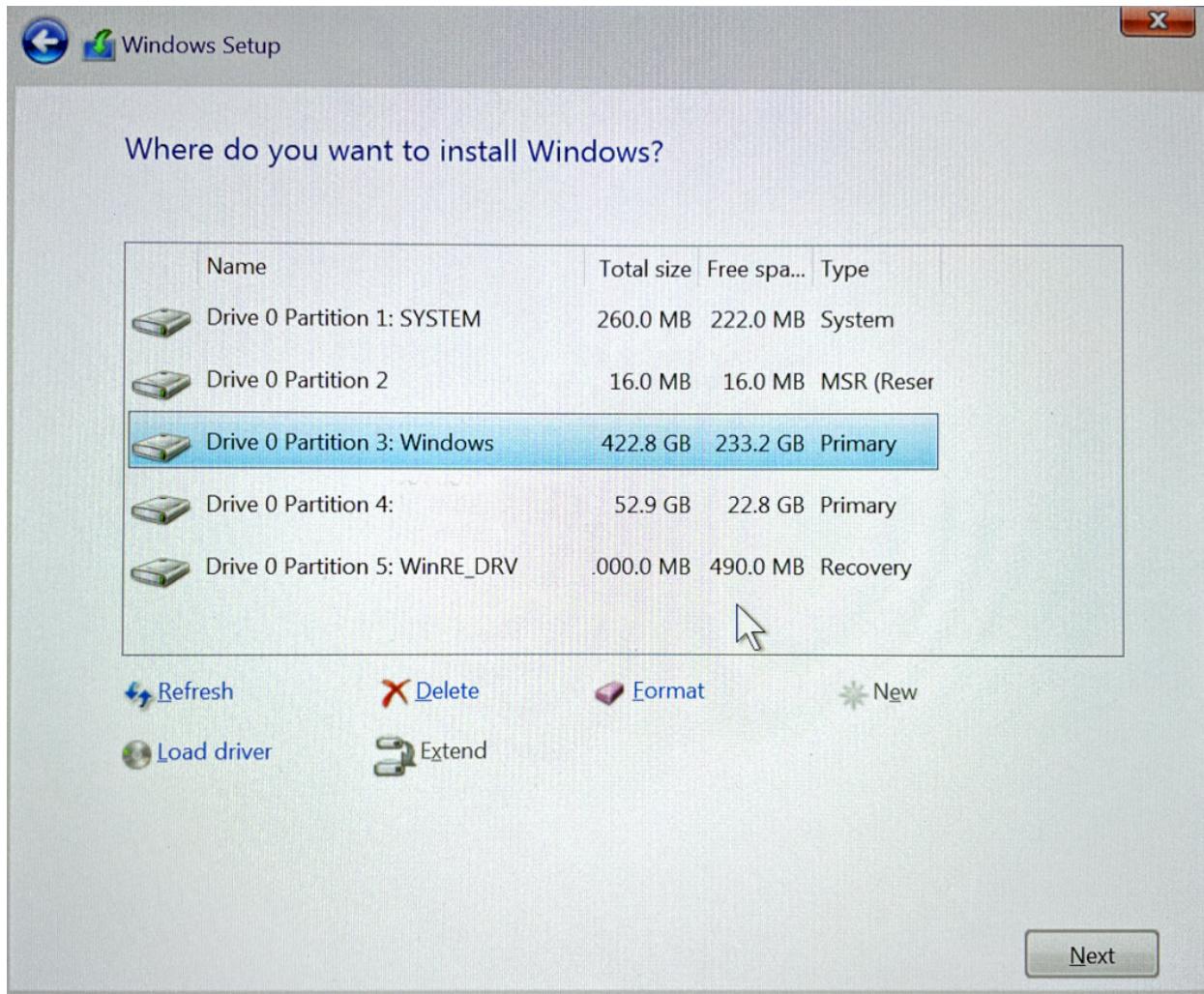
- Choose "Custom: Install Windows only (advanced)" for a clean installation.





6. Partition the Drive:

- Select the partition where you want to install Windows 11. You can delete existing partitions to create a new one, but this will erase all data on the selected partition.



- Click "Next" to start the installation.

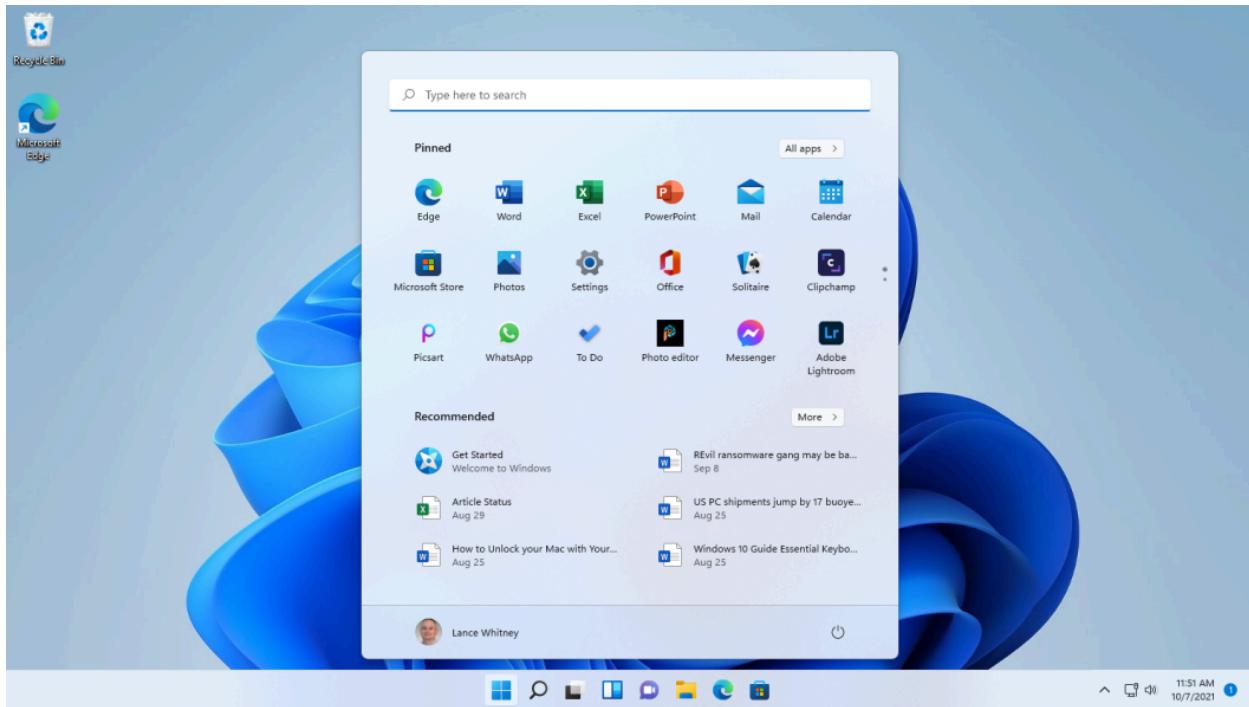
Step 3: Complete the Installation

1. Follow On-Screen Instructions:

- Windows 11 will now be installed on your PC. The process might take some time and your PC will restart several times.

2. Set Up Windows 11:

- After installation, you will be guided through the initial setup process. Configure your preferences, sign in with your Microsoft account, and set up any additional settings.



2. Installation of VS Code

Steps to Download and Install VS Code on Windows

1. Download VS Code:

- Visit the official website of Visual Studio Code: [Visual Studio Code Download](#).
 - Look for the “Download for Windows” button and click on it.
 - This will start the download of the VS Code installer (VSCodeUserSetup-x64-1.X64-1.XX.X.exe).

Download Visual Studio Code

Free and built on open source. Integrated Git, debugging and extensions.



↓ Windows

Windows 7, 8, 10, 11

↓ .deb

Debian, Ubuntu

↓ .rpm

Red Hat, Fedora, SUSE

↓ Mac

macOS 10.11+

User Installer [64 bit](#) [32 bit](#) [ARM](#)
System Installer [64 bit](#) [32 bit](#) [ARM](#)
.zip [64 bit](#) [32 bit](#) [ARM](#)

.deb [64 bit](#) [ARM](#) [ARM 64](#)
.rpm [64 bit](#) [ARM](#) [ARM 64](#)
.tar.gz [64 bit](#) [ARM](#) [ARM 64](#)

.zip [Universal](#) [Intel Chip](#) [Apple Silicon](#)

[Snap Store](#)

2. Run the Installer:

- Once the download is complete, locate it in the file explorer.
- Double-click on the installer file.
- The installer wizard will appear.

3. Installation Prompt:

- Accept the license agreement and click next.



License Agreement

Please read the following important information before continuing.

Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.

This license applies to the Visual Studio Code product. Source Code for Visual Studio Code is available at <https://github.com/Microsoft/vscode> under the MIT license agreement at <https://github.com/microsoft/vscode/blob/master/LICENSE.txt>. Additional license information can be found in our FAQ at <https://code.visualstudio.com/docs/supporting/faq>.

MICROSOFT SOFTWARE LICENSE TERMS

MICROSOFT VISUAL STUDIO CODE

- I accept the agreement
 I do not accept the agreement

Next >

Cancel

- Choose the location where you want the VS Code installation to be kept.
Accept the default location and click next.



Select Destination Location

Where should Visual Studio Code be installed?

Setup will install Visual Studio Code into the following folder.

To continue, click Next. If you would like to select a different folder, click Browse.

C:\Users\sysadmin\AppData\Local\Programs\Microsoft VS Code

[Browse...](#)

At least 306.2 MB of free disk space is required.

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[Next >](#)

Cancel

- Accept the default Start Menu Folder and click Next.



Select Start Menu Folder

Where should Setup place the program's shortcuts?



Setup will create the program's shortcuts in the following Start Menu folder.

To continue, click Next. If you would like to select a different folder, click Browse.

Visual Studio Code

[Browse...](#)

Don't create a Start Menu folder

< Back

Next >

Cancel

- Select additional tasks (optional but recommended):
 - Click on Create a Desktop icon.
 - Click on Add to path (important to use the command line).
 - Click register code as an Editor for supported files.
 - Adding “Open with Code” action to the Windows Explorer context menu.
 - Adding “Open with Code” to the directory context menu.
- Click next.



Select Additional Tasks

Which additional tasks should be performed?

Select the additional tasks you would like Setup to perform while installing Visual Studio Code, then click Next.

Additional icons:

Create a desktop icon

Other:

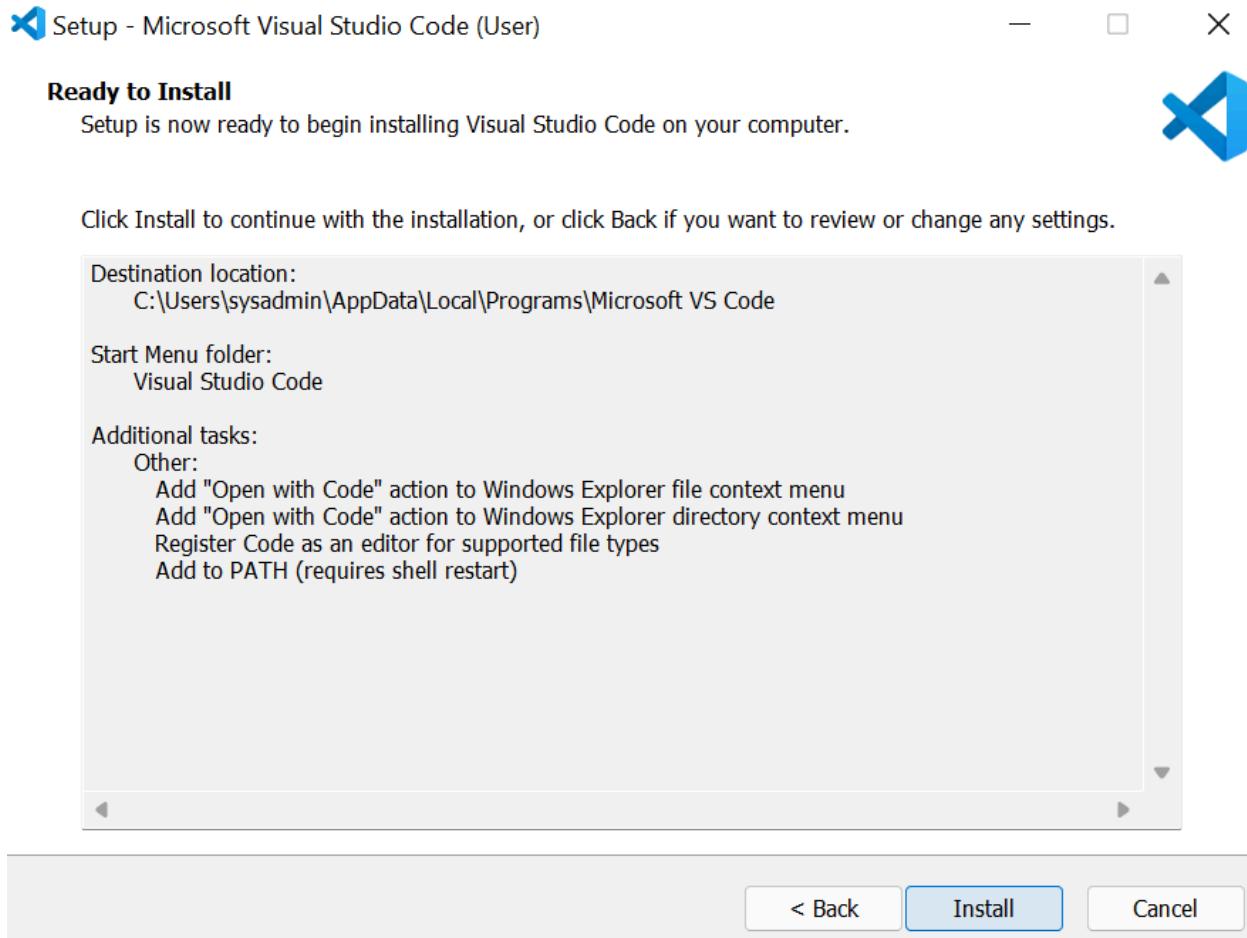
- Add "Open with Code" action to Windows Explorer file context menu
- Add "Open with Code" action to Windows Explorer directory context menu
- Register Code as an editor for supported file types
- Add to PATH (requires shell restart)

< Back

Next >

Cancel

- The installation will begin. Click on the install button.
- After clicking install, it should take about one minute to install VS Code on your device.



4. Finish Installation:

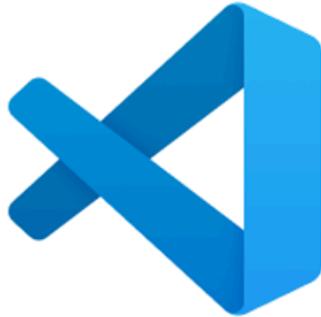
- After installation, a setup window will appear. Tick on Launch VS Code and click Finish.

Completing the Visual Studio Code Setup Wizard

Setup has finished installing Visual Studio Code on your computer. The application may be launched by selecting the installed shortcuts.

Click Finish to exit Setup.

Launch Visual Studio Code



Finish

3. Set Up Version Control System

Sample repo: <https://github.com/Johnnytash/this-is-a-test-repo.git>

For Windows

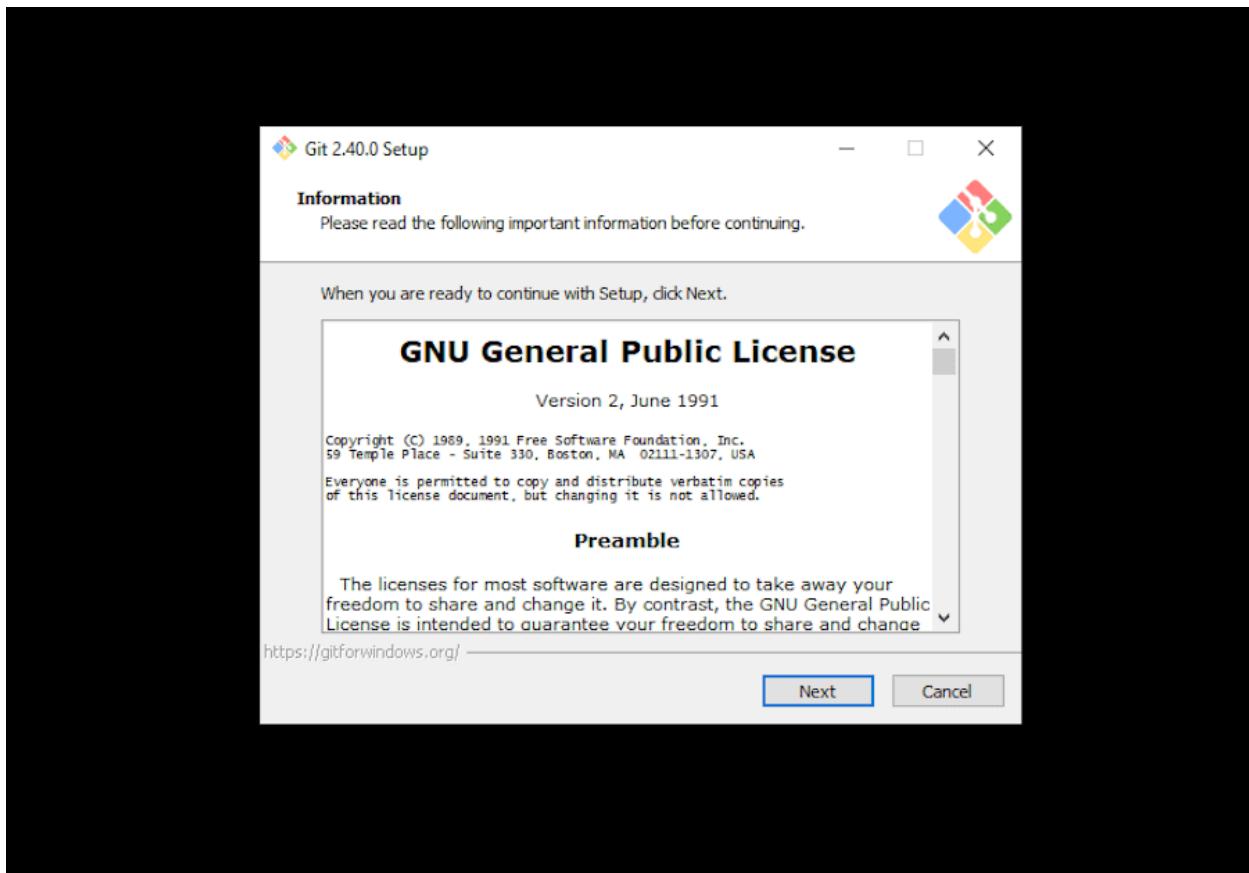
1. Download Git for Windows:

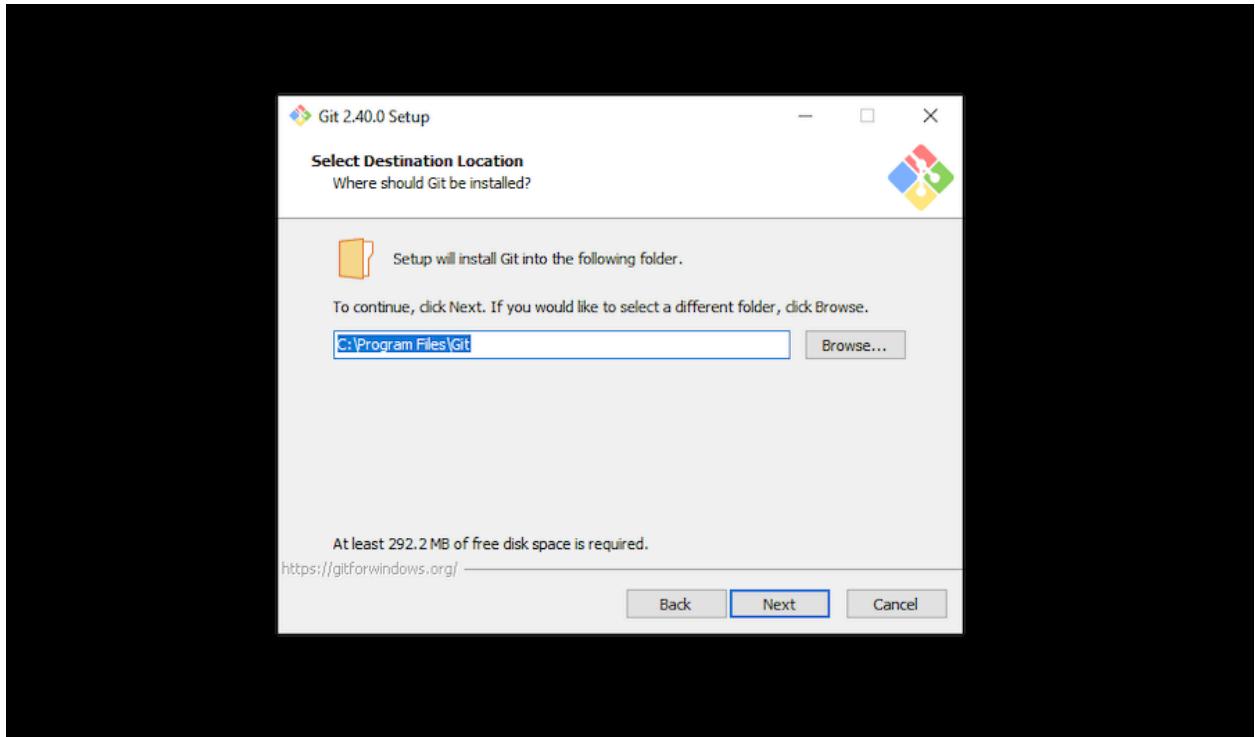
- Go to the [Git for Windows download page](#) and download the installer.

The screenshot shows the official Git website at git-scm.com. The main header features the Git logo and the tagline "distributed-even-if-your-workflow-isn't". A search bar is located in the top right corner. On the left, there's a sidebar with links for "About", "Documentation", "Downloads" (selected), "Community", and a note about the "Pro Git book". The main content area is titled "Download for Windows" and provides instructions for downloading the latest version (2.45.2). It includes sections for "Standalone Installer", "32-bit Git for Windows Setup", "64-bit Git for Windows Setup", "Portable ("thumbdrive edition")", "32-bit Git for Windows Portable", and "64-bit Git for Windows Portable". Below these, there's a section for "Using winget tool" with a command-line example: `winget install --id Git.Git -e --source winget`. A note states that the current source code release is version 2.45.2 and can be built from the source code. At the bottom, a "Now What?" section suggests starting with the downloaded Git.

2. Run the Installer:

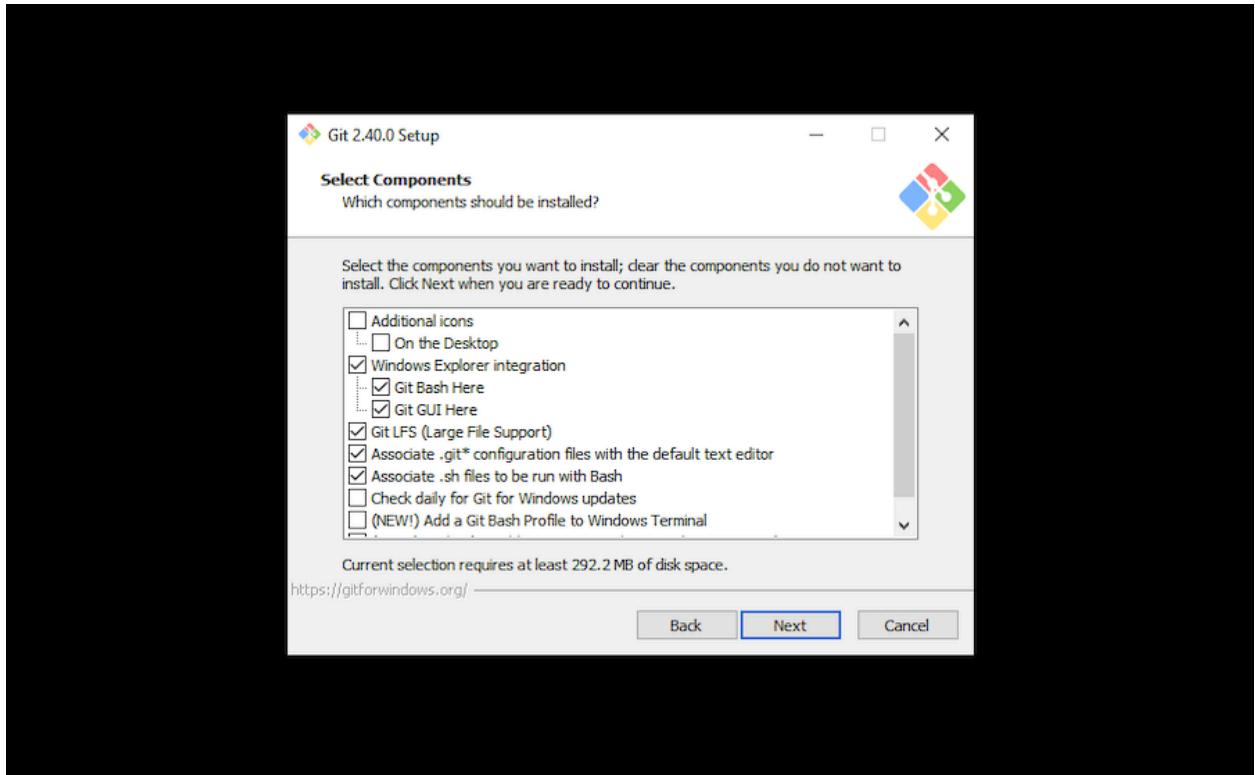
- Open the downloaded .exe file.





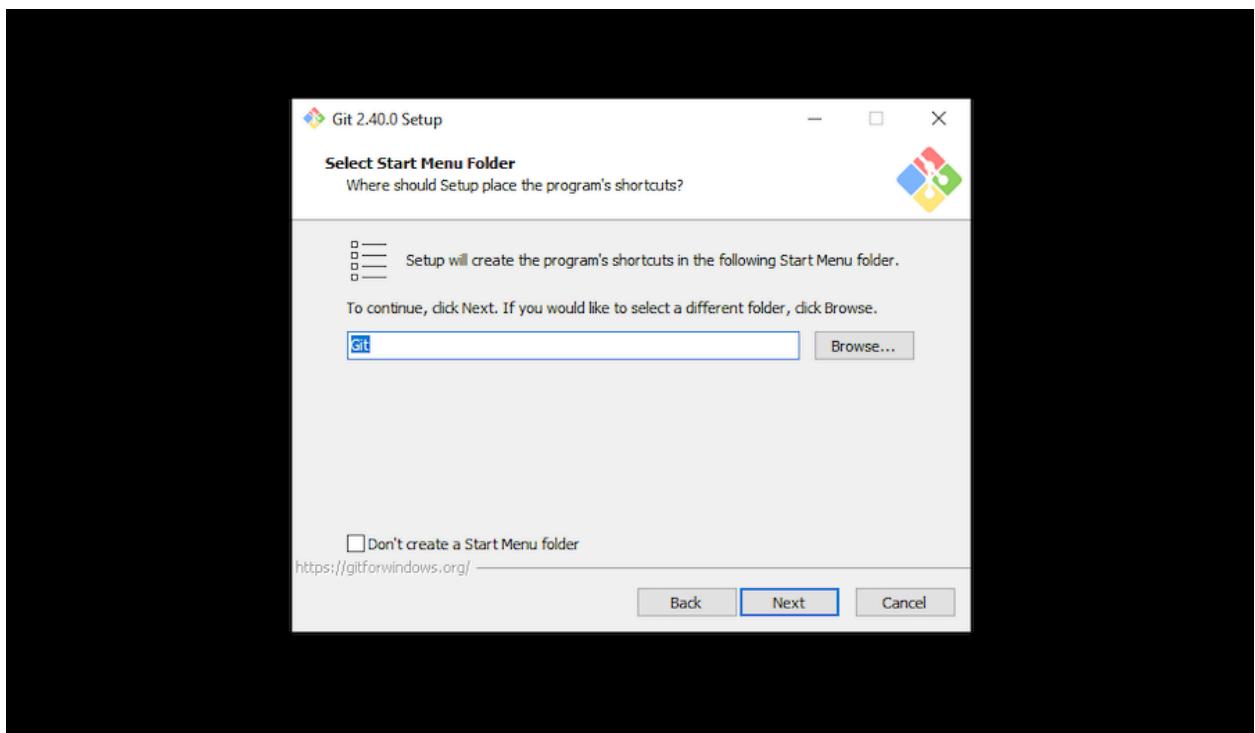
3. Follow the Installation Wizard:

- Choose the default options or customize the installation according to your preferences. Some key settings to note:
 - Adjusting your PATH environment.
 - Choosing the HTTPS transport backend.
 - Setting the default editor used by Git.



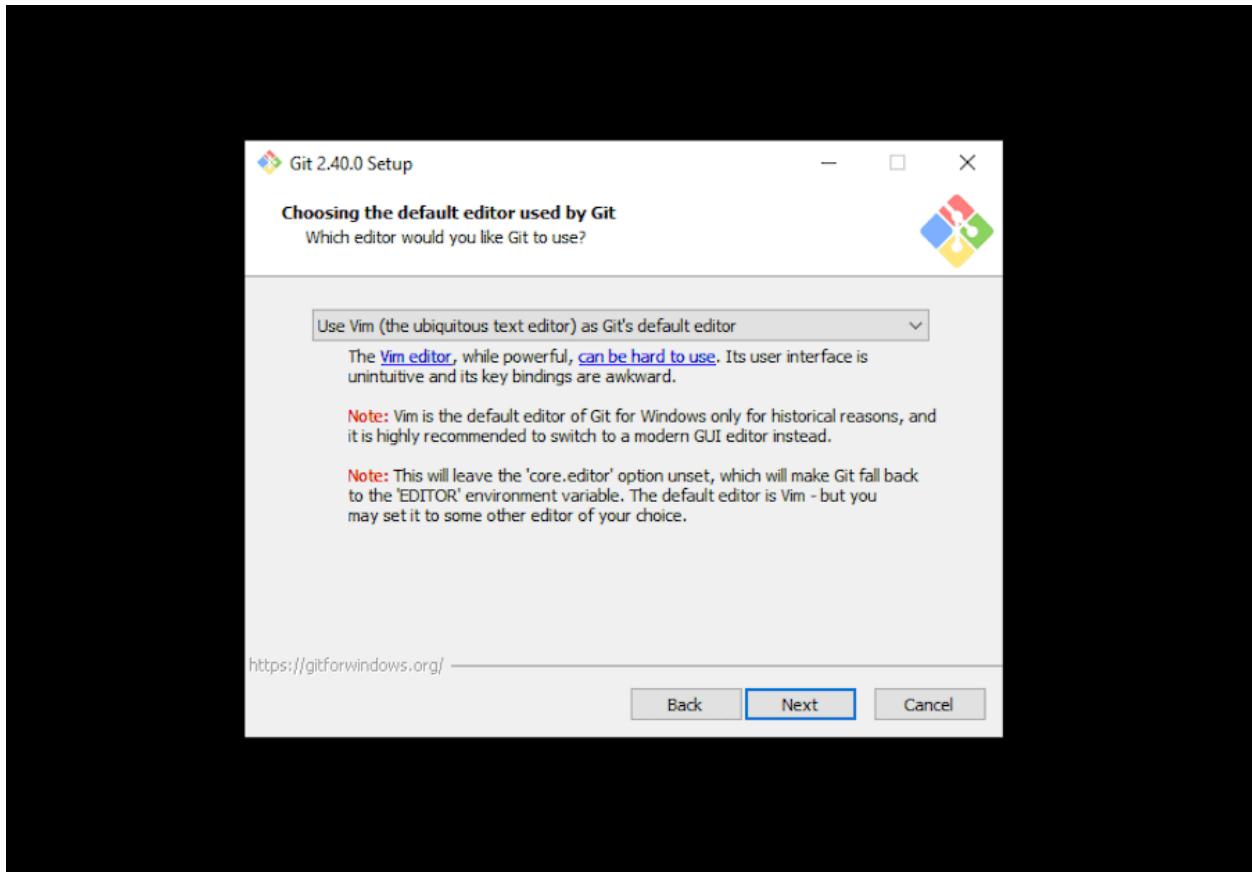
4. Start folder:

- You'll be prompted to create a start folder. Leave it as is and click Next.

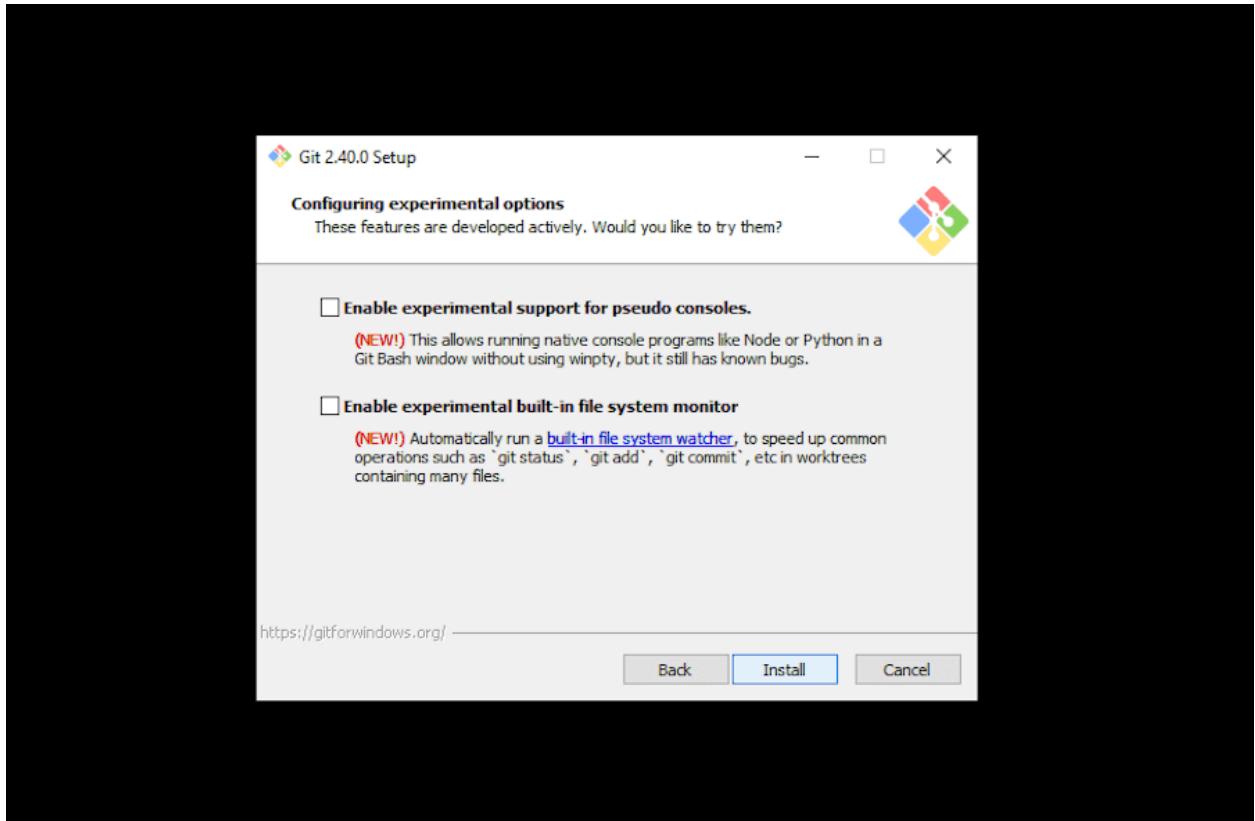


5. Text editor:

- Choose a text editor to use with Git. Click on the drop-down menu to pick the text editor you like to use like Vim, Notepad++, etc, and click Next.



6. In the next steps choose all default options and click finish



7. Verify the Installation:

- Open Command Prompt or Git Bash and run git --version

```
PS C:\Users\thion> git --version
git version 2.45.1.windows.1
PS C:\Users\thion>
```

A screenshot of a terminal window with a dark background. The command "git --version" is entered and the output "git version 2.45.1.windows.1" is displayed. The prompt "PS C:\Users\thion>" appears at the end.

Step 2: Configuring Git

1. Open a terminal or command prompt (Git Bash).
2. Set your username and email: [git config --global user.name "Your Name"] [git config --global user.email "your.email@example.com"]

Step 3: Create a GitHub Account

1. Sign up for a GitHub account at [GitHub](#).
2. Enter your information:
 - Unique username

- Email address
 - Create a strong password
3. Verify your email.

Step 4: Initialize a Git Repository

1. Create a new repository on GitHub:
 - Go to your profile.
 - Click "Your Repositories".
 - Click the green button to create a new repository.
 - Fill in the details:
 - Repository Name
 - Description (optional)
 - Choose Public or Private
 - Initialize with a README (optional)
 - Add .gitignore (optional)
 - Choose a license (optional)
2. Click "Create repository".

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository.](#)

Required fields are marked with an asterisk (*).

Owner * / Repository name *

Your new repository will be created as this-is-a-test-repo. The repository name can only contain ASCII letters, digits, and the characters ., -, and _.

Great repository names are short and memorable. Need inspiration? How about [automatic-winner](#) ?

Description (optional)

Public Anyone on the internet can see this repository. You choose who can commit.

Private You choose who can see and commit to this repository.

Initialize this repository with:

Add a README file This is where you can write a long description for your project. [Learn more about READMEs.](#)

Add .gitignore

Step 5: Cloning Git Repository

1. Copy the repository URL from the GitHub page.
2. Open Git Bash and type: [git clone <https://github.com/yourusername/your-repo-name.git>]
3. Navigate to the cloned repository: [cd your-repo-name]
4. Verify the cloning: [ls]

Step 6: Commit and Push Changes

1. Create a new file: [touch example.txt]
2. Add content to the file: [nano example.txt]
3. Save and exit the editor (for nano, press Ctrl+X, then Y, and Enter).

```
MINGW64:/c/users/thion/OneDrive/desktop/this-is-a-test-repo
thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop
$ git clone https://github.com/Johnnytash/this-is-a-test-repo.git
Cloning into 'this-is-a-test-repo'...
warning: You appear to have cloned an empty repository.

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop
$ cd this-is-a-test-repo

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop/this-is-a-test-repo (main)
$ ls
test.txt

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop/this-is-a-test-repo (main)
$ touch test.txt

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop/this-is-a-test-repo (main)
$ ls
test.txt

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop/this-is-a-test-repo (main)
$ nano test.txt
```

4. Check the status of your repository: [git status]
5. Add the new file to the staging area: [git add example.txt]
6. Commit the new file: [git commit -m "My first commit message"]
7. Push the changes to GitHub: [git push origin main]

```
thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop
$ git clone https://github.com/Johnnytash/this-is-a-test-repo.git
Cloning into 'this-is-a-test-repo'...
warning: You appear to have cloned an empty repository.

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop
$ cd this-is-a-test-repo

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop/this-is-a-test-repo (main)
$ ls
test.txt

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop/this-is-a-test-repo (main)
$ touch test.txt

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop/this-is-a-test-repo (main)
$ ls
test.txt

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop/this-is-a-test-repo (main)
$ nano test.txt

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop/this-is-a-test-repo (main)
$ git status
On branch main

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    test.txt

nothing added to commit but untracked files present (use "git add" to track)

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop/this-is-a-test-repo (main)
$ git add test.txt
warning: in the working copy of 'test.txt', LF will be replaced by CRLF the next
time Git touches it

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop/this-is-a-test-repo (main)
$ git commit -m "my first commit message"
[main (root-commit) b22875a] my first commit message
 1 file changed, 1 insertion(+)
 create mode 100644 test.txt

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop/this-is-a-test-repo (main)
$ git push origin main
fatal: unable to connect to cache daemon: Unknown error
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Writing objects: 100% (3/3), 254 bytes | 254.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/Johnnytash/this-is-a-test-repo.git
 * [new branch]      main -> main

thion@Thiongo MINGW64 /c/users/thion/OneDrive/desktop/this-is-a-test-repo (main)
$ |
```

```

thion@Thiongo MINGW64 /c/users/thion/OneDrive/Desktop/this-is-a-test-repo (main)
$ echo ".pyc" > .gitignore
thion@Thiongo MINGW64 /c/users/thion/OneDrive/Desktop/this-is-a-test-repo (main)
$ ls
test.txt

thion@Thiongo MINGW64 /c/users/thion/OneDrive/Desktop/this-is-a-test-repo (main)
$ git add .
warning: in the working copy of '.gitignore', LF will be replaced by CRLF the next time Git touches it
thion@Thiongo MINGW64 /c/users/thion/OneDrive/Desktop/this-is-a-test-repo (main)
$ git commit -m "Add sample project with .gitignore"
[main 928db49] Add sample project with .gitignore
 1 file changed, 1 insertion(+)
 create mode 100644 .gitignore
thion@Thiongo MINGW64 /c/users/thion/OneDrive/Desktop/this-is-a-test-repo (main)
$ git push origin main
fatal: unable to access 'https://github.com/Johnnytash/this-is-a-test-repo.git/': Failed to connect to github.com port 443 after 21087 ms: Couldn't connect to server
thion@Thiongo MINGW64 /c/users/thion/OneDrive/Desktop/this-is-a-test-repo (main)
$ git push origin main
Fatal: unable to connect to cache daemon: Unknown error
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 300 bytes | 300.00 kB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/Johnnytash/this-is-a-test-repo.git
 b22875a..928db49 main > main
thion@Thiongo MINGW64 /c/users/thion/OneDrive/Desktop/this-is-a-test-repo (main)
$ |

```

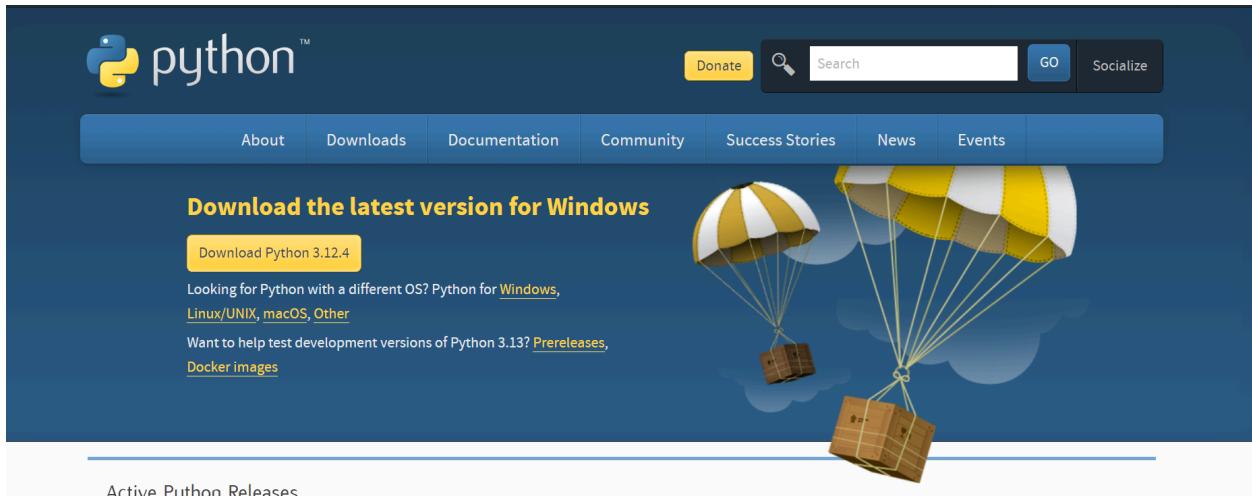
4. Install Necessary Programming Languages and Runtimes

Windows

1. INSTALLING PYTHON

Step 1: Download Python

1. Go to the [Python downloads page](#).
2. Click on the "Download Python" button.



Step 2: Run the Installer

1. Open the downloaded installer file.

2. Check the box that says "Add Python to PATH".
3. Click "Install Now".



Step 3: Verify Installation

1. Open Command Prompt.
2. Type [python --version] and press Enter. You should see the Python version that you installed.

A screenshot of a Microsoft Windows Command Prompt window. The title bar says "Command Prompt". The window displays the following text:

```
Microsoft Windows [Version 10.0.22631.3593]
(c) Microsoft Corporation. All rights reserved.

C:\Users\thion>python --version
Python 3.12.3

C:\Users\thion>
```

The text is white on a black background, with the command prompt and its output visible.

2. DOWNLOADING DART

Step 1: Download Dart SDK

1. Visit the Dart SDK Download Page:

- Go to the official Dart SDK download page.

2. Choose Your Operating System:

- Select your operating system from the options available (Windows, macOS, or Linux).

Step 2: Install Dart SDK on Windows

1. Download the Dart SDK:

- Click on the "Download Dart SDK" button for Windows.
- Choose the .zip file for Windows and download it.

The screenshot shows the Dart SDK download page. On the left is a sidebar with links like Language, Core libraries, Effective Dart, Packages, Development, Interoperability, Tools & techniques, Resources, and Related sites. The main content area has a yellow header bar with instructions for enabling anonymous analytics. Below this is a 'Stable channel' section with a table of builds for Windows x64, including versions 3.4.4, 3.4.4, 3.4.4, and 3.4.4. A 'Beta channel' section follows, with a note about preview builds. To the right of the main content is a sidebar with links for Contents, Stable channel, Beta channel, Dev channel, Main channel, Download URLs, Stable, beta, and dev channel URL scheme, and Main channel URL scheme.

Version	OS	Architecture	Release date	Downloads
3.4.4 (ref 6046514)	Windows	x64	Jun 13, 2024	Dart SDK (SHA-256)
3.4.4 (ref 6046514)	Windows	IA32	Jun 13, 2024	Dart SDK (SHA-256)
3.4.4 (ref 6046514)	Windows	ARM64	Jun 13, 2024	Dart SDK (SHA-256)
3.4.4 (ref 6046514)	---	---	Jun 13, 2024	API docs

2. Extract the ZIP File:

- Extract the downloaded ZIP file to a desired location on your computer, e.g., C:\dart-sdk.

▶ This PC > New Volume (D:) > dart-sdk

Name	Date modified	Type	Size
bin	5/26/2020 10:29 PM	File folder	
include	5/26/2020 10:22 PM	File folder	
lib	5/26/2020 10:22 PM	File folder	
dartdoc_options.yaml	5/26/2020 10:22 PM	YAML File	1 KB
LICENSE	5/26/2020 10:13 PM	File	2 KB
README	5/26/2020 10:13 PM	File	1 KB
revision	5/26/2020 10:22 PM	File	1 KB
version	5/26/2020 10:22 PM	File	1 KB

3. Update Your PATH Environment Variable:

- Open the Start Search, type in env, and select "Edit the system environment variables".
- In the System Properties window, click on the "Environment Variables" button.
- In the Environment Variables window, find the Path variable in the "System variables" section, select it, and click "Edit".
- Click "New" and add the path to the bin directory inside the extracted Dart SDK folder (e.g., C:\dart-sdk\bin).
- Click "OK" to close all the windows.

Edit environment variable

X

```
C:\Program Files (x86)\Common Files\Oracle\Java\javapath
C:\watcom-1.3\binnt
C:\watcom-1.3\binw
C:\Python35\Lib\site-packages\PyQt5
%SystemRoot%\system32
%SystemRoot%
%SystemRoot%\System32\Wbem
%SYSTEMROOT%\System32\WindowsPowerShell\v1.0\
%SYSTEMROOT%\System32\OpenSSH\
C:\Program Files (x86)\MySQL\MySQL Server 5.1\bin
C:\Program Files\Intel\WiFi\bin\
C:\Program Files\Common Files\Intel\WirelessCommon\
C:\Program Files\Git\cmd
D:\dart-sdk\bin
```

New

Edit

Browse...

Delete

Move Up

Move Down

Edit text...

OK

Cancel

Step 3: Verify Dart Installation

1. Open a New Terminal or Command Prompt:

- This step is important to ensure that the PATH changes take effect.

2. Verify Dart Installation:

- Type dart --version and press Enter.

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\thion> dart --version
Dart SDK version: 3.4.3 (stable) (Tue Jun 4 19:51:39 2024 +0000) on "windows_x64"
PS C:\Users\thion>
```

- If Dart is installed correctly, you should see the version number of Dart printed in the terminal.

3. DOWNLOAD FLUTTER SDK

Step 1: System Requirements

Ensure your system meets the following requirements:

- Windows 10 or later (64-bit)
- Disk Space: 1.64 GB (not including disk space for IDE/tools).
- Tools: Flutter depends on these tools being available in your environment.
 - Git for Windows
 - The choco command, if you use Chocolatey for package management.

Step 2: Download Flutter SDK

1. Visit the Flutter SDK Download Page:

- Go to the official Flutter SDK download page.

The screenshot shows the Flutter documentation website. On the left, there's a sidebar with a navigation menu. The 'App solutions' category is currently selected, indicated by a blue border. Other items in the menu include 'Get started', 'Stay up to date', 'Codelabs & samples', 'User interface', 'Layout', 'Adaptive & responsive design', 'Design & theming', 'Interactivity', and 'Assets & media'. The main content area features a dark blue banner at the top with the text 'Flutter 3.22 and Dart 3.4 are live! Check out what's new on the website.' and 'Help improve Flutter! Take our Q2 survey.'. Below the banner, the title 'Flutter documentation' is centered. To the right of the title are several cards: 'Get started' (Set up your environment and start building.), 'Widget catalog' (Dip into the rich set of Flutter widgets available in the SDK.), 'API docs' (Bookmark the API reference docs for the Flutter framework.), 'Cookbook' (Browse the cookbook for many easy Flutter recipes.), 'Samples' (Check out the Flutter examples.), and 'Videos' (View the many videos on the Flutter YouTube channel.). At the bottom of the main content area, there's a link to 'What's new?' and a 'New to Flutter?' button.

Step 3: Install Flutter SDK on Your Operating System

1. Download the Flutter SDK:

- On the download page, select Windows.

The screenshot shows the 'Install Flutter' page. On the left, there's a sidebar with a navigation menu. The 'Install Flutter' item is currently selected, indicated by a blue border. Other items in the menu include 'Get started', 'Stay up to date', 'Codelabs & samples', 'App solutions', 'User interface', 'Layout', 'Test drive', 'Write your first app', and 'Learn more'. The main content area has a heading 'Choose your development platform to get started' with a sub-link 'Get started > Install'. Below the heading are four boxes representing different platforms: 'Windows Current device' (Windows logo), 'macOS' (Apple logo), 'Linux' (Tux logo), and 'ChromeOS' (Chrome logo). At the bottom of the page, there's a yellow box containing an 'Important' note: 'If you develop apps in China, check out using Flutter in China.'

- Click on the "Download" button to download the .zip file.

Get started

- [Install Flutter](#)
- [Test drive](#)
- [Write your first app](#)
- [Learn more](#)

From another platform?

- [Dart language overview](#)

Stay up to date

Codelabs & samples

App solutions

User interface

- [Introduction](#)
- [Widget catalog](#)
- [Layout](#)
- [Adaptive & responsive design](#)

Use VS Code to install

Download and install

Download then install Flutter

To install Flutter, download the Flutter SDK bundle from its archive, move the bundle to where you want it stored, then extract the SDK.

1. Download the following installation bundle to get the latest stable release of the Flutter SDK.
[flutter_windows_3.22.2-stable.zip](#)

For other release channels, and older builds, check out the [SDK archive](#).

The Flutter SDK should download to the Windows default download directory: `%USERPROFILE%\Downloads`.

If you changed the location of the Downloads directory, replace this path with that path. To find your Downloads directory location, check out this [Microsoft Community post](#).

2. Create a folder where you can install Flutter.

Consider creating a directory at `%USERPROFILE%` (`C:\Users\{username}`) or `%LOCALAPPDATA%` (`C:\Users\{username}\AppData\Local`).

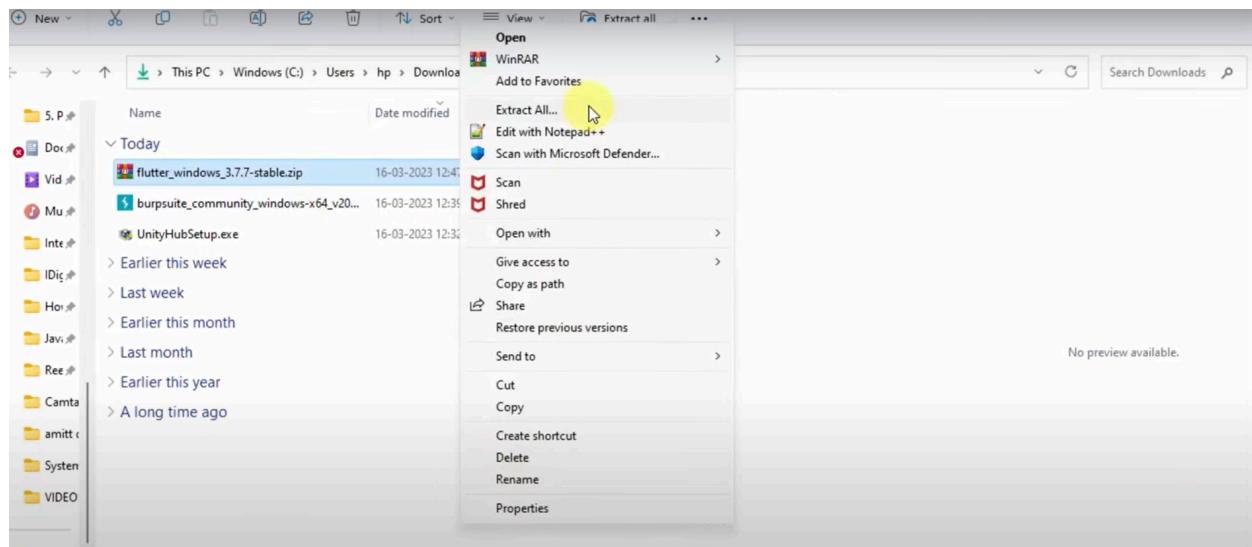
⚠ Warning
Don't install Flutter to a directory or path that meets one or both of the following conditions:

Contents

- [Verify system requirements](#)
- [Hardware requirements](#)
- [Software requirements](#)
- [Configure a text editor or IDE](#)
- [Install the Flutter SDK](#)
- [Check your development setup](#)
- [Run Flutter doctor](#)
- [Troubleshoot Flutter doctor issues](#)
- [Start developing Windows desktop apps with Flutter](#)
- [Manage your Flutter SDK](#)

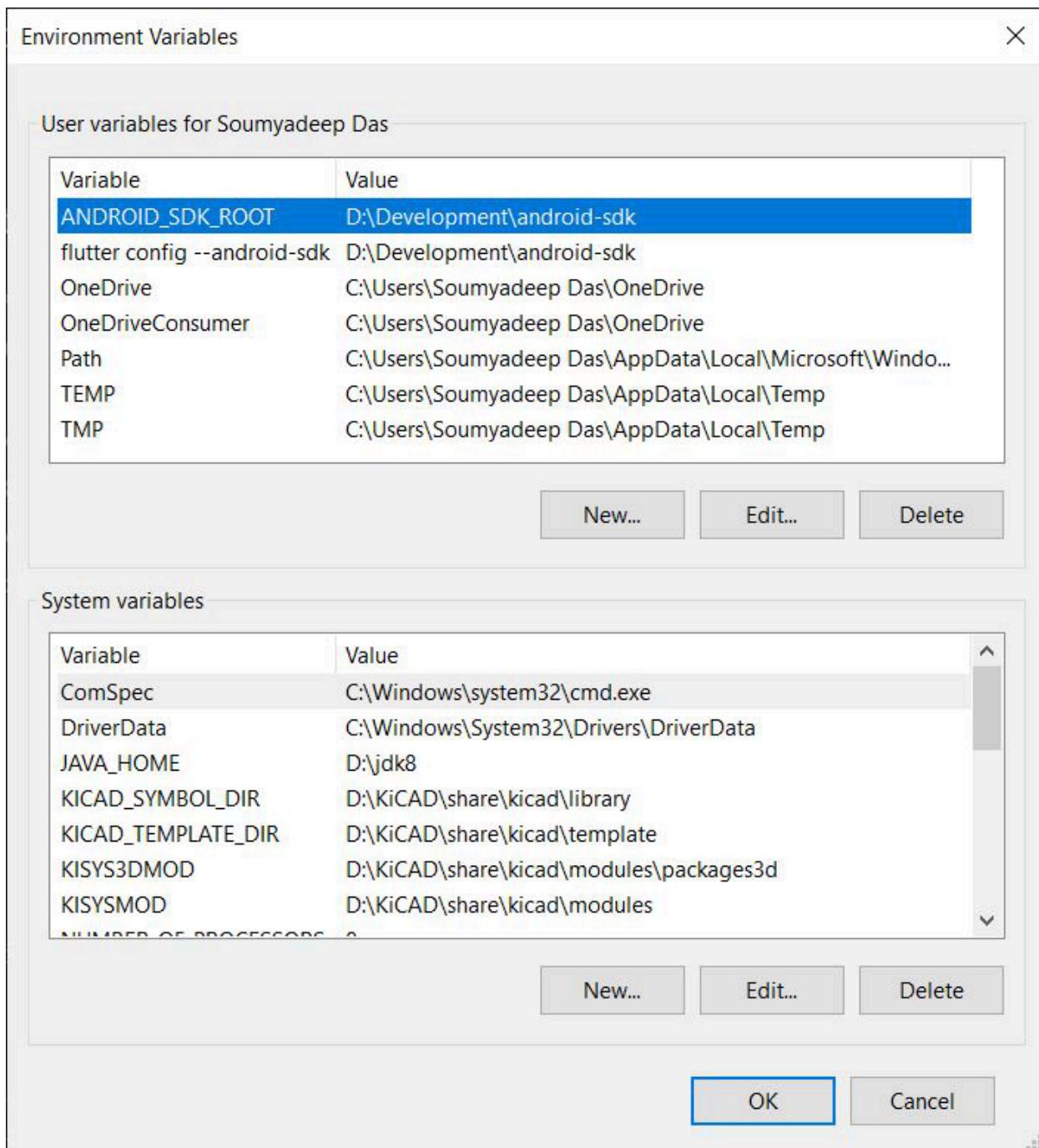
2. Extract the ZIP File:

- Extract the downloaded ZIP file to a desired location on your computer, e.g., C:\flutter.

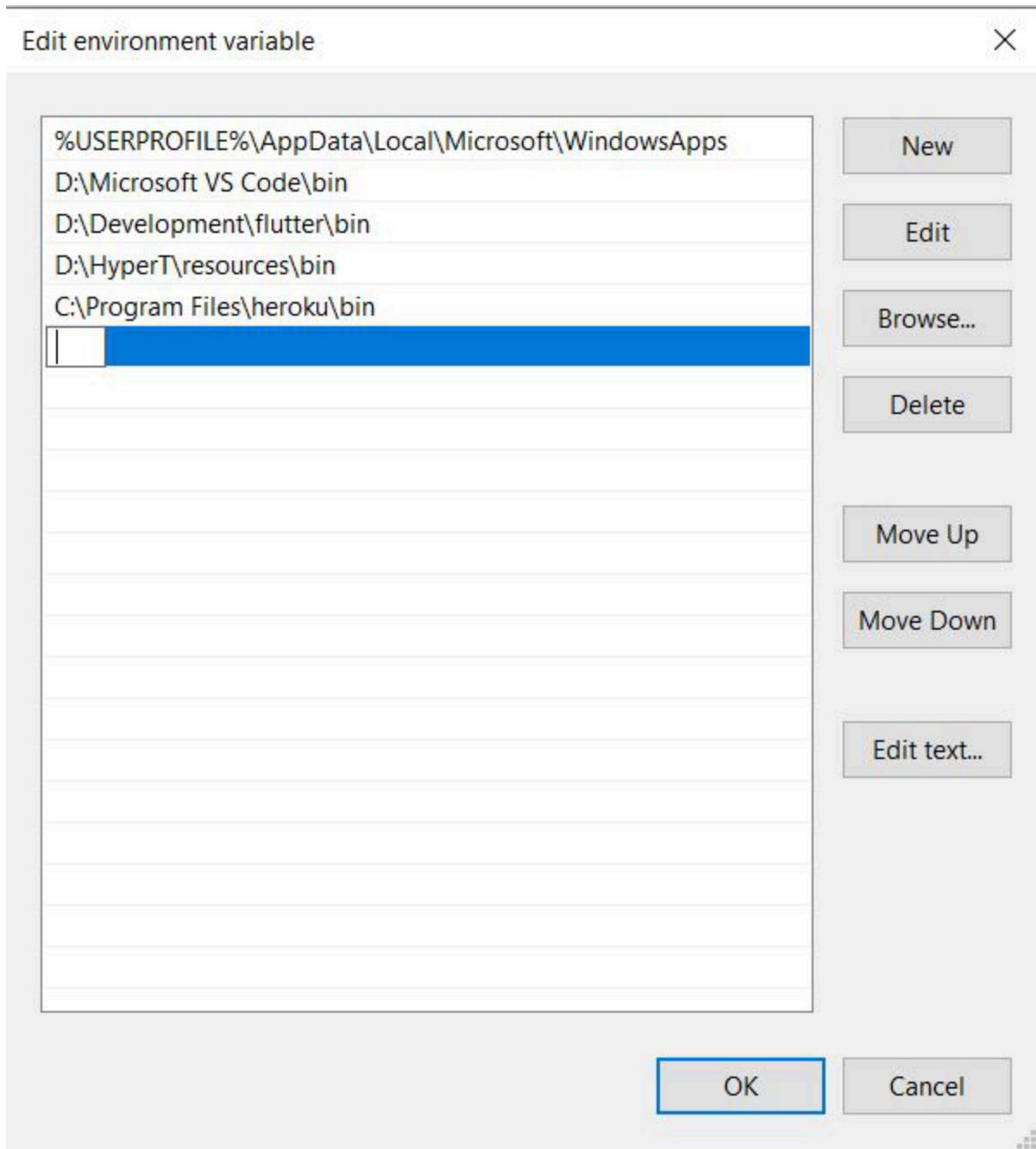


3. Update Your PATH Environment Variable:

- Open the Start Search, type in env, and select "Edit the system environment variables".
- In the System Properties window, click on the "Environment Variables" button.
- In the Environment Variables window, find the Path variable in the "System variables" section, select it, and click "Edit".



- Click "New" and add the path to the bin directory inside the extracted Flutter folder (e.g., C:\flutter\bin).



- Click "OK" to close all the windows.

Step 4: Verify Flutter Installation

- 1. Open a New Terminal or Command Prompt:**

- This step is crucial to ensure that the PATH changes take effect.

```
PS C:\Users\thion> flutter --version
Flutter 3.22.2 • channel stable • https://github.com/flutter/flutter.git
Framework • revision 761747bfc5 (10 days ago) • 2024-06-05 22:15:13 +0200
Engine • revision edd8546116
Tools • Dart 3.4.3 • DevTools 2.34.3
PS C:\Users\thion>
```

2. Run Flutter Doctor:

- Type `flutter doctor` and press Enter.
- This command checks your environment and displays a report of the status of your Flutter installation. Ensure all required dependencies are installed.

```
PS C:\Users\thion> flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[!] Flutter (Channel stable, 3.22.2, on Microsoft Windows [Version 10.0.22631.3593], locale en-KE)
  ! Warning: `dart` on your path resolves to C:\dart-sdk\bin\dart.exe, which is not inside your current Flutter SDK.
    checkout at C:\flutter. Consider adding C:\flutter\bin to the front of your path.
[√] Windows Version (Installed version of Windows is version 10 or higher)
[X] Android toolchain - develop for Android devices
  X Unable to locate Android SDK.
    Install Android Studio from: https://developer.android.com/studio/index.html
    On first launch it will assist you in installing the Android SDK components.
    (or visit https://flutter.dev/docs/get-started/install/windows#android-setup for detailed instructions).
    If the Android SDK has been installed to a custom location, please use
      `flutter config --android-sdk` to update to that location.

[√] Chrome - develop for the web
[X] Visual Studio - develop Windows apps
  X Visual Studio not installed; this is necessary to develop Windows apps.
    Download at https://visualstudio.microsoft.com/downloads/.
    Please install the "Desktop development with C++" workload, including all of its default components.
[!] Android Studio (not installed)
[√] VS Code (version 1.90.1)
[√] Connected device (3 available)
[!] Network resources
  X A network error occurred while checking "https://maven.google.com/": The semaphore timeout period has expired.

! Doctor found issues in 5 categories.
PS C:\Users\thion>
```

5. Install-Package Managers

Python (pip)

1. Ensure pip is installed and up-to-date: `[python -m pip install --upgrade pip]`
2. To install a package using pip: `[pip install package-name]`

```
PS C:\Users\thion> python -m pip install --upgrade pip
Requirement already satisfied: pip in c:\program files\python312\lib\site-packages (24.0)
PS C:\Users\thion> pip --version
pip 24.0 from C:\Program Files\Python312\Lib\site-packages\pip (python 3.12)
PS C:\Users\thion>
```

6. Configure a Database (MySQL)

Windows

1: Download MySQL

1. Go to the [MySQL Community Downloads page](#).
2. Choose the MySQL installer for Windows and download it.

The screenshot shows the MySQL Community Downloads page. At the top, there are tabs for "General Availability (GA) Releases" (which is selected), "Archives", and a help icon. Below the tabs, the title "MySQL Installer 8.0.37" is displayed. A note states: "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 "8.0.37". Under "Select Operating System:", a dropdown menu shows "Microsoft Windows". Two download options are listed:

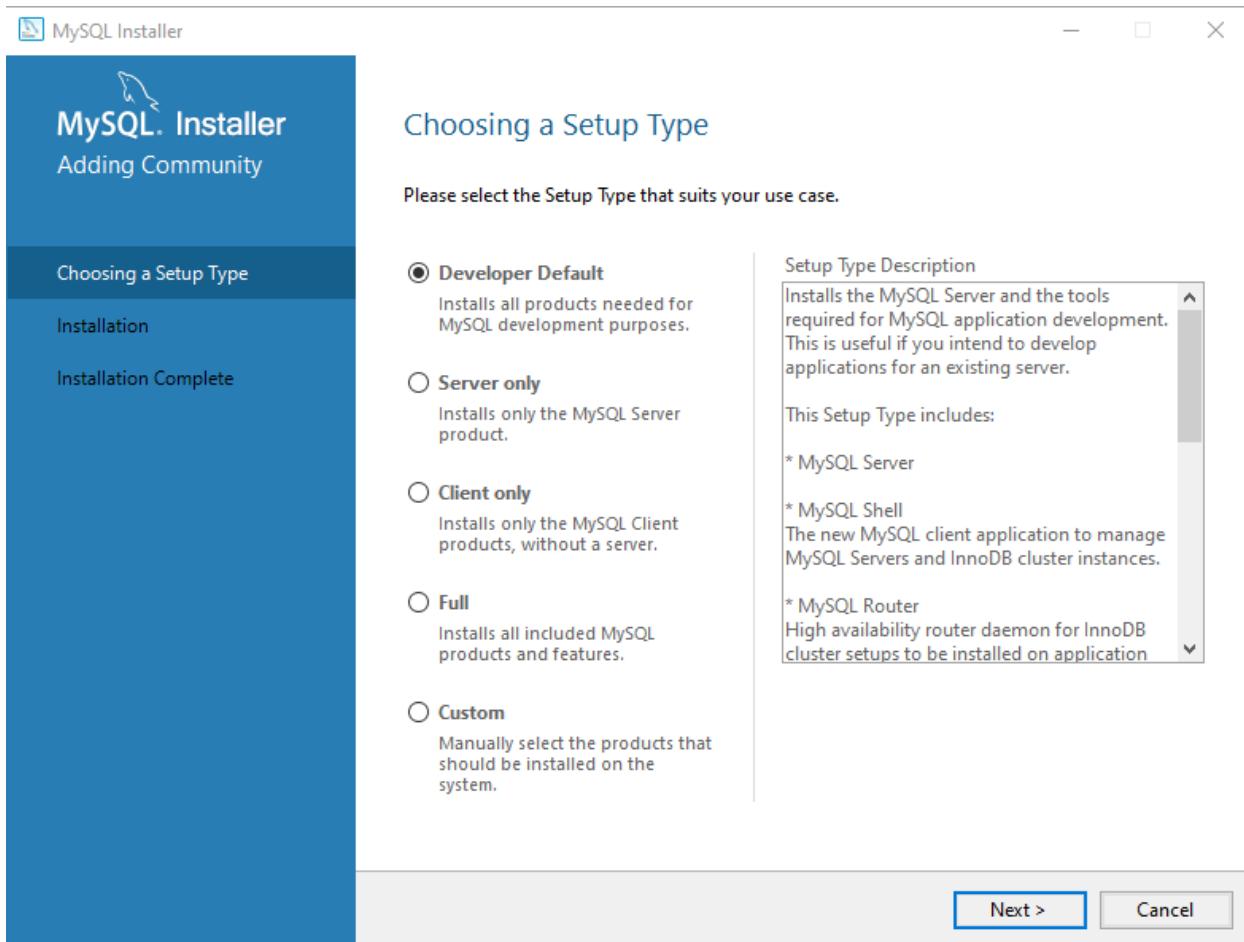
Version	File Type	Size	Action
8.0.37	Windows (x86, 32-bit), MSI Installer (mysql-installer-web-community-8.0.37.0.msi)	2.1M	Download
8.0.37	Windows (x86, 32-bit), MSI Installer (mysql-installer-community-8.0.37.0.msi)	296.1M	Download

2. Run the Installer:

- Open the downloaded .msi file.

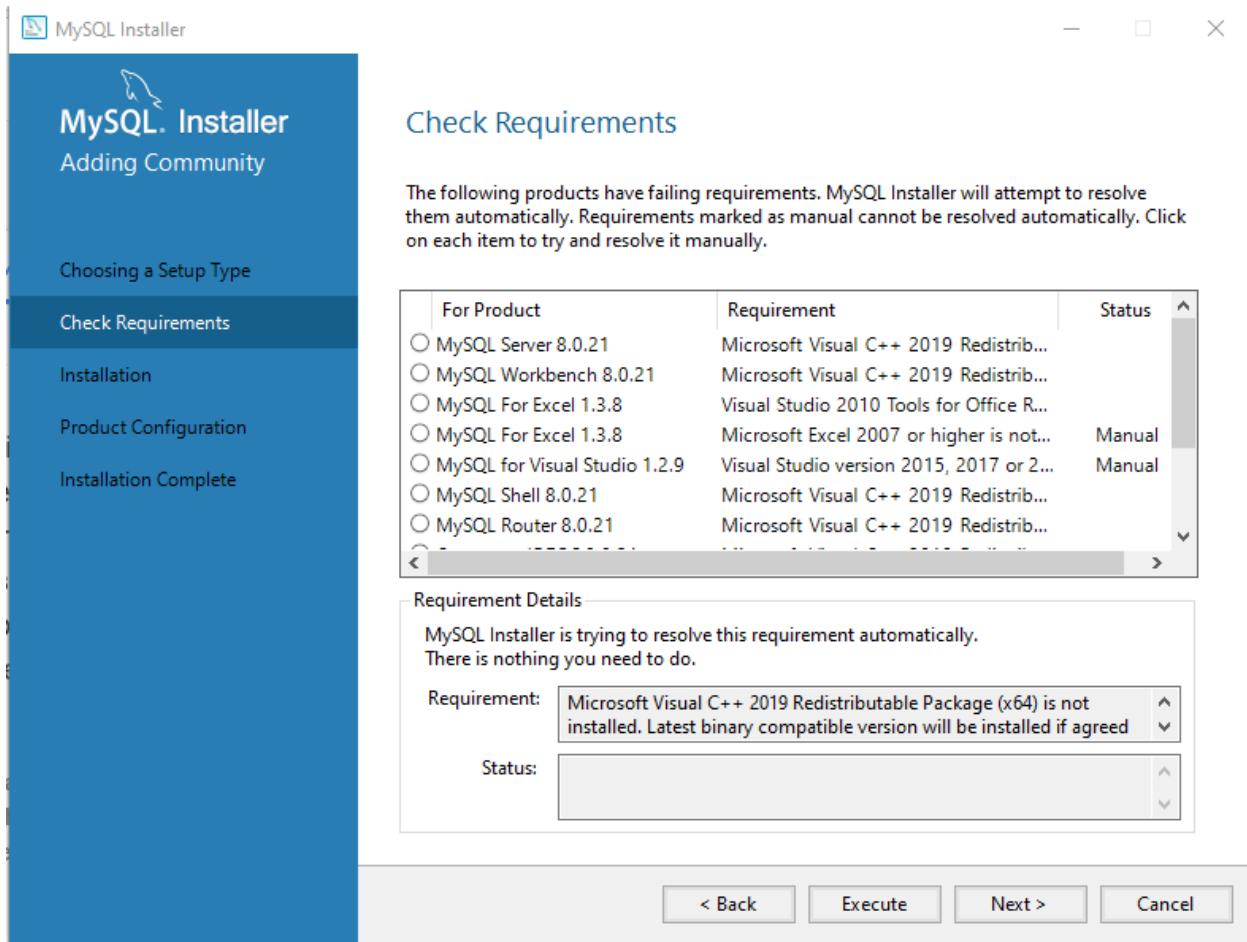
3. Choose Setup Type:

- Choose a setup type (Developer Default, Server only, etc.) and click Next.



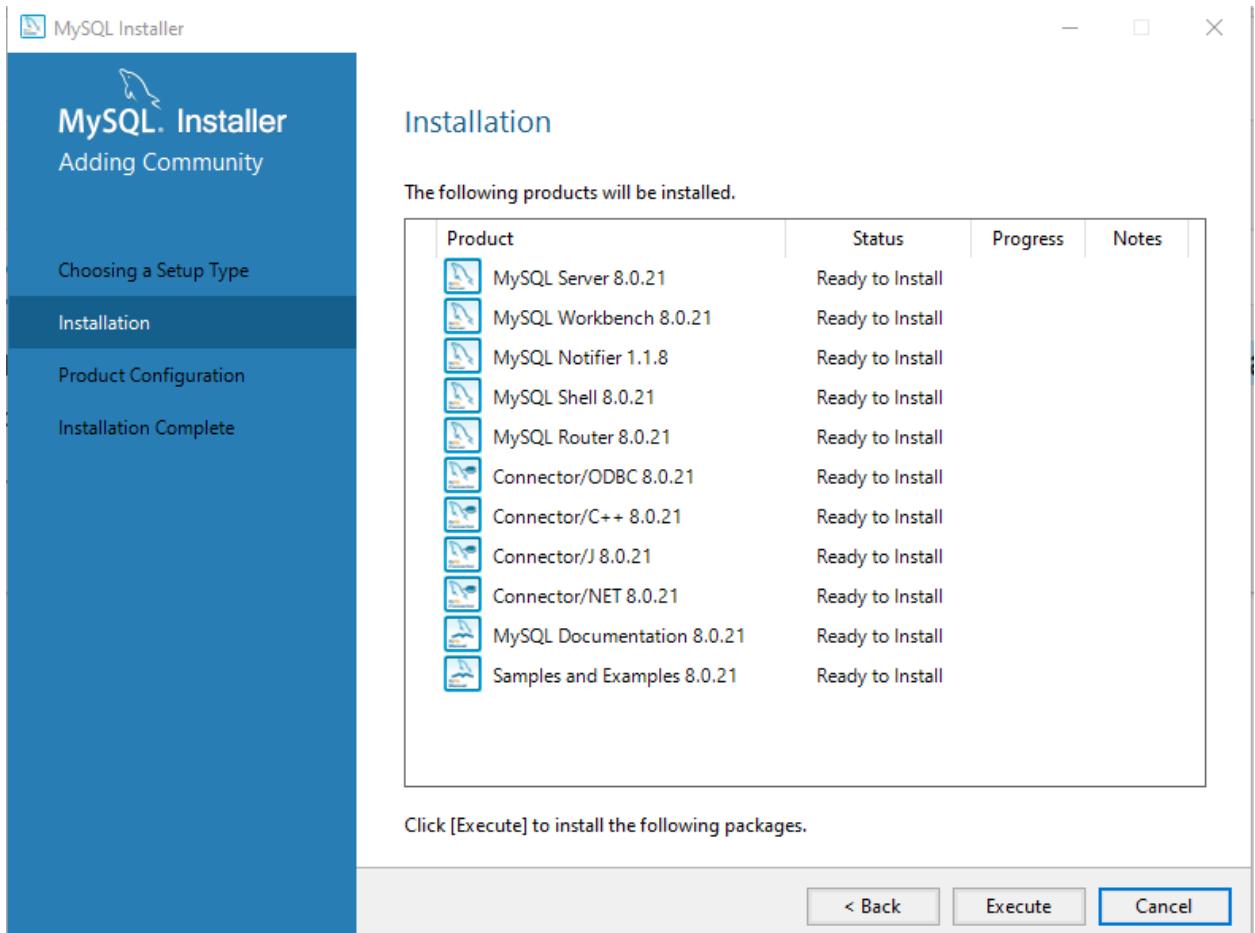
4. Check for Requirements:

- The installer will check for and install the necessary dependencies.



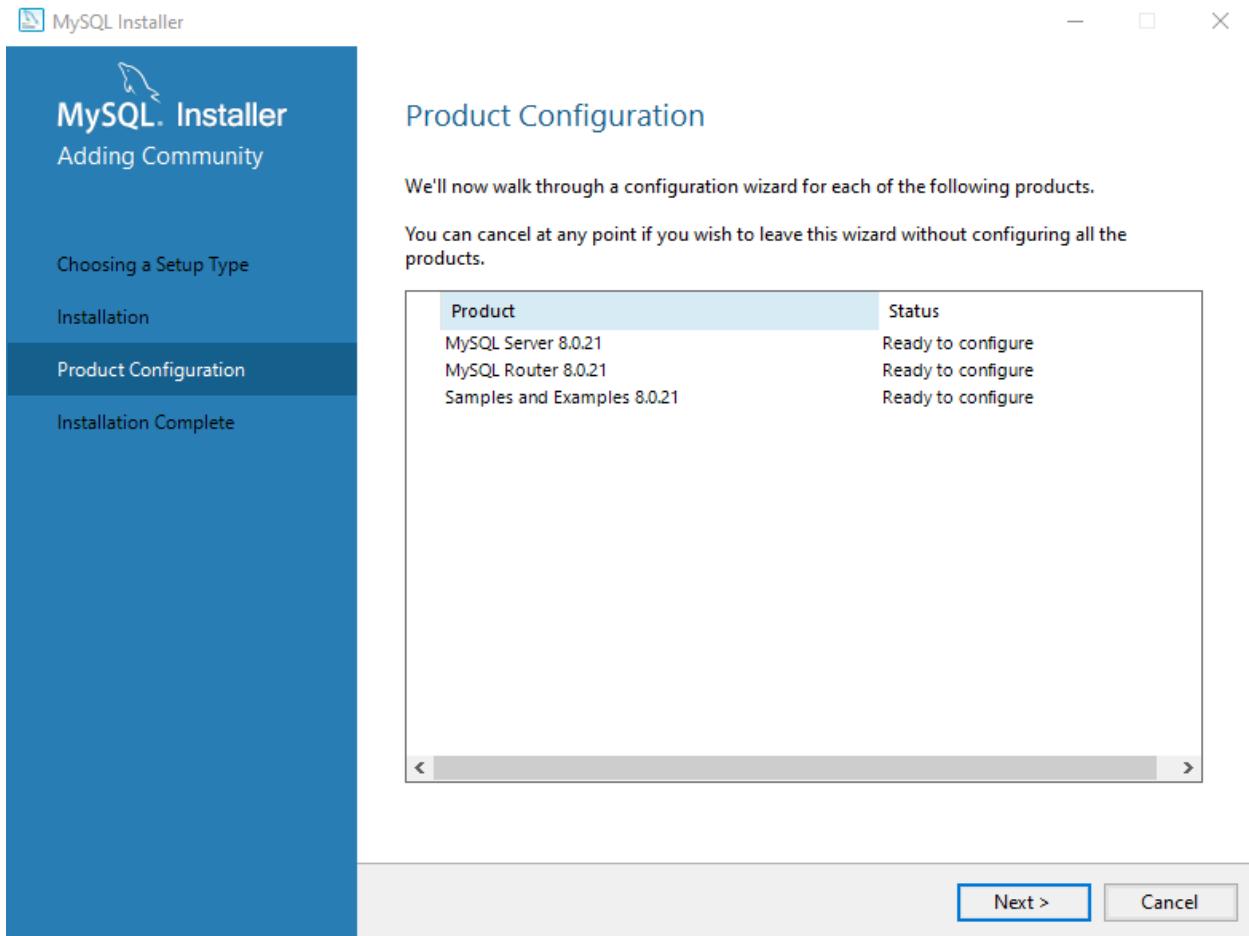
5. Installation:

- Click Execute to install the selected MySQL products.



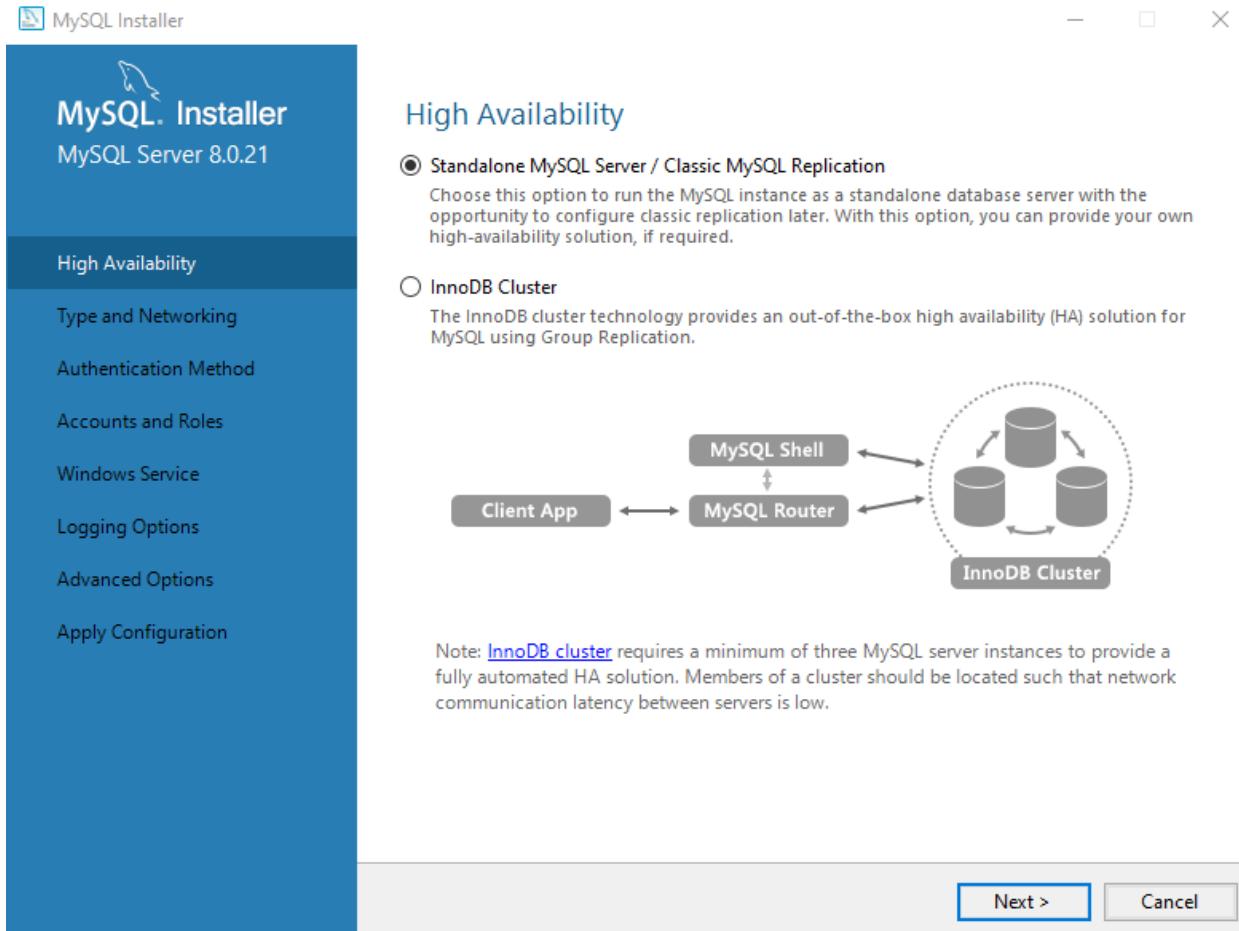
6. Configuration:

- Next, you need to configure the MySQL server, click "Next":



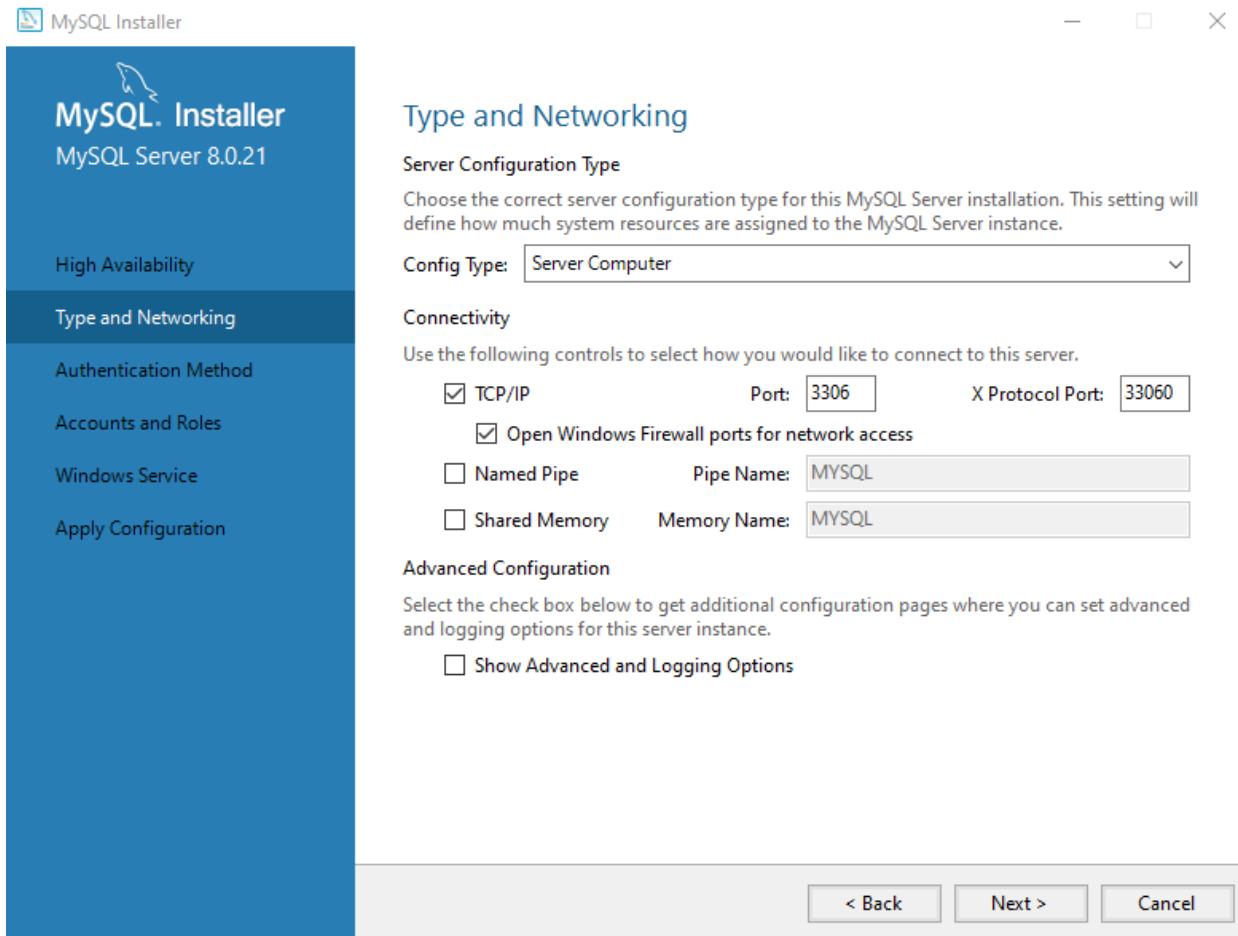
7. Standalone MySQL Server

- Select the "Standalone MySQL Server / Classic MySQL Replication" item and click "Next":



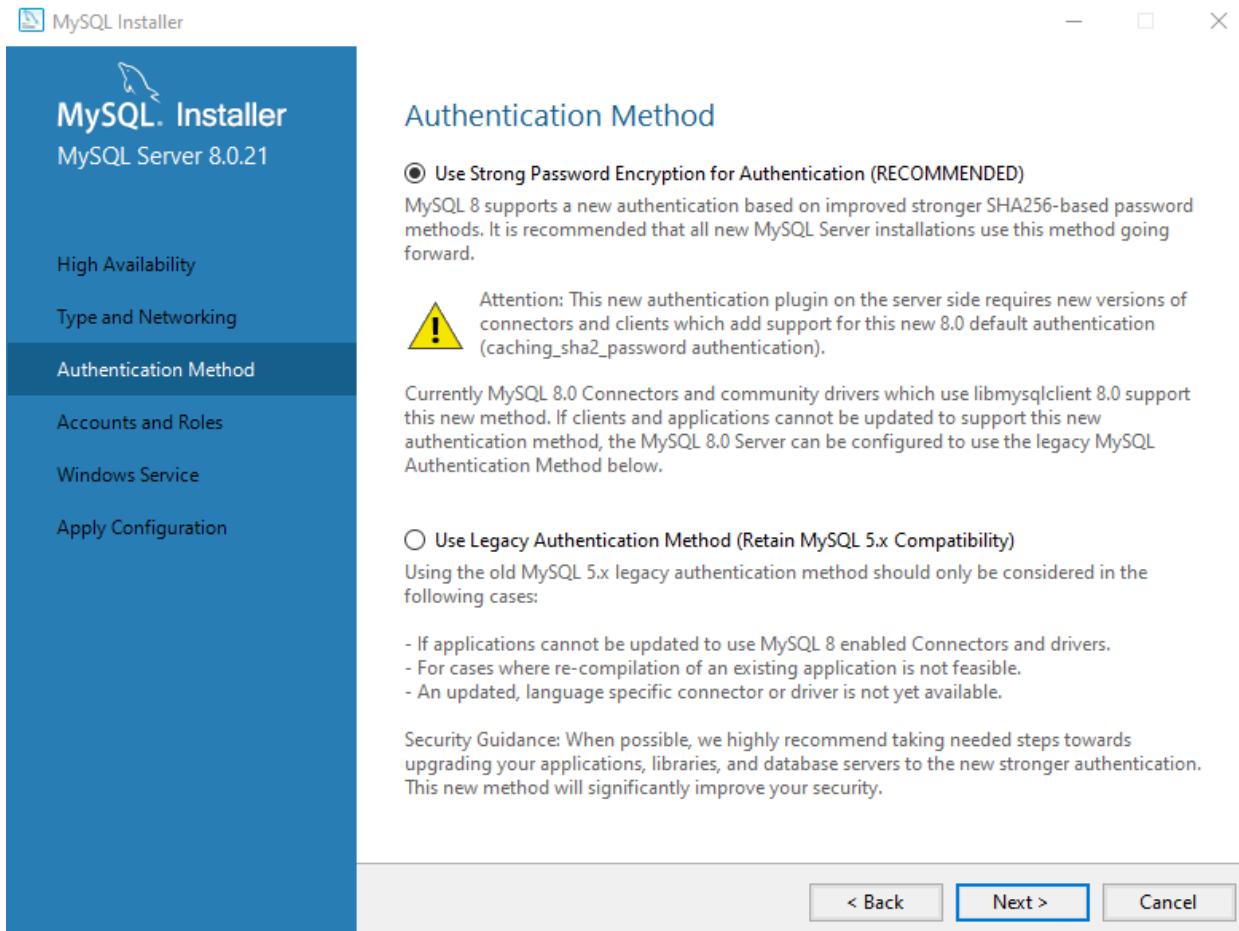
8. Type and Networking

- Next, in the "Config Type" parameter, select "Server Computer" and click "Next":



9. Password and authentication :

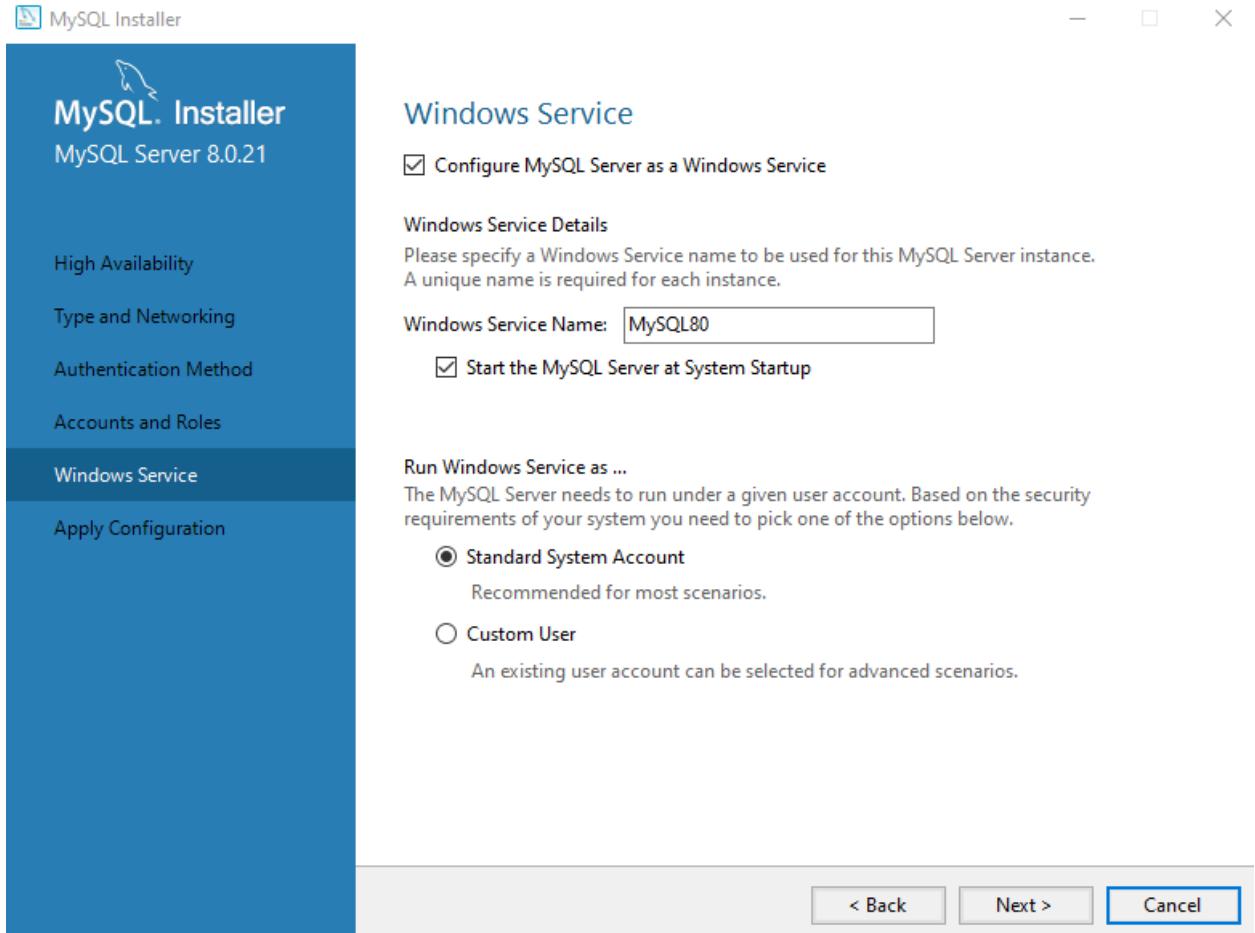
- Select "Use Strong Password Encryption for Authentication" and click "Next":



10. Accounts and roles :

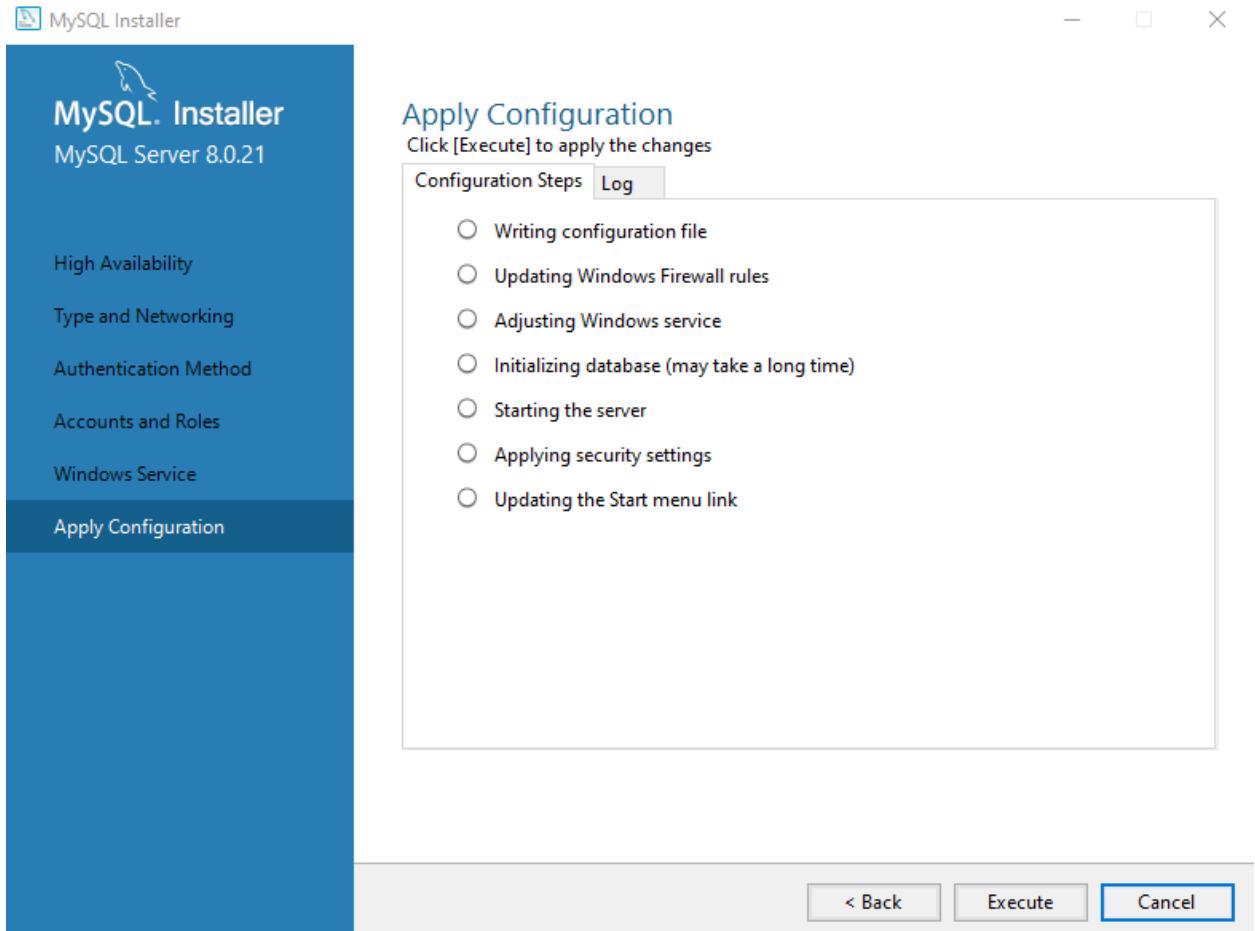
- In the next window, you need to set a password for the root user (administrator). Also, here you can add other users (by clicking the "Add User" button), if necessary. After entering the password, click "Next":

11. At the next step, we leave all the default settings, and click "Next":



12. MySQL server settings

- Next, you need to apply the MySQL server settings by clicking "Execute":



13. Finish

- MySQL server is configured, click "Finish":

7. Set Up Development Environments and Virtualization (Optional)

A. Using Docker

Step 1: Install Docker

1. Download and install Docker Desktop from the Docker website.
2. Follow the installation instructions and start Docker Desktop.

Step 2: Verify Docker Installation

1. Run the following command in a terminal: [docker --version]

B. Using Virtual Machines

Step 1: Install Virtualization Software

1. VirtualBox: Download and install from [VirtualBox](#).
2. VMware Workstation Player: Download and install from VMware.

Step 2: Download an OS Image

1. Download an ISO file of the operating system you want to use (e.g., Ubuntu from [ubuntu.com](#)).

Step 3: Create a New Virtual Machine

1. Open VirtualBox or VMware Workstation Player.
2. Create a new VM:
 - o In VirtualBox, click "New" and follow the prompts.
 - o In VMware, click "Create a New Virtual Machine" and follow the prompts.
3. Configure VM settings:
 - o Allocate memory (RAM) and CPU cores.
 - o Create a virtual hard disk.
4. Install the OS:
 - o Start the VM and select the downloaded ISO file.
 - o Follow the installation instructions for the chosen operating system.

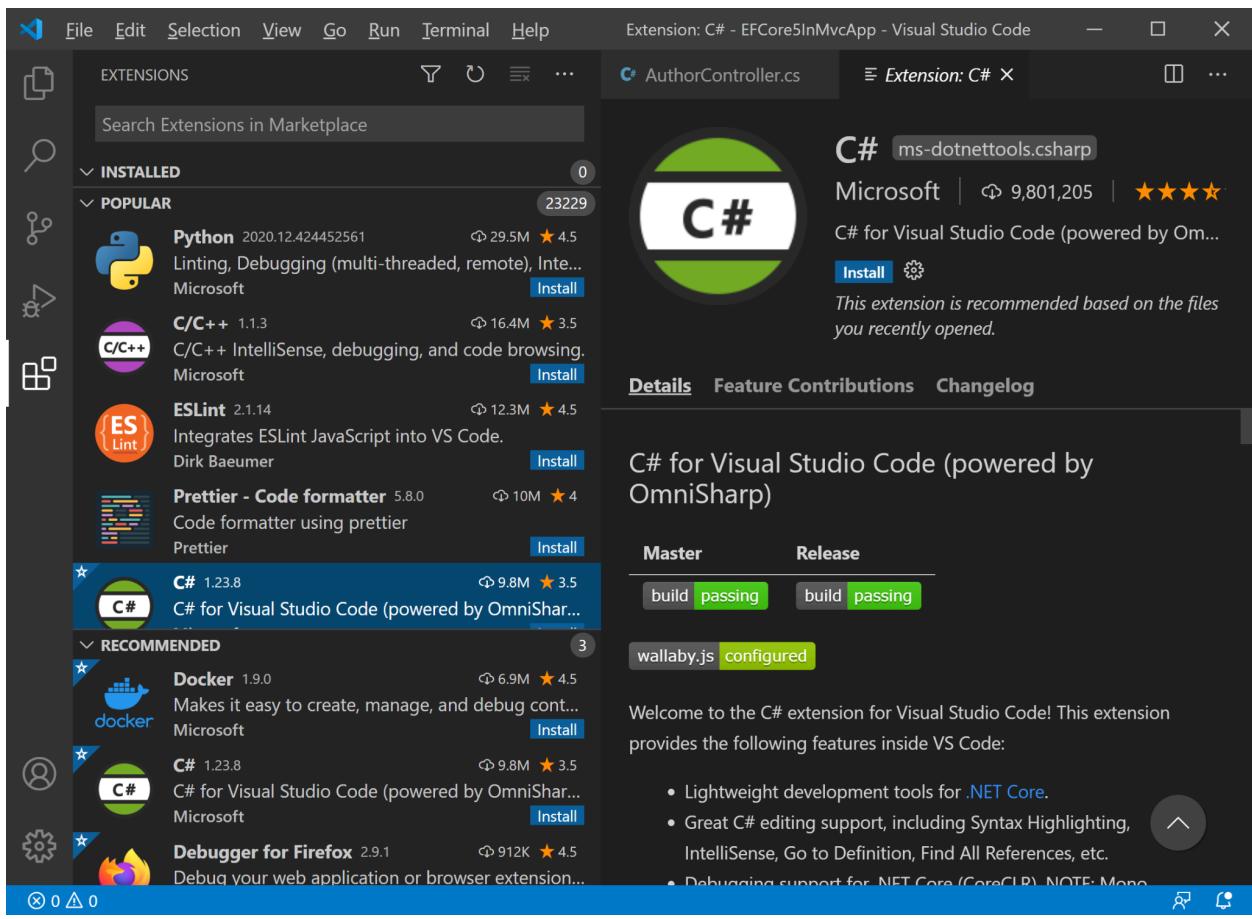
8. Explore Extensions and Plugins

Visual Studio Code (VS Code)

VS Code is a highly customizable text editor with a vast ecosystem of extensions. Here are some essential extensions:

- **Python**: Provides IntelliSense, linting, and debugging for Python files.
- **Pylance**: Enhances Python language support.
- **ESLint**: Detects and fixes linting issues in JavaScript and TypeScript files.
- **Prettier**: Formats code automatically based on defined rules.
- **Docker**: Manages Docker containers, images, and Dockerfiles within VS Code.
- **GitLens**: Adds Git features like blame, history, and more to your workflow.
- **SQLTools**: Interacts with databases directly from VS Code.

- **HTML CSS Support:** Enhances HTML/CSS development with class name completion and live previews.
- **HTML Snippets:** Provides quick access to common HTML code snippets.
- **IntelliSense for CSS class names in HTML:** Adds autocomplete for CSS class names.
- **CSS Peek:** Navigate to CSS definitions from HTML files.
- **JavaScript (ES6) code snippets:** Offers ES6 code snippets for JavaScript development.
- **TypeScript Hero:** Adds tools for TypeScript development, including auto-imports and refactoring.
- **Live Server:** Launches a local server with live reload for static and dynamic pages.
- **Code Runner:** Runs code snippets or entire files directly from VS Code.



9. Reflection on Challenges

Challenges Faced:

- **Configuring Git:** Understanding Git commands and initial setup took some time.
- **Python Installation:** Ensuring Python was added to the PATH correctly required careful attention.
- **MySQL Installation:** Configuring the MySQL server and setting up the root password was challenging without prior database experience.

Solutions:

- **Git:** Followed detailed tutorials and referred to Git documentation.
- **Python:** Double-checked installation steps and referred to Python documentation.
- **MySQL:** Used MySQL official documentation and community forums for troubleshooting.

Deliverables

1. Setup Documentation:

- Documentation with detailed steps and screenshots.

2. GitHub Repository: <https://github.com/Johnnytash/this-is-a-test-repo.git>

3. Reflection:

- Included in the Challenges and Solutions faced during Setup