Development Training Workstation Setup Guide

DataBank IMX

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Setting Up Your Workstation for Development Training

Performing development requires a few components to be installed on your workstation. You can, of course, install whatever IDE you prefer, but I will be teaching the class using Visual Studio Code (the most popular IDE for development) and other convenience tools that you may find useful. If you want to set up your development environment similar to mine, the instructions below will walk you through the setup process. If you're following these steps, it is best to do them in the order presented.

If you are using one of the other development training setup guides, it is important to complete the setup in this guide first.

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Configure Windows 10 to Show File Extensions

When doing development, the convenience feature in Windows that hides the extensions for known file types is an impediment to the process, so let's turn that off.

1. Launch the Control Panel and go into the settings for "File Explorer Options."

    File Explorer Options

2. On the "View" tab, un-check the box labeled "Hide extensions for known file types"
   Then click [OK]
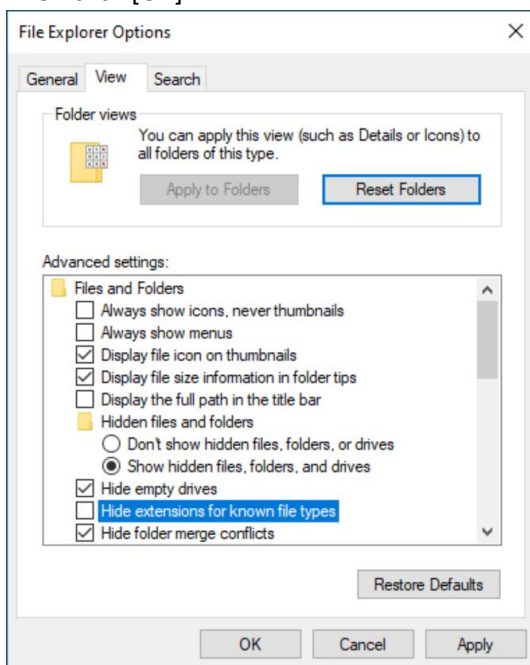
Install Winget (App Installer)

Many of the components we will use are best installed from the terminal using the command-line installer **winget**. Follow the steps below to install it.

Note: On Windows 11, winget is already installed, but will need to be updated. Follow the same steps but substitute [Update] for [Get] in step 2.

1. Open the Microsoft Store and search for "App Installer"

2. Select the one created by "Microsoft Corporation" and click the [Get] button
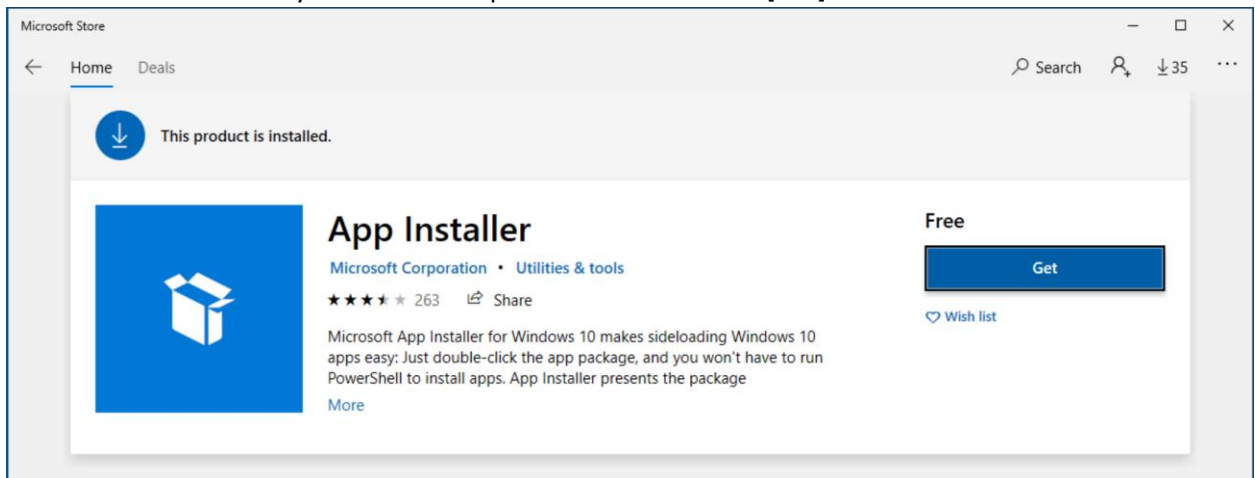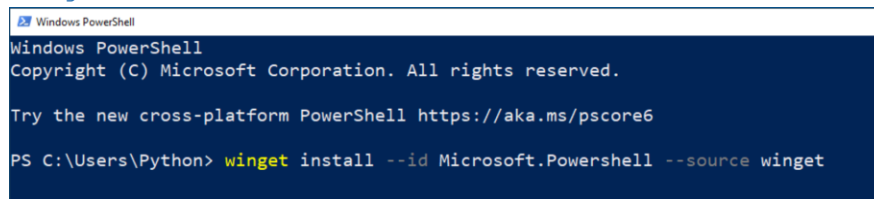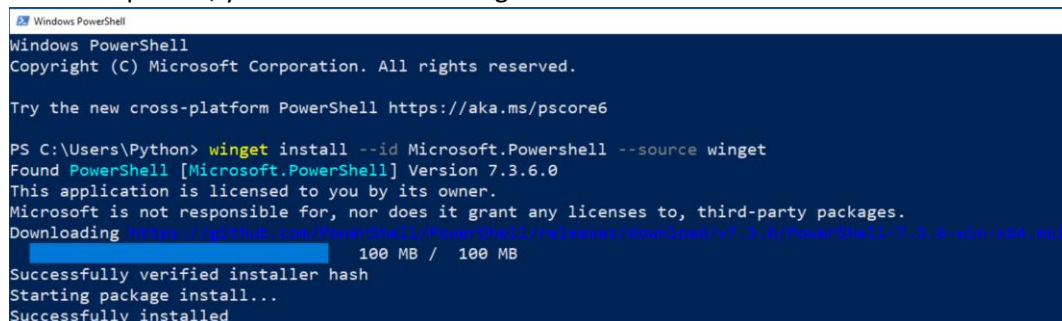

3. The application will install automatically.

Install PowerShell 7

Although the built-in Windows PowerShell is sufficient for most activities, the newer, open-source PowerShell 7 is significantly more customizable and provides more robust functionality when used in both Windows Terminal and Visual Studio Code.

1. Launch Windows PowerShell and enter the following command:
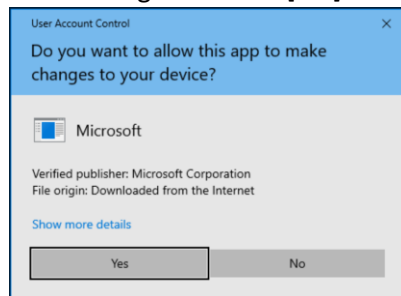   `winget install Microsoft.PowerShell`

2. The installation will begin automatically. During the install, UAC will prompt you to allow the app to make changes. Choose [Yes]

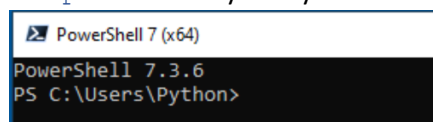3. After completion, you will see this message

4. Close Windows PowerShell

5. Run `pwsh` to verify that you can now launch PowerShell 7

Install Windows Terminal

The Windows Terminal application allows you to have multiple terminal tabs open simultaneously and to control which of the command-line applications is in use at any time.

1. Open PowerShell 7 and enter the following command for Windows 10
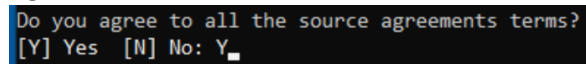   ```
   winget install Microsoft.WindowsTerminal
   ```
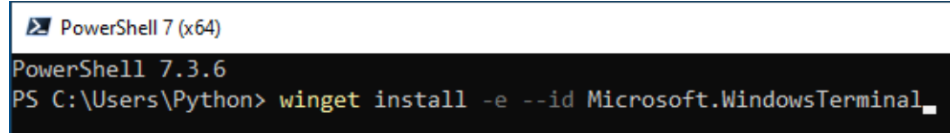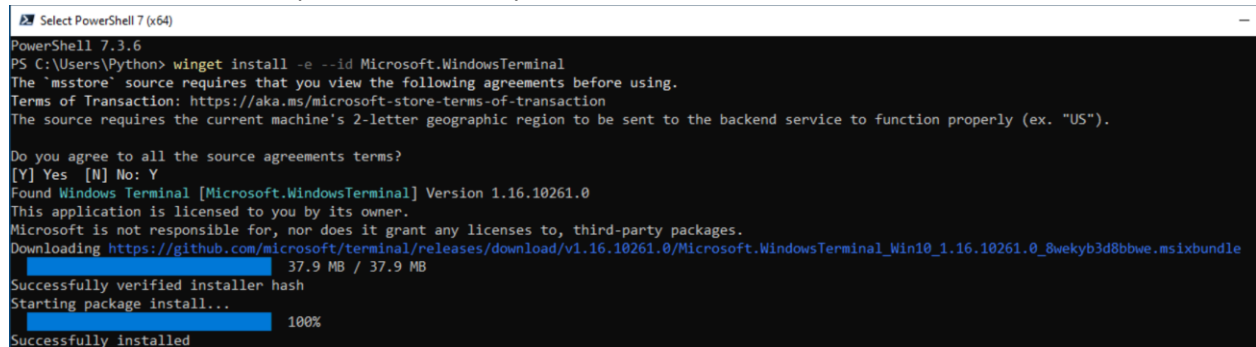
   

   or the following command for Windows 11 (where the Terminal application is preinstalled)
   ```
   winget upgrade Microsoft.WindowsTerminal
   ```
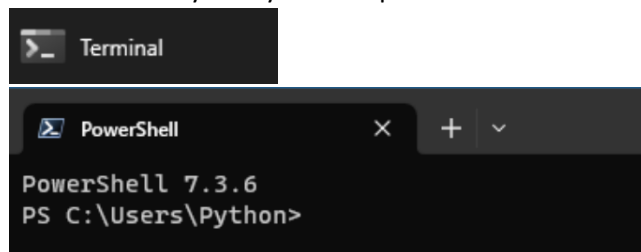
2. Agree to the terms

   

3. The installation will complete automatically

   

4. Close PowerShell 7

5. Run `wt` to verify that you can open Windows Terminal

## Install the CaskaydiaCove Nerd Font

We will be customizing our terminal to show additional information that will require glyph characters not included in most standard fonts. In order to support this, we'll be installing a so-called "nerd font" that includes these extra glyphs. The one I prefer is called CaskaydiaCove, which is a nerd-font port of Microsoft's Cascadia Code font. There are many different distributions of this font, and some don't include all of the glyphs, so I recommend obtaining the one distributed on the Nerd Fonts website (below).

1. Launch a browser and navigate to:
   http://www.nerdfonts.com/font-downloads
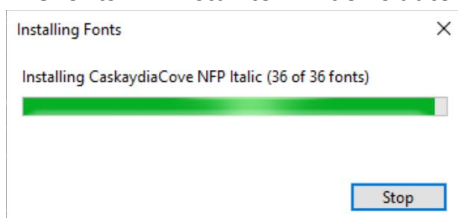
2. Find "CaskaydiaCove Nerd Font" and click on "Download"

   

3. Unzip and open the download file, select all of the fonts, right click, and select "Install for all users"
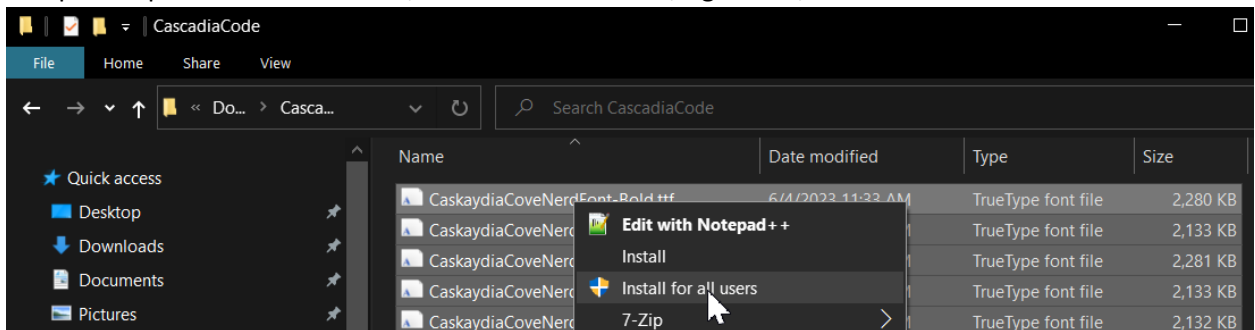
   

4. The fonts will install to Windows automatically

## Customize the Windows Terminal

To ready the Windows Terminal for our later setup, we need to set up a few preliminary settings.
Note:    You may have to reboot after installing your fonts before this step

1.  Open the Windows Terminal and click on the drop-down arrow next to the tab [+] button.
    Select "Settings"
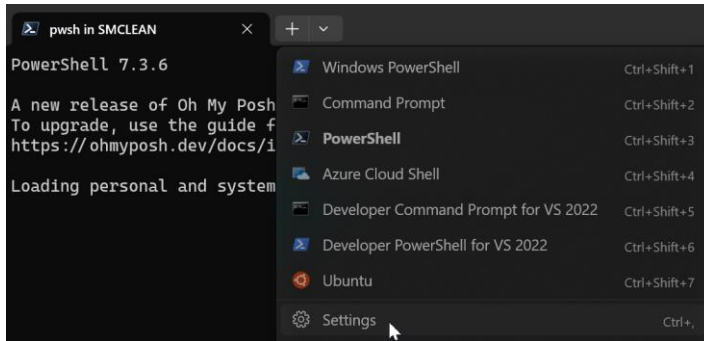


2.  In the "Startup" section, set the "Default Profile" to "PowerShell"
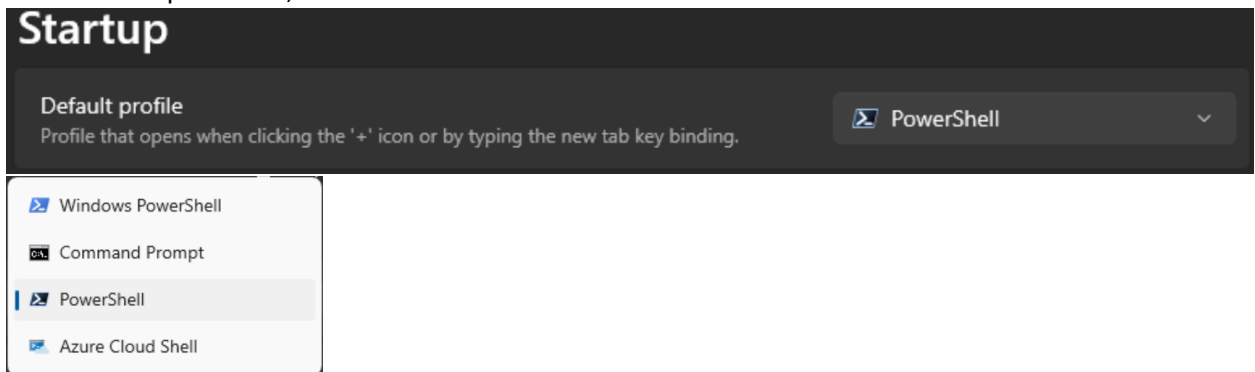


3.  Under "Profiles" select "PowerShell" then scroll down and click on "Appearance"



4.  In the "Font Face" setting, assign "CaskaydiaCove Nerd Font



5.  Click [Save]

## Set Up Oh-My-Posh

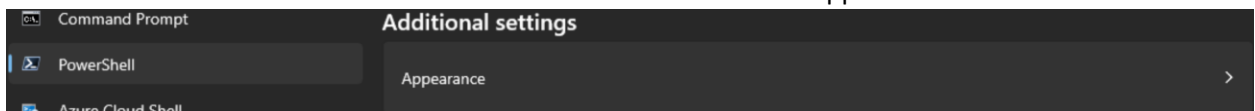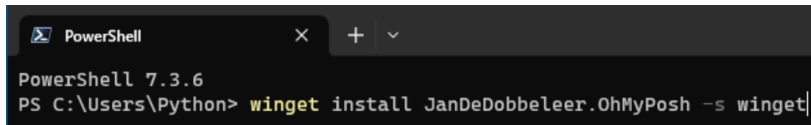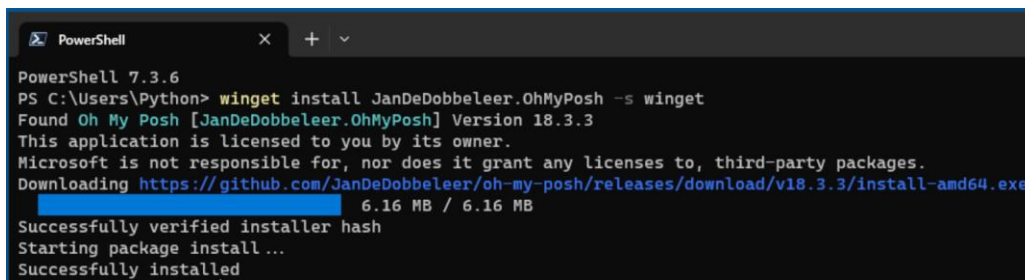We often work in scenarios where it's useful to see additional information (like execution time, source code repository state, etc.) in the terminal. We can set up PowerShell 7 in Windows Terminal to provide a much more meaningful prompt using a utility called "Oh My Posh"

1.  Open Windows Terminal and in your PowerShell 7 tab, enter the following command
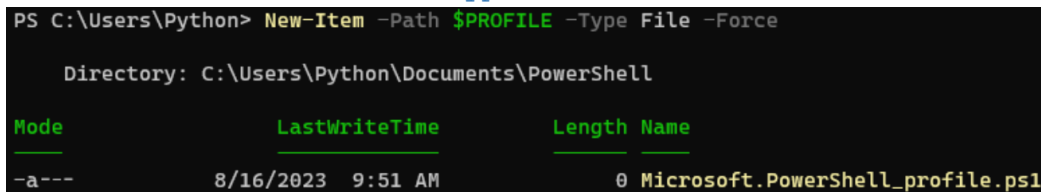    `winget install JanDeDobbeleer.OhMyPosh`

    ```
    PowerShell                    ×    +   ∨

    PowerShell 7.3.6
    PS C:\Users\Python> winget install JanDeDobbeleer.OhMyPosh -s winget
    ```

2. A successful install will look like this

    ```
    PowerShell                    ×    +   ∨

    PowerShell 7.3.6
    PS C:\Users\Python> winget install JanDeDobbeleer.OhMyPosh -s winget
    Found Oh My Posh [JanDeDobbeleer.OhMyPosh] Version 18.3.3
    This application is licensed to you by its owner.
    Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.
    Downloading https://github.com/JanDeDobbeleer/oh-my-posh/releases/download/v18.3.3/install-amd64.exe
                                      6.16 MB / 6.16 MB
    Successfully verified installer hash
    Starting package install ...
    Successfully installed
    ```

3. In the terminal, enter the following line to create a setup file for your PowerShell profile
    `New-Item -Path $PROFILE -Type File -Force`
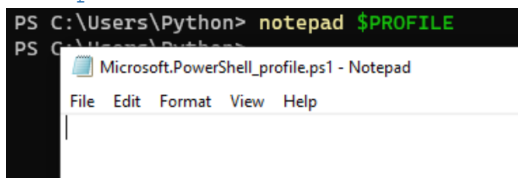
    ```
    PS C:\Users\Python> New-Item -Path $PROFILE -Type File -Force

        Directory: C:\Users\Python\Documents\PowerShell

    Mode                 LastWriteTime         Length Name
    ----                 -------------         ------ ----
    -a---          8/16/2023   9:51 AM              0 Microsoft.PowerShell_profile.ps1
    ```
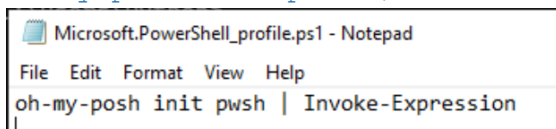
4. In the terminal, enter the following command to open the file in notepad
    `notepad $PROFILE`

    ```
    PS C:\Users\Python> notepad $PROFILE
    PS C:\Users\Python>
    ```
    Microsoft.PowerShell_profile.ps1 - Notepad
    File   Edit   Format   View   Help

5. In the Notepad file, add the following line and save the file
   `oh-my-posh init pwsh | Invoke-Expression`

    Microsoft.PowerShell_profile.ps1 - Notepad
    File   Edit   Format   View   Help
    oh-my-posh init pwsh | Invoke-Expression

6. In the terminal, enter the following command to reload the profile
   `. $PROFILE`
   Note: You may need to close and reopen the terminal window or reboot to load the profile path.

7. You should now see a prompt like this in the terminal indicating that you've configured Oh My Posh
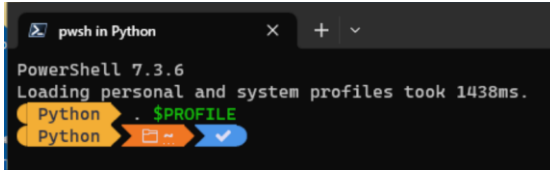
   Note: If you don't see the folder glyph, make sure you installed and configured your nerd font

8. You can configure literally thousands of options for what information the terminal prompt will show, but for purposes of the Python training class, I will use Jan DeDobbeleer's default. To implement this, add the following line to the profile setup in Notepad and save.
   ```
   oh-my-posh init pwsh --config
   "$env:POSH_THEMES_PATH/jandedobbeleer.omp.json" | Invoke-Expression
   $env:VIRTUAL_ENV_DISABLE_PROMPT = 1
   ```
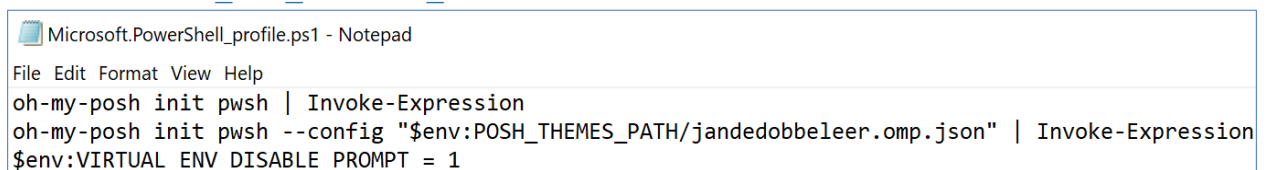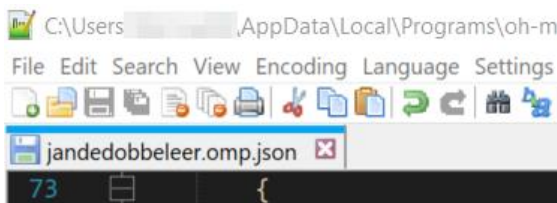

9. In the terminal, enter the following command to reload the profile
   `. $PROFILE`

10. We are going to edit the theme in order to prevent the prompt from line-wrapping after updating to Oh-My-Posh v 18.9.1 or higher. See this GitHub issue for the developer's explanation.
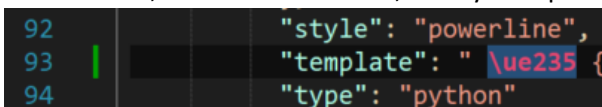
11. Edit the JSON file (path below) for the theme in any test editor (I used Notepad++):
    `C:\Users\USERNAME\AppData\Local\Programs\oh-my-posh\themes\jandedobbeleer.omp.json`

12. Find the python section.
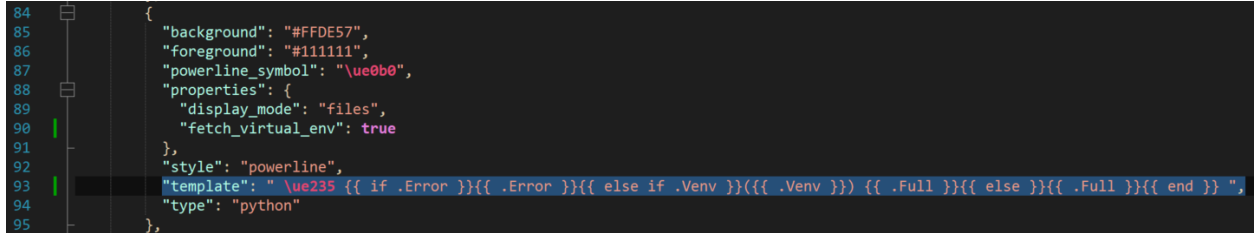   From CTRL-F, search for `\ue235`, the Python powerline glyph

13. Edit these values and re-save the file:

```
"fetch_virtual_env": true
```

```
┃┃...
```

```
"template": " \ue235 {{ if .Error }}{{ .Error }}{{ else }}{{ if
.Venv }}(venv) {{ end }}{{ .Full }}{{ end }} ",
```


Note: The above command is in response to a bug in the current version of Oh My Posh as of January 2024. This bug causes the virtual environment placeholder `{{ .Venv }}` to return the folder name instead of the venv. Once this is fixed in a later version, you should change the above to this:

```
"template": " \ue235 {{ if .Error }}{{ .Error }}{{ else }}{{ if
.Venv }}({{ .Venv }}) {{ end }}{{ .Full }}{{ end }} ",
```

14. You should now see something like this

This is how we want our prompt to appear in Visual Studio Code, so we're done setting up the terminal

Set Up Quake Mode Terminal (optional)

I like to have the terminal available at all times. There is a special command to launch the Windows terminal in so-called "Quake-Mode." When in this mode, the terminal is at the top of the main monitor screen and can be hidden or shown using the keyboard shortcut Window+back-tick [⊞]+[`]

1. Click the start button and type "run" to open a run command.
    In the run box, enter the following command and click [OK]
    `shell:startup`
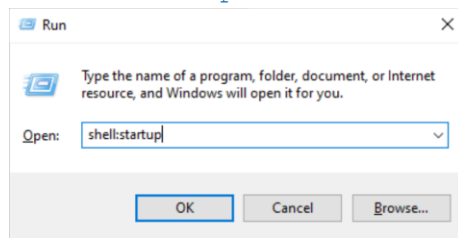
2. In the window that pops up, right click and choose New > Shortcut. In the shortcut wizard, enter the following location and click [Next]
    `wt -w _quake`

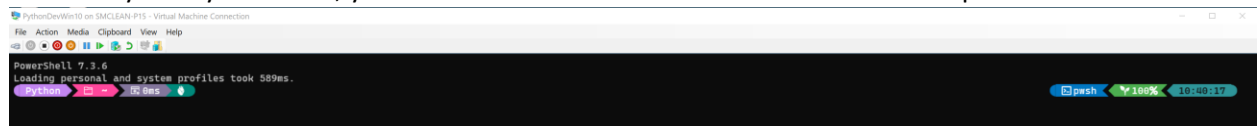3. Name the shortcut whatever you want and click [Finish]

4. Now every time you reboot, you'll have a hideable PowerShell terminal at the top of the screen
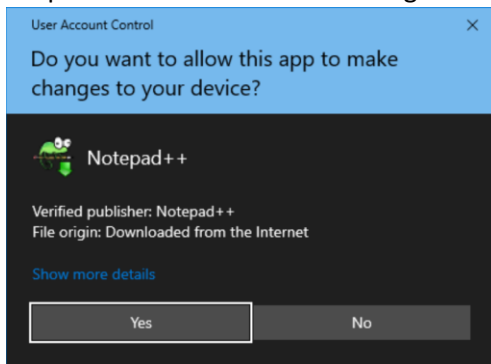
Install Notepad++ (optional)

Even though we're using VS Code as our IDE, it's often useful to have a full-featured text editor as well. I like to use Notepad++ for this.

1. In the terminal, enter the following command
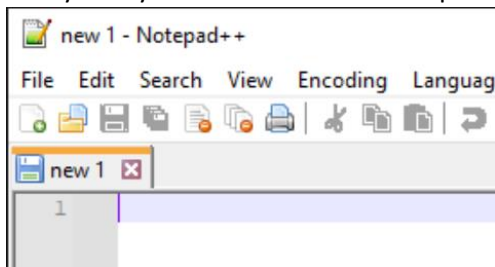   `winget install Notepad++.Notepad++`

2. Respond "Yes" to the UAC warning

3. The installation will complete automatically

4. Verify that you can now launch Notepad++
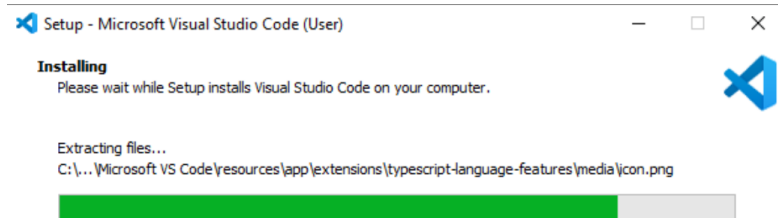
Install Visual Studio Code

Visual Studio Code is an open-source IDE that's useful for a wide variety of coding languages. I use it for Python, HTML, JavaScript, and CSS, even though I have Visual Studio Enterprise available for .NET development. The slick, easy, and highly customizable interface make VS code the most popular IDE for Python developers.

1. In the terminal, enter the following command
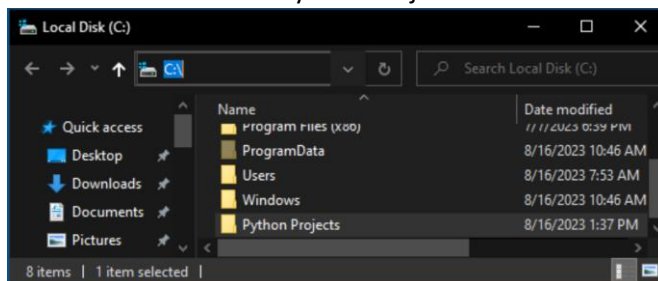   `winget install Microsoft.VisualStudioCode`

   winget install -e --id Microsoft.VisualStudioCode

2. The installation will start and complete automatically

   Setup - Microsoft Visual Studio Code (User)

   Installing
   Please wait while Setup installs Visual Studio Code on your computer.

   Extracting files...
   C:\...\Microsoft VS Code\resources\app\extensions\typescript-language-features\media\icon.png

   ```
   Python        19ms    winget install -e --id Microsoft.VisualStudioCode
   Found Microsoft Visual Studio Code [Microsoft.VisualStudioCode] Version 1.81.1
   This application is licensed to you by its owner.
   Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.
   Downloading https://az764295.vo.msecnd.net/stable/6c3e3dba23e8fadc360aed75ce363ba185c49794/VSCodeUserSetup-x64-1.81.1.exe
                   89.0 MB / 89.0 MB
   Successfully verified installer hash
   Starting package install ...
   Successfully installed
   ```

3. Create a folder called "Python Projects." I created mine on the C: root.

   Local Disk (C:)

Name	Date modified
Program Files (x86)	7/7/2023 6:59 PM
ProgramData	8/16/2023 10:46 AM
Users	8/16/2023 7:53 AM
Windows	8/16/2023 10:46 AM
Python Projects	8/16/2023 1:37 PM

   8 items | 1 item selected

4. In the terminal, navigate to the folder you created and enter the following command
   `code .`

   ```
   Python     C:       35ms    cd '.\Python Projects\'
   Python     Python Projects    14ms    code .
   ```
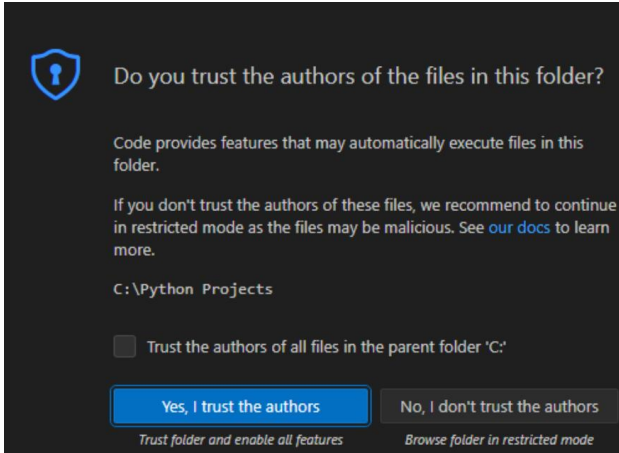   Note: You may have to reboot to update your system paths before this command will work

5. Visual Studio Code will automatically launch in your project folder
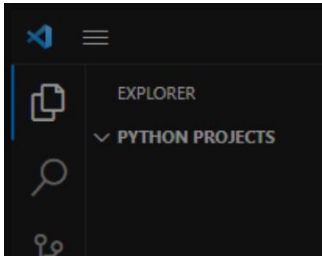
6. You can choose "Yes, I trust the authors" to allow VS Code to trust your project folder.

Add Visual Studio Context Menu Options (optional)

Sometimes, it can be useful to have the option to get to CS Code using the mouse instead of the terminal. Because we installed VS Code using WINGET, this option is not enabled during the install, and it is not available as a setting from within the application, because it requires editing the registry. If you want the "Open with VS Code" context menu options on a right click, do the following:

1. Create a text file anywhere on your PC and call it "AddOpenWithCode.reg"
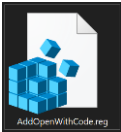
2. Edit the file in your preferred text editor and paste the text below. Make sure to replace all instances of "user_name" with your Windows username. Save the file.

```
Windows Registry Editor Version 5.00
 ; ***** Note: You must replace all instances of user_name with your username *****
 ;
 ; Open files
 [HKEY_CLASSES_ROOT\*\shell\VSCode]
 @="Open w&ith VS Code"
 "Icon"="C:\\Users\\user_name\\AppData\\Local\\Programs\\Microsoft VS Code\\Code.exe,0"
 [HKEY_CLASSES_ROOT\*\shell\VSCode\command]
 @="\"C:\\Users\\user_name\\AppData\\Local\\Programs\\Microsoft VS Code\\Code.exe\" \"%1\""
 ;
 ; This will make it appear when you right click ON a folder
 ; The "Icon" line can be removed if you don't want the icon to appear
 [HKEY_CLASSES_ROOT\Directory\shell\VSCode]
 @="Open w&ith VS Code"
 "Icon"="\"C:\\Users\\user_name\\AppData\\Local\\Programs\\Microsoft VS Code\\Code.exe\",0"
 [HKEY_CLASSES_ROOT\Directory\shell\VSCode\command]
 @="\"C:\\Users\\user_name\\AppData\\Local\\Programs\\Microsoft VS Code\\Code.exe\" \"%1\""
 ;
 ; This will make it appear when you right click INSIDE a folder
 ; The "Icon" line can be removed if you don't want the icon to appear
 [HKEY_CLASSES_ROOT\Directory\Background\shell\VSCode]
 @="Open w&ith VS Code"
 "Icon"="\"C:\\Users\\user_name\\AppData\\Local\\Programs\\Microsoft VS Code\\Code.exe\",0"
 [HKEY_CLASSES_ROOT\Directory\Background\shell\VSCode\command]
 @="\"C:\\Users\\user_name\\AppData\\Local\\Programs\\Microsoft VS Code\\Code.exe\" \"%V\""
```

3. Run the registry script as administrator, and choose the "Yes" option when prompted.
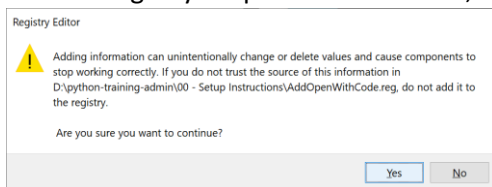
4. Once the script has run, you will now have the new option when you right-click.
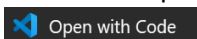
Customize Visual Studio Code

We need to set up VS Code and install a few add-ons before we're ready to start coding.

1. Set the Color Theme
   On initial launch, you are prompted to select a color theme. I usually select "Dark Modern"

2. If you installed Oh My Posh, you'll want it to work in VS Code just like it does in Windows Terminal. To do this, press [CTRL]+[SHIFT]+[P] to bring up the menu. Search for "json" and select the options titled "Preferences: Open User Settings (JSON)"
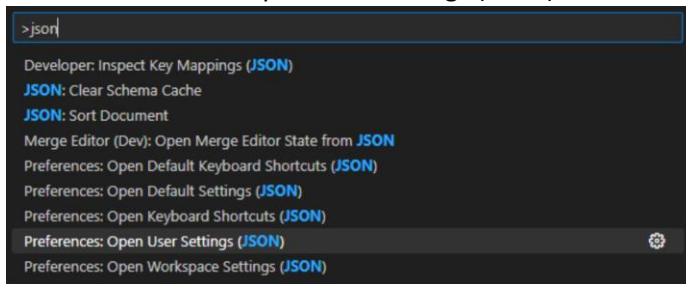

3. In the JSON file, add the following lines before the last closing curly-brace:

```
,
"terminal.integrated.profiles.windows": {
  "PowerShell": {
    "path": "C:\\Program Files\\PowerShell\\7\\pwsh.exe",
    "args": [
      "-noexit"
    ]
  }
},
"terminal.integrated.defaultProfile.windows": "PowerShell",
"terminal.integrated.fontFamily": "'CaskaydiaCove Nerd Font', monospace",
"terminal.integrated.fontSize": 14
```

4. Save the JSON file and click on Terminal > New Terminal

5. Your VS Code terminal should launch with the same settings you implemented for Windows Terminal
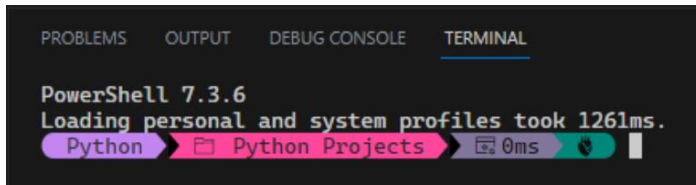
6. Click on the "settings" cog (at the lower left) and select "Settings"
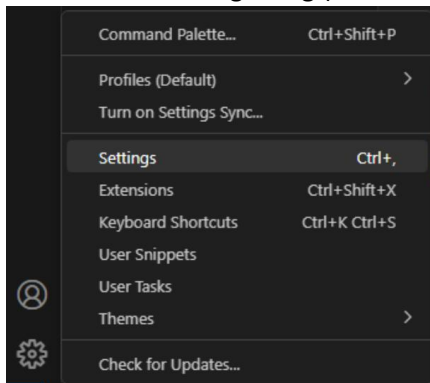
7. Search for "auto save" and change the "Files: Auto Save" setting to "afterDelay"
   This ensures that your file changes save as you type and makes the process of updating and testing your code much quicker
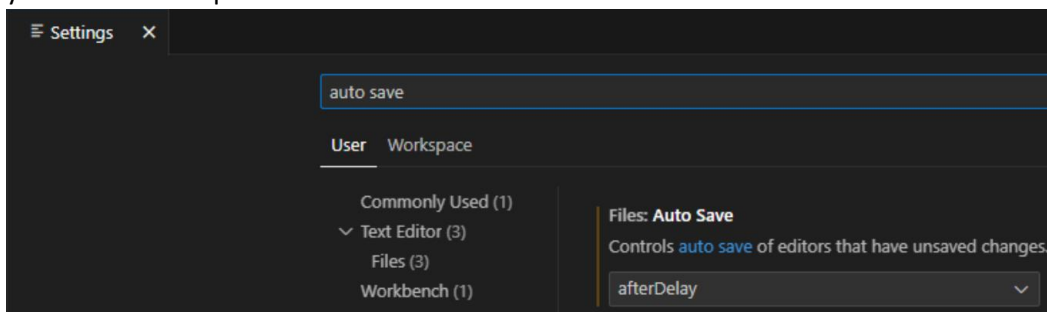
8. Search for "vscode icons" and install the extension
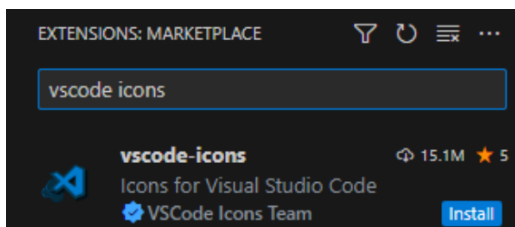
9. After it installs, you'll be prompted to select a theme. Select the default "VSCode Icons"
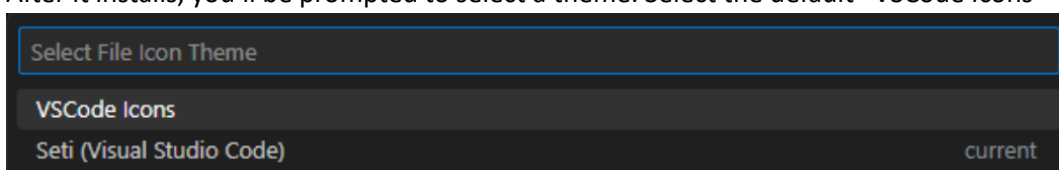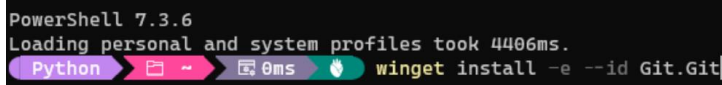
Install GIT

GIT is the underlying technology used to communicate with Bitbucket code repositories, so we'll need to install and configure it.

1. In your terminal, enter the following command

   ```
   winget install Git.Git
   ```
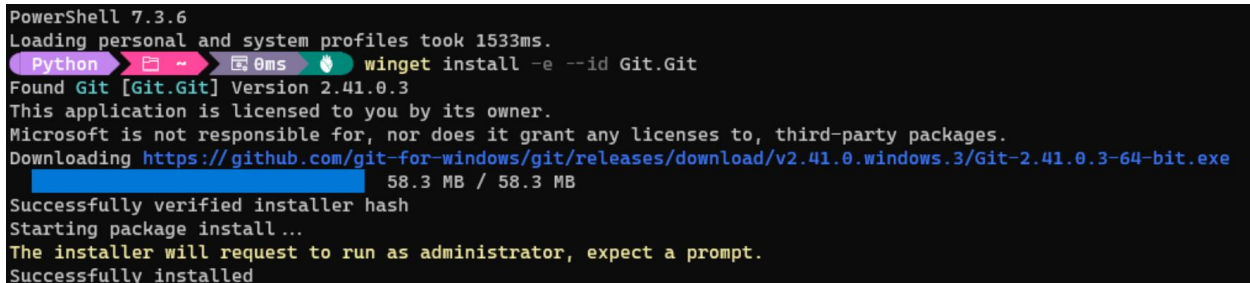
   ```
   PowerShell 7.3.6
   Loading personal and system profiles took 4406ms.
   Python  ~  0ms  winget install -e --id Git.Git
   ```

2. Accept the UAC alert

   User Account Control ✕

   Do you want to allow this app to make changes to your device?

   Git for Windows

   Verified publisher: Johannes Schindelin
   File origin: Downloaded from the Internet

   Show more details

   Yes   No
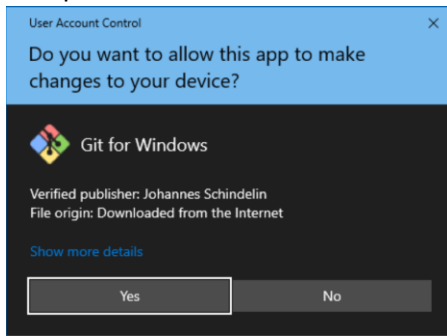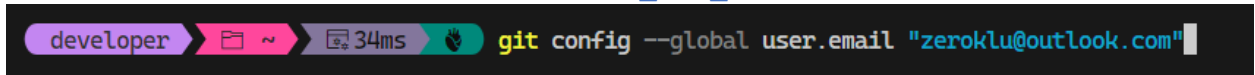
3. After successful installation, you'll see this:

   ```
   PowerShell 7.3.6
   Loading personal and system profiles took 1533ms.
   Python  ~  0ms  winget install -e --id Git.Git
   Found Git [Git.Git] Version 2.41.0.3
   This application is licensed to you by its owner.
   Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.
   Downloading https://github.com/git-for-windows/git/releases/download/v2.41.0.windows.3/Git-2.41.0.3-64-bit.exe
                                  58.3 MB / 58.3 MB
   Successfully verified installer hash
   Starting package install...
   The installer will request to run as administrator, expect a prompt.
   Successfully installed
   ```
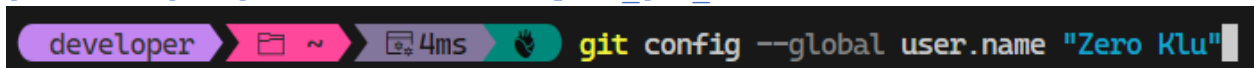
4. From a terminal, run the following commands to configure your default git settings:

   ```
   git config --global user.email "your_git_email"
   ```

   ```
   developer  ~  34ms  git config --global user.email "zeroklu@outlook.com"
   ```

   ```
   git config --global user.name "your_git_name"
   ```

   ```
   developer  ~  4ms  git config --global user.name "Zero Klu"
   ```

Set Up a Source Control Account

Option 1: Bitbucket

On the development team, we use Bitbucket as our source control system for code sharing. Since I share out development training repositories in the class, you'll need a Bitbucket account.

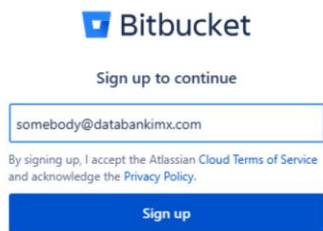Note: If you already have a Bitbucket account, skip to step 8 below

1. In a browser, navigate to https://bitbucket.org and click on [Get it free]

   Get it free

2. Click on [Next]

   Next

3. Enter your DataBank email address and click on [Sign up]

   Bitbucket

   Sign up to continue

   somebody@databankimx.com
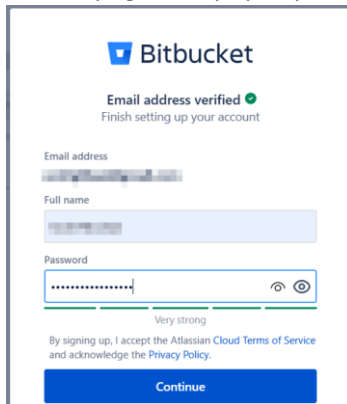
   By signing up, I accept the Atlassian Cloud Terms of Service and acknowledge the Privacy Policy.

   Sign up
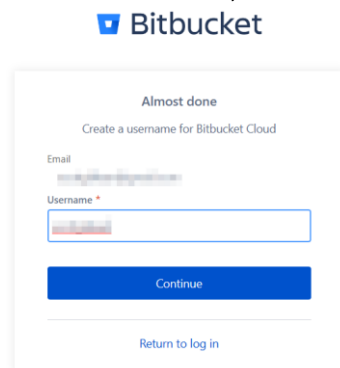
4. Check your email for a verification message. In the message, click [Verify your email]

   You're nearly there!

   Hi

   To finish setting up your account and start using Bitbucket, confirm we've got the correct email for you.

   Verify your email
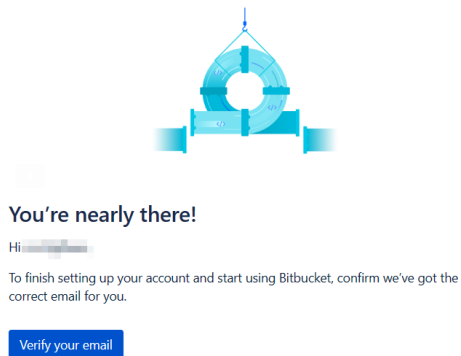
5. On the page that pops up, enter your full name and create a password

6. On the next screen, create a Bitbucket username

7. When you reach the survey page, just click on "Skip"

Option 2: GitHub

Although DataBank does not officially use GitHub, for all non-OnBase training, I have replicated my training repositories on GitHub. If you are not taking OnBase development training, you may find GitHub easier to access from VS Code, since GitHub functionality is built-in.
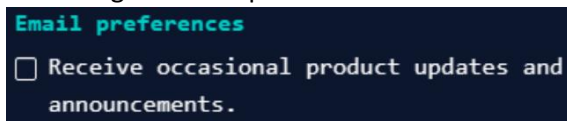
1. In your browser, go to https://github.com

2. Click the [Sign Up] button
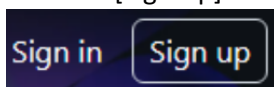
3. Enter your email, a password, and a username
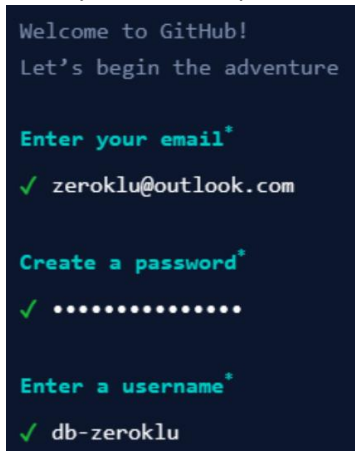
4. You can ignore the option to receive email announcements
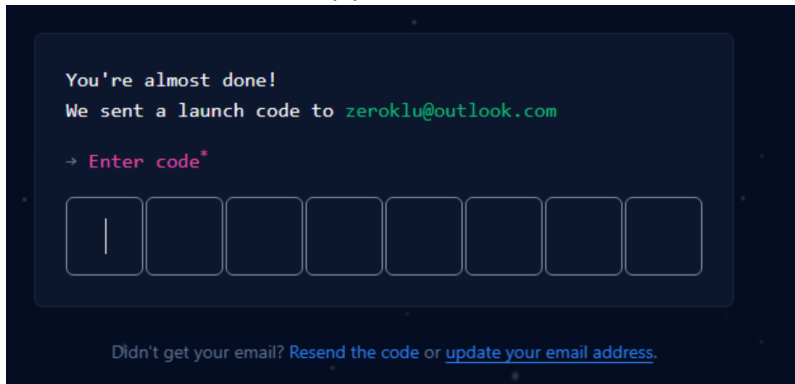
5. Click on the "Verify" button to access a puzzle that must be solved to complete your enrollment
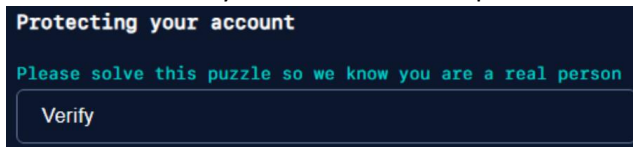
6. Solve the puzzle and submit

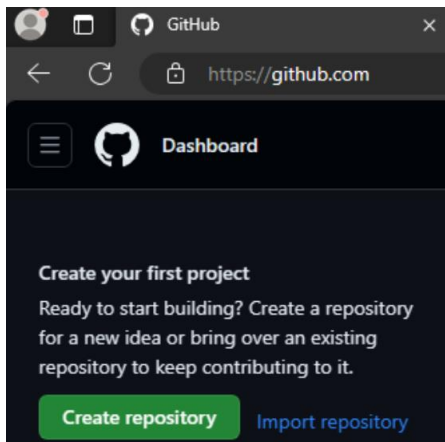7. Enter the code sent to verify your email address

8. You will be presented with your dashboard page, indicating that you successfully set up your GitHub account
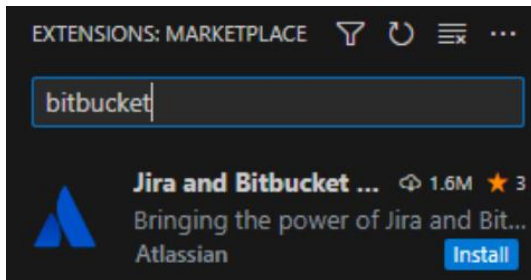
Set Up Visual Studio Code to Use Source Control

Option 1: Bitbucket

If you chose Bitbucket for source control, you'll need to configure the Bitbucket extension in VS Code in order to properly access the training repository.

1. Launch Visual Studio Code

2. Click on the "extensions" icon on the toolbar

3. Search for "bitbucket" and install the "Jira and Bitbucket" extension

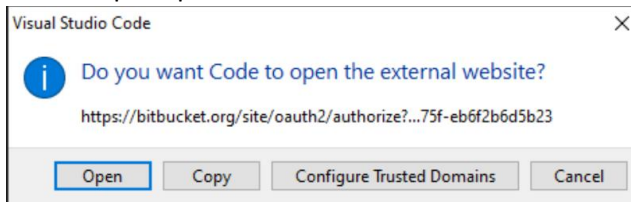4. After the extension installs, it will launch a setup wizard. Unselect Jira and click [Next]
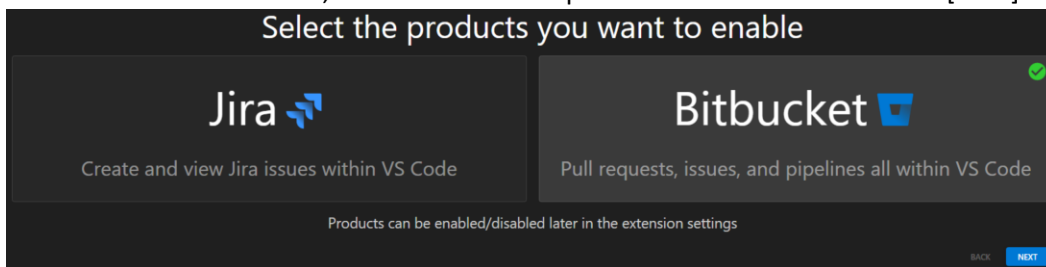
5. Select the option for "Bitbucket Cloud"

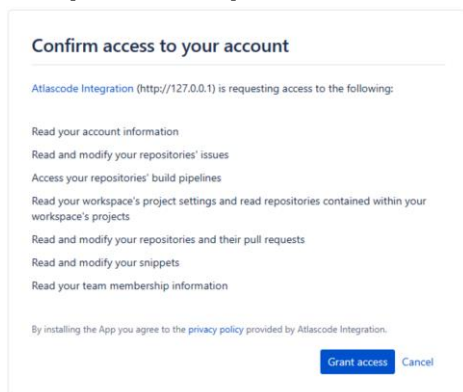6. You may receive a firewall alert. If you do, click on [Allow Access]
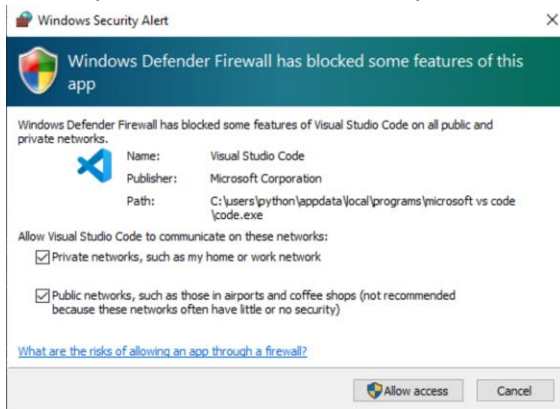
7. You'll be prompted to let VS Code access the Bitbucket URL. Click [Open]
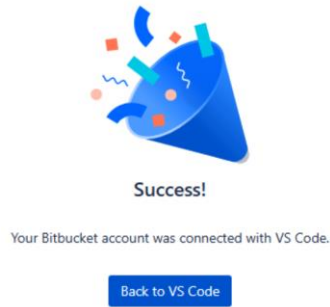

8. Log in

9. Click [Grant Access]

10. You'll see a success page. You can close the bowser after this comes up
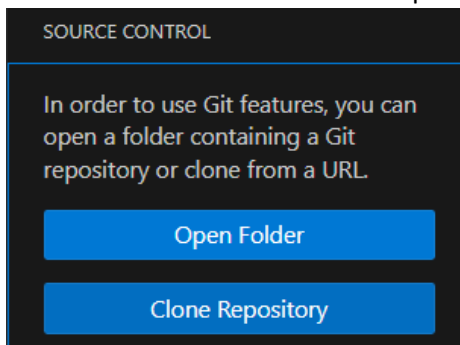

Option 2: GitHub

For GitHub, VS Code credential setup takes place the first time you attempt to access a repository. To do this, take the following steps:
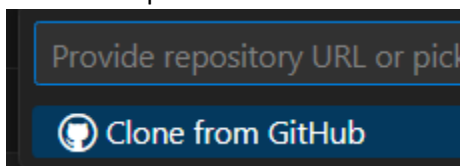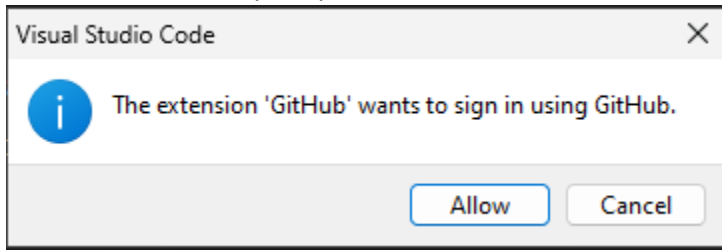
1. In VS Code, click on the Source Control icon

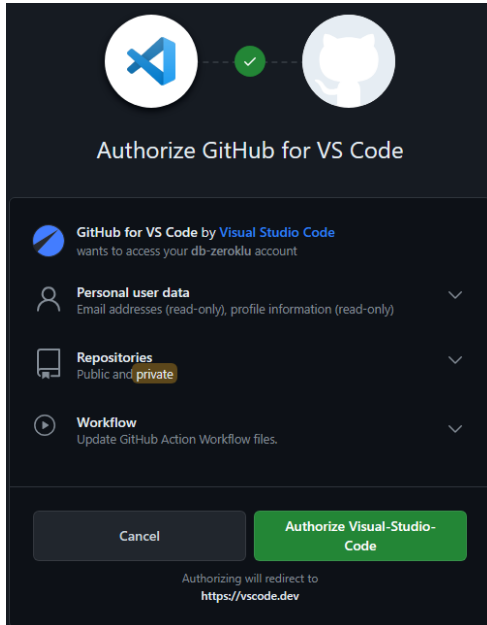2. Click the button labeled "Clone Repository"

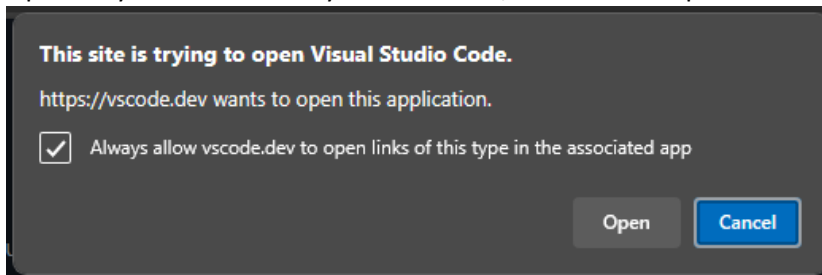3. Select the option to "Clone from GitHub"

4. Select "Allow" when prompted to allow the GitHub extension to attempt to log in
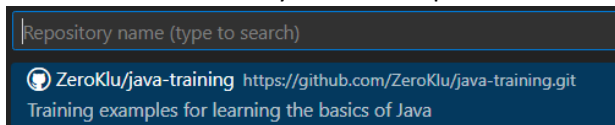

5. Choose the "Authorize" button

6. Optionally check the "Always allow…" box, then select "Open"

7. You should now see any available repositories from GitHub to which you have access

Congratulations! Your system is set up for development training.

Happy Coding!