Software

The required software for this course is **Visual Studio Code** (a free code editor built by Microsoft) and the **Java Development Kit** (programming language and runtime).

- Download Visual Studio Code (VSCode) for your platform.
- Java Development Kit (JDK) - See Below for Download Link.

You'll also use these tools, which you don't need to install:

- OneDrive
- A Command Line Interface (CLI) tool:
  - **PowerShell** on Windows.
  - **Terminal** on macOS.

Software Install Tasks

- Install VSCode.
  - **Tip**: When installing VSCode on Windows, on the **Select Additional Tasks** page, select the boxes for **Add "Open with Code" to Windows Explorer file context menu** and **Add "Open with Code" to Windows Explorer directory context menu**.
- After first class: Familiarize yourself with VSCode by completing the Get started with Visual Studio Code tutorial.
  - Read the Visual Studio Code tips and tricks article.
  - Learn how to access the **Command Pallet** (**Ctrl+Shift+P**).

VSCode Configuration

- Install the following Java Extensions:
  - Language Support for Java™ by Red Hat: for code navigation, autocompletion, refactoring and code snippets.
  - Project Manager for Java: enables a project explorer view, facilitating creation of packages, classes and libraries dependencies.
  - Debugger for Java: Run and Debug Java projects.

Download and Configure Java

Java is straightforward to download, but we must configure VSCode to use it.

1. **Download Java for your platform**:
   - Windows x64 - microsoft-jdk-21.0.8-windows-x64.zip
   - macOS Apple Silicon - microsoft-jdk-21.0.8-macos-aarch64.tar.gz
   - For other platforms or more information, see Download the Microsoft Build of OpenJDK.
2. **Extract to a Specific Location**:
   - **Windows:**

- Create a new folder, e.g., `C:\Program Files\Java\`. You might need admin rights to create this top-level folder.
- Open your Downloads folder.
- Right-click `microsoft-jdk-21.0.8-windows-x64.zip` and select **Extract All..**
- For **Select a Destination and Extract Files**, type: `C:\Program Files\Java\`
- This creates a folder in that location called: `jdk-21.0.8+9`.
- The full path to the JDK would then be: `C:\Program Files\Java\jdk-21.0.8+9`.
- *Alternative (User-specific, no admin required):* Extract to a folder inside the user's home directory, e.g., `C:\Users\YourUser\Java\jdk-21.0.8+9`.
- **macOS:**
  - Create a folder called `/Users/Shared/Java/`.
  - In your Downloads directory, double click the `microsoft-jdk-21.0.8-macos-aarch64.tar.gz` file to unzip it. This creates a folder in your Downloads directory called `jdk-21.0.8+9`.
  - Move the `jdk-21.0.8+9` folder into `/Users/Shared/Java/`, so in finder you can see `/Users/Shared/Java/jdk-21.0.8+9/Contents/Home`.

3. **Add Java to your system path (Windows):**
   1. In Windows, press the **Windows key** and type **Env**.
   2. Open **Edit the system environment variables**.
   3. Click **Environment Variables...**
   4. In the bottom half of the window, under **System variables**, double-click the row that says **Path**.
   5. Add the following entry: `C:\Program Files\Java\jdk-21.0.8+9\bin`

4. **Configure VS Code:**
   - Open VS Code.
   - Go to `File > Preferences > Settings` (or `Code > Settings > Settings` on macOS).
   - Search for `java.configuration.runtimes`.
   - Click "**Edit in settings.json**".
   - Add the following entry (adjust path for your specific installation):

Windows:

```
{
    // Java JDK Configuration
    "java.configuration.runtimes": [
        {
            "name": "JavaSE-21",
            "path": "C:\\Program Files\\Java\\jdk-21.0.8+9",
            "default": true
        }
    ],
    "java.jdt.ls.java.home": "C:\\Program Files\\Java\\jdk-21.0.8+9",
    "java.server.launchMode": "Standard"
```

```
}
```

macOS:

```
{
    // Java JDK Configuration
    "java.configuration.runtimes": [
        {
            "name": "JavaSE-21",
            "path": "/Users/Shared/Java/jdk-21.0.8+9/Contents/Home",
            "default": true
        }
    ],
    "java.jdt.ls.java.home": "/Users/Shared/Java/jdk-21.0.8+9/Contents/Home", // Must match
    "java.server.launchMode": "Standard",
}
```

- **Important:** Remember to use **double backslashes ** in Windows paths within JSON.

1. **Restart VS Code:** Close and reopen VS Code for the changes to take full effect.

OneDrive Configuration Tasks

Next, you'll get your system configured to access the course Java files.

1. Download the source-code files: cs180-source-code-files.zip
2. You get a zip file in your Downloads directory called `cs180-source-code-files.zip`. Right click and extract it.
3. Open the `cs180-source-code-files` folder and find the `source-code` folder.

4. In your OneDrive, create a top-level folder called `cs180`.
5. Copy the `source-code` folder into `cs180`.

The file structure should be similar to this: `~\OneDrive - Bentley University\cs180\source-code\chapter-01`

Each time we access files in VS Code, we will access the chapter folder (example: `~\OneDrive - Bentley University\cs180\source-code\chapter-02`)