### **Development Environment Setup Documentation**

#### **Step-by-Step Instructions**

**1. Select Your Operating System (OS)**

**Download and Install Windows 11:**

1. Visit the [Windows 11 Download Page](https://www.microsoft.com/software-download/windows11).
2. Click on the "Download Now" button to get the Installation Assistant.
3. Run the Installation Assistant and follow the on-screen instructions to install Windows 11.

**2. Install a Text Editor or Integrated Development Environment (IDE)**

**Download and Install Visual Studio Code:**

1. Visit the [Visual Studio Code Download Page](https://code.visualstudio.com/Download).
2. Choose the version for Windows and download the installer.
3. Run the installer and follow the on-screen instructions to complete the installation.

**3. Set Up Version Control System**

**Install Git and Configure It:**

1. Visit the [Git Download Page](https://git-scm.com/download/win).
2. Download and run the Git installer.
3. Follow the installation steps, selecting the default options.

Open a terminal (Command Prompt or Git Bash) and configure Git with your name and email:  
bash  
  
git config --global user.name "Your Name"

git config --global user.email "your.email@example.com

**Create a GitHub Account:**

1. Visit [GitHub](https://github.com) and sign up for a new account if you don't have one.

**Initialize a Git Repository:**

Open Visual Studio Code.

Open the terminal within VS Code (View -> Terminal).

Navigate to your project directory:  
  
cd path/to/your/project

Initialize a new Git repository:  
  
git init

Add files to the repository and make your first commit:  
git add .

git commit -m "Initial commit"

**4. Install Necessary Programming Languages and Runtimes**

**Install Python:**

1. Visit the [Python Download Page](https://www.python.org/downloads/).
2. Download the latest version for Windows.
3. Run the installer and ensure you check the box "Add Python to PATH".

Verify the installation by opening a terminal and typing:  
python --version

**5. Install Package Managers**

**Install pip (Python Package Manager):**

pip is included with Python installations from Python 3.4 onwards. Verify pip installation:  
pip --version

If not installed, download get-pip.py from [pip documentation](https://pip.pypa.io/en/stable/installation/) and run:  
python get-pip.py

**6. Configure a Database (MySQL)**

**Download and Install MySQL:**

1. Visit the [MySQL Installer Page](https://dev.mysql.com/downloads/windows/installer/5.7.html).
2. Download the MySQL Installer and run it.
3. Select "Server Only" and proceed with the installation.
4. Configure MySQL as per your requirements (e.g., root password, default schema).

**Install Extensions:**

1. Open VS Code.
2. Go to the Extensions view by clicking the Extensions icon in the Activity Bar on the side of the window or by pressing Ctrl+Shift+X.
3. Search for each extension by name and click "Install".

### **Reflection on Challenges and Solutions**

During the setup of the development environment, several challenges were encountered and resolved as follows:

1. **Using Docker:**
   * **Challenge:** Docker Desktop not starting.
   * **Solution:** Updated Windows to the latest version and enabled virtualization in BIOS settings.