**1. Operating System Installation**

**1.1 Windows 11 Installation**

**Step 1: Download Windows 11**

* Visit the [Windows 11 download page](https://www.microsoft.com/software-download/windows11).
* Click on **“Download Now”** to get the installation assistant.

**Step 2: Run the Installation Assistant**

* Open the downloaded file and follow the prompts.
* Ensure your device meets the [system requirements](https://www.microsoft.com/windows/windows-11-specifications).

**Step 3: Complete the Installation**

* Choose to upgrade your current Windows installation or create installation media for a clean install.
* Follow the on-screen instructions to complete the installation.

**Troubleshooting:**

* If the installation fails, check for pending updates and ensure your hardware is compatible.

**2. IDE Installation and Configuration**

**2.1 Visual Studio Code Setup**

**Step 1: Download VS Code**

* Visit the [Visual Studio Code download page](https://code.visualstudio.com/Download).
* Select the appropriate version for Windows and download the installer.

**Step 2: Install VS Code**

* Run the installer and follow the prompts. Ensure you select options to add VS Code to your PATH for easy command line access.

**Step 3: Initial Setup**

* Open VS Code. You will see a welcome page with various tips and tools for getting started.

**Step 4: Install Extensions**

* Click on the Extensions view icon on the Sidebar or press Ctrl+Shift+X.
* Search for and install the following extensions:
  + **Python** by Microsoft
  + **GitLens** by GitKraken
  + **Docker** by Microsoft
  + **ESLint** by Dirk Baeumer
  + **Prettier** by Prettier

**Configuration:**

* Go to File > Preferences > Settings and customize settings like font size, theme, and autosave according to your preferences.

**3. Version Control System Setup**

**3.1 Git Installation and Configuration**

**Step 1: Download Git**

* Visit [Git for Windows](https://git-scm.com/download/win) and download the installer.

**Step 2: Install Git**

* Run the installer and follow the installation prompts. Use the default settings unless you have specific requirements.

**Step 3: Configure Git**

* Open Command Prompt or PowerShell and set up your username and email:

*git config --global user.name "Your Name"*

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

**Step 4: Verify Installation**

* Check the Git version to ensure it’s installed correctly:

*git --version*

**3.2 GitHub Account Setup**

**Step 1: Create a GitHub Account**

* Go to [GitHub](https://github.com) and sign up for a free account.

**Step 2: Create a New Repository**

* Log in to GitHub and create a new repository by clicking the + icon and selecting “New repository”.

**Step 3: Initialize Git Repository Locally**

* Navigate to your project directory in Command Prompt or PowerShell and initialize a Git repository:

*cd path/to/your/project*

*git init*

**Step 4: First Commit**

* Add a README file and make your first commit:

*echo "# My Project" >> README.md*

*git add README.md*

*git commit -m "Initial commit"*

**Step 5: Connect to GitHub**

* Follow the instructions on GitHub to connect your local repository and push your changes:

*git remote add origin https://github.com/yourusername/your-repo.git*

*git branch -M main*

*git push -u origin main*

**Troubleshooting:**

* If you encounter authentication issues, ensure you have set up SSH keys or use a personal access token.

**4. Programming Language Setup**

**4.1 Python Installation**

**Step 1: Download Python**

* Go to [Python.org](https://www.python.org/downloads/) and download the latest version for Windows.

**Step 2: Install Python**

* Run the installer, check the box to add Python to PATH, and follow the installation prompts.

**Step 3: Verify Installation**

* Open Command Prompt or PowerShell and check the Python version:

*python --version*

**4.2 Package Manager Installation (pip)**

**Step 1: Verify pip Installation**

* pip is included with Python. Verify its installation:

*pip --version*

**Step 2: Upgrade pip (if necessary)**

* Upgrade pip to the latest version:

*python -m pip install --upgrade pip*

**Step 3: Install Required Packages**

* Use pip to install necessary packages for your project:

*pip install package\_name*

**Troubleshooting:**

* If you encounter SSL certificate issues, use the --trusted-host flag to bypass them temporarily.

**5. Database Setup**

**5.1 My Installation and Configuration**

**Step 1: Download My Installer**

* Visit the [My download page](https://dev.mysql.com/downloads/windows/installer/5.7.html) and download the installer.

**Step 2: Install My**

* Run the installer and choose the “Developer Default” setup type. Follow the prompts to complete the installation.

**Step 3: Configure My**

* During installation, configure the server with a root password and set up My Workbench.

**Step 4: Create a Database**

* Open My Workbench, connect to the local My server, and create a new database:

*CREATE DATABASE my\_project\_db;*

**Step 5: Verify the Database**

* List all databases to confirm creation:

*SHOW DATABASES;*

**Troubleshooting:**

* If you cannot connect, check that the My service is running and firewall rules allow access.

**6. Troubleshooting and Customizations**

**Windows 11 Installation Issues:**

* **Error Message:** If you receive errors related to TPM or secure boot, ensure these are enabled in BIOS settings.

**VS Code Extension Issues:**

* **Failed to Install:** Ensure you are connected to the internet and VS Code is up to date.

**Git Authentication Problems:**

* **SSH Key Issues:** Regenerate SSH keys and add them to your GitHub account.

**Python Package Installation Errors:**

* **SSL Errors:** Use --trusted-host to temporarily bypass certificate checks.