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Below is a comprehensive document outlining the steps taken to set up your developer environment.**

Developer Environment Setup Documentation

**Objective**

This document provides a detailed guide on setting up a robust and productive developer environment for software engineering projects. It includes steps for installing the necessary tools, configurations, customizations, and troubleshooting measures encountered during the process.

1. Select Your Operating System (OS)

Chosen OS: Windows 11

Steps:

1. Download Windows 11 from the [official Microsoft website](https://www.microsoft.com/software-download/windows11).

2. Create a bootable USB drive using the Windows Media Creation Tool.

3. Restart your computer and boot from the USB drive.

4. Follow the on-screen instructions to install Windows 11.

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

Chosen IDE: Visual Studio Code

Steps:

1. Download Visual Studio Code from the [official website](https://code.visualstudio.com/Download).

2. Run the installer and follow the on-screen instructions to complete the installation.

3. Set Up Version Control System

Steps:

1. Download and install Git from the [official website](https://git-scm.com/download/win).

2. Open Git Bash and configure your Git username and email:

```bash

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

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

```

3. Create a GitHub account at [github.com](https://github.com).

4. Initialize a Git repository:

```bash

mkdir my\_project

cd my\_project

git init

echo "# My Project" >> README.md

git add README.md

git commit -m "Initial commit"

```

5. Create a new repository on GitHub and follow the instructions to push your local repository to GitHub.

4. Install Necessary Programming Languages and Runtimes

Chosen Language: Python

Steps:

1. Download Python from the [official website](https://www.python.org/downloads/).

2. Run the installer and ensure to check the box "Add Python to PATH".

5. Install Package Managers

Chosen Package Manager: pip (Python)

Steps:

1. pip is included with Python installation. Verify by typing:

```bash

pip --version

```

6. Configure a Database (MySQL)

Steps:

1. Download MySQL Installer from the [official website](https://dev.mysql.com/downloads/windows/installer/5.7.html).

2. Run the installer and follow the on-screen instructions to install MySQL.

3. Set up a root password and create a new database.

7. Set Up Development Environments and Virtualization (Optional)

Optional Tool: Docker

Steps:

1. Download Docker Desktop from the [official website](https://www.docker.com/products/docker-desktop).

2. Run the installer and follow the on-screen instructions.

3. Verify the installation by opening a command prompt and typing:

8. Explore Extensions and Plugins

Extensions for Visual Studio Code:

1. Python Extension: Provides rich support for Python.

2. GitLens- Supercharges the Git capabilities built into Visual Studio Code.

3. Prettier: Code formatter.

9. Reflection on Challenges and Solutions

Challenges Faced:

1. Operating System Installation: Initial issues with booting from the USB drive were resolved by changing the BIOS boot order.

2. Git Configuration: Ensuring correct email and username setup for commits.

3. MySQL Installation: Encountered difficulties with the initial setup of the root password which required reinstalling MySQL.

4. Python Installation Without pip: Some installations of Python might not include pip.

Solutions:

1. USB Boot Issues: Used a different USB drive and confirmed the boot sequence in BIOS settings.

2. Git Configuration: Verified settings by running `git config --list`.

3. MySQL Password Setup: Followed a detailed installation guide to properly set up MySQL and the root password.

4. Manual Installation of pip:

