GitHub and VS Code Tutorial

Overview

This tutorial provides step-by-step instructions on how to set up GitHub, use Visual Studio Code (VS Code), and perform basic Git operations. Whether you're new to version control or looking to improve your workflow, this guide will help you get started with confidence.

Topics Covered

- Setting Up GitHub Account and Repository
- Installing and Configuring Visual Studio Code (VS Code)
- Cloning Repositories
- Basic Git Commands: Status, Add, Commit, Push, Pull

Target Audience

This tutorial is aimed at beginners and intermediate users who want to learn version control with Git and GitHub and use VS Code effectively for software development and collaboration.

Tools Required

- GitHub Account
- Visual Studio Code (VS Code)
- Git (installed with VS Code or separately)

Prerequisites

- Basic understanding of file management and command-line interface (CLI)
- Familiarity with software development concepts (optional)

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Credits

- This tutorial was created with assistance from ChatGPT, a language model developed by OpenAI. ChatGPT provided guidance and structure for the content.

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Part 1: Setting Up GitHub

1. Create a GitHub Account

1. Go to GitHub.
2. Click on Sign up and follow the instructions to create your account.
3. Verify your email address by clicking on the link sent to your email.

2. Create a New Repository

1. Once logged in, click on the + icon in the top right corner and select new repository.
2. Fill in the repository details:
    - **Repository name**: e.g., MyFirstRepo
    - **Description**: (optional)
    - **Public** or **Private**
    - **Initialize this repository with a README** (optional)
3. Click Create repository.

Part 2: Setting Up Visual Studio Code (VS Code)

1. Install VS Code

1. Download and install VS Code from here.

2. Install Git

1. Download and install Git from here.
2. Follow the default installation steps.

3. Install VS Code Extensions

1. Open VS Code.

2. Go to the Extensions view by clicking on the Extensions icon in the Activity Bar on the side of the window or by pressing Ctrl+Shift+X.
3. Search for and install the following extensions:
    - **GitHub Pull Requests and Issues**
    - **GitLens**
    - **Arduino** (if you are working with Arduino projects)

Part 3: Cloning a Repository

1. Open VS Code and Clone a Repository

1. Open VS Code.
2. Open the Command Palette by pressing Ctrl+Shift+P.
3. Type Git: Clone and select it.
4. Enter the repository URL from GitHub. For example:

   https://github.com/username/repository.git

5. Select the local directory where you want to clone the repository.

Part 4: Basic Git Commands

1. Open a Terminal in VS Code

1. Go to View > Terminal or press `Ctrl+`` (backtick).

2. Basic Git Commands

Check Repository Status: Use git status to see the current state of your working directory and staging area. This command lists which files have been modified, added, or deleted since the last commit.

Stage Changes: To prepare specific files for the next commit, use `git add <file>`. Alternatively, `git add .` stages all changes in the current directory.

Commit Changes: After staging changes, commit them with `git commit -m "Your commit message."`. Replace `"Your commit message."` with a concise description of your changes.

Push Changes: To upload committed changes to the remote repository, execute `git push origin <branch_name>`. Replace `<branch_name>` with your branch's name (e.g., `main`). This action synchronizes your local and remote repositories.