Getting Started with Git on Windows and MacOS: Creating a Local Repository and Syncing with GitHub

Prerequisites

- A GitHub account (https://github.com/)
- Git installed on your machine (https://git-scm.com/downloads)
- A text editor (e.g., Visual Studio Code, Notepad++, or built-in Notepad)

Installing Git on Windows

1. Download the Git installer from https://git-scm.com/downloads.
2. Run the installer and follow the setup wizard.
3. Ensure that you select the following options during installation:
    - "Git Bash Here" for easy command-line access.
    - "Use Git from the Windows Command Prompt" (optional but recommended).
    - "Use the OpenSSL library" for HTTPS connections.
4. Finish the installation and restart your computer if prompted.

Installing Git on MacOS

1. Open **Terminal**.
2. Check if Git is already installed by running:

   git --version

3. If Git is not installed, install it using Homebrew:

   brew install git

4. Verify the installation:

   git --version

Step 1: Configure Git

Before creating a repository, configure Git with your name and email:

```
git config --global user.name "Your Name"
git config --global user.email "your-email@example.com"
```

You can check your configuration with:

```
git config --list
```

Step 2: Create a Local Repository

1. Open **Git Bash** (Windows) or **Terminal** (MacOS).
2. Navigate to the folder where you want to create your repository:
3. # Windows
   cd C:\Users\YourName\Documents\YourProject
   # MacOS
   cd /Users/YourName/Documents/YourProject

4. Initialize a new Git repository:

   ```
   git init
   ```

   This creates a hidden .git folder that tracks changes.

Step 3: Create a New File and Add It to Git

1. Create a file (e.g., README.md) and open it in a text editor.
2. Add some content, save, and close the file.
3. Add the file to Git tracking:

   ```
   touch README.md
   ```

4. Commit the changes with a message:

   ```
   git commit -m "Initial commit"
   ```

Step 4: Create a Remote Repository on GitHub

1. Log in to your GitHub account.
2. Click the **+** icon in the top right and select **New repository**.
3. Enter a repository name and choose whether it's **Public** or **Private**.
4. Click **Create repository**.

Step 5: Link Local Repository to GitHub

1. Copy the repository URL from GitHub.

2. In Git Bash (Windows) or Terminal (MacOS), add the remote origin:

    git remote add origin https://github.com/your-username/your-repository.git

3. Verify the remote connection:

    git remote -v

Step 6: Push Local Repository to GitHub

1. Push your local commits to GitHub:

    git push -u origin main

    If "main" branch does not exist, rename the default branch:

    git branch -M main

    Then push again:

    git push -u origin main

Additional Commands

- **Check repository status**:

    git status

- **View commit history**:

    git log

- **Pull latest changes from GitHub**:

    git pull origin main

- **Create a new branch**:

    git checkout -b new-branch