🔐 Setting Up GitHub and Connecting via SSH (Windows & macOS)

This guide walks you through creating a GitHub account, generating an SSH key on your laptop, and connecting your system (Windows or macOS) securely to GitHub for development.

🧭 1️⃣ Create a GitHub Account

1. Go to https://github.com/.
2. Click **Sign up** and create your account.
3. Verify your email address.
4. Once logged in, click your profile icon → **Settings** → **SSH and GPG keys**.
   You'll add your SSH key here later.

💻 2️⃣ Install Git

Windows

1. Download Git for Windows:
   👉 https://git-scm.com/download/win
2. Run the installer and select:
   - Use **Git from the command line and also from 3rd-party software**
   - Default editor: **Visual Studio Code**
   - Line endings: **Checkout Windows-style, commit Unix-style**
3. Once installed, open **Git Bash** and verify:

```
git --version
```

👨‍🏫 3️⃣ Configure Git (Global Settings)

Set your global name and email (must match your GitHub account):

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

Verify your configuration:

```
git config --list
```

🔑 4️⃣ Generate an SSH Key

This creates a secure connection between your computer and GitHub.

For both Windows (Git Bash) and macOS (Terminal):

1. Run this command (replace email with your GitHub email):

```
ssh-keygen -t ed25519 -C "your_email@example.com"
```

2. When prompted for a file location, press **Enter** (default: `~/.ssh/id_ed25519`).
3. When asked for a passphrase, you can press **Enter** (optional but recommended).
4. Once done, start the SSH agent:

```
eval "$(ssh-agent -s)"
```

📎 5️⃣ Add the SSH Key to Your GitHub Account

1. Copy your SSH public key:

   ```
   cat ~/.ssh/id_ed25519.pub
   ```

2. Copy the entire output (starts with `ssh-ed25519`).
3. Go to **GitHub → Settings → SSH and GPG Keys → New SSH Key**.
4. Paste the key into the **Key** box and give it a **Title** (e.g., "My Laptop").
5. Click **Add SSH key**.

🧪 6️⃣ Test Your Connection

Run:

```
ssh -T git@github.com
```

You should see:

```
Hi <your-username>! You've successfully authenticated, but GitHub does not provide shell access.
```

✅ If you see this message, your SSH connection is working correctly.

🧰 7️⃣ Clone a Repository

Once your SSH key is connected, you can clone repositories without entering your username/password every time.

Example:

```
git clone git@github.com:username/repository-name.git
```

You can now:

- Commit changes
- Push and pull securely using SSH

🧩 8️⃣ Connect VS Code to GitHub

1. Open **Visual Studio Code**.
2. Install the **GitHub Pull Requests and Issues** extension (by GitHub).
3. Open the **Command Palette** (`Ctrl + Shift + P` on Windows / `Cmd + Shift + P` on macOS).
4. Type and select:

   ```
   Git: Clone
   ```

5. Paste your SSH repo URL (from the green “Code” button on GitHub → SSH tab).
6. Once cloned, VSC will automatically detect the repository.

🔄 9️⃣ Optional: Verify SSH Key is Loaded on Startup

Windows

Edit your `~/.bashrc` or `~/.bash_profile`:

```
eval "$(ssh-agent -s)"
ssh-add ~/.ssh/id_ed25519
```

macOS

Edit your `~/.zshrc` or `~/.bash_profile`:

```
eval "$(ssh-agent -s)"
ssh-add --apple-use-keychain ~/.ssh/id_ed25519
```

This ensures your key loads automatically when you open a terminal.

🎓 Summary

You have now:

- Created a GitHub account
- Installed Git
- Generated and added an SSH key
- Verified secure GitHub access
- Linked VS Code for seamless development

You can now clone, commit, push, and pull safely using SSH on **both Windows and macOS** 🚀