An **SSH** key is an access credential for the **SSH (secure shell) network protocol**. This authenticated and encrypted secure network protocol is used for remote communication between machines on an unsecured open network. SSH is used for remote file transfer, network management, and remote operating system access.

Using **SSH authentication** with GitHub is a secure and convenient way to avoid entering credentials repeatedly. Here's a full step-by-step guide:

## ✅ ****Step-by-Step: Set Up SSH Authentication for GitHub****

### ****1. Check for existing SSH keys (optional)****

Open your terminal and run:

ls -al ~/.ssh

Look for files like:

id\_rsa / id\_ed25519

id\_rsa.pub / id\_ed25519.pub

If you have them already, you can reuse them. If not, move to step 2.

### ****2. Generate a new SSH key****

Run the following (replace your email with your GitHub email):

ssh-keygen -t ed25519 -C "your\_email@example.com"

If you get an error that ed25519 is not supported, use rsa instead:

ssh-keygen -t rsa -b 4096 -C "your\_email@example.com"

When prompted:

**File location**: Press Enter to accept the default (~/.ssh/id\_ed25519)

**Passphrase**: Optional (adds extra security)

### ****3. Add your SSH key to the ssh-agent****

Start the agent:

eval "$(ssh-agent -s)"

Then add your key:

ssh-add ~/.ssh/id\_ed25519

### ****4. Add the SSH key to your GitHub account****

Copy your public key to your clipboard:

cat ~/.ssh/id\_ed25519.pub

Copy the full output.

Then:

Go to **GitHub → Settings → SSH and GPG keys**:  
<https://github.com/settings/keys>

Click **"New SSH key"**

Title: anything (e.g., “My Laptop”)

Paste your copied key into the box

Click **"Add SSH key"**

### ****5. Change your Git remote URL to SSH****

If your remote uses HTTPS, change it to SSH:

First, check your current remote:

git remote -v

Then switch it:

git remote set-url origin git@github.com:USERNAME/REPO.git

Example:

git remote set-url origin git@github.com:MARIUMAFTABKHAN/Git-Course.git

### ****6. Test the SSH connection****

Run:

ssh -T git@github.com

You should see something like:

Hi USERNAME! You've successfully authenticated, but GitHub does not provide shell access.

### ****7. Now Push Your Code****

You can now push without entering a username/password:

git push -u origin master

Touch index.html

ls

ls -dart

git config --global user.name “”

git config --global user.email “”

Git config --list

Git init

Git status

Git add index.html

Git commit -m”code”

Git remote add origin <paste repo url>

Git push -u origin master

**If authentication error comes:**

Ls -al ~/.ssh

If no such file or directory error comes:

ssh-keygen -t ed25519 -C “email\_address”

/c/Users/MT/.ssh

cat ~/.ssh/id\_ed25519.pub

ssh -T [git@github.com](mailto:git@github.com)

git remote set-url origin [git@github.com:<paste](mailto:git@github.com:<paste) repo url>

git remote -v

git push -u origin master

**After successful uploading if new file add:**

git status

git add .

git commit -m”code”

git push