Lab Exercise 5- Generate and Use SSH Key with Git and GitHub

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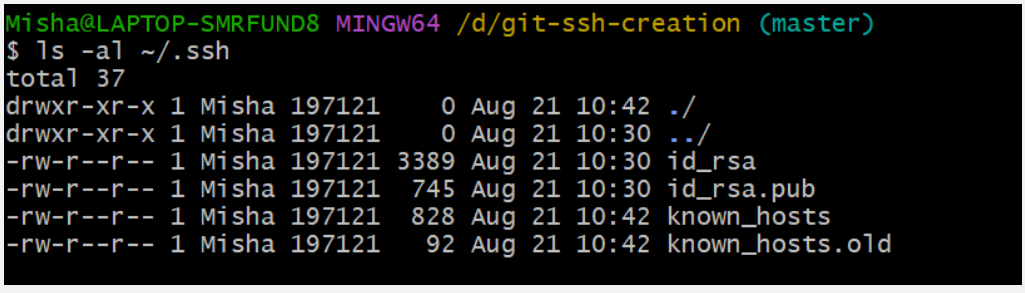
Objective:

To learn how to generate an SSH key, add it to GitHub, and use it to securely connect and push code without repeatedly entering a password.

Step 1 – Check for Existing SSH Keys

Run:

```
ls -al ~/.ssh
```



Look for files like id_rsa and id_rsa.pub. If they exist, you may already have an SSH key.

Step 2 – Generate a New SSH Key

Run:

```
ssh-keygen -t rsa -b 4096 -C your_email@example.com
```

```
Misha@LAPTOP-SMRFUND8 MINGW64 /d/git-ssh-creation (master)
$ ssh-keygen -t rsa -b 4096 -C "mishu5705@gmail.com"
Generating public/private rsa key pair.
Enter file in which to save the key (/c/Users/Misha/.ssh/id_rsa):
/c/Users/Misha/.ssh/id_rsa already exists.
Overwrite (y/n)?
```

- **-t rsa** → key type
- **-b 4096** → key length
- **-C** → comment (your GitHub email)

Step 3 – Start the SSH Agent

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

```
Misha@LAPTOP-SMRFUND8 MINGW64 /d/git-ssh-creation (master)
$ eval "$(ssh-agent -s)"
Agent pid 1126
```

Step 4 – Add SSH Key to the Agent

```
ssh-add ~/.ssh/id_rsa
```

```
Misha@LAPTOP-SMRFUND8 MINGW64 /d/git-ssh-creation (master)
$ ssh-add ~/.ssh/id_rsa
Identity added: /c/Users/Misha/.ssh/id_rsa (mishu5705@gmail.com)
```

Step 5 – Add SSH Key to GitHub

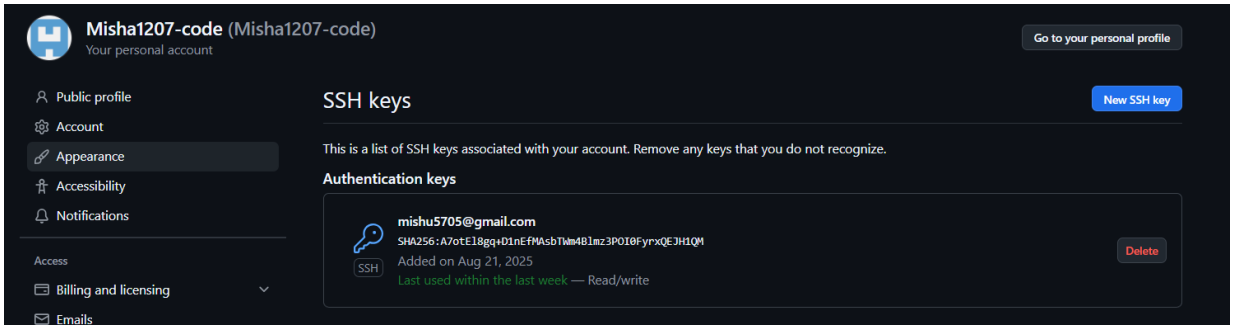
1. Copy the public key:

```
cat ~/.ssh/id_rsa.pub
```

```
$ cat ~/.ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAACAQC5so+GNt1IezjayoBqaO9UZABFLp2Oqd/pg3/Nvw7x9LcCin+H3dObmXpGETQgSJ46UCVSom8kPThR6OM8XU85sZyzbOi579h1lMiVk8r9vYgivahus8/OwiYERoqYilgXLIZzOC4MMvSvpf5AICHNsKieyUOzRhtfVt1YmPENjwXdG2SONw5NndNPe6TRlcGGJ4JvA7DFqmMwriOuWWp8o9x/oOJRa/Yf3IA/VBBmRlveGi5CgI5W+s//cFq+JqBwY1bAf13w8S48KAKoOuIc2vlpO/bhUrpowFrvm7LWktBjHLmBk23TpiLT1DiUVNBO+oFAWbQOcXQ4FbqGgQmddbIT7sh97guwaqacdYq9/EqS8czJwRaggSZcV2MQ/SAZucLU5uPAZRIhBZ7mJ373tuRM3QgJPJiFfAOew5Os5mo4Xg6ceodsGUx7t6gWx/Q/OpxadAHP5fiOse5DCjV5aAm4YEGoaDsIrSXqJR9AO6cbdtlcekPQ+wGqQPJXcLOg4X9y5WGsQhENYw== mishu5705@gmail.com
```

2. Log in to GitHub → **Settings** → **SSH and GPG Keys** → **New SSH key**.

3. Paste the key and save.



Step 6 – Test SSH Connection

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

```
Misha@LAPTOP-SMRFUND8 MINGW64 /d/git-ssh-creation (master)
$ ssh -T git@github.com
Hi Misha1207-code! You've successfully authenticated, but GitHub does not provide shell access.
```

Step 7 – Use SSH to Clone a Repository

```
git clone git@github.com:<username>/<repository>.git
```

Now you can pull and push without entering your username/password.