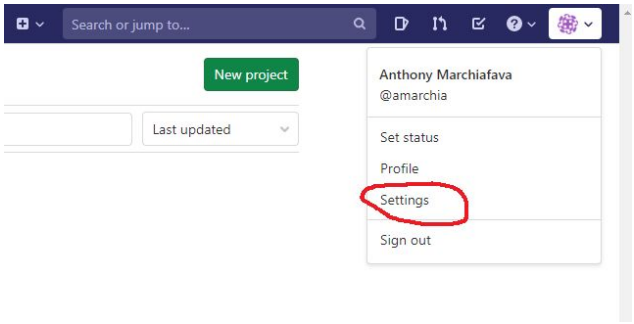
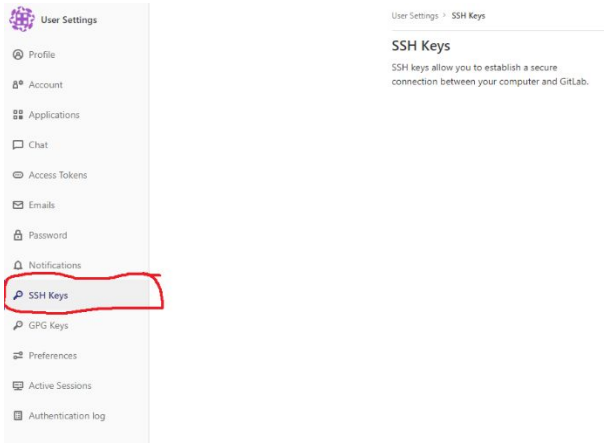
SSH is a protocol for “secure remote login and other secure network services over an insecure network”[1] . We can use this protocol to log into gitlab by storing a private key on our computers and a public key on UNO’s gitlab server. Once set up on your machine you would not need to put in your password to use HTTPS to access your gitlab repository via the terminal.

This assumes you already have some sort of shell you can use such as a linux terminal or the bash shell included in git for windows. I’ll be showing examples from Git Bash (the git for windows bash shell). First I’ll log into https://gitlab.cs.uno.edu/ via my web browser. I’ll navigate to my settings page by clicking my icon on the upper right hand corner and clicking the settings button.

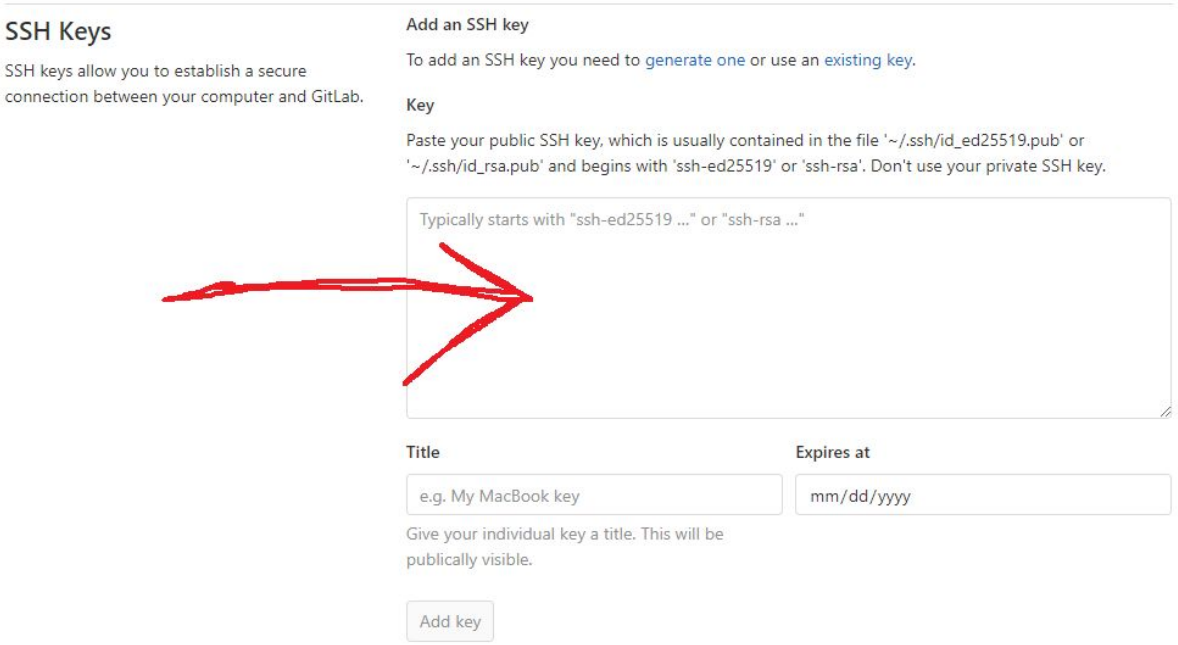


Then I click on the SSH Keys tab on the left hand side.

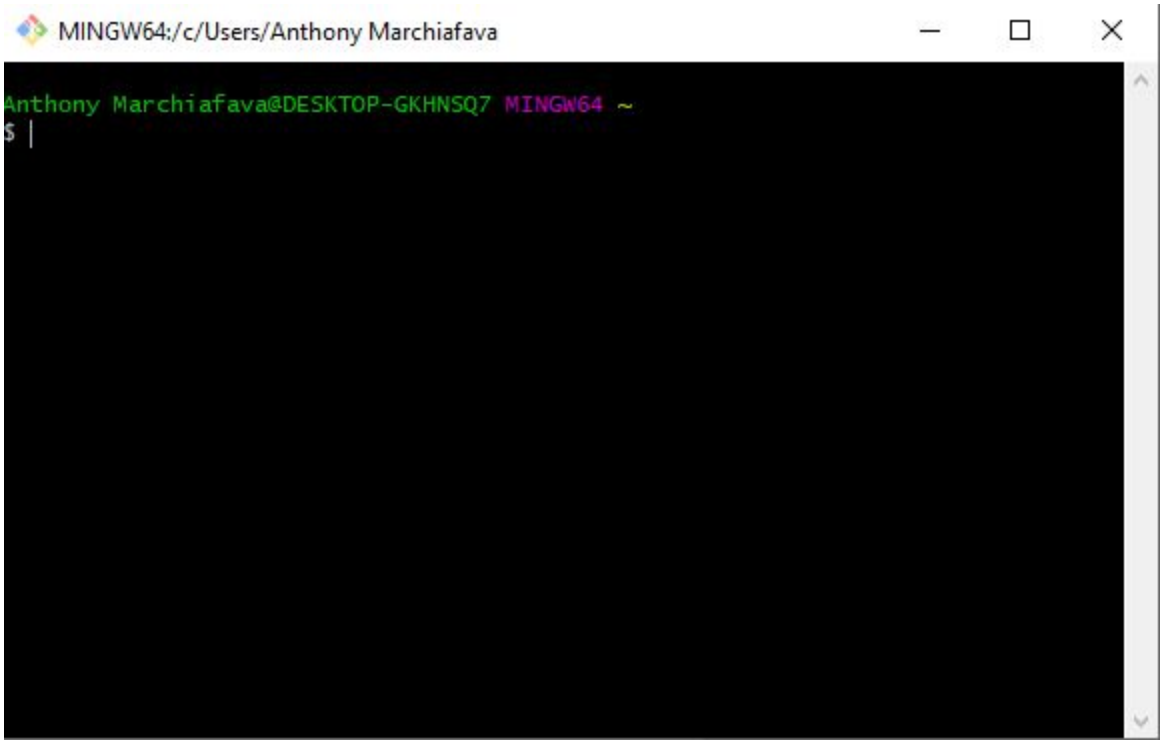


Now I see a page with a list of all my SSH keys. This will be where we input our public key we generate.

[1] https://tools.ietf.org/html/rfc4251



To generate our public and private key pair, we need to open a terminal.

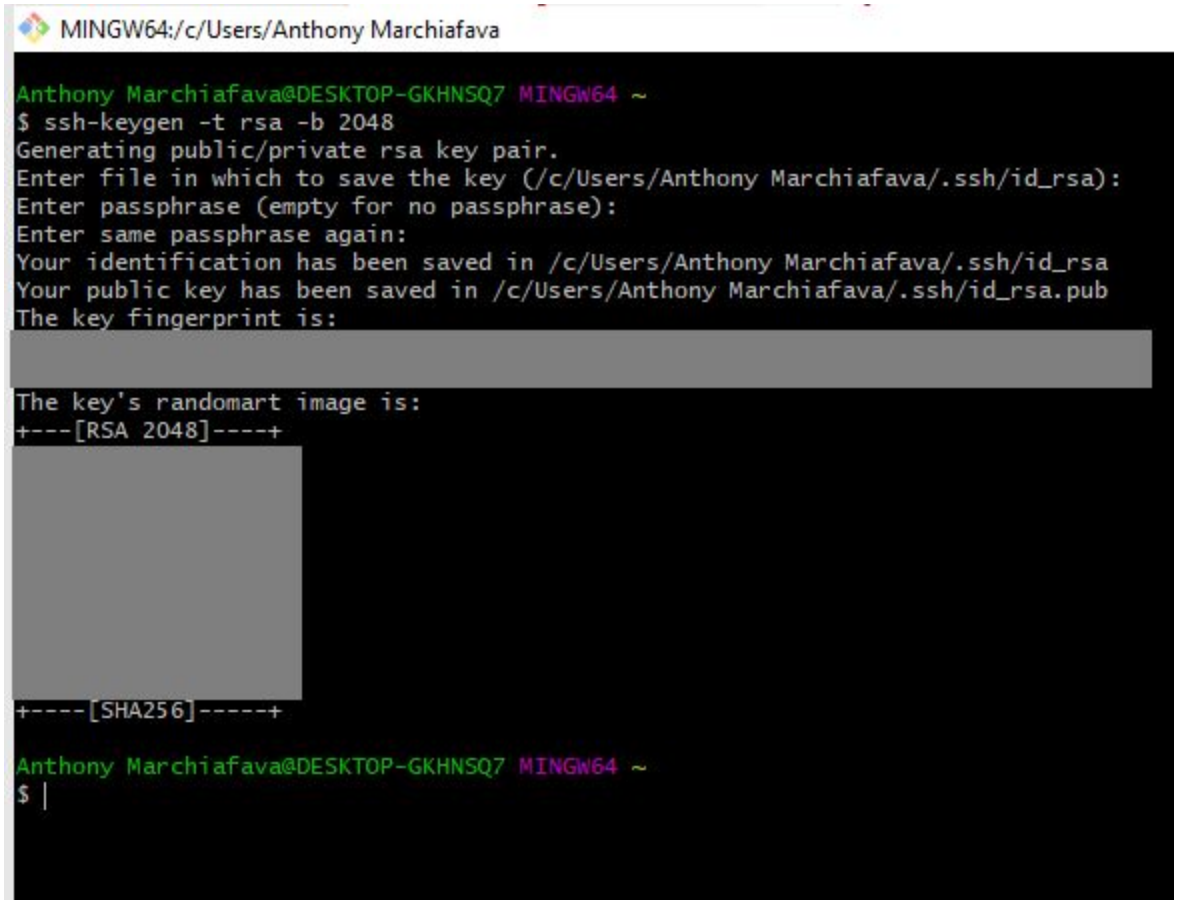


We can use the command `ssh-keygen -t rsa -b 2048` to generate a key with a keysize of 2048 bits. By default it will save to a folder in your home directory called ".ssh" which will be hidden. Throughout

these instructions I'll use folder and directory. Generally I will use them interchangeably. I will try to use folders for folders/directories on windows and directory for folders/directories on linux. The ideas are the same.

When you hit enter it will ask you which file you want to use. If you just hit enter again it will make a file in the folder .ssh.

You can hit enter again to leave your passphrase empty, and hit enter again to confirm the empty passphrase. You should see a printout like this.



Now you should navigate to the .ssh folder. You can use the change directory command (cd) to do this by typing:

cd .ssh

Now you should be in the .ssh folder. As a side note, when you see ~, that is a way of saying the home directory.[2]

To get the contents of the file we need, we can list out the files in our current folder using the list command (ls).

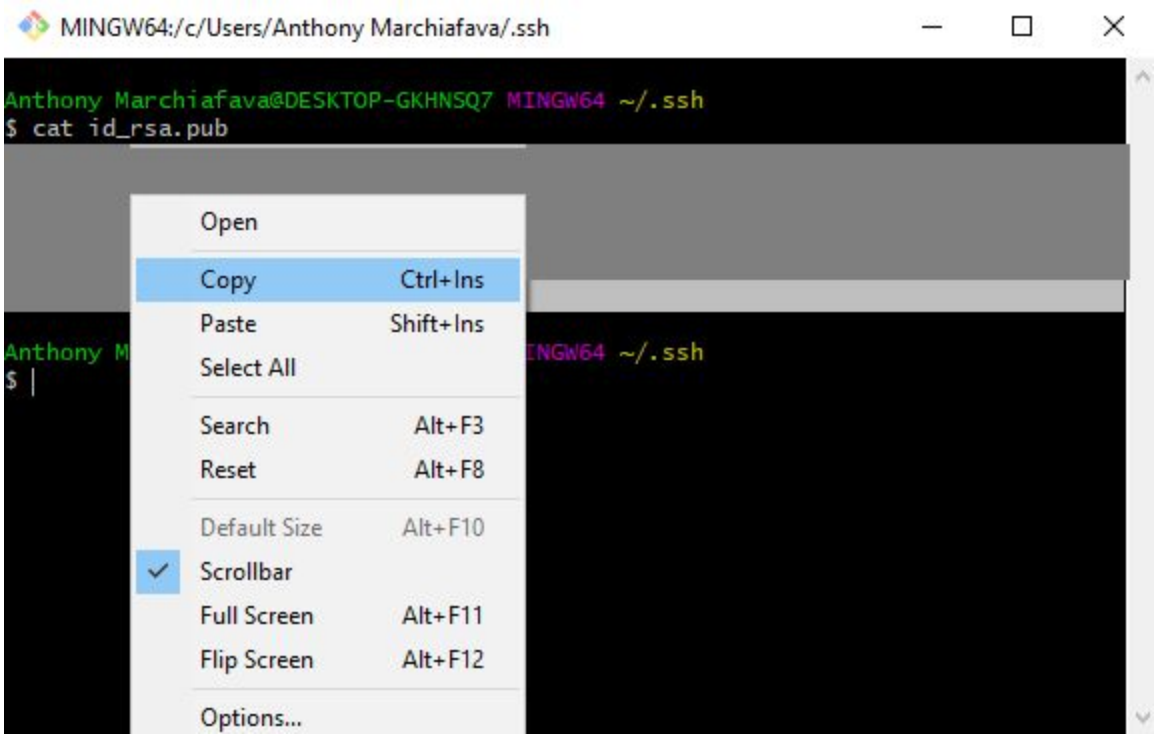
```
Anthony Marchiafava@DESKTOP-GKHNSQ7 MINGW64 ~/.ssh
$ ls
id_rsa  id_rsa.pub
```

The file we are looking for is id_rsa.pub. That has the public key we need to give gitlab.

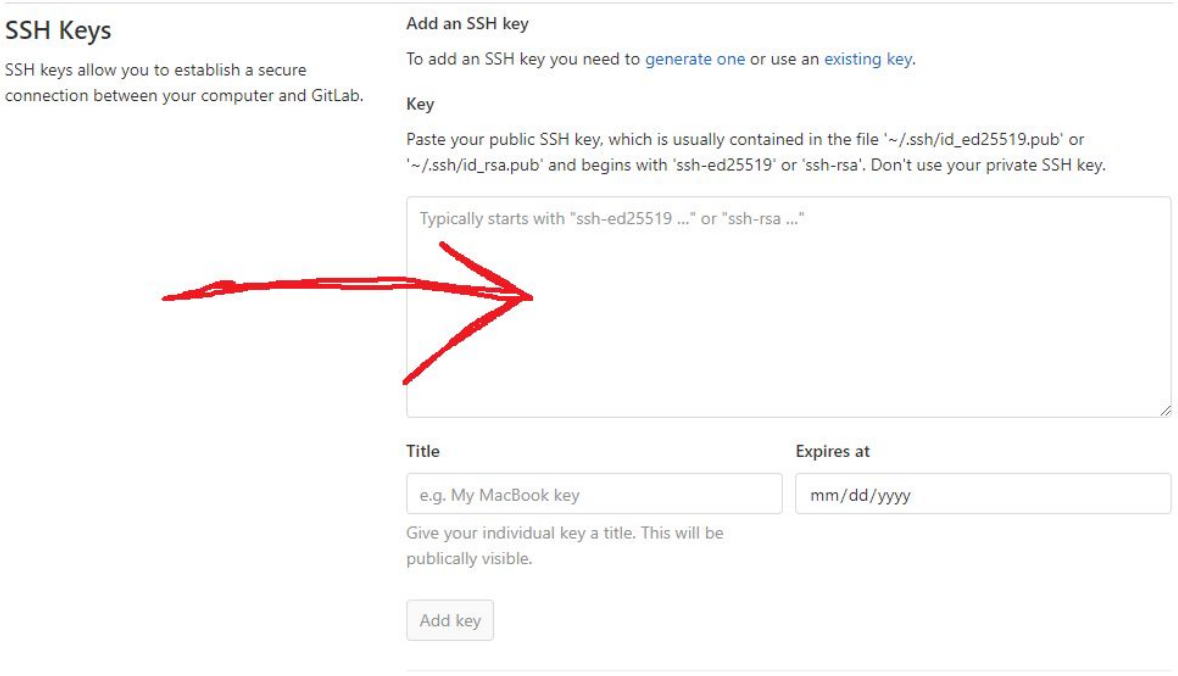
To show what's inside that file, we can use the text concatenate command (cat) and the parameter is the file name of the file we want to concatenate and display to the screen. Here we are only putting one file, so it isn't really concatenating with anything else but it still displays to the screen.

The blocked out text is the text you want (including the ssh-rsa which you can still see). Try highlighting all of it and copying the text by right clicking and selecting copy.

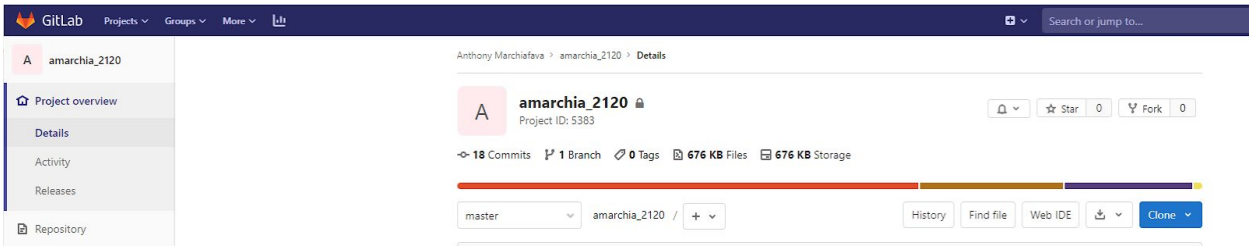
[2] If you ever get lost and want to go home, you can type in "cd ~" and that should bring you home.



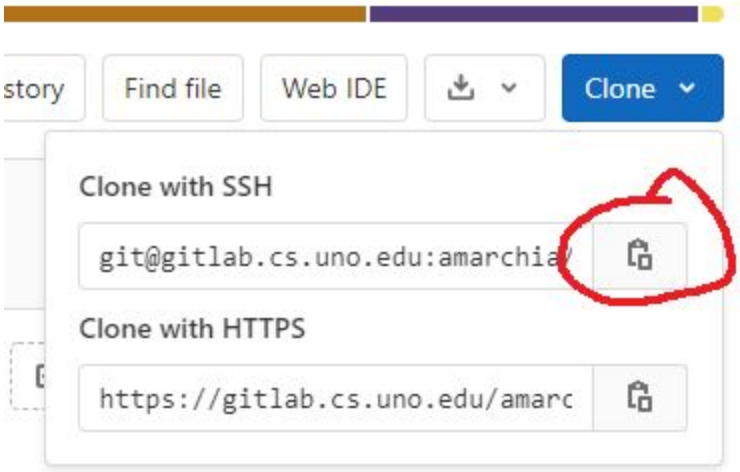
Now paste that text into gitlab and click “Add key”. That should add your key. You should receive an email saying a key has been added to your account.



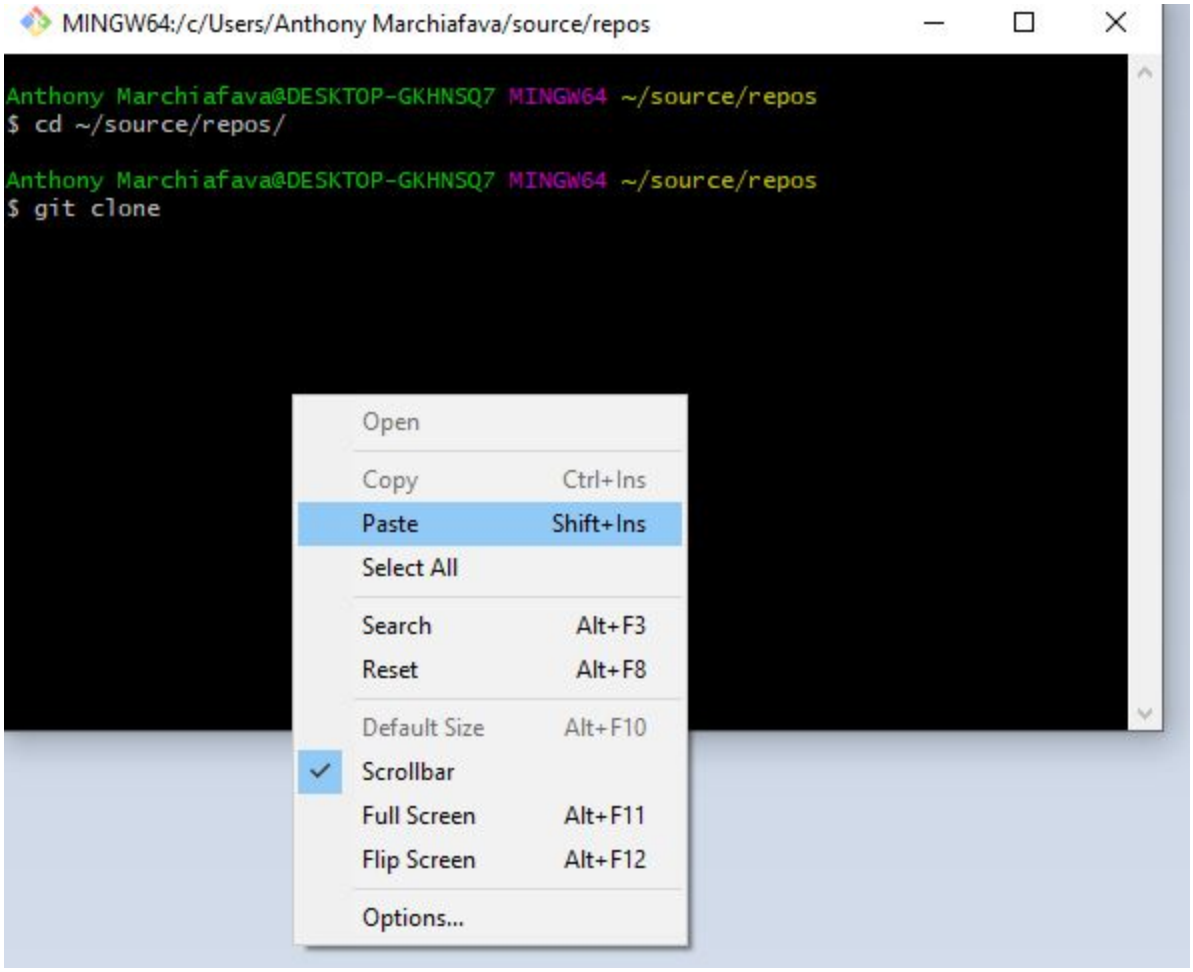
Now navigate to the course git repository.



Select clone. Copy the text from “Clone with SSH”



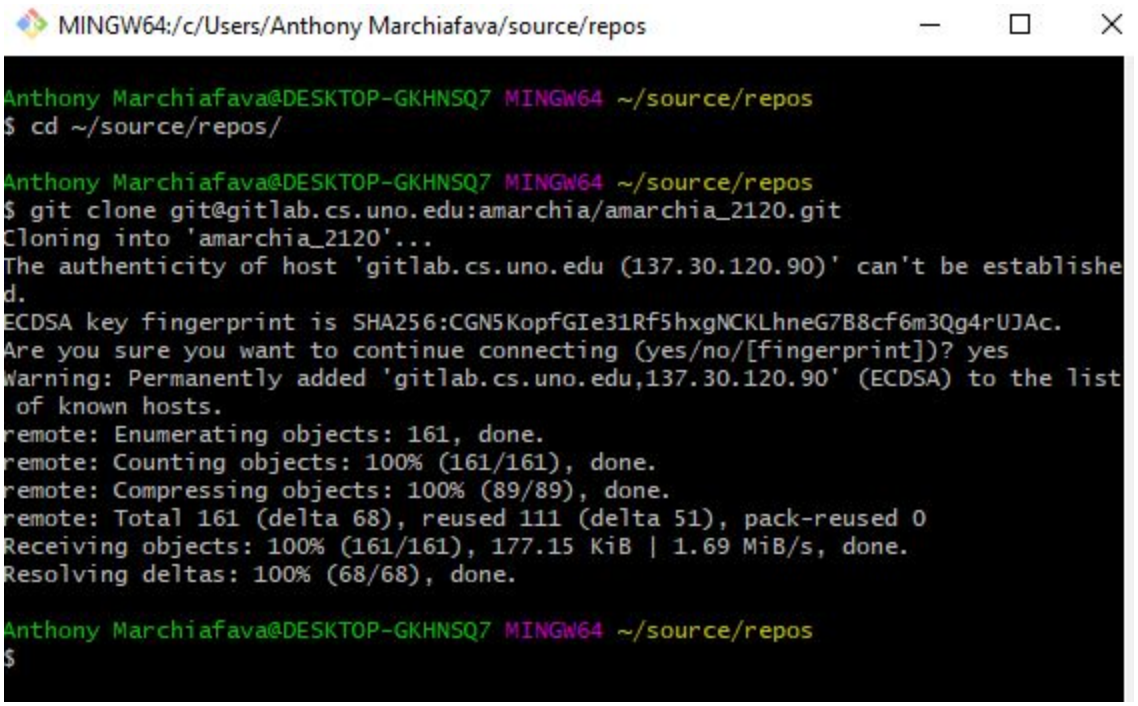
Now navigate to where you want to clone your repository to. I choose “~/source/repos” though you may choose elsewhere.



Then type in “git clone“ and add a space, then paste the command you got from gitlab. My command was: `git clone git@gitlab.cs.uno.edu:amarchia/amarchia_2120.git`

```
Anthony Marchiafava@DESKTOP-GKHNSQ7 MINGW64 ~/source/repos
$ git clone git@gitlab.cs.uno.edu:amarchia/amarchia_2120.git
Cloning into 'amarchia_2120'...
The authenticity of host 'gitlab.cs.uno.edu (137.30.120.90)' can't be establishe
d.
ECDSA key fingerprint is SHA256:CGN5KopfGIe31Rf5hxgNCKLhneG7B8cf6m3Qg4rUJAc.
Are you sure you want to continue connecting (yes/no/[fingerprint])?
```

Since this is the first time you are connecting via SSH it will ask you if you are sure you want to connect. We are connecting to gitlab.cs.uno.edu so we type in “yes”.



Then it should clone any of the files it sees. See the git tips handout for further notes.