

Installation Day!

CMPSC 101, Lab 1
Aug 29, 2024

Technical Leaders

<https://www.cis.allegheny.edu/teaching/technicalleaders/>

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WE ARE **TECHNICAL**

We aim to achieve competence and excellence in technical knowledge, its applications, and effects.

WE ARE **INCLUSIVE**

We provide an inclusive community environment which invites and celebrates diversity of experience, thought, and belief.



WE ARE **ETHICAL**

We make decisions rooted in the principles of equity and justice, focusing on the greater good of our communities.

WE ARE **RESPONSIBLE**

We honor commitments and take responsibility for our actions and outcomes.

OUR SHARED VALUES

Technical Goals

- **Clone** a sample **repo** linked in Discord
- **locally** load the **virtual environment**
- receive **Gatorgrade** report

.... but how if all this **jargon** is new?

Think of this as a challenge

- to almost find a solution, then start over
- to turn it into a story for your friends
- to help students do the same thing next semester and next year!

Hopefully you will also learn some of the jargon along the way

Problem-solve: sub-goals

Access Accounts

- **GitHub**
- **Discord**

Install Software

- **Sublime Text 4**
- **Git**
- **Python 3.8** or later
- **Poetry**
- **Gatorgrade**

Bridge between online and local

- **SSH key**

Be Persistent

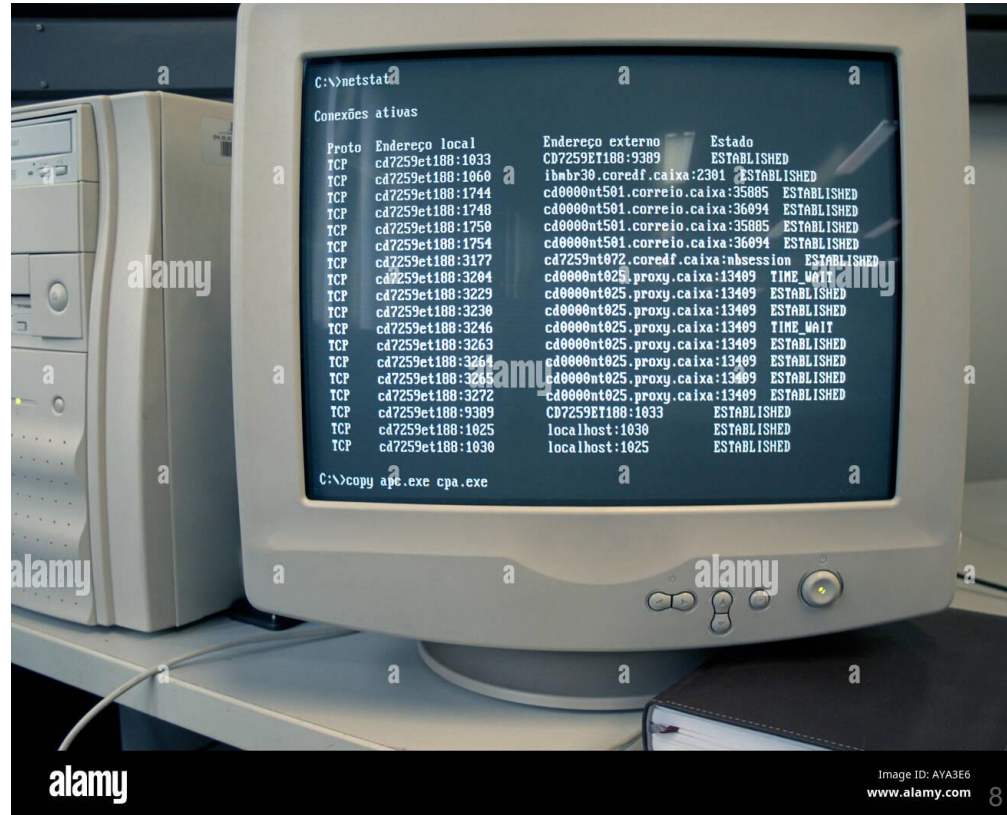
Everyone's system will be slightly different

- When something is not working:
 1. open a new **terminal** and check again
 2. read & google the **errors**
 3. ask your neighbors what they did
 4. reboot system (more common for windows)
 5. talk to TLs in lab and TL office hours
 6. come to instructor office hours

Once this process is done, you will be able to establish a **workflow** on your computer!

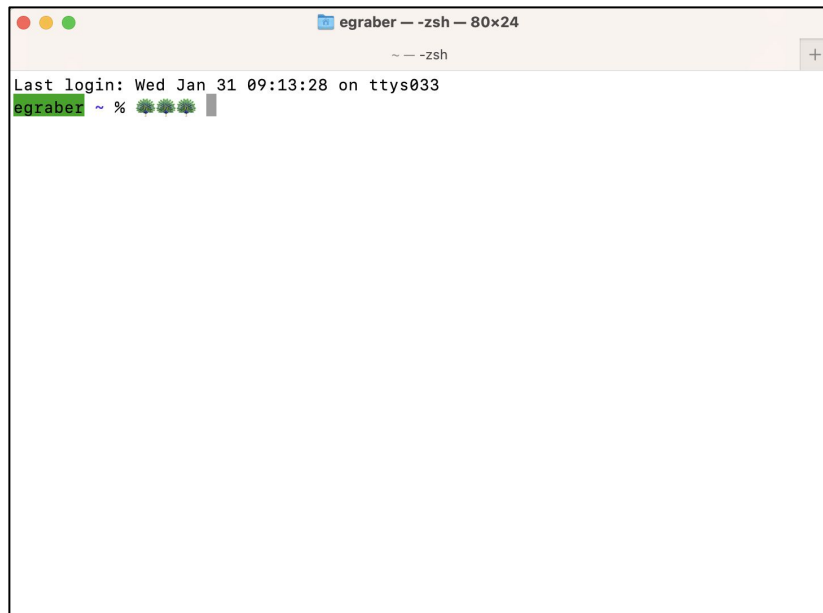
Introduction to Terminal

Before there were GUIs, there was the terminal

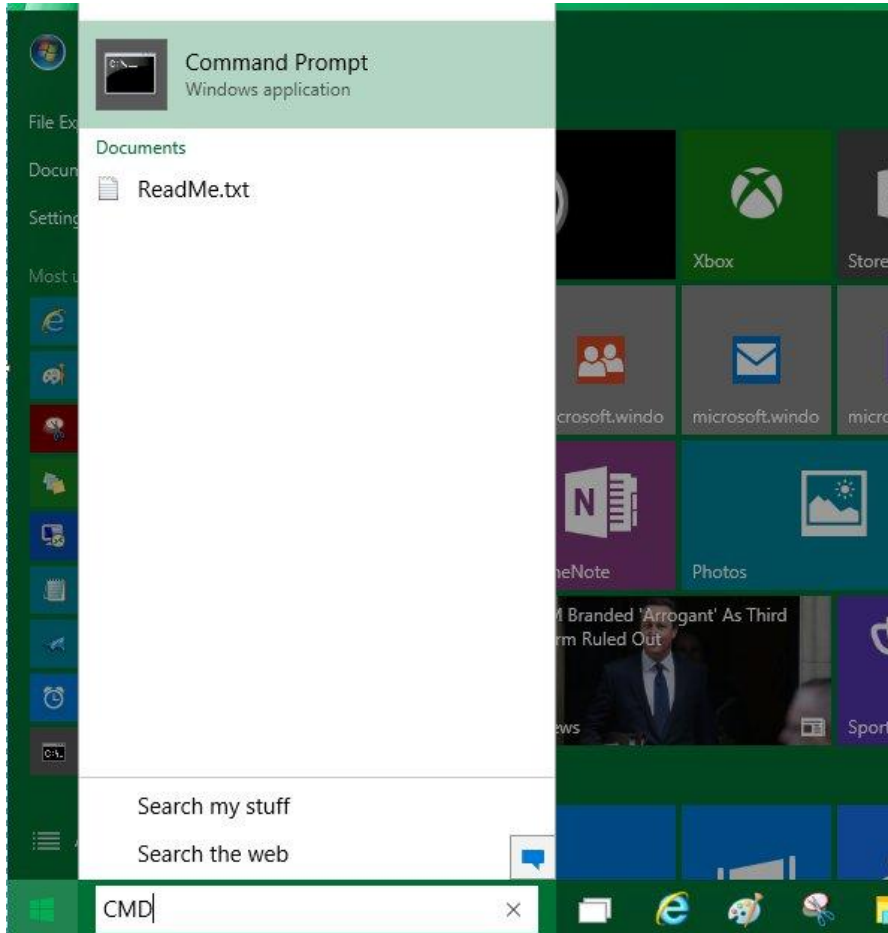


Terminal vocab

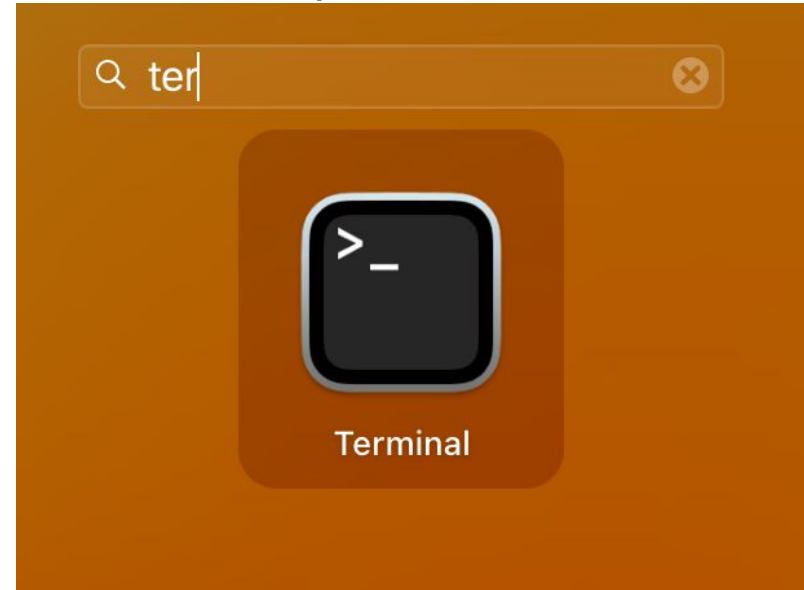
- Terminal is a program that allows you to access all the files, folders, and programs on your computer without a **GUI**
- Notice the blinking cursor
- Text-based interaction!!!
- aka, typing **interface**
- Mouse may be used for highlighting
- Another name for the blinking cursor is the **command line**
- Programs that use can be used in the terminal are said to have a **command line interface**



cmd



space terminal



In order to use the terminal...

- know where your files are
 - a **path** specifies a location on your computer
 - separated by / (mac) \ (windows)
 - (mac) ~/Documents/courses/cmpsc101/course-materials/README.md
 - (windows) ~\Documents\courses\cmpsc101\course-materials\README.md
- you will need to call **command line interface (CLI)** programs from the terminal
 - **ls** (CLI to list files in bash - linux, macos)
 - **dir** (CLI to list files in powershell - windows)
 - **cd** (CLI to change directories)
 - **ssh-keygen** (CLI to generate an SSH key)
 - **pipx** (CLI to help install other things)
 - **pwd** (CLI to print working **directory**)

```
Users — zsh — 80x24
/Users — zsh

Last login: Wed Jan 17 09:17:18 on ttys006
egraber ~ % pwd
/Users/egraber
egraber ~ % ls
Applications  Downloads  Movies      Pictures     S2024-CMPSC105
Desktop      F2023-CMPSC101 Music      Public       S2024-CMPSC101
Documents    Library    Papers
egraber ~ % cd ..
egraber /Users % pwd
/Users
egraber /Users % 
egraber /Users % 
egraber /Users % 
egraber /Users % python --version
Python 3.11.5
egraber /Users %
```

n.b. after most updates, it is necessary to open up a new terminal!

Strongly recommend opening a new tab so that old information can be referenced if needed

Instructions Chromebook


Note your **Operating System (OS)** for next installations

- RAM must be $\geq 4\text{GB}$
- Sometimes the Linux subsystem can be used, but best course of action is to borrow a computer - <https://www.cis.allegHENY.edu/resources/laptops/>
- To attempt Linux activation, see these instructions: [Set up Linux on your Chromebook](#)
 - then follow linux instructions

Instructions Windows

Note your **Operating System (OS)** for next installations

Windows

- 
- type **about**
- note if your system is
 - windows 11?
 - windows 10?
 - 32 or 64 bit

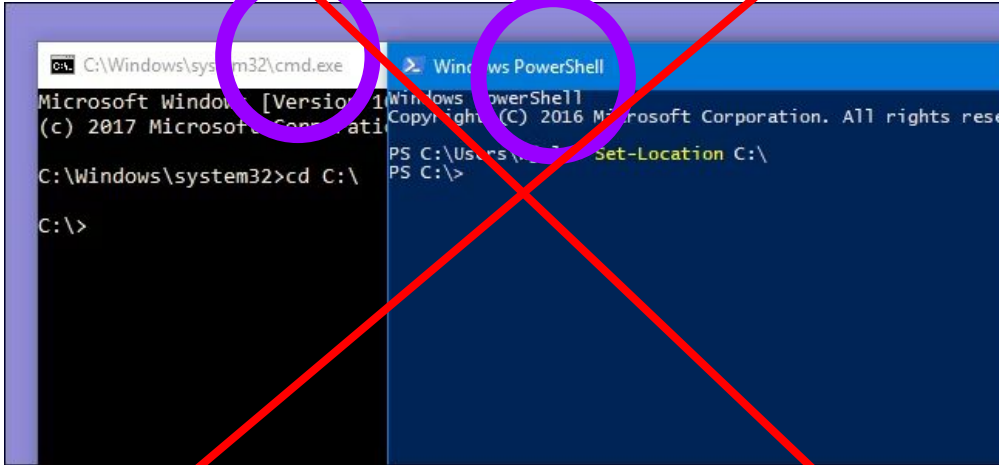
Download Sublime Text

<https://www.sublimetext.com/>

If given the option, choose 32 or 64-bit installer to match your system

What **shell** are you using

cmd or Powershell



Get WSL2 or gitbash instead

<https://git-scm.com/download/win>

Choose 32 or 64-bit to match your system

^^ bonus for doing this is that you also get **git**

Deal with Python

May need to reboot before using gitbash

```
▣ gitbash
```

Then, check if a good python version already installed. (P.S. Don't type the >>, that is just a symbol used to indicate the cursor, aka **command line prompt**)

```
▣ gitbash
```

```
>> python --version
```

```
or..
```

```
>> py --version
```

If python 3 is installed, version greater or equal to 3.8...should be good to go!

Otherwise, <https://www.python.org/downloads/windows/>, choose 32 or 64-bit **installer** to match your system. **Highly recommend selecting Add python to path or environment variables in the installer!**

^^bonus of this is that it comes with **pip**

If you need to uninstall the windows microsoft store version....check this:

<https://learn.microsoft.com/en-us/hololens/holographic-store-apps>

Get pipx

<https://pipx.pypa.io/stable/installation/>

follow windows instructions, using pip

- Install via pip (requires pip 19.0 or later)

```
# If you installed python using Microsoft Store,
```

alternate method

Windows (ref: <https://python.land/virtual-environments/pipx>)

Use pipx to get **poetry** and **gatorgrade**

Don't forget to open a new terminal

```
>> pipx install poetry
```

```
>> pipx ensurepath
```

reference - <https://python-poetry.org/docs/#installing-with-pipx>

→ GatorGrade: Check if you have gatorgrade

→ `gatorgrade --help`

If you don't have it:

- ◆ `pipx install gatorgrade`
- ◆ `pipx ensurepath`

alternate: `pip install gatorgrade`

Make an **SSH key**

First, check if you already have one for your CURRENT COMPUTER in GitHub

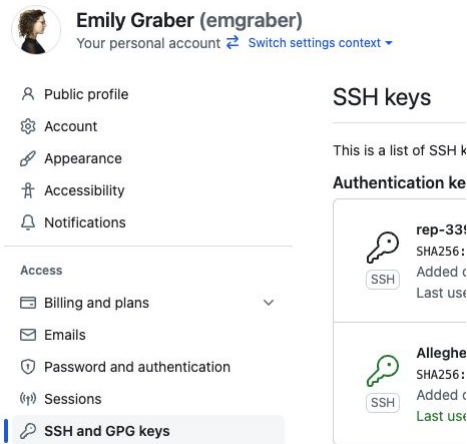
→ <https://github.com/settings/keys>

If you don't have one

- in the terminal, type: **ssh-keygen -t ed25519**
- Hit enter to use default location in ~/.ssh
- Make a passphrase that you will remember!

Add public SSH key to GitHub

- first display the public key in the terminal
 - macos, type >> **cat ~/.ssh/id_ed25519.pub**
 - windows, easiest way seems to be to open notepad. drag and drop **public** key into notepad.
public key located in **C:\Users\YOURNAME\.ssh**
- copy the public key, and paste into github (settings>ssh keys>new)



Instructions Mac / Linux

Note your **Operating System (OS)** for next installations

MacOS

- ⌘ space
- type **about**
- note the numbers at the bottom, like Ventura 13.5.1

Linux

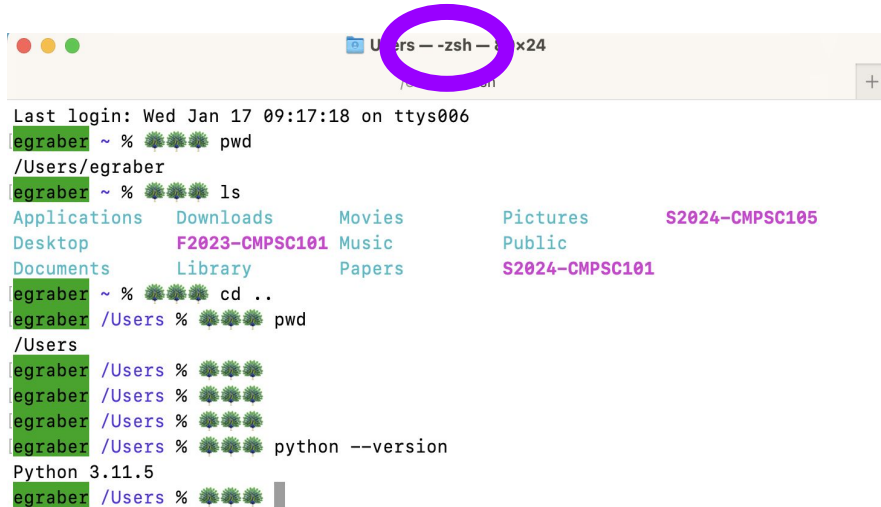
- terminal **lsb-release -a**

Download Sublime Text

<https://www.sublimetext.com/>

What **shell** are you using

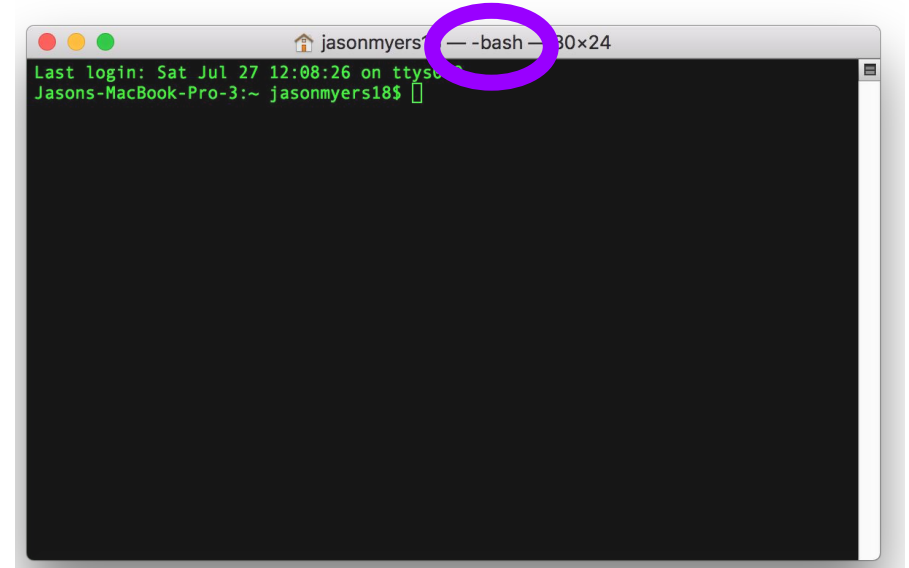
Z shell



A terminal window titled "Users --zsh-- 80x24" with a purple circle around the shell name. The window shows a user named "egraber" logging in on "Wed Jan 17 09:17:18 on ttys006". The user runs "pwd" and "ls", which displays a directory listing with various folders like Applications, Desktop, Documents, Downloads, Movies, Music, Pictures, Public, and Papers. The user then runs "cd .." and "pwd", showing the current directory is "/Users". Finally, the user runs "python --version", which outputs "Python 3.11.5".

```
Last login: Wed Jan 17 09:17:18 on ttys006
egraber ~ % pwd
/Users/egraber
egraber ~ % ls
Applications  Downloads  Movies      Pictures     S2024-CMPSC105
Desktop       F2023-CMPSC101  Music       Public
Documents     Library      Papers      S2024-CMPSC101
egraber ~ % cd ..
egraber /Users % pwd
/Users
egraber /Users % 
egraber /Users % 
egraber /Users % 
egraber /Users % python --version
Python 3.11.5
egraber /Users %
```

Bash



A terminal window titled "jasonmyers --bash-- 80x24" with a purple circle around the shell name. The window shows a user named "jasonmyers18" logging in on "Sat Jul 27 12:08:26 on ttys006". The user runs "pwd", which outputs "Jasons-MacBook-Pro-3:~ jasonmyers18\$".

```
Last login: Sat Jul 27 12:08:26 on ttys006
Jasons-MacBook-Pro-3:~ jasonmyers18$
```

Deal with python

Check if good python version already installed. (P.S. Don't type the >>, that is just a symbol used to indicate the cursor, aka **command line prompt**)

```
>> python --version
>> which python3
>> python3 --version
```

If python 3 is installed, version greater or equal to 3.8...should be good to go!

Otherwise check for **homebrew** - There should be no Homebrew files in /usr/local/bin (for macOS Intel) or /opt/homebrew (for Apple Silicon).

Then actually get **homebrew** - <https://brew.sh/>

Follow all the instructions that appear in the terminal about adding brew to **\$PATH** But be sure the shell profile matches your shell

with Z shell as example ----->

.zprofile

reference, fyi - <https://mac.install.guide/homebrew/3.html>

.bash_profile is the other option

Then open a new terminal

```
>> brew install python
```

==> Next steps:

- Run these two commands in your terminal to add Homebrew to your `PATH`:
(echo; echo 'eval "\$(/opt/homebrew/bin/brew shellenv)'"') >> ~/.zprofile
eval "\$(/opt/homebrew/bin/brew shellenv)"

Install Git

Use brew to install **git** in the terminal. Remember to open a new terminal tab.
(P.S. Don't type the >>, that is just a symbol used to indicate the cursor, aka **command line prompt**)

```
>> brew install git
```

reference for more help - <https://git-scm.com/download/mac>

Get pipx using brew

Don't forget to open a new terminal first, and don't forget the ensurepath command shown in the instructions!

<https://pipx.pypa.io/stable/installation/>

Use pipx to get **poetry** and **gatorgrade**

Don't forget to open a new terminal

```
>> pipx install poetry
```

```
>> pipx ensurepath
```

reference - <https://python-poetry.org/docs/#installing-with-pipx>

→ GatorGrade: Check if you have gatorgrade

→ `gatorgrade --help`

If you don't have it:

- ◆ `pipx install gatorgrade`
- ◆ `pipx ensurepath`

alternate: `pip install gatorgrade`

Make an **SSH key**

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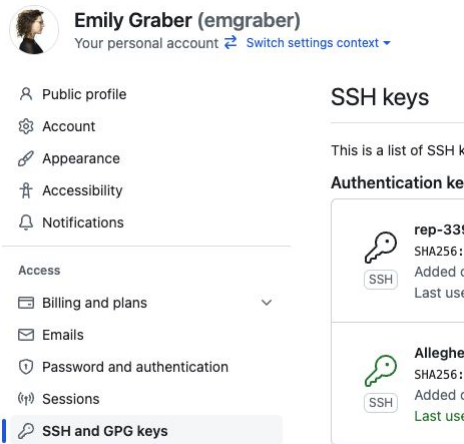
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If you don't have one

- in the terminal, type: **ssh-keygen -t ed25519**
- Hit enter to use default location in ~/.ssh
- Make a passphrase that you will remember!

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- first display the public key in the terminal
 - macos, type >> **cat ~/.ssh/id_ed25519.pub**
 - windows, easiest way seems to be to open notepad. drag and drop **public** key into notepad.
public key located in **C:\Users\YOURNAME\.ssh**
- copy the public key, and paste into github (settings>ssh keys>new)



Test everything

Try this, one line at a time

```
>> poetry --version
>> python --version
>> gatorgrade --help
>> git --version
>> subl --version
>> cd ~/Documents
>> mkdir COMPSC101-F24
>> cd COMPSC101-F24
>> git clone git@github.com:allegheny-college-cmpsc-101-fall-2024/course-materials.git
>> cd course-materials
>> subl .
```

Bonus

Pro Tips - Try them

In the Terminal

- Tab completion
- arrow up/down
- ctrl c
- >> pwd
- >> cd ..
- >> ls

Sublime Text and most text editors including google docs

- cmd arrow left/right
- cmd delete
- opt delete
- cmd z
- cmd shift z
- cmd f
- cmd /

windows version

- ctrl arrow left/right
- ctrl delete
- opt delete
- ctrl z
- ctrl y
- ctrl f
- ctrl /

Markdown tutorial

Formatting matters for presentation!

<https://www.markdownguide.org/basic-syntax/>

Overview

Headings

Paragraphs

Line Breaks

Emphasis

Blockquotes

Lists

Code

Horizontal Rules

Links

Images

Escaping Characters