Terminal and GitHub Basics, Python Refresher

Programming Psychology Experiments

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Lecture 1 | 10 September 2025

The plan for today

1. Gentle introduction to **Terminal/Git Bash** commands
2. Finish setting up the connection between your computer and **GitHub**
3. **Python refresher**: Simple operations, Control flow, Lists, Dictionaries, Functions

Terminal & Git Bash

Terminal Basics

The **Terminal** (on Mac and Linux) and **Git Bash** (on Windows) are applications that allow you to interact with your operating system by **typing commands** instead of **visualizing folders + clicking**

In this class, you will need the Terminal to:

- Run python scripts

```
Barbu@Mac % python script.py
```

- Link your computer to GitHub

```
Barbu@Mac % git add .
Barbu@Mac % git commit -m "Changed X"
Barbu@Mac % git push origin
```

Terminal Basics: `pwd`

The Terminal always opens in **a working directory** (by default, the user directory), just like your GUI File Explorer

To find out which directory you are currently in, type in `pwd` (**p**rint **w**orking **d**irectory)

```
Barbu@Mac % pwd
/Users/Barbu/
```

Terminal Basics: `ls`

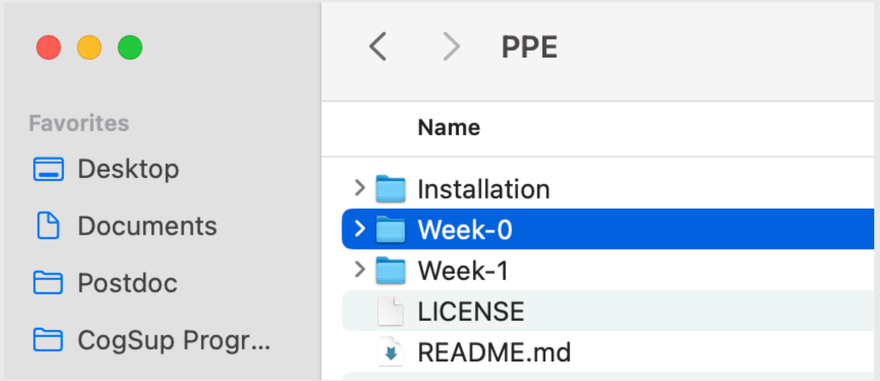
You can **check the contents** of the current working directory by typing in `ls` (**list** directory contents)

```
Barbu@Mac % ls
Applications     Desktop     Music     Calibre Library
Documents        Library     Pictures  Downloads
Movies           Public
```

Confirm this by opening the home folder in your Finder/File Explorer (**MAC**: Finder > Go > Home | **WINDOWS**: C:/Users/YOUR-USERNAME)

Terminal Basics: `cd`

The GUI way (Finder/File Explorer)



The Terminal/Git Bash way (`cd` = **c**hange **d**irectory):

```
Barbu@Mac % cd /Users/Barbu/Documents/Courses/Programming/PPE
Barbu@Mac PPE %
```

Terminal Basics: `cd`

Use `ls` (**l**ist directory contents) and `pwd` (**p**rint **w**orking **d**irectory) in the new working directory

```
Barbu@Mac % cd /Users/Barbu/Documents/Courses/Programming/PPE
Barbu@Mac PPE % ls
Installation    LICENSE    README.md    Week-0
Barbu@Mac PPE % pwd
/Users/Barbu/Documents/Courses/Programming/PPE/Week-0
```

Terminal Basics: `cd`

Every file-related command takes into account the current directory, because the paths you specify are relative to it

```
Barbu@Mac PPE % cd Week-0 # Equivalent to cd /Users/…/PPE/Week-0
Barbu@Mac Week-0 % ls
Lecture 0. Presentation.pdf
Barbu@Mac Week-0 % cd # Takes you back to the home folder
Barbu@Mac % cd Week-0
cd: no such file or directory
```

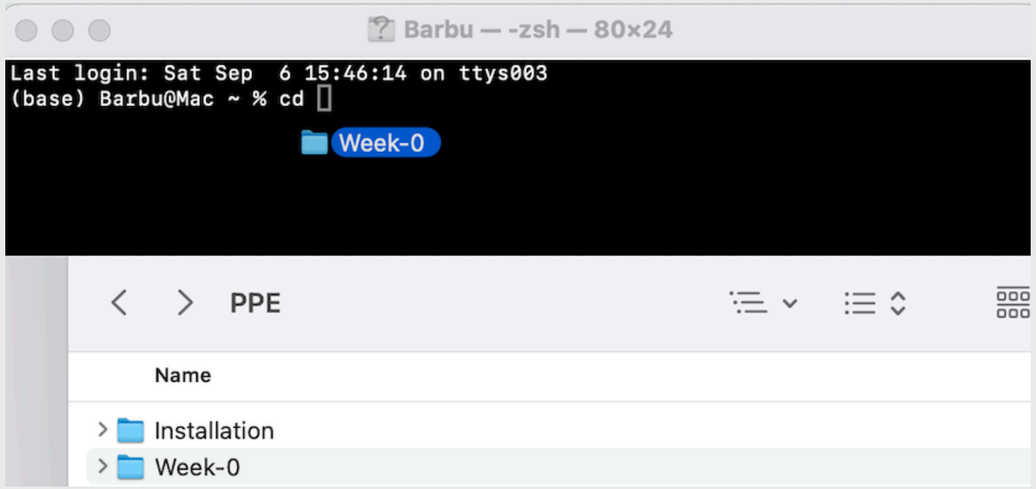
Terminal Basics: `cd ..`

Going back to the parent directory of the current working directory

```
Barbu@Mac % cd /Users/Barbu/Documents/Courses/Programming/PPE/Week-0
Barbu@Mac Week-0 % cd ..
Barbu@Mac PPE % cd Installation
Barbu@Mac Installation % cd ../Week-0 # ≡ cd .. | cd Week-0
Barbu@Mac Week-0 %
```

Terminal Basics: `cd` + drag & drop

Instead of typing the entire path, you can write `cd` followed by `space`, then drag and drop the folder you want to set as your current working directory from your file explorer app



Terminal Basics: ↑ ↓

Instead of retyping recent commands, you can use UP and DOWN arrow keys to toggle through the history of your commands

```
Barbu@Mac % cd /Users/Barbu/Documents/Courses/Programming/PPE/Week-0
Barbu@Mac Week-0 % cd
Barbu@Mac % cd /Users/Barbu/Documents/Courses/Programming/PPE/Week-0
# Instead of typing the whole path again, tap ↑ twice to fill in the whole command, then press RETURN to execute it
```

GitHub Basics

Class Roster

Go to https://docs.google.com/spreadsheets/d/1XT9sPISpiC96Yhe34JNF8yhlZyRwKWZ8wSZt0tJcRSE/edit?usp=sharing

Enter your name, email address, academic background, and GitHub username (GitHub homepage column updates automatically)

Setting Up the Course Folder

Depending on your organization preferences, create a folder dedicated to this class (e.g., …/`Documents/CogSup/Programming`)

```
Barbu@Mac % cd /Users/Barbu/Documents/
Barbu@Mac Documents % mkdir CogSup # Creates CogSup folder
Barbu@Mac Documents % cd CogSup # Go to CogSup folder
Barbu@Mac Cogsup % mkdir Programming # Create Programming folder
Barbu@Mac Cogup % cd Programming # Go to Programming subfolder
```

Setting Up the Course Folder

The **Programming** folder will contain two further subfolders

The first subfolder will correspond to *our* GitHub repository, which will contain the course materials (slides, exercises, etc.)

```
Barbu@Mac Programming % git clone https://github.com/barburevencu/PPE
```

Typing in `ls` should now print the **PPE** folder

Recommended: Rename the **PPE** folder to ‘Materials’ to identify it faster

```
Barbu@Mac Programming % mv PPE Materials
```

Setting Up the Course Folder

The second subfolder will correspond to *your* GitHub repository, which you will use to upload your solutions to the exercises

```
Barbu@Mac Programming % git clone https://github.com/YOUR-GITHUB-USERNAME/cogsup-prog # Change cogsup-prog if your repo has another name
```

Use `ls` to confirm that **cogsup-prog** is part of the Programming folder

Recommended: Rename the **cogsup-prog** folder to **Assignments**

```
Barbu@Mac Programming % mv cogsup-prog Assignments
```

GitHub Basics: `pull`

Let’s check that everything works as it should

To update the **PPE** (**Materials**) folder to the most recent version, go to the folder and *pull* our PPE repository

```
Barbu@Mac Programming % cd Materials
Barbu@Mac Materials % git pull
```

In plain language: Check if there are any new changes on GitHub that I don’t have yet, download them, and update my local copy to include them

GitHub Basics: `push`

To update your GitHub repository with the folders and files in your local folder, you need to *push* your local directory to GitHub

First, let's create a new folder called **Week-1**

```
Barbu@Mac PPE % cd ../Assignments
Barbu@Mac Assignments % mkdir Week-1
Barbu@Mac Assignments % ls
Week-0    Week-1
```

GitHub Basics: `push`

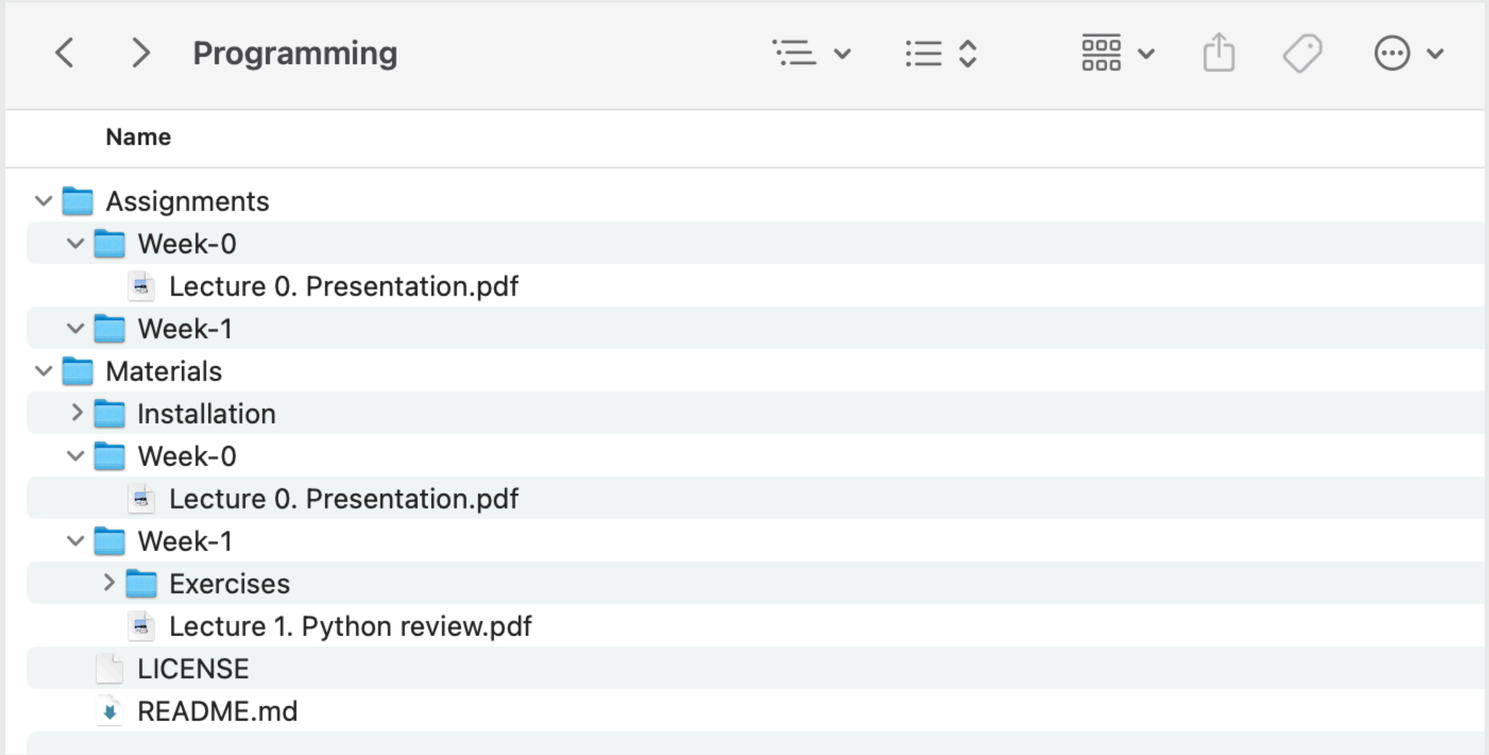
Now let's upload it to GitHub

```
Barbu@Mac Assignments % git add .
Barbu@Mac Assignments % git commit -m "Created Week-1 folder"
Barbu@Mac Assignments % git push origin
```

In plain language:

1. Take a snapshot of *all* the files I've changed
2. Save changes under a label to keep track of what this change was about
3. Upload my changes so they're stored online where others can see them

How your folder structure should like



Let us know if this hasn’t worked for you.

Python Refresher

Preparing the Assignment folder

Let’s move all the materials for Week 1 to your repository

```
Barbu@Mac Assignments % cd Week-1
Barbu@Mac Week-1 % cp -R ../../Materials/Week-1/* .
```

In plain language:

1. `cp`: **copy**
2. **`-R`: r**ecursively (include subfolders)
3. `../../Materials/Week-1/`*****: all contents of this folder
4. `.`: To the current working directory

The first in-class exercise

Type `ls` to confirm that file copying took place

```
Barbu@Mac Week-1 % ls
Exercises    Lecture 1. Python review.pdf
```

Go to **Exercises** and run Exercise-1.1.py

```
Barbu@Mac Week-1 % cd Exercises
Barbu@Mac Week-1 % python Exercise-1.1.py
```

In plain language: Open the file called `Exercise-1.1.py` and interpret it with `python`

Solve Exercise 1.1

`Push` Exercise 1.1 to GitHub

Go back to the parent **Assignment** folder (which is linked to *your* GitHub)

```
Barbu@Mac Exercises % cd ../..
Barbu@Mac Assignment % git add .
Barbu@Mac Assignment % git commit -m "Added solutions to Exercise 1.1"
Barbu@Mac Assignment % git push origin
```

Open your GitHub repository in a browser and check if the changes are reflected there as well. If yes, you're good to go; if not, let us know!

Exercises 1.2–1.5

Go through Exercise 1 by running `python Exercise 1.x.py` in the Terminal for `x` in `[2, 3, 4, 5]`

When done, `push` the Assignments repository to GitHub

Exercise 2 and beyond

In your file explorer, go to the **Assignments/Week-1/Exercises** folder, then open **Exercise-2.py** in Visual Studio Code (VS Code).

For each exercise, you will have to write some code using **loops**. When done, push your work to GitHub.

For questions, get our attention and we'll come to help you.

Repeat for Exercises 3–7.