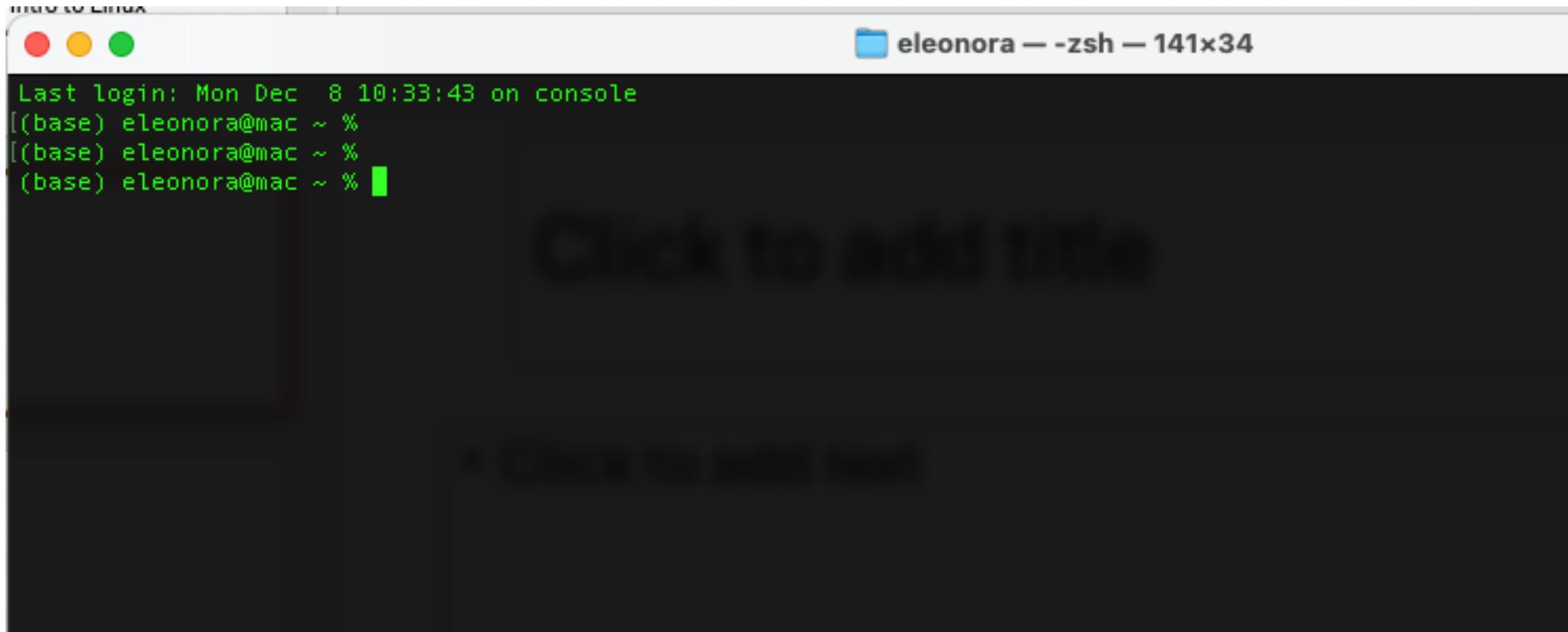


Intro to Unix/Bash

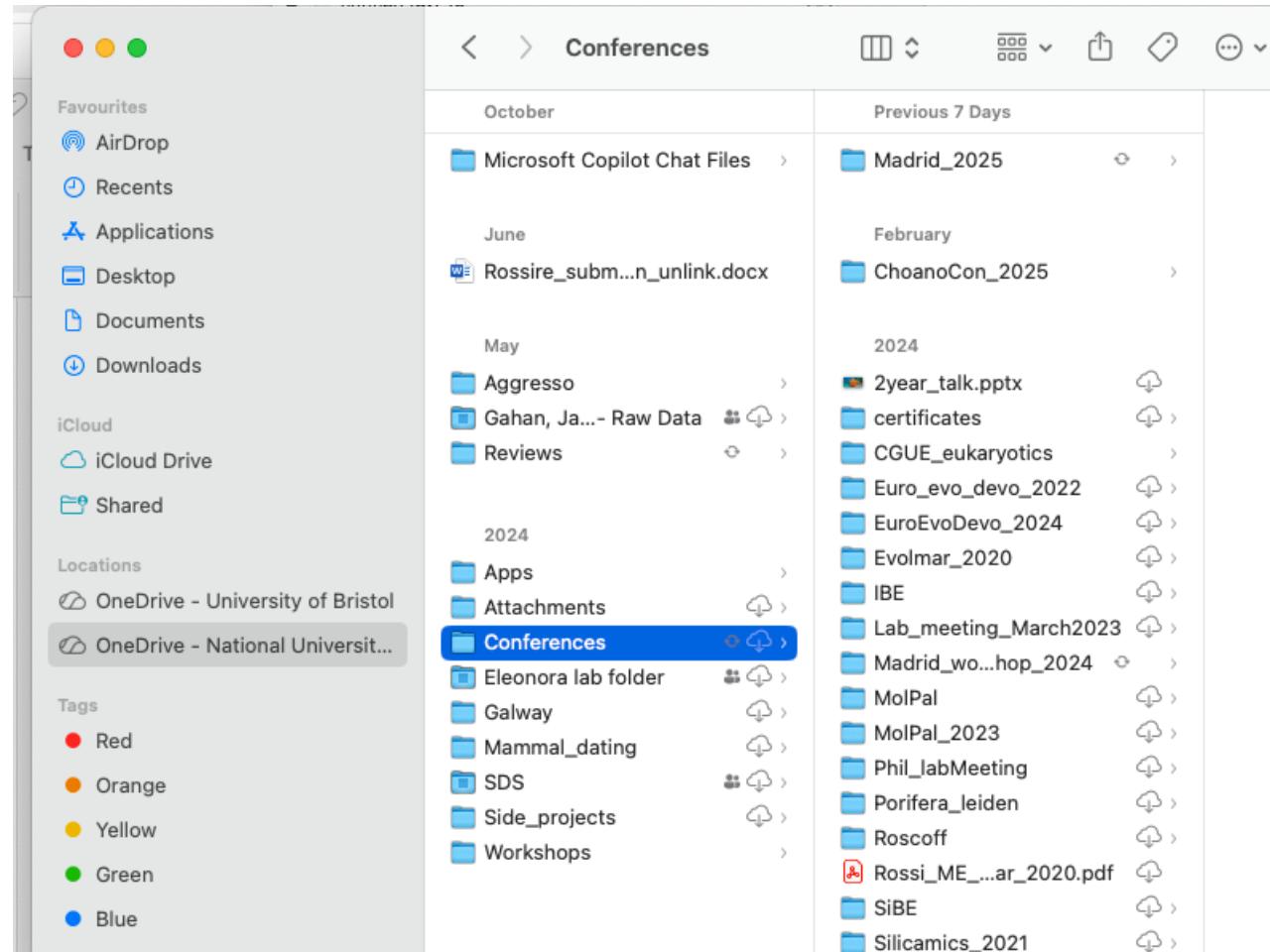
Maria Eleonora Rossi and Iker Irisarri

- **Unix/Linux** is the operating system
- **Bash** is a specific command-language interpreter (the shell) that runs on Unix-like systems
- **Bash** is one of the most common shells used in bioinformatics

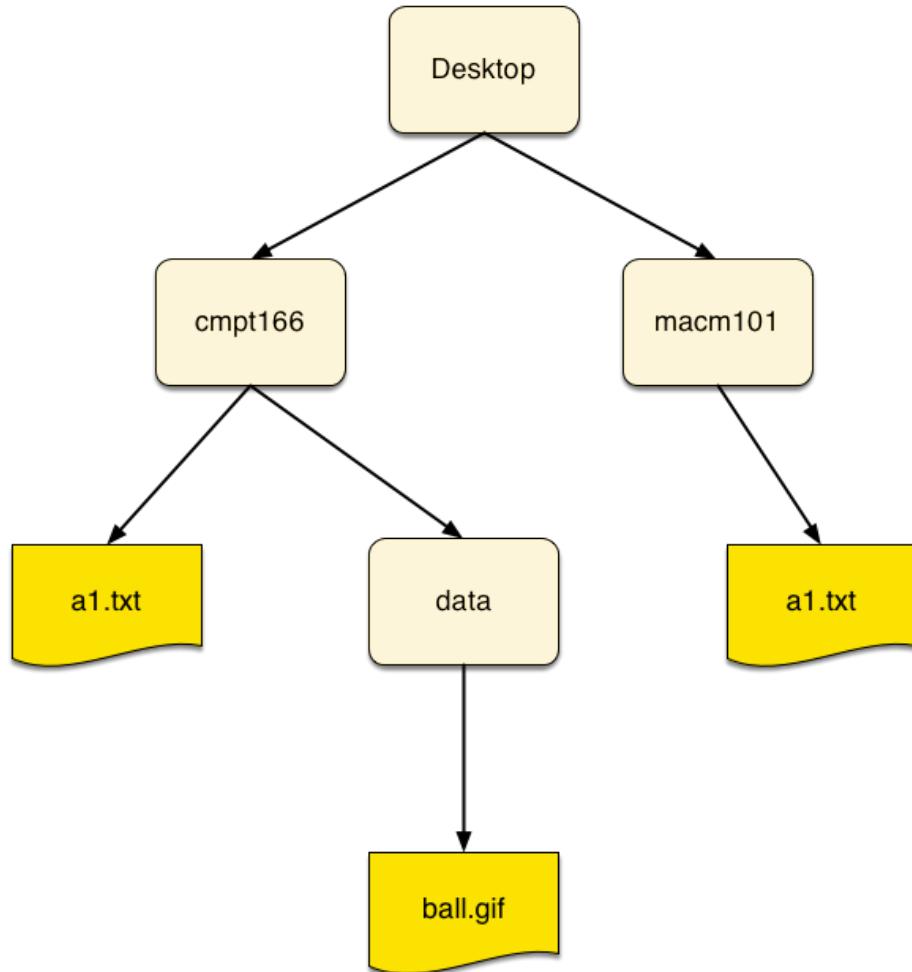
The terminal



Navigating the file system



Navigating the file system



Useful commands to navigate the file system

pwd (print working directory)

ls (list)

cd (change directory)

cd .. (change directory moving up)

cd ~ (change directory and go to home directory)

mkdir <name directory> (make a new directory)

Example of path:

/Users/Eleonora/Documents/data.txt/

Working with files

Copying files

cp original.txt. duplicate.txt

cp <path to file you want to copy/filename> <path where you want to copy the file>

cp Phylogenomics/data/fasta.txt /results/fasta.txt

cp Phylogenomics/data/fasta.txt .

Shortcuts

Up arrow key = moves back from your previous command history

Tab key = auto-completion button

Working with files

Viewing files

less <file-name> allow to visualize the file , very useful if you need to take a quick look at a huge file

head <file-name> visualize the start of the file, using the –n flag we can specify the number of lines we want to see e.g. head –n file.txt it will show us the first 10 lines of file.txt

tail <file-name> visualize the end of the file

Let's start with the practical!!



Bash Cheat Sheet



Navigating the File System

<code>cd [directory]</code>	Change directory
<code>pwd</code>	Print working directory
<code>ls [options] [directory]</code>	List directory contents
<code>mkdir [directory]</code>	Create a new directory
<code>rmdir [directory]</code>	Remove a directory
<code>cp [source] [destination]</code>	Copy files or directories
<code>mv [source] [destination]</code>	Move or rename files or directories
<code>rm [options] [file]</code>	Remove files or directories
<code>touch [file]</code>	Create an empty file

Archiving and Compression

<code>tar [options] [files/directories]</code>	Create or extract tar archives
<code>gzip [file]</code>	Compress a file
<code>gunzip [file.gz]</code>	Decompress a gzipped file
<code>zip [archive.zip] [files/directories]</code>	Create a zip archive
<code>unzip [archive.zip]</code>	Extract files from a zip archive



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File Manipulation

<code>cat [file]</code>	Output the contents of a file
<code>head [options] [file]</code>	Output the first lines of a file
<code>tail [options] [file]</code>	Output the last lines of a file
<code>less [file]</code>	View the contents of a file interactively
<code>grep [pattern] [file]</code>	Search for a pattern in a file
<code>wc [options] [file]</code>	Count the number of lines, words, or characters in a file

Permissions

<code>chmod [permissions] [file]</code>	Change the permissions of a file or directory
<code>chown [user:group] [file]</code>	Change the owner and group of a file or directory
<code>chgrp [group] [file]</code>	Change the group of a file or directory
<code>umask [mask]</code>	Set the default file permissions for newly created files

Process Management

<code>ps [options]</code>	Display information about active processes
<code>kill [process_ID]</code>	Terminate a process
<code>top</code>	Display and manage the top processes
<code>bg [job_ID]</code>	Move a job to the background
<code>fg [job_ID]</code>	Bring a background job to the foreground