Introduction to the command line

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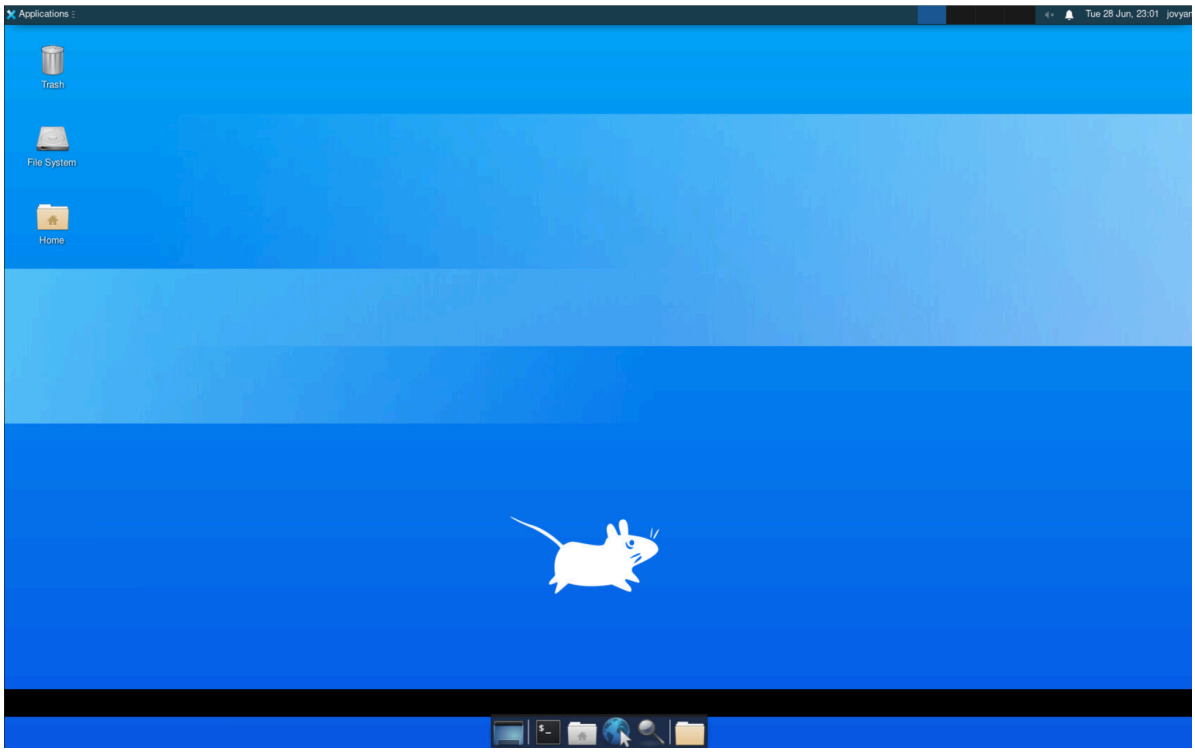
Prediction:

What does data look like? Where do we keep it?

Computers and Data

The **command line** gives us an opportunity to work with computers in a more direct way compared to "Folders" and "Files".

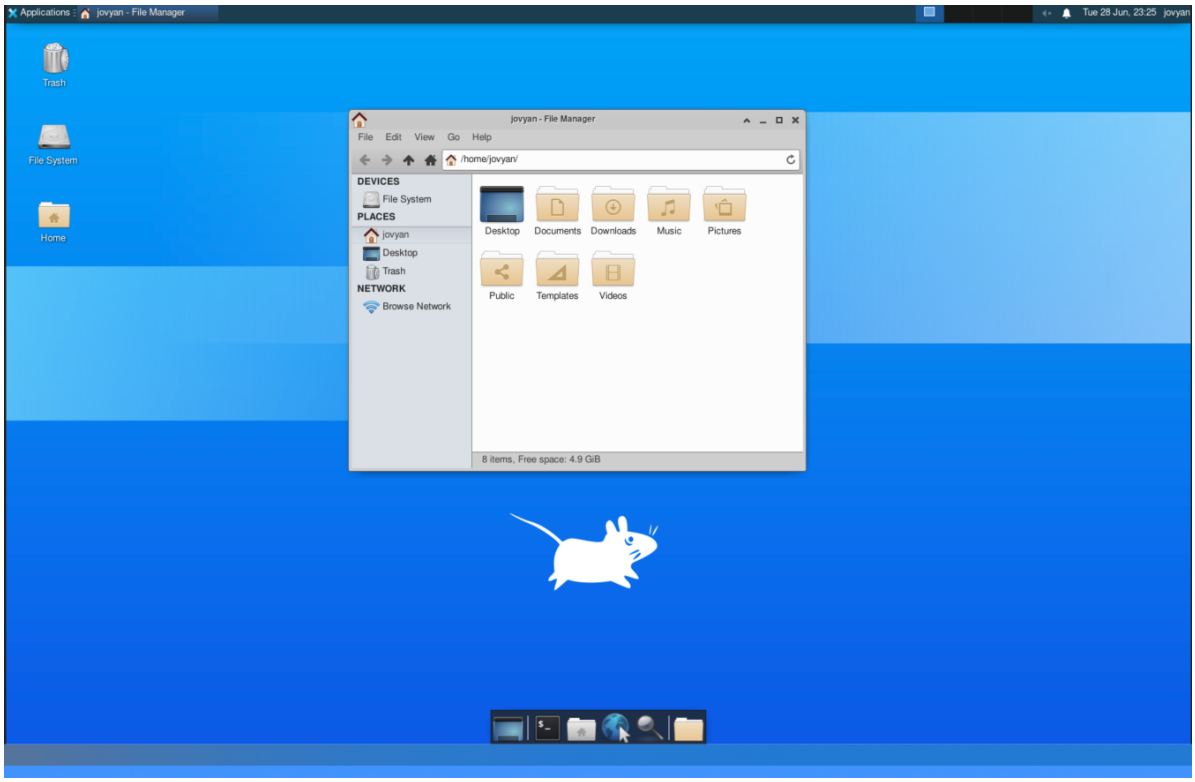


For example:

Look at your desktop, what's there?

Folders?

What's inside?



This sounds like something we could see in everyday life...

Folders! Files! Its a database, right?

Computers, on the other hand, think differently

Really they operate in binary, on 1's and 0's, but just beneath 'Files' and 'Folders' they operate with:

"Folders" == "Directories"

"Files" == "Paths"

```
~/Documents/teaching/scbc_2022                                  04:32:41 PM
❯ tree -L 2 -f
.
├── ./scbc_2022.Rproj
└── ./slides
    ├── ./slides/001.html
    ├── ./slides/001.qmd
    ├── ./slides/001_files
    ├── ./slides/SCBC_22
    └── ./slides/images

4 directories, 3 files
```

Prediction:

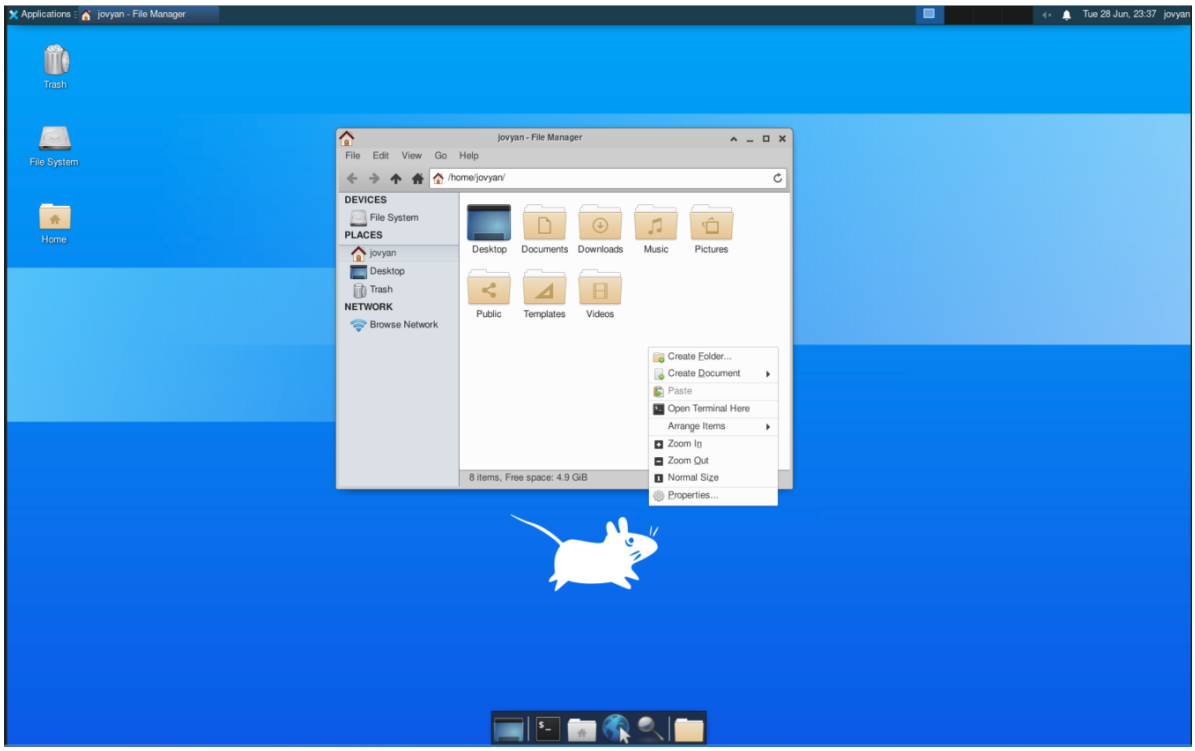
How will your experience be different when you switch from "human think" to "command line/computer think"?

Practice 01:

Create a "Project Folder"

Using the **Graphical User Interface (GUI)** provided on your Jupyter login, create a **Folder** called:

`SCBC_2022_folder`



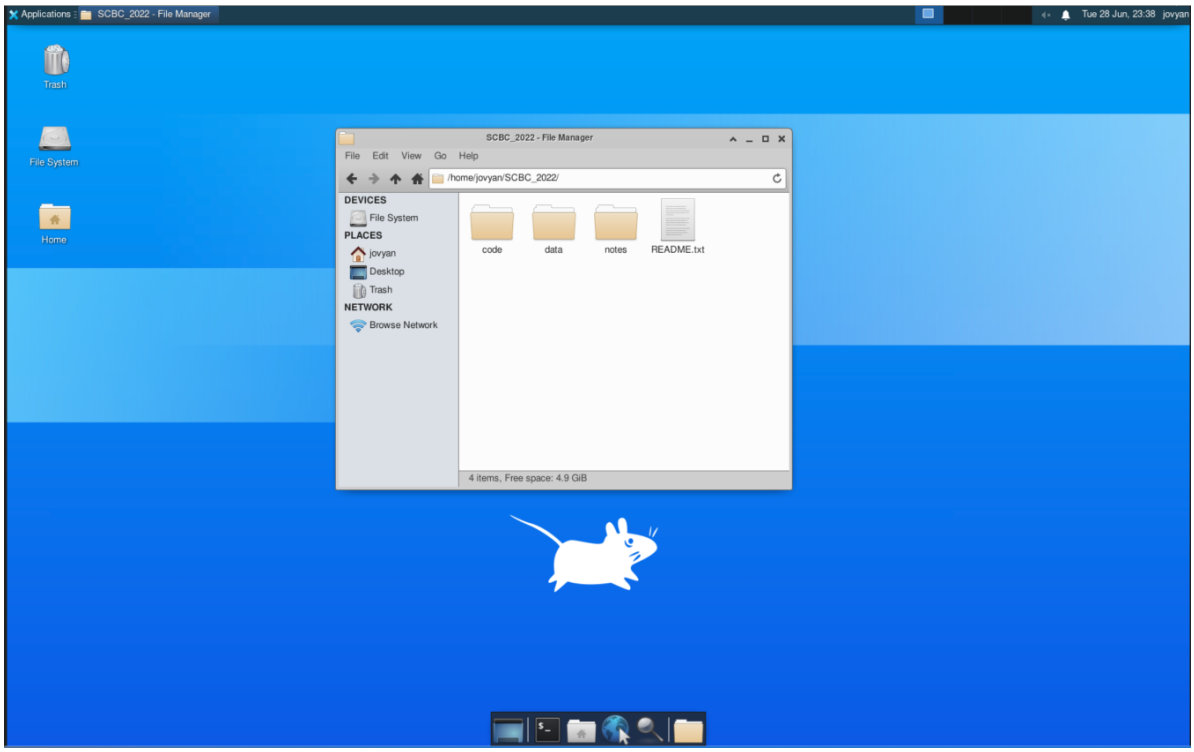
Practice 01A:

Create sub-folders and a `README.txt` file:

`data/`

`notes/`

`code/`



Practice 01B:

Go back to Jupyter and edit README.txt to say something....

Reflect:

What you've just made is a 'project folder':

Why is this useful? What could it help with moving forward?

So why even bother with the command line? We just did so much!

We can **create, copy, rename, move (etc etc)** files using a GUI, it works, its easy and intuitive.

However, the things you did are

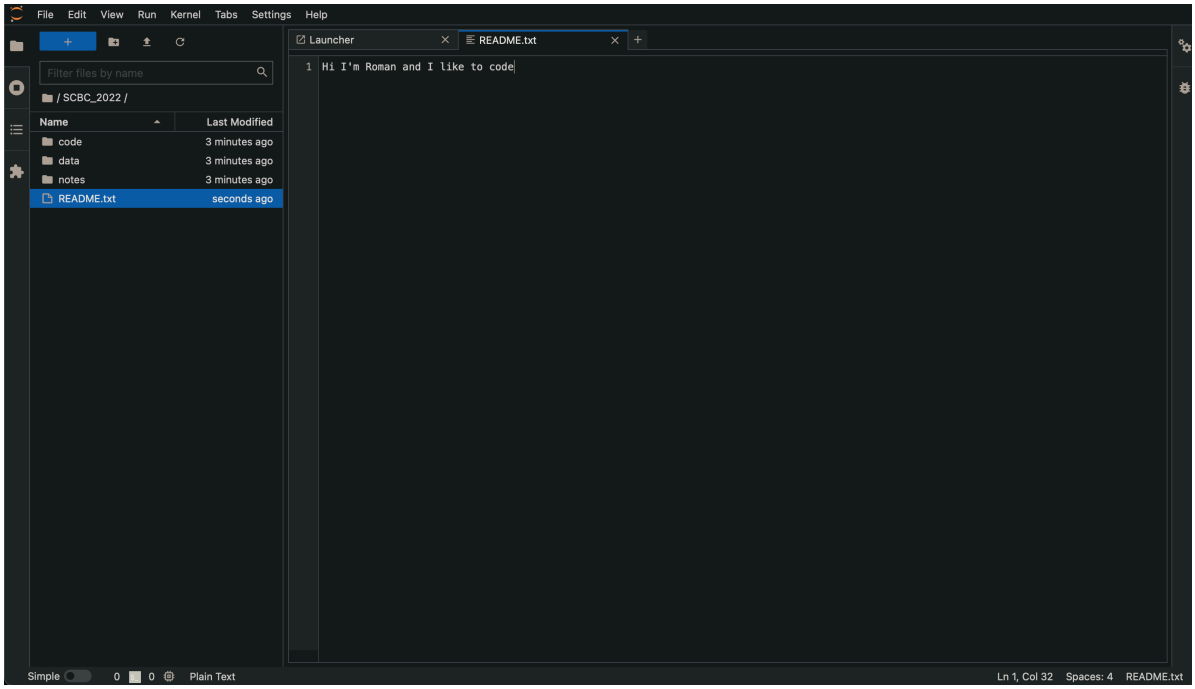
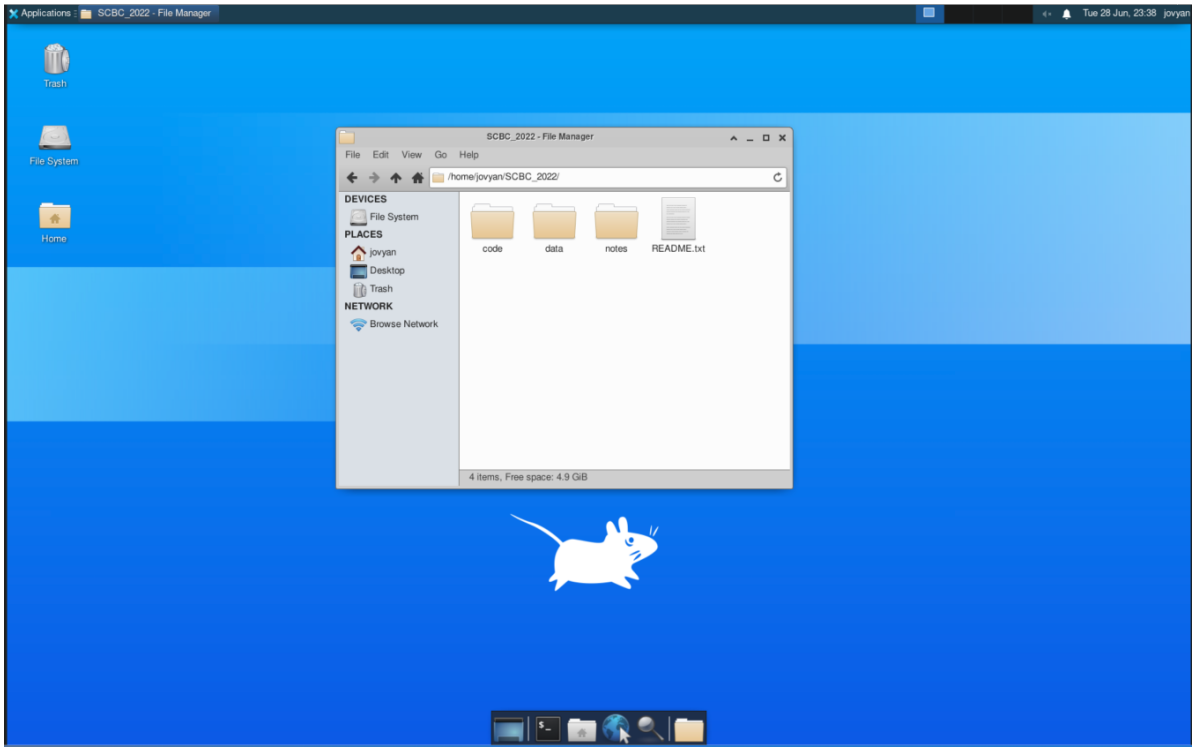


Figure 1: your desktop doesn't have a text editor installed.....yet



- only possible if a GUI is provided
- not **reproducible** (could someone else get the same result? yes…but in the same exact way? maybe not.)
- **limited** to what the GUI/Operating System designers decided was useful for most users.

Bioinformatics asks us to do much more with data, and thus computers, than most.

Beyond the GUI: Command Line interface [CLI]

On your desktops you can **view** the command line with a **terminal** – a piece of software built to enable our use of command line programming

`image of desktop GUI terminal`

Prediction:

Instead of the mouse, how will we navigate the command line?

Practice 02: Doing the same stuff differently

Create a "Project Directory"

```
# dummy R chunk to keep things working
```

```
ls
```

```
001.html
001.qmd
001_files
SCBC_22
images
```

```
ls SCBC_22
```

```
my_file.txt
```

```
touch SCBC_22/my_file.txt
```

```
ls SCBC_22
```

```
my_file.txt
```