Sociogenomics

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Introducing the command line

Nicola Barban

Introducing the Shell

The most widely used way to interact with personal computers is called a **graphical user interface** (GUI). With a GUI, we give instructions by clicking a mouse and using menu-driven interactions.

While the visual aid of a GUI makes it intuitive to learn, this way of delivering instructions to a computer scales very poorly. Using a GUI, you would not only be clicking at your desk for several hours, but you could potentially also commit an error in the process of completing this repetitive task.

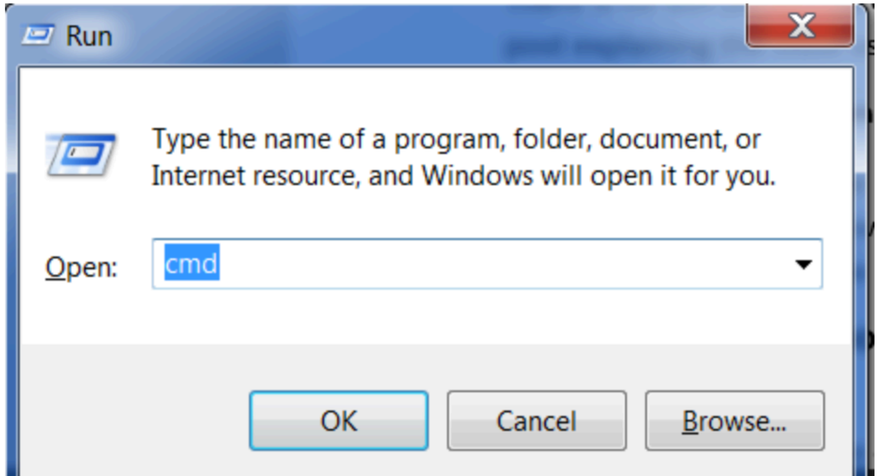
This is where we take advantage of the Unix shell. The Unix shell is both a **command-line interface** (CLI) and a scripting language, allowing such repetitive tasks to be done automatically and fast.

Open the command-line interface

Opening: Windows

Depending on your version of Windows and your keyboard, one of the following should open a command window (you may have to experiment a bit, but you don't have to try all of these suggestions):

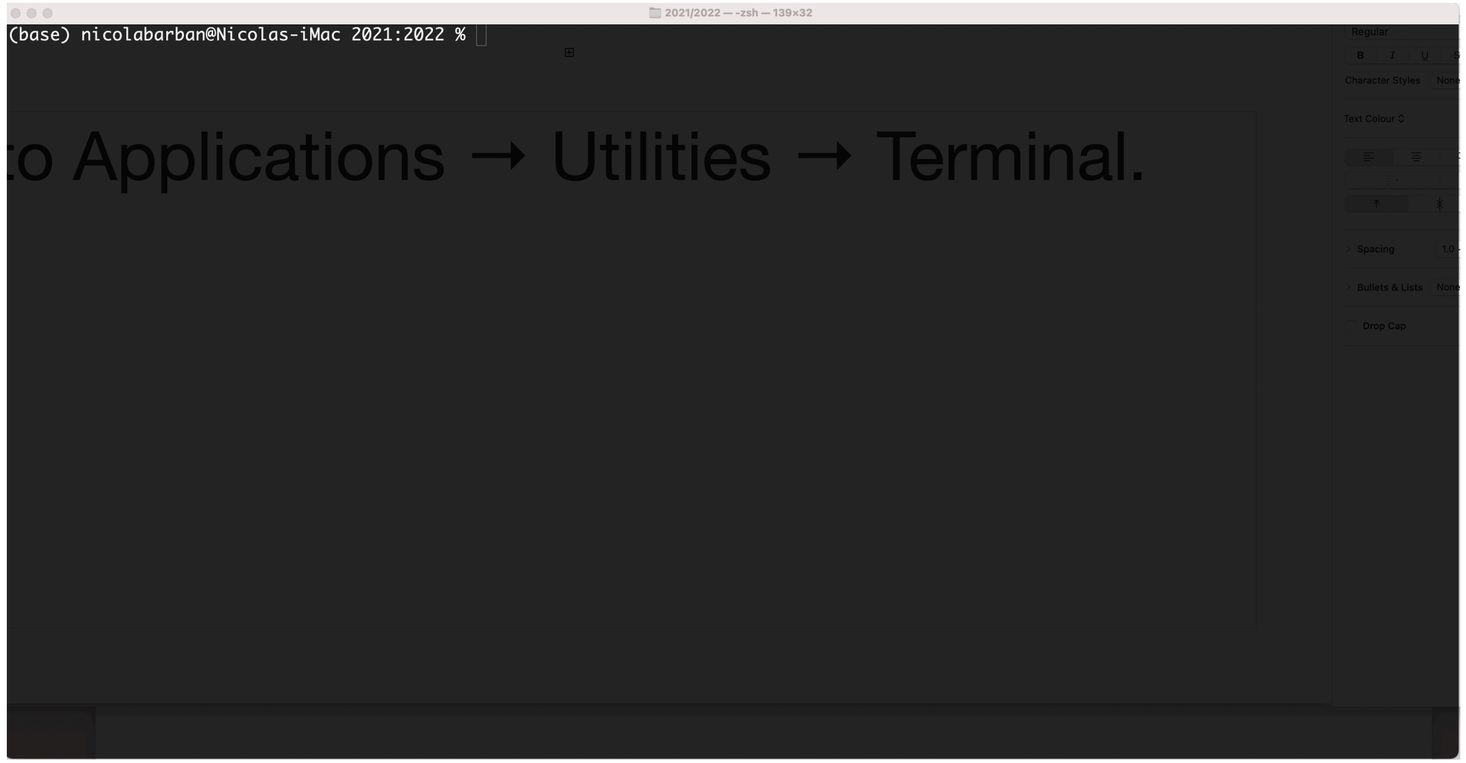
- Go to the Start menu or screen, and enter "Command Prompt" in the search field.
- Go to Start menu → Windows System → Command Prompt.
- Go to Start menu → All Programs → Accessories → Command Prompt.
- Go to the Start screen, hover your mouse in the lower-left corner of the screen, and click the down arrow that appears (on a touch screen, instead flick up from the bottom of the screen). The Apps page should open. Click on Command Prompt in the Windows System section.
- Hold the special Windows key on your keyboard and press the "X" key. Choose "Command Prompt" from the pop-up menu.
- Hold the Windows key and press the "R" key to get a "Run" window. Type "cmd" in the box, and click the OK key.



Open the command-line interface

Opening: OS X

Go to Applications → Utilities → Terminal.



Open the command-line interface

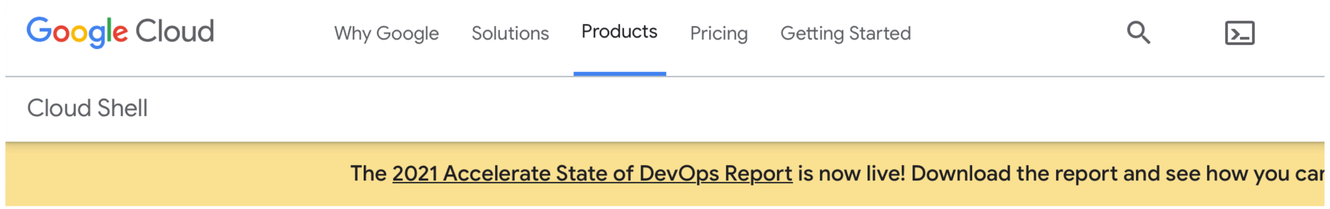
Opening: Linux

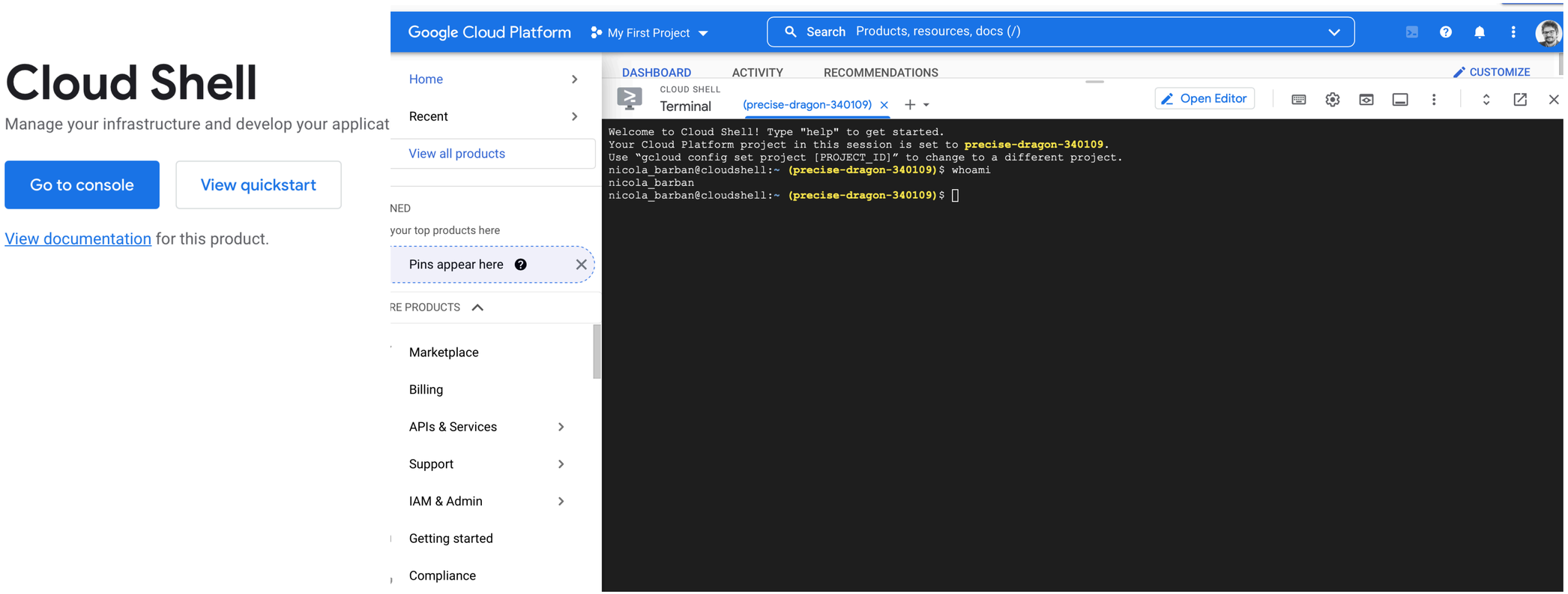
Applications → Accessories → Terminal, or
Applications → System → Terminal,

but that may depend on your system. If it's not there, you can try to Google it. :)

Open the command-line interface

Opening: Online Cloud Shell





Prompt

When the shell is first opened, you are presented with a **prompt**, indicating that the shell is waiting for input.

```
$
```

In windows

```
>
```

Your first command

When the shell is first opened, you are presented with a **prompt**, indicating that the shell is waiting for input.

```
$ whoami
```

Then hit enter

```
nicola_barban@cloudshell:~ (precise-dragon-340109)$ whoami
nicola_barban
```

pwd

First let's find out where we are by running a command called `pwd` (which stands for 'print working directory'). Directories are like *places* - at any time while we are using the shell we are in exactly one place, called our **current working directory**. Commands mostly read and write files in the current working directory, i.e. 'here', so knowing where you are before running a command is important. `pwd` shows you where you are:

```
$ pwd
```

Then hit enter

```
nicola_barban@cloudshell:~ (precise-dragon-340109)$ pwd
/home/nicola_barban
```

File system

The part of the operating system responsible for managing files and directories is called the **file system**. It organizes our data into files, which hold information, and directories (also called ‘folders’), which hold files or other directories.

The home directory path will look different on different operating systems. On Linux, it may look like `/home/nicola`, and on Windows, it will be similar to `C:\Documents and Settings\nicola` or `C:\Users\nicola`

```
$  ls --help
```

Moving files and directories

	Windows Command Line (CMD)	**Mac OS Terminal**	**Linux Shell**
Directory path	..\dir1\dir2\	../dir1/dir2/	../dir1/dir2/
List files and folder	dir	ls	ls
Call current location	dir	pwd	pwd
Move to directory	cd “path to the folder”	cd “path to the folder”	cd “path to the folder”

Moving files and directories

Get back to parent directory	cd ..	cd ..	cd ..
Get to the root directory	cd	cd /	cd /
Create a new directory	mkdir NewFolder	mkdir NewFolder	mkdir NewFolder
Remove directory	rmdir MyFolder	rm -r MyFolder	rm -r MyFolder
Rename directory	rmdir	mv oldName newName	mv oldName newName
Delete a file	del filename	rm fileName	rm fileName
Line break for commands	^	\	\

```
nicola_barban@cloudshell:~ (precise-dragon-340109)$ mkdir data
nicola_barban@cloudshell:~ (precise-dragon-340109)$ mkdir labs
nicola_barban@cloudshell:~ (precise-dragon-340109)$ mkdir labs\week1
nicola_barban@cloudshell:~ (precise-dragon-340109)$ ls
data  labs  labsweek1  README-cloudshell.txt
nicola_barban@cloudshell:~ (precise-dragon-340109)$ ls -F
data/  labs/  labsweek1/  README-cloudshell.txt
nicola_barban@cloudshell:~ (precise-dragon-340109)$
```