

Practical Session 1: Using the Terminal

In this first practical session we will get to grips with navigating around the file system and working with files and directories using the terminal. Use the lecture slides and ask questions where needed.

Exercise 1. Navigating the File System

Find and open the terminal on your system, notice what your user name and computer name are.

1. Check your current location.
This should be your *home directory*.
2. View the contents of your home directory.
Pay attention to the different colours for the different file types.
3. List all files including *hidden files*.
4. List files with detailed information.
When was the last file/directory created?
5. Use `-help` or `-man` to list only directories with `ls`
6. Create a new directory called `Python-Bootcamp`.
Check it is there by listing all contents again, and move into the new directory.
7. Within `Python-Bootcamp`, setup this filesystem of directories

```
└─ Python-Bootcamp/
   └─ Session-1/
      └─ Practical/
         └─ Resources/
            └─ Notes/
               └─ Session-2/
```

Remember you can use tab-complete to move around faster.

8. From `Resources/`, output your location. Then with only one command, move to your home directory. From there use the full location of `Resources/` to move back in one command.
9. Copy the `Practical/` directory into the `Resources/` directory under the new name `Practical-stuff`
10. Delete the `Resources/` directory with everything inside.
11. Rename `Notes` to `My-Notes`, then move it into `Practical/`

Exercise 2. Working with files

1. Create a new file `myfile.txt` in `Practical/`.
2. Use `vim` to open the file and write some text in it over multiple lines, saving and closing it behind you.

3. Use the command `cat` to print the contents of `myfile.txt`
4. Use the commands `head` and `tail` with `myfile.txt`, what did they do?
5. Create a new directory `Backup` and copy `myfile.txt` into it
6. Working back on the original `myfile.txt`, check what the permissions are on the file. Change the permissions such that the user can execute the file, and only the user can write to the file. List the files again - what's changed?

Exercise 3. Relative vs Absolute Paths

Now that you've built a directory structure in the `Python-Bootcamp/` directory, let's practice navigating and manipulating files using relative and absolute paths.

1. From your home directory, use a relative path to list the contents of the `Session-1/Practical/` directory you created earlier inside `Python-Bootcamp`.
2. Create a new file called `paths.txt` inside `Session-1/Notes/` using `touch`, then use a relative path to move that file into `Session-1/Practical/`.
3. Use an absolute path to copy `paths.txt` from `Practical/` into `Session-2/`.
4. Change your working directory to `Session-2/`. From here, print the contents of `paths.txt` using a relative path from your current location.
5. Now use an absolute path to delete the copy of `paths.txt` in `Session-2/`.
6. Staying in `Session-2/`, try this challenge: Use a relative path in a single command to copy all contents of `../Practical/` into `Session-2/`.
7. Return to your home directory with a single command. From there, use an absolute path to delete the entire `Session-2/` directory and its contents.

If you've finished this sheet ahead of time, move onto the bonus sheet to tackle some additional content not covered in the lecture. At the end of this session, feel free to delete all the files and directories on your system we made above for practice.