Practical 2. Introduction to Unix

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1 Objectives

- Navigate a Unix system
- Use a Unix shell for simple tasks (ls, cd, cp, mv ...)

2 Introduction

During this practical, you will learning how to explore a Unix system as described in the lecture. You will learn a few simple commands that you can use every day to navigate the file system and move files around.

Your instructors are here to help. Please don't by shy about asking questions.

3 Software packages

3.1 Getting set up

Prepare files: Download the file called `shell_data.tar.gz` from the Learn page for this practical on Blackboard Learn and save it to your own computer. Make sure to remember where you have saved it.

Open Visual Studio Code as we installed last week. Click on 'Explorer' in the activity bar. Open the folder where you saved `shell_data.tar.gz`.

Type the following command into your Terminal window. This command will turn the file you downloaded into a directory we can explore in the rest of the practical.

```
tar -xvzf shell_data.tar.gz
```

3.2 Navigating the file system

Hint: Remember you can always ask for help with any of the command we talked about in the lecture by typing `man command`, e.g.`man pwd` to learn more about how to use the `pwd` command.

Here you will learn to explore the files you just downloaded and created. Using the commands `pwd`, `cd`, and `ls`, try to answer the following questions:

1. What is your current working directory?
2. What are the contents of the `shell_data` directory?
3. Move into the `untrimmed_fastq` directory and see how many files are there?

Shortcut: Typing out long file names and directories can get annoying and difficult quickly. It's also very easy to make mistakes and have to start again. When you start typing out the name of a file or directory, you can hit the `Tab` key to complete the name, as long as you have already typed enough characters to uniquely identify the file or directory you are looking for. Try the above answers and see if you can complete it in as few keystrokes as possible!

3.3 Creating, moving, copying and removing

In this section, use the commands `cp`, `mv` and `rm` to make the following modifications to the file `SRR098026.fastq` in the `untrimmed_fastq` directory.

1. Make a copy of the `SRR098026.fastq` file called `SRR098026_backup.fastq`
2. Move the backup file from the `untrimmed_fastq` directory to the `sra_metadata` directory. What are the contents of `sra_metadata` now?
3. By examining the permission of the new `SRR098026_backup.fastq` file, can you tell who is able to read/write/execute this file? Can you modify this so that all users can write to this file but not execute it?

3.4 Create your own modifications

Now that you have practiced all the commands above, can you attempt to modify the other `SRR097977.fastq` file in a new and interesting way?

3.5 Tidy your own file-system

So far, we have worked with example data that we provided you with. Now you are going to use the tools you have learnt this week to tidy up your own computer.

1. Create a directory for all your IBI1 materials.
2. Make two subdirectories within IBI1 to store your Week 1 and Week 2 materials separately.
3. Copy or move all relevant files (lecture slides, practical instruction sheet, tutorial sheet, any notes or codes you have made) within these subdirectories.
4. Repeat for your ICMB1 and IBMS1 teaching materials.

3.6 Reflection

You might have found this week quite confusing, and a strange way to interact with files on your computer.

- What did you find most useful or confusing?
- Why do you think we are teaching you this method navigating the file-system?
- Are there are any commands you plan to continue using regularly?
- Please share your thoughts with each other, your instrutors and on this week's discussion board.