C Piscine

Shell 00

Summary: This document contains the subject matter for the Shell module 00 of the C Piscine at 42.

Version: 4.6

Contents

Chapter I

Instructions

- These exercises are carefully arranged in order of difficulty, from easiest to hardest. We will not consider a successfully completed harder exercise if an easier one is not perfectly functional.
- Ensure that you have the appropriate permissions on your files and directories.
- You must follow the **submission procedures** for every exercise.
- Your exercises will be checked and graded by your fellow classmates.
- Additionally, your exercises will be checked and graded by a program called **Moulinette**.
- **Moulinette** is extremely meticulous and strict in its evaluation. It is entirely automated, and there is no way to negotiate with it. To avoid unpleasant surprises, be as thorough as possible.
- Shell exercises must be executable with `/bin/sh`.
- You must not leave any additional files in your directory other than those specified in the assignment.
- Have a question? Ask the peer on your right. If not, try the peer on your left.
- Your reference guide is called **Google / man / the Internet / ...**
- Examine the examples carefully. They may contain details that are not explicitly mentioned in the assignment.

Chapter II

Foreword

Below are the lyrics to *City Hunter*'s theme song, *"Moonlight Shadow"*:

```
The last time ever she saw him
Carried away by a moonlight shadow
He passed on worried and warning
Carried away by a moonlight shadow.
Lost in a riddle that Saturday night
Far away on the other side.
He was caught in the middle of a desperate fight
And she couldn't find how to push through

The trees that whisper in the evening
Carried away by a moonlight shadow
Sing a song of sorrow and grieving
Carried away by a moonlight shadow
All she saw was a silhouette of a gun
Far away on the other side.
He was shot six times by a man on the run
And she couldn't find how to push through

[Chorus]
I stay, I pray
See you in Heaven far away...
I stay, I pray
See you in Heaven one day.

Four A.M. in the morning
Carried away by a moonlight shadow
I watched your vision forming
Carried away by a moonlight shadow
A star was glowing in the silvery night
Far away on the other side
Will you come to talk to me this night
But she couldn't find how to push through
```

```
[Chorus]

Far away on the other side.
Caught in the middle of a hundred and five
The night was heavy and the air was alive
But she couldn't find how to push through
Carried away by a moonlight shadow
Carried away by a moonlight shadow
Far away on the other side.
```

Unfortunately, this topic has nothing to do with `City Hunter`.

Chapter III

Exercise 00: Z

	Exercise 00
Only the best know how to display Z	
Turn-in directory: *ex*00/	
Files to turn in: `z`	
Allowed functions: `None`	

- Create a file called `z` that returns "Z", followed by a newline, whenever the `cat` command is used on it.

```
?>cat z
Z
?>
```

Google is your friend.

Chapter IV

Exercise 01: testShell00

	Exercise 01
What are attributes anyway?	
Turn-in directory: *ex*01/	
Files to turn in: `testShell00.tar`	
Allowed functions: `None`	

- Create a file called `testShell00` in your submission directory.
- Figure out a way to make the output look like this (except for the "total 1" line):

```
%> ls -l
total 1
-r--r-xr-x 1 XX XX 40 Jun 1 23:42 testShell00
%>
```

- Once you've achieved the previous steps, execute the following command to create the file to be submitted:

```
  %> tar -cf testShell00.tar testShell00
```

- Don't worry about what appears instead of "XX".
- A year will be accepted instead of the time in the file's timestamp.

Did you check with your right-side neighbor?

Chapter V

Exercise 02: Oh yeah, mooore...

	Exercise 02
Oh yeah, mooore...	
Turn-in directory: *ex*02/	
Files to turn in: `exo2.tar`	
Allowed functions: `None`	

- Create the following files and directories. Adjust their properties so that when you run the `ls -l` command in your directory, the output looks like this:

```
%> ls -l
total XX
drwx--xr-x 2 XX XX  XX Jun  1 20:47 test0
-rwx--xr-- 1 XX XX   4 Jun  1 21:46 test1
dr-x---r-- 2 XX XX  XX Jun  1 22:45 test2
-r-----r-- 2 XX XX   1 Jun  1 23:44 test3
-rw-r----x 1 XX XX   2 Jun  1 23:43 test4
-r-----r-- 2 XX XX   1 Jun  1 23:44 test5
lrwxrwxrwx 1 XX XX   5 Jun  1 22:20 test6 -> test0
%>
```

- Once you've completed this, run the following command to create the file to be submitted:

```
   %> tar -cf exo2.tar *
```

- Don't worry about what appears instead of "XX".
- A year will be accepted instead of the time in the file's timestamp.

Don’t hesitate to randomly ask someone in your cluster for help!

Chapter VI

Exercise 03: SSH me!

	Exercise 03
SSH Key	
Turn-in directory: *ex*03/	
Files to turn in: `id_rsa_pub`	
Allowed functions: `None`	

- Create your own SSH key. Once done:
    - Add your public key to your repository in a file named `id_rsa_pub`.
    - Update your SSH key on the intranet. This will allow you to push the repository to our git server.

- `The file name was not chosen randomly.`
- `Make sure you understand the difference between the public key and the private key.`

`Did you check with your left-side neighbor?`

Chapter VII

Exercise 04: midLS

	Exercise 04
midLS	
Turn-in directory: *ex*04/	
Files to turn in: `midLS`	
Allowed functions: `None`	

- In a file named midLS, write the command that lists all files and directories in your current directory (excluding hidden files or any file starting with a dot, including double dots).
- The output should be sorted by modification date, with entries separated by a comma and a space.
- Directory names should end with a slash (`/`).

`Do only what is asked, nothing more!`

- `RTFM!`
- `Git push regularly.`

Chapter VIII

Exercise 05: GiT commit

	Exercise 05
GiT commit?	
Turn-in directory: *ex*05/	
Files to turn in: `git_commit.sh`	
Allowed functions: `None`	

- Create a shell script that displays the ids of the last 5 commits in your git repository.

```
%> bash git_commit.sh | cat -e
baa23b54f0adb7bf42623d6d0a6ed4587e11412a$
2f52d74b1387fa80eea844969e8dc5483b531ac1$
905f53d98656771334f53f59bb984fc29774701f$
5ddc8474f4f15b3fcb72d08fcb333e19c3a27078$
e94d0b448c03ec633f16d84d63beaef9ae7e7be8$
%>
```

- Your script will be tested in our own environment.

- RTFM!
- The first retry delay is short, trigger an intermediate evaluation to track your progress!

Milestone Achieved, Keep Going!

You’ve completed the mandatory exercises for this project. Now, you have a choice:

- Continue with the **optional exercises** to explore more.
- Move on to your **next project**.

Both paths will introduce you to useful concepts. Consider the following before making your decision:

- Your first exam, as well as the end-of-week rush, will focus on C programming. It might therefore be useful to gain experience in this field beforehand. (You’ll learn more about the rush soon).
- Your performance in this Piscine is evaluated on multiple factors:
  - Project completion is one aspect.
  - Overall progress through the full list of Piscine projects is another. Choose wisely to maximize your results.
- You can retry the same project in a few days or weeks until the end of the Piscine.
- Staying in sync with your peers promotes better collaboration.

Chapter IX

Exercise 06: gitignore

Exercise 06
GiT
Turn-in directory: *ex*06/
Files to turn in: `git_ignore.sh`
Allowed functions: `None`

- Write a short shell script that lists all the existing files ignored by your Git repository.
  Example output:

```
%> bash git_ignore.sh | cat -e
.DS_Store$
mywork.c~$
%>
```

- Your script will be tested in our own environment.

- RTFM!
- Get inspired by others, but don't let them do your work!

Chapter X

Exercise 07: diff

	Exercise 07
Turn-in directory: *ex*07/	
Files to turn in: `b`	
Allowed functions: `None`	

- Create a file named `b`, so that:

```
%>cat -e a
STARWARS$
Episode IV, A NEW HOPE It is a period of civil war.$
$
Rebel spaceships, striking from a hidden base, have won their first victory against the evil
     Galactic Empire.$
During the battle, Rebel spies managed to steal secret plans to the Empire's ultimate weapon,
     the DEATH STAR,$
an armored space station with enough power to destroy an entire planet.$
$
Pursued by the Empire's sinister agents, Princess Leia races home aboard her starship, custodian
      of the stolen plans that can save her people and restore freedom to the galaxy...$
$
```

```
%>diff a b > sw.diff
```

- `man patch`
- `Don't blindly trust any source, always test, verify, and validate your results yourself!`

Chapter XI

Exercise 08: clean

	Exercise 08
Turn-in directory: *ex*08/	
Files to turn in: `clean`	
Allowed functions: `None`	

- In a file called `clean` write a single command that:
  - Searches for all files in the current directory and its subdirectories that end with `~` (tilde) or, start and end with `#` (hash).
  - Displays the found files and deletes them.
- Only one command is allowed, no ';' or '&&' or other chaining tricks.

- `man find`
- `Collaboration is key to success!`

Chapter XII

Exercise 09: Illusions, not tricks, Michael...

	Exercise 09
Illusions, not tricks, Michael...	
Turn-in directory: *ex*09/	
Files to turn in: `ft_magic`	
Allowed functions: `None`	

- Create a **magic file** named `ft_magic` that is properly formatted to enable the `file` command to detect files of type `42 file`, defined as those containing the string `"42"` at the 42nd byte.

- `man file`
- `Failure is part of your learning journey`

Chapter XIII

Submission and peer-evaluation

Submit your assignment to your `Git` repository as usual. Only the work inside your repository will be evaluated during the defense. Make sure to double-check the filenames to ensure they are correct.

`You must submit only the files explicitly required by the project instructions.`