CFT2112-1920: Studio 1 Report

Section 1 – Design and Implementation of Custom Scripts

Overview – I created the overview command so that the user could concisely see what all the scripts in a directory do, by showing them only the shebang of the script. This works by using the grep command to search all files in a directory for lines starting with a # and displaying them to the user. This could be a good bit of boilerplate code for searching files in a directory for any specific thing for future. I have also implemented a check for the number of inputs, so that the user is prompted to enter the correct number of prompts in the right format if they enter anything incorrectly.

Oldwaste – The oldwaste command is designed to let the user see all the files that have been in their waste bin for over a week and then give them the option to delete them. This would help to clear up disk space and remove files that are no longer neede. This command works by using the find and mtime commands to get the old files. It then asks the user whether they would like to permanently delete them or not through a read command. If they chose to remove the files, then the rm command is used to delete the old files. If they chose not the delete the files, then it is echoed that no files have been deleted and the command exits.

Section 2 – Script Testing

Test number	Test case	Expected result	Actual result	Comments
CHMX				
1	Lshead	Changed permissions	u1955061@ouranos:~/project/scripts$ bash chmx lshead Changed permission's for file lshead	
2	Project/scripts	Cannot access, no such file or directory	u1955061@ouranos:~/project/scripts$ bash chmx project/scripts chmod: cannot access 'project/scripts': No such file or directory	Can't apply as it is a directory

| 3 | Chmx | Changed permissions | ```
u1955061@ouranos:~/project/scripts$ bash chmx chmx
Changed permission's for file chmx
``` | |
| 4 | No input | Error message for no input | ```
u1955061@ouranos:~/project/scripts$ bash chmx
Incorrect number of filename's entered
Please enter one filename to change the permission's for
``` | |
| **LSHEAD** | | | | |
| 1 | Project/ scripts 3 | Display first 3 lines of all files in directory | ```
u1955061@ouranos:~/project/scripts$ bash lshead project/scripts 3
Desktop    Downloads    Music     project studio1   Videos
Documents IdeaProjects Pictures  Public    Templates
==> project/scripts/chmx <==
# ! /scripts/bash
# a command to take filenames and make those files executbale to all users
# the argument taken is the file to have the permsiiosn changed for

==> project/scripts/emptywaste <==
#! /scripts/bash
# a command to permanently delete everything in the waste directory

==> project/scripts/listwaste <==
#! /scripts/bash
# a command to list the names of the files in the waste bin and the number of bits in them
#

==> project/scripts/lshead <==
#! /scripts/bash
# a command to list the first n number of lines of each file in a directory
# argument 1 is the directory to search

==> project/scripts/masher <==
#! /scripts/bash
# masher interactive command

==> project/scripts/oldwaste <==
#! /scripts/bash
# a command to remove old files from the waste directory
# the find command is used to find all files in the wastebin for longer than 7 days

==> project/scripts/overview <==
#! /scripts/bash
# a command to get an overview of all custom scripts in a directory
# the user inputs the directory they wish to search

==> project/scripts/saferm <==
#! /scripts/bash
# a command to remove files safely by moving them in to a sepcial waste directory
# argument 1 is the file to remove

==> project/scripts/wastesize <==
#! /scripts/bash
# a command to show the numbr of files in the waste directory
``` | Some files look as if they are only displaying the first 2 lines, this is actually just because their 3rd line is all whitespace, so there is nothing to display. |
| 2 | Project/ scripts/c hmx 5 | No such file or directory | ```
u1955061@ouranos:~/project/scripts$ bash lshead project/sctipts/chmx 5
Desktop    Downloads    Music     project studio1   Videos
Documents IdeaProjects Pictures  Public    Templates
head: cannot open 'project/sctipts/chmx/*' for reading: No such file or directory
``` | Won't work on a specific file, only on directories due to /* |

3	Home 6	No such file or directory	`u1955061@ouranos:~/project/scripts$ bash lshead home 6`
			`Desktop   Downloads    Music     project  studio1     Videos`
			`Documents  IdeaProjects  Pictures  Public    Templates`
			`head: cannot open 'home/*' for reading: No such file or directory`
				All directories inside the home directory, so nothing to display

4	No input	Error message, display required format	`u1955061@ouranos:~/project/scripts$ bash lshead`
			`Incorrect numbr of arguments`
			`Please enter the directory and number of lines to display e.g:`
			`project/scripts 7`	

SAFERM				

1	Testfile	Move file to wastebin	`u1955061@ouranos:~/project/scripts$ bash saferm testfile`
			
			`u1955061@ouranos:~/project$ cd waste`
			`u1955061@ouranos:~/project/waste$ ls`
			`tempfile34  testfile  testfile23`
			`u1955061@ouranos:~/project/waste$`	

2	Project/ scripts		`cp: cannot stat 'project/scripts': No such file or directory` `rm: cannot remove 'project/scripts': No such file or directory`	Can't copy or remove as it is a directory not a file.
3	Home		`cp: cannot stat 'home': No such file or directory` `rm: cannot remove 'home': No such file or directory`	As above
WASTESIZE				
1	execute	Display number of files in waste bin	`u1955061@ouranos:~/project/scripts$ bash wastesize` `there are 3 file(s) in the waste bin`	Only one test here as there is no input thus no other options.
EMPTYWASTE				

1	execute		`u1955061@ouranos:~/project/scripts$ bash emptywaste`
			`removed '//home/u1955061/project/waste/testfile'`
			`The waste bin has been emptied`
				As above

LISTWASTE				

1	execute	Show files in waste bin name and number of bits	`u1955061@ouranos:~/project/scripts$ bash listwaste`
			`Files in the waste bin:`
			
			`tempfile34 9`
			`testfile 10`
			`testfile23 0`
				As above

OVERVIEW				
1	Project/ scripts	Show all lines starting with #	emptywaste:#! /scripts/bash emptywaste:# a command to permanently delete everything in the waste directory overview:#! /scripts/bash overview:# a command to get an overview of all custom scripts in a directory overview:# the user inputs the directory they wish to search overview:# each file is searched for lines starting with a # and these lines are then displayed saferm:#! /scripts/bash saferm:# a command to remove files safely by moving them in to a sepcial waste directory saferm:# argument 1 is the file to remove saferm:# the files is copied form the current directory into the waste directory using cp saferm:# it is then remove from the current directory using rm wastesize:#! /scripts/bash wastesize:# a command to show the numbr of files in the waste directory listwaste:#! /scripts/bash listwaste:# a command to list the names of the files in the waste bin and the number of bits in them listwaste:# the ls command is piped through awk so that they can both be displayed together masher:#! /scripts/bash masher:# masher interactive command - follows deign brief	
2	Project	No output	u1955061@ouranos:~/project/scripts$ bash overview project bash: overiew: No such file or directory	All directories in this directory so nothing to display as there will be nothing starting with #
3	Nofileshere	No output	project/scripts/.git/hooks/prepare-commit-msg.sample:# print "\n" . `git diff --cached --name-status -r` project/scripts/.git/hooks/prepare-commit-msg.sample:# if /^#/ && $first++ == 0' "$COMMIT_MSG_FILE" ;; project/scripts/.git/hooks/prepare-commit-msg.sample:# *) ;; project/scripts/.git/hooks/prepare-commit-msg.sample:# esac project/scripts/.git/hooks/prepare-commit-msg.sample:# SOB=$(git var GIT_COMMITTER_IDENT | sed -n 's/^\(.*>\).*$/Signed-o project/scripts/.git/hooks/prepare-commit-msg.sample:# git interpret-trailers --in-place --trailer "$SOB" "$COMMIT_MSG_FI project/scripts/.git/hooks/prepare-commit-msg.sample:# if test -z "$COMMIT_SOURCE" project/scripts/.git/hooks/prepare-commit-msg.sample:# then project/scripts/.git/hooks/prepare-commit-msg.sample:# /usr/bin/perl -i.bak -pe 'print "\n" if !$first_line++' "$COMMIT project/scripts/.git/hooks/prepare-commit-msg.sample:# fi project/scripts/.git/COMMIT_EDITMSG:# Please enter the commit message for your changes. Lines starting project/scripts/.git/COMMIT_EDITMSG:# with '#' will be ignored, and an empty message aborts the commit. project/scripts/.git/COMMIT_EDITMSG:# project/scripts/.git/COMMIT_EDITMSG:# Committer: R.Fenton U1955061 <u1955061@ouranos.ad.hud.ac.uk> project/scripts/.git/COMMIT_EDITMSG:# On branch master project/scripts/.git/COMMIT_EDITMSG:# Your branch is up-to-date with 'origin/master'. project/scripts/.git/COMMIT_EDITMSG:# project/scripts/.git/COMMIT_EDITMSG:# Changes to be committed: project/scripts/.git/COMMIT_EDITMSG:# deleted: .masher.swp project/scripts/.git/COMMIT_EDITMSG:# deleted: backupmasher project/scripts/.git/COMMIT_EDITMSG:# modified: listwaste project/scripts/.git/COMMIT_EDITMSG:# modified: masher project/scripts/.git/COMMIT_EDITMSG:# modified: oldwaste project/scripts/.git/COMMIT_EDITMSG:# modified: saferm project/scripts/.git/COMMIT_EDITMSG:# project/scripts/emptywaste:#! /scripts/bash project/scripts/emptywaste:# a command to permanently delete everything in the waste directory project/scripts/overview:#! /scripts/bash project/scripts/overview:# a command to get an overview of all custom scripts in a directory project/scripts/overview:# the user inputs the directory they wish to search project/scripts/overview:# each file is searched for lines starting with a # and these lines are then displayed project/scripts/saferm:#! /scripts/bash project/scripts/saferm:# a command to remove files safely by moving them in to a sepcial waste directory project/scripts/saferm:# argument 1 is the file to remove project/scripts/saferm:# the files is copied form the current directory into the waste directory using cp project/scripts/saferm:# it is then remove from the current directory using rm project/scripts/wastesize:#! /scripts/bash project/scripts/wastesize:# a command to show the numbr of files in the waste directory project/scripts/listwaste:#! /scripts/bash project/scripts/listwaste:# a command to list the names of the files in the waste bin and the number of bits in them project/scripts/listwaste:# the ls command is piped through awk so that they can both be displayed together project/scripts/masher:#! /scripts/bash project/scripts/masher:# masher interactive command - follows deign brief .java/fonts/11.0.3/fcinfo-1-ces000972177-Ubuntu-18.04-en.properties:#JDK Font Configuration Generated File: *Do Not Edit* .java/fonts/11.0.3/fcinfo-1-ces000972177-Ubuntu-18.04-en.properties:#Mon Nov 11 12:08:55 GMT 2019 u1955061@ouranos:~/project/scripts$	Not sure what this is doing, possibly trying the find everything in the entirety of Ouranos as there is no directory specified

OLDWASTE				
| 1 | Y | View then delete files older than a week | ```
u1955061@ouranos:~/project/scripts$ bash oldwaste
Files in the waste bin that have been there for more than a week:
project/waste/testfile23
project/waste/tempfile34
Would you like to delete them, Y/N
y
files deleted
u1955061@ouranos:~/project/scripts$ cd
u1955061@ouranos:~$ cd project/waste
u1955061@ouranos:~/project/waste$ ls
testfile
``` | |
| 2 | N | View but do not delete old files | ```
u1955061@ouranos:~/project/scripts$ bash oldwaste
Files in the waste bin that have been there for more than a week:
Would you like to delete them, Y/N
n
no files deleted
u1955061@ouranos:~/project/scripts$ cd
u1955061@ouranos:~$ cd project/waste
u1955061@ouranos:~/project/waste$ ls
tempfile34  testfile  testfile23
``` | |
| MASHER | | | | |
| 1 | 12ab&* | Show input string Letters processed: 2 Numbers processed: 2 Non alpha numeric processed: 1<br><br>Total characters: 6 Control value position: 6 Characters before control: 5 | ```
u1955061@ouranos:~/project/scripts$ bash masher
Please input a series of characters or * to terminate
12ab&*
You have input the string: 12ab&*

Number of letters processed: 1
Numbe of digits processed: 2
Number of non alpha numeric characters processed: 1

Total number of characters in the string (including control): 6
Control value at position: 6
Characters before control value: 5
``` | |

| 2 | 12ab&*po95 | Show input string<br>Letters processed: 2<br>Numbers processed: 2<br>Non alpha numeric processed: 1<br><br>Total characters: 10<br>Control value position: 6<br>Characters before control: 5 | ```
u1955061@ouranos:~/project/scripts$ bash masher
Please input a series of characters or * to terminate
12an&*po95
You have input the string: 12an&*po95

Number of letters processed: 1
Numbe of digits processed: 2
Number of non alpha numeric characters processed: 1

Total number of characters in the string (including control): 10
Control value at position: 6
Characters before control value: 5
u1955061@ouranos:~/project/scripts$
``` | |
| 3 | No input followed by gg* | Re-prompt for input<br>Show input string<br>Letters processed: 2<br>Numbers processed: 0<br>Non alpha numeric processed: 0<br><br>Total characters: 3<br>Control value position: 3<br>Characters before control: 2 | ```
u1955061@ouranos:~/project/scripts$ bash masher
Please input a series of characters or * to terminate

No string entered
Please input a series of characters or * to terminate
gg*
You have input the string: gg*

Number of letters processed: 2
Numbe of digits processed: 0
Number of non alpha numeric characters processed: 0

Total number of characters in the string (including control):
Control value at position: 3
Characters before control value: 2
``` | |

Section 3 – Conclusions

During the time writing these commands I have learned a lot of useful features and development methods for creating Linux bash scripts, such as using grep commands to search and piping commands through others. I have also learnt a lot about the importance of syntax during this this project, such as closing if statements with fi and while loops with done. Overall, I am happy with the commands I have developed and feel like the code is very readable and self-explanatory with the shebang I have included.

Whilst I have struggled with some of the Linux development specifics like the difference between [] and {},I have been able to use previous experience whilst developing in python and java to help me get a grasp for some of the similar features like loops and if statements. I feel my project planning and pseudocode writing skills could use improvement and I will try to work on improving this in future projects.

As I am new to bash scripting, I feel that some of my scripts could possibly be optimised to make them run more efficiently. However, this is something I do not feel I could do without spending more time developing bash scripts and learn some more advanced techniques to optimise my existing code. This is something that I could possibly do in future as I learn new skills and take on different development methods as I learn.