

SCSR2043 OPERATING SYSTEMS

Lab 3
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Section : 02

Marks

Instruction: Please answer all of the following questions. Whenever the 🖐 symbol appears, please raise your hand to call your instructor, he/she will verify your results by putting his / her initial next to the symbol.

1. Type the following commands using a text editor and save it as a *yourname.sh* (Example: *ahmad.sh*).

```
echo "Hello world" > helloworld.jar
mkdir cars; mkdir dates; mkdir fruits drinks
cd cars; echo "Honda Accord" > accord.c
cp accord.c civic.c; echo proton > proton.c; cd ../dates;
date > dateoftheday
cat dateoftheday > appointment
cd ../fruits; echo apple > apple.txt; cat apple.txt >
orange.txt
cd drinks; cp ../cars/*. * .; cp ../fruits/*. * .;
cp ../*.jar .
```

- a) Execute the script and draw a tree structure that contains created directories and files. The parent node of the directory begin with **\$HOME** directory.

[4 marks]



Print screen the script that you type;

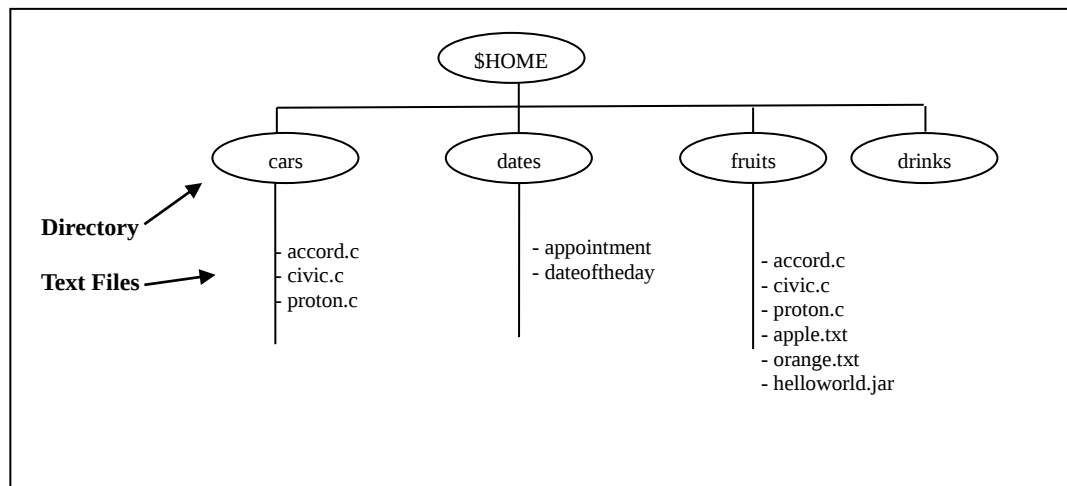
Then draw the tree

Print screen script & tree:

```

root@kali:~# echo "Hello world" > helloworld.jar
root@kali:~# mkdir cars; mkdir dates; mkdir fruits drinks
root@kali:~# cd cars; echo "Honda Accord" > accord.c
root@kali:~/cars# cp accord.c civic.c; echo proton > proton.c; cd ../dates;
root@kali:~/dates# cat dateoftheday > appointment
root@kali:~/dates# cd ../fruits; echo apple > apple.txt; cat apple.txt > orange.
txt
root@kali:~/fruits# cd drinks; cp ../cars/*.c .; cp ../fruits/*.c .;
bash: cd: drinks: No such file or directory
cp: '../fruits/accord.c' and './accord.c' are the same file
cp: '../fruits/apple.txt' and './apple.txt' are the same file
cp: '../fruits/civic.c' and './civic.c' are the same file
cp: '../fruits/orange.txt' and './orange.txt' are the same file
cp: '../fruits/proton.c' and './proton.c' are the same file
root@kali:~/fruits# cp ../*.jar .
root@kali:~/fruits#

```



- b) Write an interactive bash script that will read a type of file extension, display all those files, and count the number of files. To validate your script, display `c` program files, and enter “`c`” as the input to the bash script. [4 marks]

Print screen script:

```

root@kali:~# file c && ls -l | wc -l && ls -l
c: directory
15
c
dates
Desktop
Documents
Downloads
drinks
fruits
helloworld.jar
lagu
Music
Pictures
Public
Templates
utm
Videos
root@kali:~#

```

2. The following Figure 1 illustrates a tree structure of some directories and files.

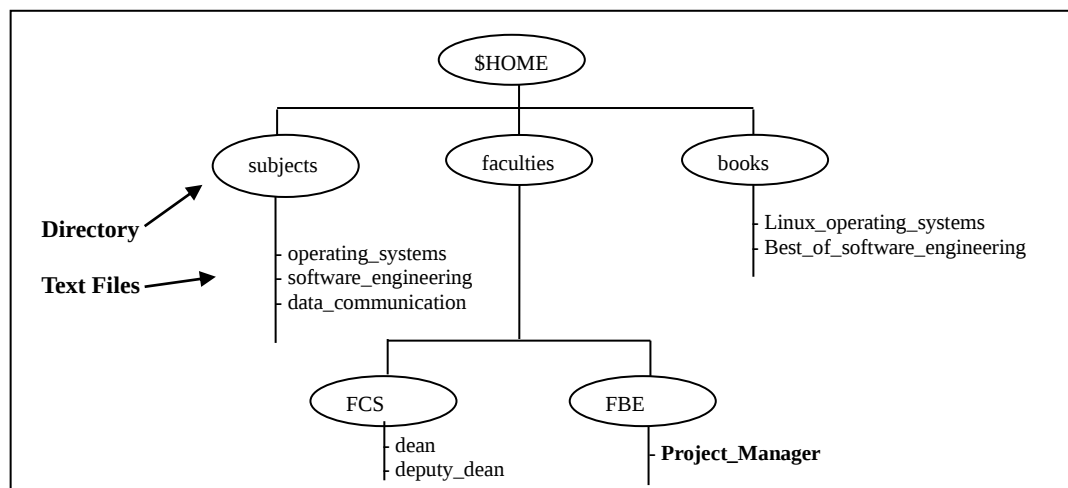


Figure 1

- a) Write a bash script (called `myname2a.sh`) that will produce directories and files as in Figure 1. Each text file contains its filename without the underscore character. For example: text file `Project_Manager` contains `Project Manager`. [4 marks]

Print screen script:

```

root@kali:~# mkdir subjects; mkdir faculties; mkdir books;
root@kali:~# cd subjects
root@kali:~/subjects# cat > operating_systems.txt
operating_systems
^Z
[1]+  Stopped                  cat > operating_systems.txt
root@kali:~/subjects# cat > software_engineering.txt
software_engineering
^Z
[2]+  Stopped                  cat > software_engineering.txt
root@kali:~/subjects# cat > data_communication.txt
data_communication
^Z
[3]+  Stopped                  cat > data_communication.txt
root@kali:~/subjects# cd
root@kali:~# cd faculties
root@kali:~/faculties# mkdir FCS
root@kali:~/faculties# mkdir FBE
root@kali:~/faculties# cd
root@kali:~# cd FCS
bash: cd: FCS: No such file or directory
root@kali:~# cd faculties/FCS
root@kali:~/faculties/FCS# cat > dean.txt
dean
dean
^Z
[4]+  Stopped                  cat > dean.txt
root@kali:~/faculties/FCS# cat > deputy_dean.txt
deputy_dean
^Z
[5]+  Stopped                  cat > deputy_dean.txt
root@kali:~/faculties/FCS# cd
root@kali:~# cd faculties/FBE
root@kali:~/faculties/FBE# cat > Project_Manager.txt
Project_Manager
^Z
[6]+  Stopped                  cat > Project_Manager.txt
root@kali:~/faculties/FBE# cd
root@kali:~# cd books
root@kali:~/books# cat > Linux_operating_system.txt
Linux_operating_system
^Z
[7]+  Stopped                  cat > Linux_operating_system.txt
root@kali:~/books# cat > Best_of_software_engineering.txt
Best_of_software_engineering
^Z
[8]+  Stopped                  cat > Best_of_software_engineering.txt
root@kali:~/books#

```

- b) Complete the following table by writing the access control of directories or files that were produced. Given is the access control for directory called book. [2 marks]

Directory/File	Access Control
books	drwxrwxr-x
subjects	rwxr-xr-x
Best_of_software_engineering	rw-r--r--
FCS	rwxr-xr-x
project_manager	rw-r--r--



- c) Write another bash script (called `myname2c.sh`) that will change the access control of the directories and files based on the following information:

[4 marks]

Directory/File	Users								
	Owner			Group			Public		
subjects	✓	✓	✓	✓	x	x	✓	x	x
Best_of_software_engineering	✓	x	✓	x	✓	x	x	x	x
FCS	✓	✓	x	x	x	x	✓	✓	✓
project_manager	x	x	x	x	✓	✓	x	x	✓

Print screen script:

```
root@kali:~# chmod u+r+w+x subjects
root@kali:~# chmod go+r-w-x subjects
root@kali:~# cd
root@kali:~# cd books
root@kali:~/books# chmod u+r-w+x Best_of_software_engineering.txt
root@kali:~/books# chmod g-r+w-x Best_of_software_engineering.txt
root@kali:~/books# chmod o-r-w-x Best_of_software_engineering.txt
root@kali:~/books# cd
root@kali:~# cd faculties
root@kali:~/faculties# chmod u+r+w-x FCS
root@kali:~/faculties# chmod g-r-w-x FCS
root@kali:~/faculties# chmod o+r+w+x FCS
root@kali:~/faculties# cd
root@kali:~# cd faculties
root@kali:~/faculties# cd FBE
root@kali:~/faculties/FBE# chmod u-r-w-x Project_Manager.txt
root@kali:~/faculties/FBE# chmod g-r+w+x Project_Manager.txt
root@kali:~/faculties/FBE# chmod o-r-w+x Project_Manager.txt
root@kali:~/faculties/FBE# cd
root@kali:~#
```



- d) Complete the following table by writing the access control for each directory or file after executing the bash script in question 2(c)). [2 marks]

Directory/File	Access Control
subjects	rwxr--r--
Best_of_software_engineering	r-x-w----
FCS	rw----rwx
project_manager	----wx--x

End of Lab 3

*** *All the Best for Final Exam* ***