

SCSR2043 OPERATING SYSTEMS**[20 Marks]**

Name	:	Group 1	Marks
Student	:		
ID	:		
Section	:	Section 02	

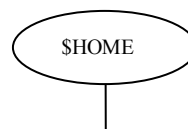
Instruction: Please answer all the following questions.

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

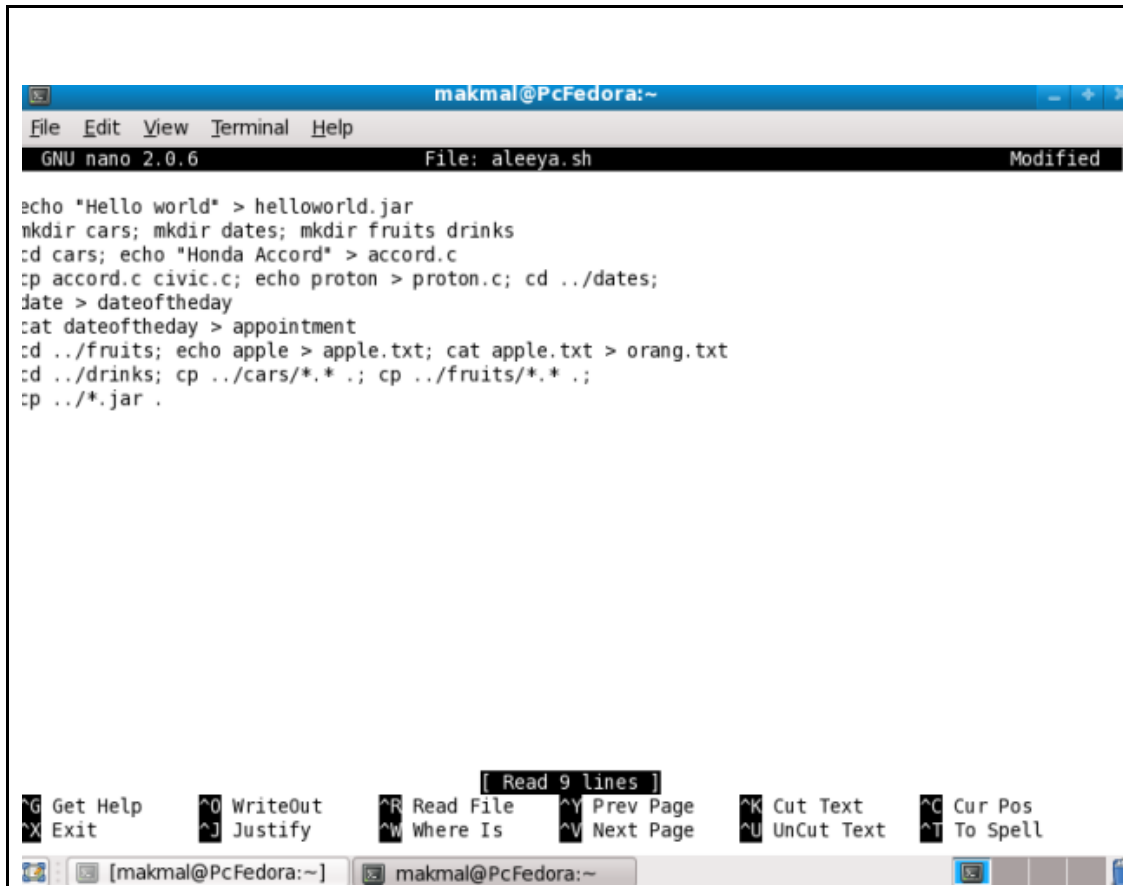
```
echo "Hello world" > helloworld.jar
mkdir cars; mkdir dates; mkdir fruits drinks
cd cars; echo "Honda Accord" > accord.c
cp accord.c civic.c; echo proton > proton.c; cd ../dates;
date > dateoftheday
cat dateoftheday > appointment
cd ../fruits; echo apple > apple.txt; cat apple.txt >
orange.txt
cd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



```
makmal@PcFedora:~  
File Edit View Terminal Help  
GNU nano 2.0.6 File: aleea.sh Modified  
  
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 > orang.txt  
cd ../drinks; cp ../cars/*.c .; cp ../fruits/*.c .;  
cp ../*.jar .  
  
[ Read 9 lines ]  
^G Get Help      ^O WriteOut      ^R Read File     ^Y Prev Page     ^K Cut Text      ^C Cur Pos  
^X Exit          ^J Justify       ^W Where Is     ^V Next Page     ^U UnCut Text    ^T To Spell  
[makmal@PcFedora:~] makmal@PcFedora:~
```

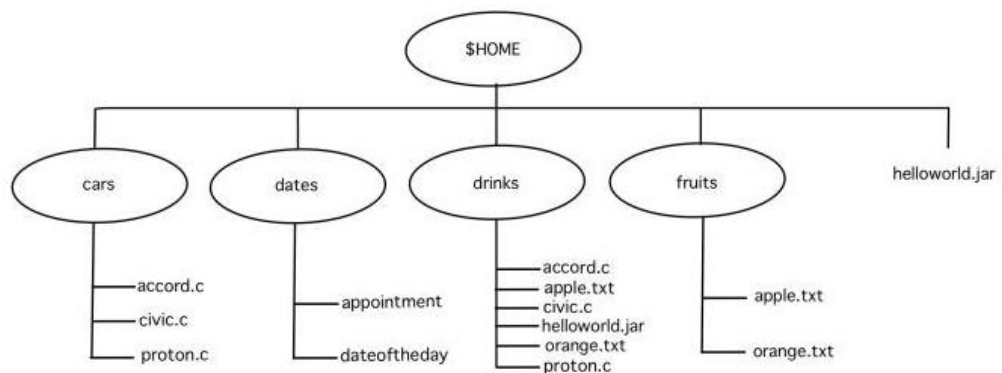
Then draw the tree

```

makmal@PcFedora:~
File Edit View Terminal Help
-- aleea.sh
-- cars
|-- accord.c
|-- civic.c
|-- proton.c
-- dates
|-- appointment
|-- dateoftheday
-- drinks
|-- accord.c
|-- apple.txt
|-- civic.c
|-- helloworld.jar
|-- orang.txt
|-- proton.c
-- fruits
|-- apple.txt
|-- orang.txt
-- helloworld.jar
-- patketul
|-- Fiza
|   |-- Banana
|   |   |-- fork1.c
|   |   |-- fork1result
|   |-- Papaya
|   |   |-- fork2.c
|   |-- Muna
|   |   |-- Durian
|   |   |   |-- fork3.c

```

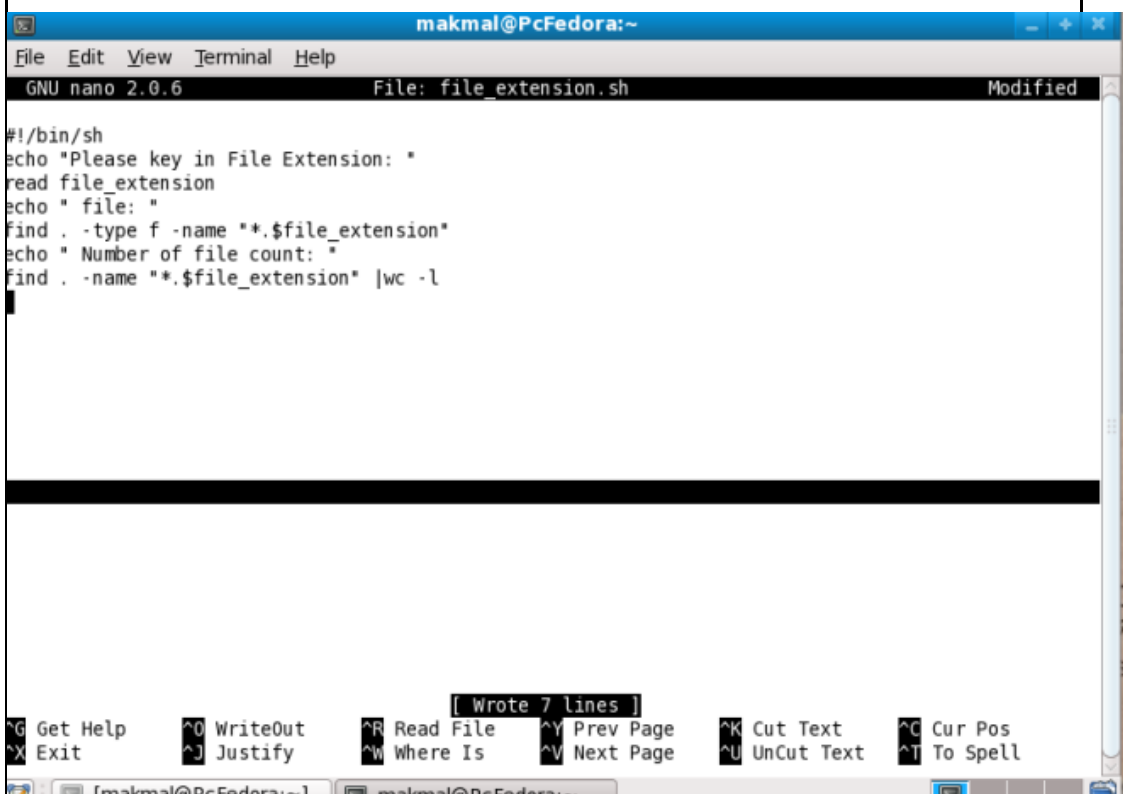
Tree Structure is given below



- 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]

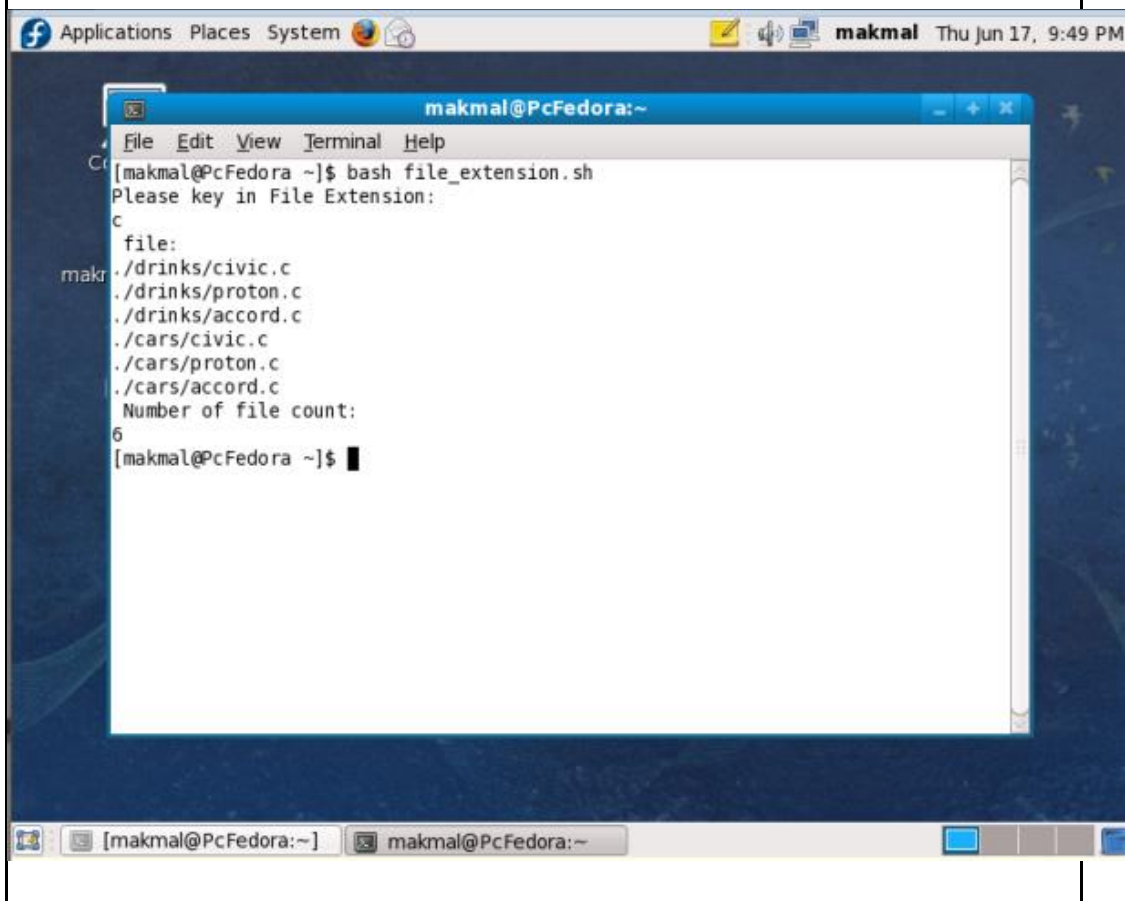
Print screen the bash script you type and run

Bash Script



```
makmal@PcFedora:~  
File Edit View Terminal Help  
GNU nano 2.0.6 File: file_extension.sh Modified  
#!/bin/sh  
echo "Please key in File Extension: "  
read file_extension  
echo " file: "  
find . -type f -name ".*$file_extension"  
echo " Number of file count: "  
find . -name ".*$file_extension" |wc -l  
[ Wrote 7 lines ]  
^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos  
^X Exit ^J Justify ^W Where Is ^V Next Page ^U UnCut Text ^T To Spell
```

Run



The screenshot shows a Linux desktop environment with a terminal window titled "makmal@PcFedora:~". The terminal displays the following text:

```
makmal@PcFedora ~]$ bash file_extension.sh
Please key in File Extension:
c
file:
./drinks/civic.c
./drinks/proton.c
./drinks/accord.c
./cars/civic.c
./cars/proton.c
./cars/accord.c
Number of file count:
6
[makmal@PcFedora ~]$
```

The terminal window has a menu bar with "File", "Edit", "View", "Terminal", and "Help". The desktop background is a dark blue pattern. The top panel shows the "Applications", "Places", and "System" menus, along with system icons and the user name "makmal" and date "Thu Jun 17, 9:49 PM". The bottom panel shows the terminal window's title bar and a taskbar with icons for the terminal and other applications.

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

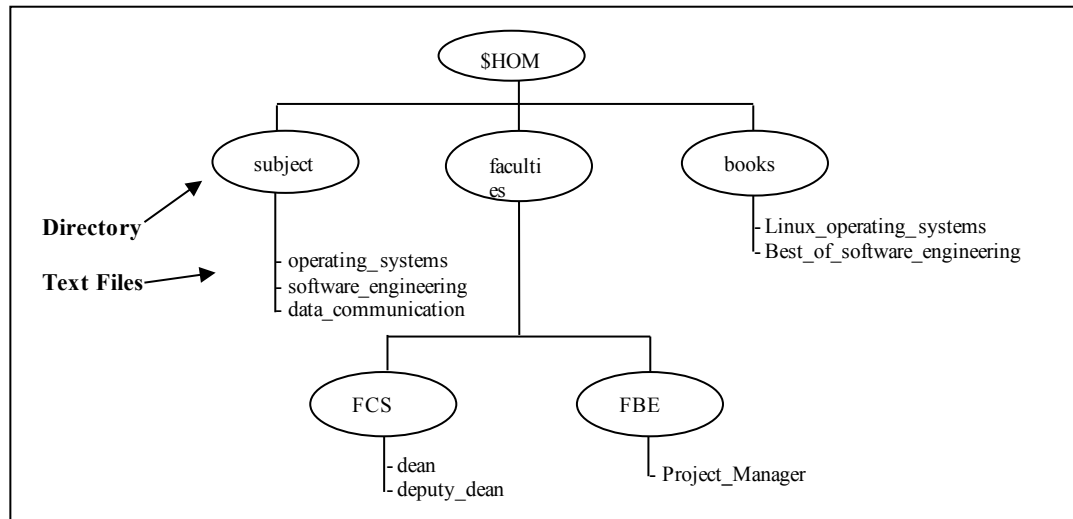


Figure 1

- 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 the bash script you type and run

Bash Script

```

makmal@PcFedora:~
File Edit View Terminal Help
GNU nano 2.0.6 File: aleeya2a.sh

mkdir subject; mkdir faculties; mkdir books
cd subject
echo "operating systems" > operating_system
echo "software engineering" > software_engineering
echo "data communication" > data_communication
cd ../faculties
mkdir FCS; mkdir FBE
cd FCS
echo "dean" > dean
echo "deputy dean" > deputy_dean
cd ../FBE
echo "Project Manager" > Project_Manager
cd ../../books
echo "Linux operating systems" > Linux_operating_systems
echo "Best of software engineering" > Best_of_software_engineering

[ Wrote 15 lines ]
^G Get Help  ^O WriteOut  ^R Read File  ^Y Prev Page  ^K Cut Text   ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is   ^V Next Page  ^U UnCut Text ^T To Spell

```

Run

```

6
[makmal@PcFedora ~]$ nano aleeya2a.sh
[makmal@PcFedora ~]$ chmod +x aleeya2a.sh
[makmal@PcFedora ~]$ ./aleeya2a.sh
[makmal@PcFedora ~]$

```

- 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
<code>books</code>	<code>drwxrwxr-x</code>
<code>subjects</code>	<code>drwxr-xr-x</code>
<code>Best_of_software_engineering</code>	<code>-rw--r--</code>
<code>FCS</code>	<code>drwxr-xr-x</code>
<code>project_manager</code>	<code>-rw-r-r--</code>

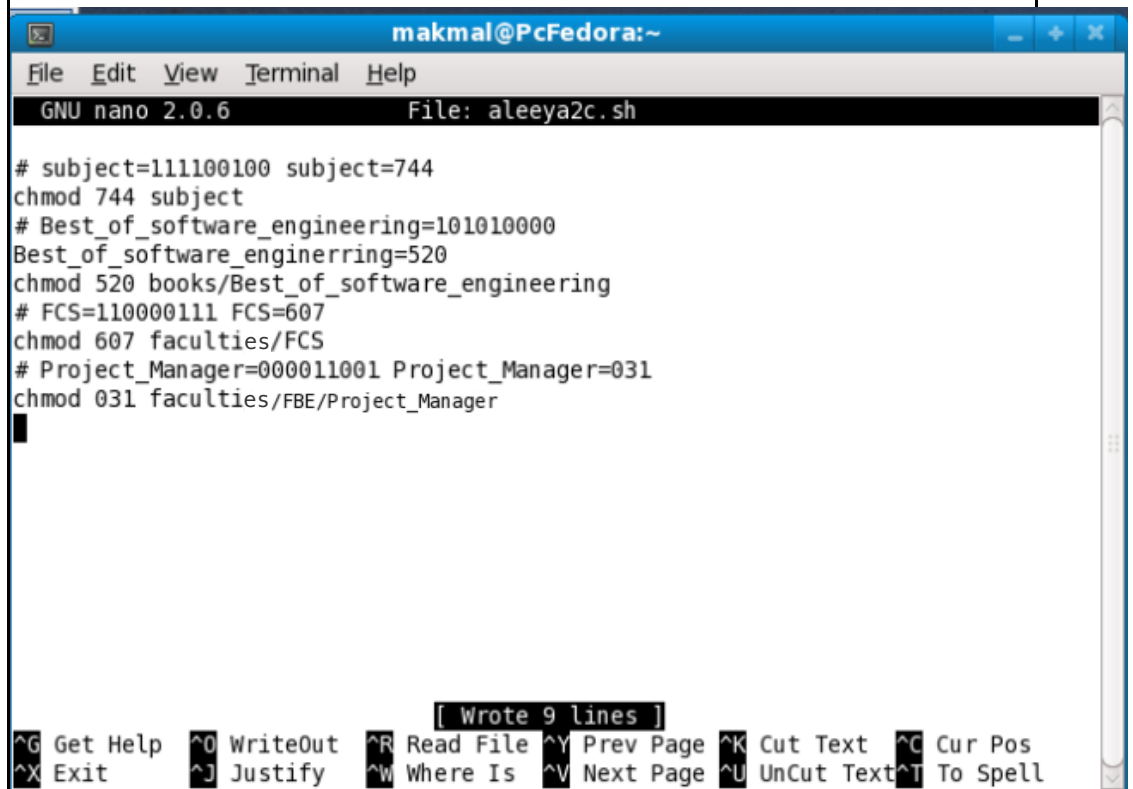
- c) Write another bash script (called `myname2c.sh`) that will change the access control of the directories and files based on the following information:

[4 marks]

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

Print screen the bash script you type and run

Bash Script



```
makmal@PcFedora:~  
File Edit View Terminal Help  
GNU nano 2.0.6 File: aleeya2c.sh  
  
# subject=111100100 subject=744  
chmod 744 subject  
# Best_of_software_engineering=101010000  
Best_of_software_engineerring=520  
chmod 520 books/Best_of_software_engineering  
# FCS=110000111 FCS=607  
chmod 607 faculties/FCS  
# Project_Manager=000011001 Project_Manager=031  
chmod 031 faculties/FBE/Project_Manager  
  
[ Wrote 9 lines ]  
^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos  
^X Exit ^J Justify ^W Where Is ^V Next Page ^U UnCut Text ^T To Spell
```

Run

```
[makmal@PcFedora ~]$ nano aleeya2c.sh  
[makmal@PcFedora ~]$ chmod +x aleeya2c.sh  
[makmal@PcFedora ~]$ ./aleeya2c.sh  
[makmal@PcFedora ~]$
```

- 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	drwxr--r--
Best_of_software_engineering	-r-x-w----
FCS	drw----rwx
project_manager	-----wx--x

End of Lab 3

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