

SCSR2043 OPERATING SYSTEMS

[20 Marks]

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Marks

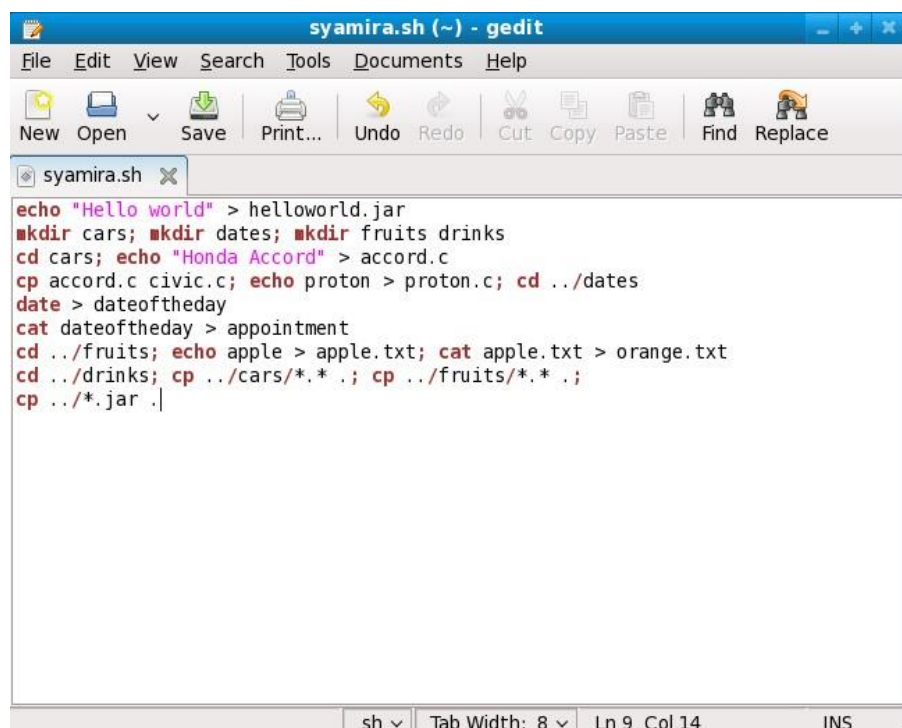
Instruction: Please answer all the following questions.

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]



The screenshot shows a gedit window titled 'syamira.sh (~) - gedit'. The menu bar includes File, Edit, View, Search, Tools, Documents, and Help. The toolbar contains icons for New, Open, Save, Print..., Undo, Redo, Cut, Copy, Paste, Find, and Replace. The text area contains the following script:

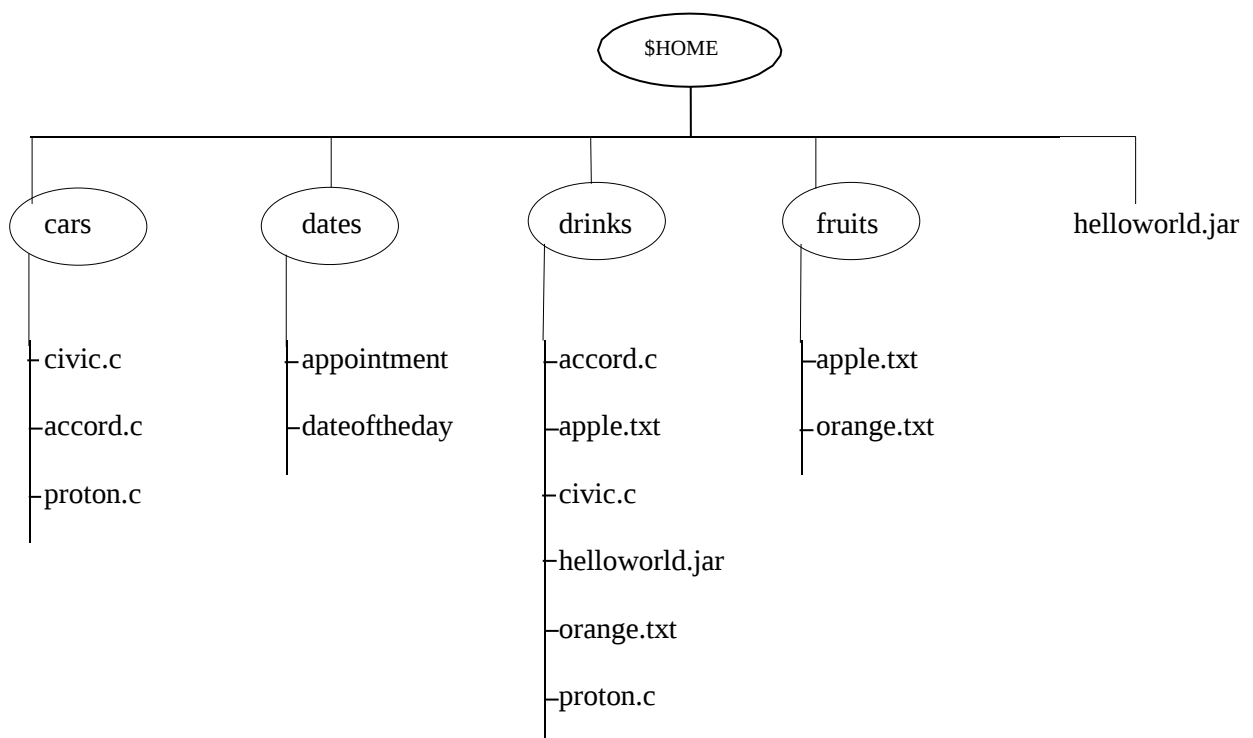
```
echo "Hello world" > helloworld.jar
mkdir cars; mkdir dates; mkdir fruits drinks
cd cars; echo "Honda Accord" > accord.c
cp accord.c civic.c; echo proton > proton.c; cd ../dates
date > dateoftheday
cat dateoftheday > appointment
cd ../fruits; echo apple > apple.txt; cat apple.txt > orange.txt
cd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

The status bar at the bottom shows 'sh', 'Tab Width: 8', 'Ln 9, Col 14', and 'INS'.

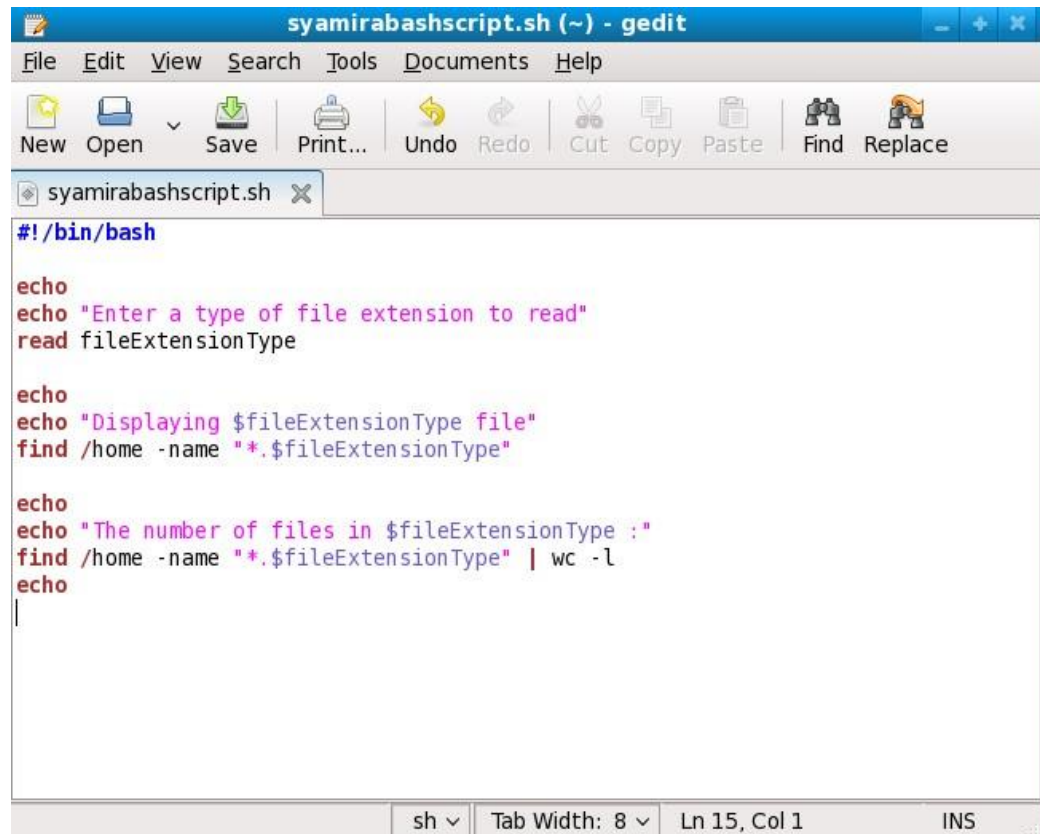
```

makmal@PcFedora:~
File Edit View Terminal Help
[makmal@PcFedora ~]$ pwd
/home/mpk8
[makmal@PcFedora ~]$ ls
cars      Documents  fruits      Pictures    syamira.sh
dates     Download  helloworld.jar Public      Templates
Desktop   drinks    Music       Syamira     Videos
[makmal@PcFedora ~]$ ls -a cars
. . . accord.c civic.c proton.c
[makmal@PcFedora ~]$ ls -a dates
. . . appointment dateoftheday
[makmal@PcFedora ~]$ ls -a drinks
. . . accord.c apple.txt civic.c helloworld.jar orange.txt proton.c
[makmal@PcFedora ~]$ ls -a fruits
. . . apple.txt orange.txt
[makmal@PcFedora ~]$ ls -a helloworld.jar
helloworld.jar
[makmal@PcFedora ~]$ █

```



- 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]



The screenshot shows a gedit editor window titled 'syamirabashscript.sh (~) - gedit'. The menu bar includes File, Edit, View, Search, Tools, Documents, and Help. The toolbar contains icons for New, Open, Save, Print..., Undo, Redo, Cut, Copy, Paste, Find, and Replace. The script content is as follows:

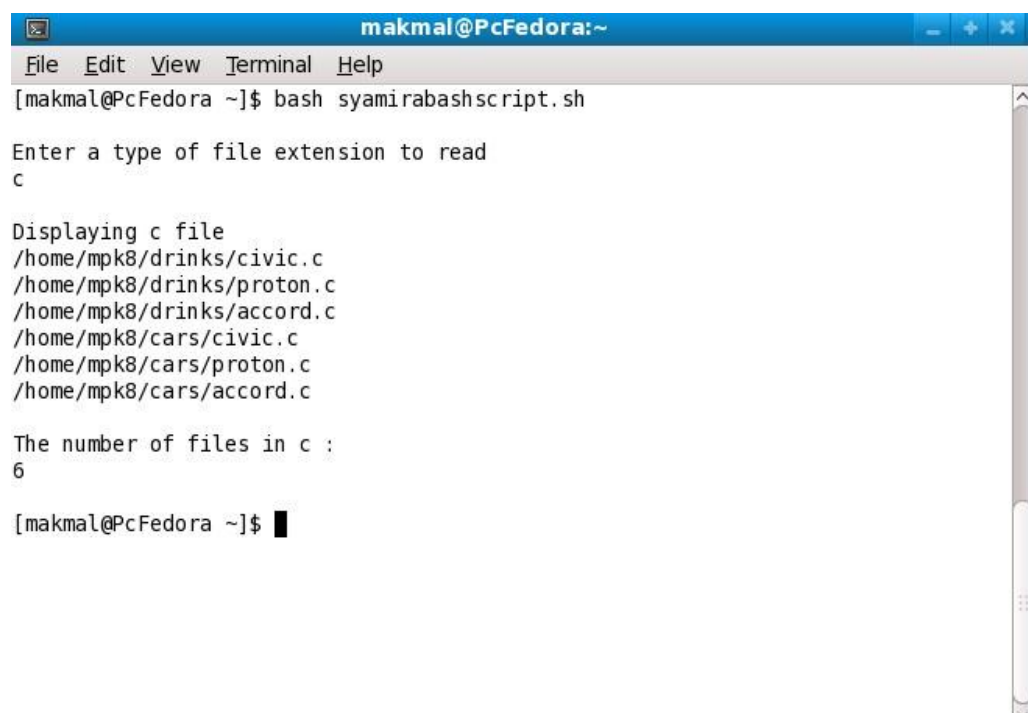
```
#!/bin/bash

echo
echo "Enter a type of file extension to read"
read fileExtensionType

echo
echo "Displaying $fileExtensionType file"
find /home -name ".*$fileExtensionType"

echo
echo "The number of files in $fileExtensionType :"
find /home -name ".*$fileExtensionType" | wc -l
echo
```

The status bar at the bottom indicates 'sh', 'Tab Width: 8', 'Ln 15, Col 1', and 'INS'.



The screenshot shows a terminal window titled 'makmal@PcFedora:~'. The prompt is '[makmal@PcFedora ~]\$'. The user enters 'bash syamirabashscript.sh'. The output of the script is:

```
[makmal@PcFedora ~]$ bash syamirabashscript.sh

Enter a type of file extension to read
c

Displaying c file
/home/mpk8/drinks/civic.c
/home/mpk8/drinks/proton.c
/home/mpk8/drinks/accord.c
/home/mpk8/cars/civic.c
/home/mpk8/cars/proton.c
/home/mpk8/cars/accord.c

The number of files in c :
6

[makmal@PcFedora ~]$
```

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

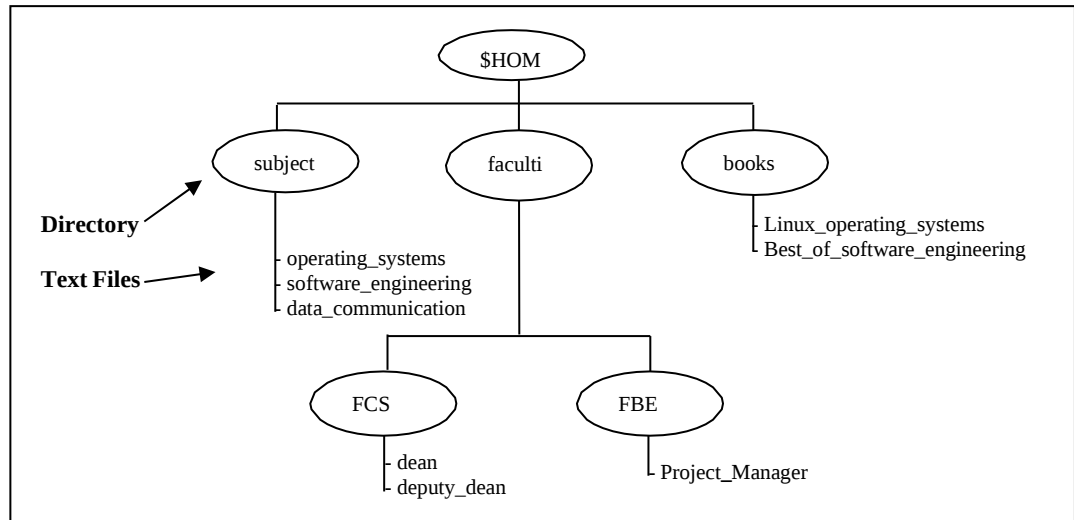


Figure 1

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

```

mkdir subject; mkdir faculties; mkdir books
cd /home/mpk8/subject;
echo "Operating Systems" > operating_systems.txt;
echo "Software Engineering" > software_engineering.txt;
echo "Data Communication" > data_communication.txt
cd /home/mpk8/books;
echo "Linux Operating Systems" > Linux_operating_systems.txt;
echo "Best of Software Engineering" > Best_of_software_engineering.txt
cd /home/mpk8/faculties -p; mkdir FCS FBE
cd /home/mpk8/faculties/FCS;
echo "Dean" > dean.txt;
echo "Deputy Dean" > deputy_dean.txt
cd /home/mpk8/faculties/FBE;
echo "Project Manager" > Project_Manager.txt

```

- 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	drwxr-xr-x
Best_of_software_engineering	-rw-r--r--
FCS	drwxr-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	!

```

#!/bin/bash

chmod 744 /home/mpk8/subject
chmod 520 /home/mpk8/books/Best_of_software_engineering.txt
chmod 607 /home/mpk8/faculties/FCS
chmod 031 /home/mpk8/faculties/FBE/Project_Manager.txt
  
```

- 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 ****