

## SECR2043 OPERATING SYSTEMS

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 Section : Section 03

Marks

This lab assessment is designed to test your understanding and skills on some basic concepts and tools related to operating system. Please follow the instructions carefully and submit your answers in this word document and rename the file as **os-lab-assessment01-studentname-matricno.docx**.

### ACTIVITY 1 : BASIC LINUX COMMANDS

In this activity, you will practice some basic Linux commands that are useful for operating system tasks. For each question, write down the command you used and the output you got in your answer file. If the command does not produce any output, write "**No output**" instead.

1.	Display your current working directory.	
	<b>Command</b>	<b>Output</b>
	pwd	tehrugian@secr2043:~\$ pwd /home/tehrugian
2.	List all the files and directories in your home directory, including hidden ones.	
	<b>Command</b>	<b>Output</b>
	ls -ah	tehrugian@secr2043:~\$ ls -ah . . . .bash_logout .bashrc .profile
3.	Create a new directory named "os_lab" in your home directory.	
	<b>Command</b>	<b>Output</b>
	mkdir os_lab	tehrugian@secr2043:~\$ ls -ah . . . .bash_logout .bashrc .profile tehrugian@secr2043:~\$ mkdir os_lab tehrugian@secr2043:~\$ ls -ah . . . .bash_logout .bashrc .profile os_lab
4.	Change your current working directory to "os_lab".	
	<b>Command</b>	<b>Output</b>
	cd os_lab	tehrugian@secr2043:~\$ pwd /home/tehrugian tehrugian@secr2043:~\$ cd os_lab tehrugian@secr2043:~/os_lab\$ pwd /home/tehrugian/os_lab

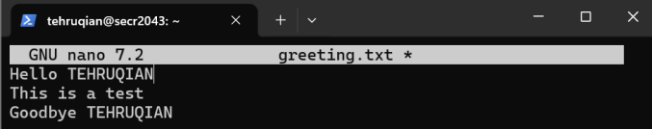
5.	Create a new file named "hello.txt" in "os_lab" and write "Hello, world!" in it.	
	<b>Command</b>	<b>Output</b>
	nano hello.txt	tehrugian@secr2043:~/os_lab\$ ls tehrugian@secr2043:~/os_lab\$ nano hello.txt tehrugian@secr2043:~/os_lab\$ ls hello.txt
6.	Display the content of "hello.txt".	
	<b>Command</b>	<b>Output</b>
	cat hello.txt	tehrugian@secr2043:~/os_lab\$ cat hello.txt Hello, World!
7.	Copy "hello.txt" to another file named "hello_copy.txt" in the same directory.	
	<b>Command</b>	<b>Output</b>
	cp hello.txt hello_copy.txt	tehrugian@secr2043:~/os_lab\$ ls hello.txt tehrugian@secr2043:~/os_lab\$ cp hello.txt hello_copy.txt tehrugian@secr2043:~/os_lab\$ ls hello.txt hello_copy.txt
8.	Rename "hello_copy.txt" to "hello_bak.txt".	
	<b>Command</b>	<b>Output</b>
	mv hello_copy.txt hello_bak.txt	tehrugian@secr2043:~/os_lab\$ ls hello.txt hello_copy.txt tehrugian@secr2043:~/os_lab\$ mv hello_copy.txt hello_bak.txt tehrugian@secr2043:~/os_lab\$ ls hello.txt hello_bak.txt
9.	Delete "hello.txt".	
	<b>Command</b>	<b>Output</b>
	rm hello.txt	tehrugian@secr2043:~/os_lab\$ ls hello.txt hello_bak.txt tehrugian@secr2043:~/os_lab\$ rm hello.txt tehrugian@secr2043:~/os_lab\$ ls hello_bak.txt
10.	Display your home directory with additional information, together with subdirectories contents.	
	<b>Command</b>	<b>Output</b>
	ls -R /home	tehrugian@secr2043:~/os_lab\$ ls -R /home /home: farkhana mahyuddin student tehrugian ls: cannot open directory '/home/farkhana': Permission denied ls: cannot open directory '/home/mahyuddin': Permission denied ls: cannot open directory '/home/student': Permission denied  /home/tehrugian: os_lab  /home/tehrugian/os_lab: hello_bak.txt
	<b>Total Mark:</b>	

## ACTIVITY 2 : Text File Manipulation

In this activity, you will practice some commands to create and manipulate text files using echo, cat and touch.

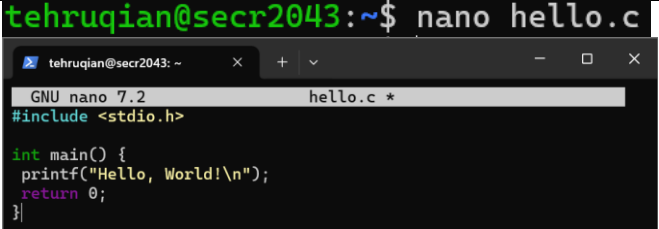
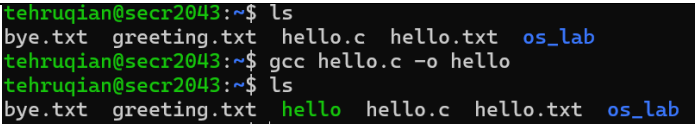
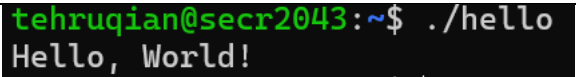
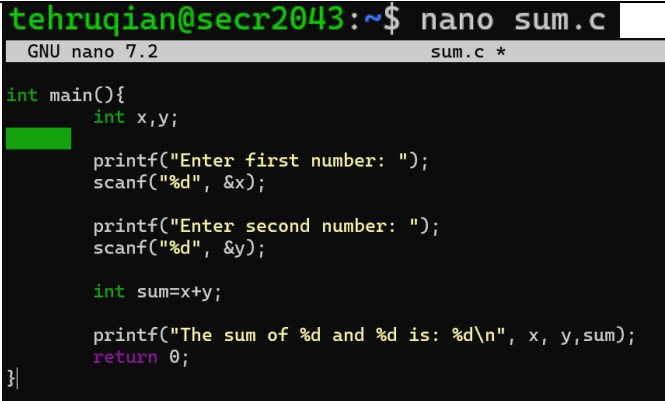
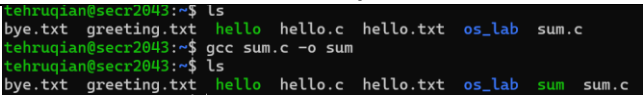
For each question, write down the command and the output (if any) in the answer sheet.

1.	Create an empty file named "hello.txt" in the current working directory.	
	<b>Command</b>	<b>Output</b>
	touch hello.txt	<pre>tehruqian@secr2043:~\$ ls os_lab tehruqian@secr2043:~\$ touch hello.txt tehruqian@secr2043:~\$ ls hello.txt  os_lab</pre>
2.	Write the text "Hello World" to "hello.txt" using echo.	
	<b>Command</b>	<b>Output</b>
	echo "Hello World" > hello.txt	<pre>tehruqian@secr2043:~\$ echo "Hello World" &gt; hello.txt</pre>
3.	Append the text "This is a test" to "hello.txt" using echo.	
	<b>Command</b>	<b>Output</b>
	echo "This is a test" >> hello.txt	<pre>tehruqian@secr2043:~\$ echo "This is a test" &gt;&gt; hello.txt</pre>
4.	Display the contents of "hello.txt" using cat.	
	<b>Command</b>	<b>Output</b>
	cat hello.txt	<pre>tehruqian@secr2043:~\$ cat hello.txt Hello World This is a test</pre>
5.	Create another file named "bye.txt" with the text "Goodbye World" using echo.	
	<b>Command</b>	<b>Output</b>
	touch bye.txt echo "Goodbye World" > bye.txt	<pre>tehruqian@secr2043:~\$ touch bye.txt tehruqian@secr2043:~\$ echo "Goodbye World" &gt; bye.txt</pre>
6.	Concatenate the contents of "hello.txt" and "bye.txt" and display them using cat.	
	<b>Command</b>	<b>Output</b>
	cat hello.txt bye.txt	<pre>tehruqian@secr2043:~\$ cat hello.txt bye.txt Hello World This is a test Goodbye World</pre>

7.	Concatenate the contents of "hello.txt" and "bye.txt" and write them to a new file named "greeting.txt" using cat.	
	<b>Command</b>	<b>Output</b>
	cat hello.txt bye.txt > greeting.txt	tehrugian@secr2043:~\$ cat hello.txt bye.txt > greeting.txt
8.	Display the contents of "greeting.txt" using cat.	
	<b>Command</b>	<b>Output</b>
	cat greeting.txt	tehrugian@secr2043:~\$ cat greeting.txt Hello World This is a test Goodbye World
9.	Edit the file "greeting.txt" using Nano and change the word "World" to your name in both lines.	
	<b>Command</b>	<b>Output</b>
	nano greeting.txt	tehrugian@secr2043:~\$ nano greeting.txt 
10.	Display the modified contents of "greeting.txt" using cat.	
	<b>Command</b>	<b>Output</b>
	cat greeting.txt	tehrugian@secr2043:~\$ cat greeting.txt Hello TEHRUQIAN This is a test Goodbye TEHRUQIAN
<b>Total Mark:</b>		

### ACTIVITY 3 : WRITE, COMPILE AND RUN C PROGRAM

In this activity, you will practice how to write, compile and run a simple C program using gcc. For each question, write down the command and the output (if any) in the answer sheet.

1.	Write a C program that prints "Hello World" to the standard output using Nano and save it as "hello.c".	
	<b>Command</b>	<b>Output</b>
	nano hello.c	 <pre>tehrugian@secr2043:~\$ nano hello.c GNU nano 7.2 hello.c * #include &lt;stdio.h&gt;  int main() {     printf("Hello, World!\n");     return 0; }</pre>
2.	Compile the program "hello.c" using gcc and generate an executable file named "hello".	
	<b>Command</b>	<b>Output</b>
	gcc hello.c -o hello	 <pre>tehrugian@secr2043:~\$ ls bye.txt  greeting.txt  hello.c  hello.txt  os_lab tehrugian@secr2043:~\$ gcc hello.c -o hello tehrugian@secr2043:~\$ ls bye.txt  greeting.txt  hello  hello.c  hello.txt  os_lab</pre>
3.	Run the executable file "hello" and display its output.	
	<b>Command</b>	<b>Output</b>
	./hello	 <pre>tehrugian@secr2043:~\$ ./hello Hello, World!</pre>
4.	Write a C program that takes two integers as command line arguments and prints their sum to the standard output using Nano and save it as "sum.c".	
	<b>Command</b>	<b>Output</b>
	nano sum.c	 <pre>tehrugian@secr2043:~\$ nano sum.c GNU nano 7.2 sum.c *  int main(){     int x,y;      printf("Enter first number: ");     scanf("%d", &amp;x);      printf("Enter second number: ");     scanf("%d", &amp;y);      int sum=x+y;      printf("The sum of %d and %d is: %d\n", x, y,sum);     return 0; }</pre>
5.	Compile the program "sum.c" using gcc and generate an executable file named "sum".	
	<b>Command</b>	<b>Output</b>
	gcc sum.c -o sum	 <pre>tehrugian@secr2043:~\$ ls bye.txt  greeting.txt  hello  hello.c  hello.txt  os_lab tehrugian@secr2043:~\$ gcc sum.c -o sum tehrugian@secr2043:~\$ ls bye.txt  greeting.txt  hello  hello.c  hello.txt  os_lab  sum  sum.c</pre>

6.	Run the executable file "sum" with 10 and 20 as arguments and display its output.	
	<b>Command</b>	<b>Output</b>
	./sum	<pre>tehruqian@secr2043:~\$ ./sum Enter first number: 10 Enter second number: 20 The sum of 10 and 20 is: 30</pre>
7.	Run the executable file "sum" with -5 and 15 as arguments and display its output.	
	<b>Command</b>	<b>Output</b>
	./sum	<pre>tehruqian@secr2043:~\$ ./sum Enter first number: -5 Enter second number: 15 The sum of -5 and 15 is: 10</pre>
8.	Write a C program that reads a line of text from the standard input and prints it to the standard output using Nano and save it as "echo.c".	
	<b>Command</b>	<b>Output</b>
	nano echo.c	<pre>tehruqian@secr2043:~\$ nano echo.c GNU nano 7.2 echo.c * #include &lt;stdio.h&gt;  int main(){     char echo[50];      printf("Enter the text: ");     fgets(echo, 50, stdin);      printf("The text you input is: %s\n", echo);     return 0; }</pre>
9.	Compile the program "echo.c" using gcc and generate an executable file named "echo".	
	<b>Command</b>	<b>Output</b>
	gcc echo.c -o echo	<pre>tehruqian@secr2043:~\$ ls bye.txt  echo.c  greeting.txt  hello  hello.c  hello.txt  os_lab  sum  sum.c tehruqian@secr2043:~\$ gcc echo.c -o echo tehruqian@secr2043:~\$ ls bye.txt  echo.c  hello  hello.txt  sum echo  greeting.txt  hello.c  os_lab  sum.c</pre>
10.	Run the executable file "echo", type "Hello World" as input and display its output.	
	<b>Command</b>	<b>Output</b>
	./echo	<pre>tehruqian@secr2043:~\$ ./echo Enter the text: Hello World The text you input is: Hello World</pre>
	<b>Total Mark:</b>	