

## **Operating Systems – OS**

Lab Task 06 (OS-006)



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**RIPHAH International University**  
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**Faculty of Computing**

# Tasks

## Solution:

```

muhammadroshaanidrees56177@Ubuntu:~$ cd lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ vi Roshaan
muhammadroshaanidrees56177@Ubuntu:~/lab06$ ./Roshaan
bash: ./Roshaan: Permission denied
muhammadroshaanidrees56177@Ubuntu:~/lab06$ chmod 777 Roshaan
muhammadroshaanidrees56177@Ubuntu:~/lab06$ ./Roshaan
Knowledge is power
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[43m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[35m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "<033[30m lab06"
<033[30m lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[30m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[31m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[32m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[33m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[34m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[35m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[36m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[37m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[38m lab06"
lab06

muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[39m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[40m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[40m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[41m lab06"
lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ echo -e "\033[5m lab06"

:~/lab06$ who
muhammadroshaanidrees56177  tty2          2025-09-30 11:14 (tty2)
muhammadroshaanidrees56177@Ubuntu:~/lab06$ who am i
muhammadroshaanidrees56177@Ubuntu:~/lab06$ whoami
muhammadroshaanidrees56177

```

```
muhammadroshaanidrees56177@Ubuntu:~/Lab06$ uname
Linux
muhammadroshaanidrees56177@Ubuntu:~/Lab06$ uname -n
Ubuntu
muhammadroshaanidrees56177@Ubuntu:~/Lab06$ uname -r
6.8.0-83-generic
muhammadroshaanidrees56177@Ubuntu:~/Lab06$ uname -v
#83~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Tue Sep 9 18:19:47 UTC 2
muhammadroshaanidrees56177@Ubuntu:~/Lab06$ uname -m
x86_64
muhammadroshaanidrees56177@Ubuntu:~/Lab06$ uname -p
x86_64
muhammadroshaanidrees56177@Ubuntu:~/Lab06$ uname -i
x86_64
muhammadroshaanidrees56177@Ubuntu:~/Lab06$ uname -o
GNU/Linux
muhammadroshaanidrees56177@Ubuntu:~/Lab06$ uname -a
Linux Ubuntu 6.8.0-83-generic #83~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Tue Sep 9 18:19:47 UTC 2 x86_64 x86_64 x86_64 GNU/Linux
muhammadroshaanidrees56177@Ubuntu:~/Lab06$ touch lab06sort.txt
```

```
muhammadroshaanidrees56177@Ubuntu:~/Lab06$ cat>lab06sort.txt
A
Z
X
C
V
B
N
M
L
K
J
H
G
F
D
S
O
W
E
R
T
Y
U
I
O
P
Ø
8
9
6
```

```
muhammadroshaanidrees56177@Ubuntu:~/Lab06$ sort lab06sort.txt
7
5
3
4
2
1
0
A
B
C
D
E
F
G
H
I
J
K
L
M
N
Q
```

```
+1  
^P  
Q  
R  
S  
T  
U  
V  
W  
X  
Y  
Z  
muhammadroshaanidrees56177@Ubuntu:~/lab06$ sort -r lab06sort.txt  
Z  
Y  
X  
W  
V  
U  
T  
S  
R  
Q  
P  
O  
N  
M  
L  
K  
J  
I  
H
```

```
+1  
muhammadroshaanidrees56177@Ubuntu:~/lab06  
G  
F  
E  
D  
C  
B  
A  
9  
8  
7  
6  
5  
4  
3  
2  
1  
0  
muhammadroshaanidrees56177@Ubuntu:~/lab06$ sort -n lab06sort.txt  
0  
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L
```

```
muhammadroshaanidrees56177@Ubuntu: ~/lab06
```

F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
X  
Y  
Z  
1  
2  
3  
4  
5  
6  
7  
8  
9

---

## Lab-Tasks

### Task 01

#### Solution:

```
muhammadroshaanidrees56177@Ubuntu:~$ touch task1.c
muhammadroshaanidrees56177@Ubuntu:~$ gcc task1.c -o task1
muhammadroshaanidrees56177@Ubuntu:~$ ./task1
muhammadroshaanidrees56177@Ubuntu:~$ ls os/lab07/
datetime timestamp
muhammadroshaanidrees56177@Ubuntu:~$ cat os/lab07/timestamp
Tue 30 Sep 12:57:23 PKT 2025
muhammadroshaanidrees56177@Ubuntu:~$ cat os/lab07/datetime
Tue 30 Sep 12:57:23 PKT 2025
```

```
task1.c
~/

1 #include <stdlib.h>
2
3 int main(){
4
5     system("mkdir os");
6     system("mkdir os/lab07");
7     system("date > os/lab07/timestamp");
8     system("cp os/lab07/timestamp os/lab07/datetime");
9
10    return 0;
11 }
```

## Task 02

### Solution:

```
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[1m Hello World"
Hello World
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[5m Blink"
Blink
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[0m Hello World"
Hello World
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[31m Hello World"
Hello World
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[32m Hello World"
Hello World
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[33m Hello World"
Hello World
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[34m Hello World"
Hello World
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[35m Hello World"
Hello World
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[36m Hello World"
Hello World
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[0m"
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[0m "
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[41m Hello World"
Hello World
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[41m Hello World"
Hello World
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[42m Hello World"
Hello World
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[43m Hello World"
Hello World
muhammadroshaanidrees56177@Ubuntu:~$ echo -e "\033[0m Hello World"
Hello World
```

## Task 03

### Solution:

```
muhammadroshaanidrees56177@Ubuntu:~$ ls /lib/modules
6.8.0-40-generic 6.8.0-79-generic 6.8.0-83-generic 6.8.0-84-generic
muhammadroshaanidrees56177@Ubuntu:~$ uname -r
6.8.0-83-generic
```

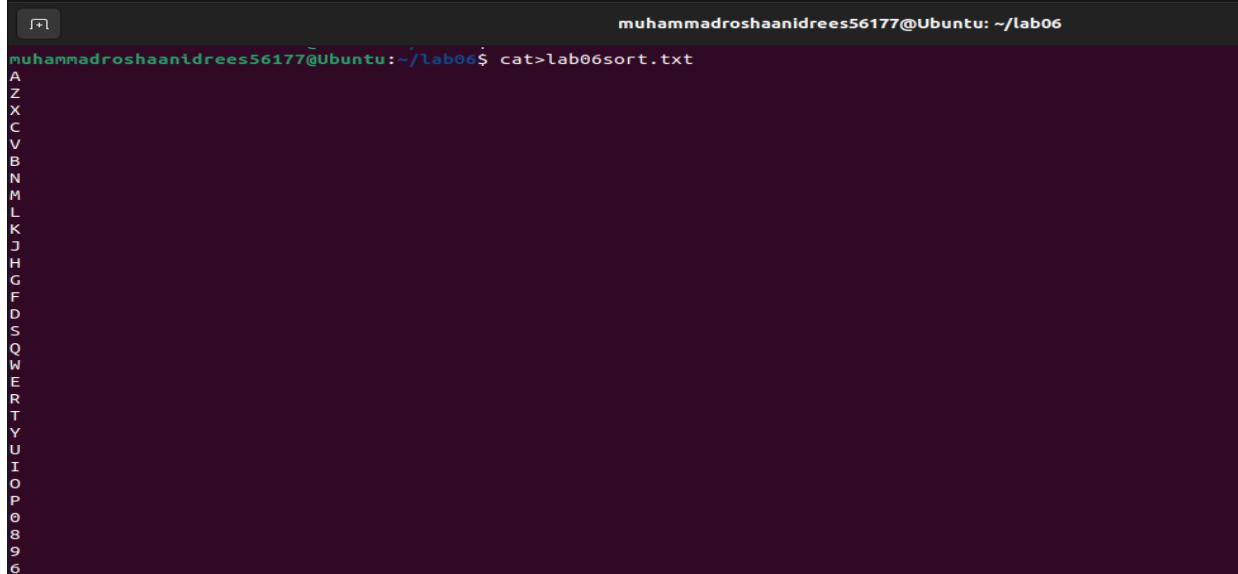
## Task 04

### Solution:

```
muhammadroshaanidrees56177@Ubuntu:~$ uname -r
6.8.0-83-generic
muhammadroshaanidrees56177@Ubuntu:~$ uname
Linux
muhammadroshaanidrees56177@Ubuntu:~$ uname -n
Ubuntu
muhammadroshaanidrees56177@Ubuntu:~$ uname -r
6.8.0-83-generic
muhammadroshaanidrees56177@Ubuntu:~$ uname -v
#83~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Tue Sep  9 18:19:47 UTC 2
muhammadroshaanidrees56177@Ubuntu:~$ uname -m
x86_64
muhammadroshaanidrees56177@Ubuntu:~$ uname -p
x86_64
muhammadroshaanidrees56177@Ubuntu:~$ uname -i
x86_64
muhammadroshaanidrees56177@Ubuntu:~$ uname -o
GNU/Linux
muhammadroshaanidrees56177@Ubuntu:~$ uname -a
Linux Ubuntu 6.8.0-83-generic #83~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Tue Sep  9 18:19:47 UTC 2 x86_64 x86_64 x86_64 GNU/Linux
```

## Task 05

### Solution:



```
muhammadroshaanidrees56177@Ubuntu: ~/lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ cat>lab06sort.txt
A
Z
X
C
V
B
N
M
L
K
J
H
G
F
D
S
Q
W
E
R
T
Y
U
I
O
P
Ø
8
9
6
```

```
muhammadroshaanidrees56177@Ubuntu: ~/lab06
7
5
3
4
2
1muhammadroshaanidrees56177@Ubuntu:~/lab06$ sort lab06sort.txt
0
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
```

```
muhammadroshaanidrees56177@Ubuntu: ~/lab06
^P
Q
R
S
T
U
V
W
X
Y
Z
muhammadroshaanidrees56177@Ubuntu:~/lab06$ sort -r lab06sort.txt
Z
Y
X
W
V
U
T
S
R
Q
P
O
N
M
L
K
J
I
H
```

```
+l muhammadroshaanidrees56177@Ubuntu: ~/lab06  
G  
F  
E  
D  
C  
B  
A  
9  
8  
7  
6  
5  
4  
3  
2  
1  
0  
muhammadroshaanidrees56177@Ubuntu:~/lab06$ sort -n lab06sort.txt  
0  
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L
```

```
+l muhammadroshaanidrees56177@Ubuntu: ~/lab06  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
X  
Y  
Z  
1  
2  
3  
4  
5  
6  
7  
8  
9
```

```
+1 muhammadroshaanidrees56177@Ubuntu: ~/lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ sort -f lab06sort.txt
0
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
```

```
+1 muhammadroshaanidrees56177@Ubuntu: ~/lab06
muhammadroshaanidrees56177@Ubuntu:~/lab06$ sort -f lab06sort.txt
6
7
8
9
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z
```

## Task 06

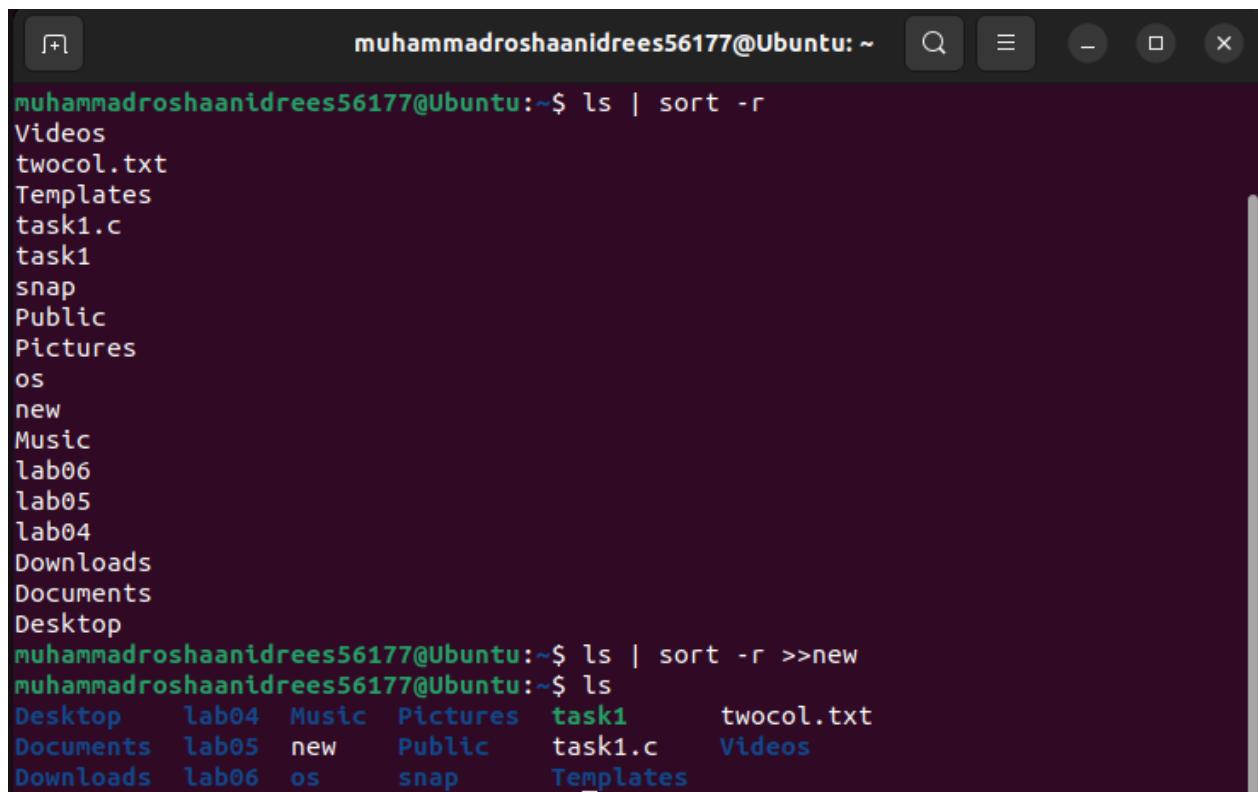
### Solution:

```
muhammadroshaanidrees56177@Ubuntu:~$ touch twocol.txt
muhammadroshaanidrees56177@Ubuntu:~$ cat > twocol.txt << EOF
> 12 Operation Payback
> 6 Network Security
> 14 Hacking is fun
> 7 Tiger lives in jungle
> 13 Pakistan will win today
> EOF
muhammadroshaanidrees56177@Ubuntu:~$ sort -n twocol.txt
6 Network Security
7 Tiger lives in jungle
12 Operation Payback
13 Pakistan will win today
14 Hacking is fun
muhammadroshaanidrees56177@Ubuntu:~$ sort -k 2 twocol.txt
14 Hacking is fun
6 Network Security
12 Operation Payback
13 Pakistan will win today
7 Tiger lives in jungle
```

## Task 07

### Solution:

```
muhammadroshaanidrees56177@Ubuntu:~$ ls
Desktop  lab04  Music      Public  task1.c      Videos
Documents lab05  os         snap    Templates
Downloads lab06  Pictures   task1   twocol.txt
muhammadroshaanidrees56177@Ubuntu:~$ cat >twocol.txt >new
12 Operation Payback
6 Network Security
14 Hacking is fun
7 Tiger lives in jungle
13 Pakistan will win today
muhammadroshaanidrees56177@Ubuntu:~$ cat new
12 Operation Payback
6 Network Security
14 Hacking is fun
7 Tiger lives in jungle
13 Pakistan will win today
muhammadroshaanidrees56177@Ubuntu:~$ date>new
muhammadroshaanidrees56177@Ubuntu:~$ date >new
Fri Jul 13 11:55:01 PKT 2018
```



A screenshot of a terminal window titled "muhammadroshaanidrees56177@Ubuntu: ~". The terminal displays two commands and their outputs:

```
muhammadroshaanidrees56177@Ubuntu:~$ ls | sort -r
Videos
twocol.txt
Templates
task1.c
task1
snap
Public
Pictures
os
new
Music
lab06
lab05
lab04
Downloads
Documents
Desktop
muhammadroshaanidrees56177@Ubuntu:~$ ls | sort -r >>new
muhammadroshaanidrees56177@Ubuntu:~$ ls
Desktop  lab04  Music  Pictures  task1      twocol.txt
Documents lab05  new    Public    task1.c    Videos
Downloads lab06  os     snap     Templates
```