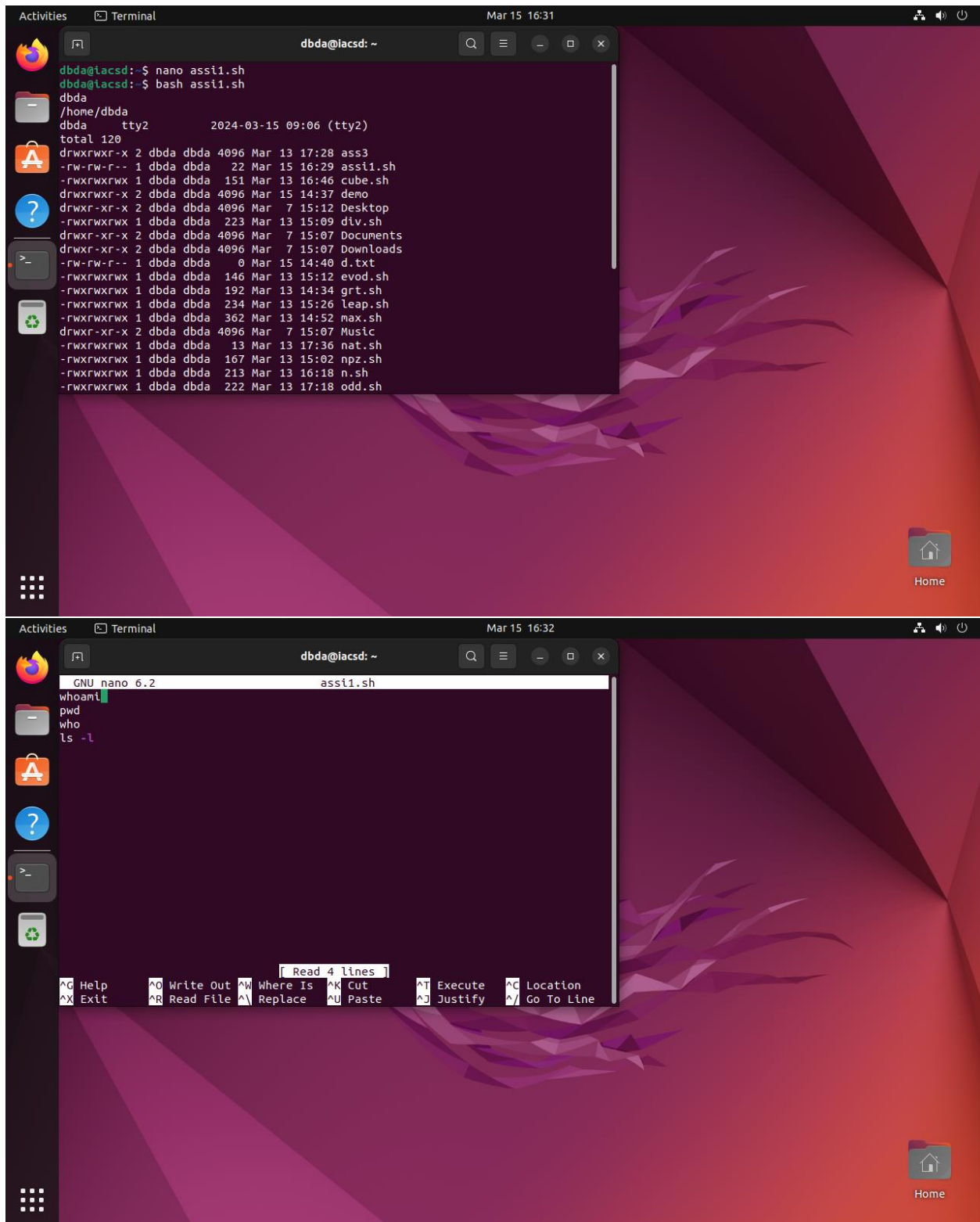


Q1.



The image displays two screenshots of a Linux desktop environment, likely Ubuntu, showing terminal sessions.

Top Screenshot: The terminal window shows the user `dbda@lacsds: ~` running the command `cat /home/dbda/.ssh/authorized_keys`. The output lists the contents of the `authorized_keys` file, showing a list of public keys and their permissions. The file is located at `/home/dbda/.ssh/authorized_keys` and has permissions `-rw-rw-r--`. The file contains a list of public keys, each preceded by a comment indicating the user and the key type (e.g., `dbda dbda`).

Bottom Screenshot: The terminal window shows the user `dbda@lacsds: ~` running the command `cat /home/dbda/.ssh/authorized_keys`. The output lists the contents of the `authorized_keys` file, showing a list of public keys and their permissions. The file is located at `/home/dbda/.ssh/authorized_keys` and has permissions `-rw-rw-r--`. The file contains a list of public keys, each preceded by a comment indicating the user and the key type (e.g., `dbda dbda`).

Q2

```
Activities Terminal Mar 15 17:55 dbda@lacsds: ~
dbda@lacsds:~$ nano q2.sh
dbda@lacsds:~$ bash ./q2.sh
Press 1 for addition.
Press 2 for deletion.
Press 3 for searching.
Enter number from 1 to 3: 1
Enter details you want to add(in format = roll no : name : sem : m1 : m2 : m3) : 11 : TIM : 1 : 98 : 77 : 88
Roll no : Name : Sem : M1 : M2 : M3
1 : RAM : 1 : 30 : 31 : 25
2 : JAM : 1 : 30 : 31 : 25
3 : OM : 1 : 27 : 33 : 38
4 : DOM : 1 : 30 : 31 : 25
5 : SAM : 1 : 85 : 76 : 99
6 : JAY : 1 : 85 : 95 : 67
7 : JIM : 1 : 39 : 45 : 57
8 : RAM : 1 : 30 : 31 : 25
9 : JIN : 1 : 70 : 80 : 90
10 : ANA : 1 : 90 : 80 : 79
11 : TIM : 1 : 98 : 77 : 88
11 : TIM : 1 : 98 : 77 : 88 was added successfully
dbda@lacsds:~$ bash ./q2.sh
Press 1 for addition.
Press 2 for deletion.
Press 3 for searching.
Enter number from 1 to 3: 2
Enter the number of line you want to delete from records: 11
Roll no : Name : Sem : M1 : M2 : M3
1 : RAM : 1 : 30 : 31 : 25
2 : JAM : 1 : 30 : 31 : 25
3 : OM : 1 : 27 : 33 : 38
4 : DOM : 1 : 30 : 31 : 25
5 : SAM : 1 : 85 : 76 : 99
6 : JAY : 1 : 85 : 95 : 67
7 : JIM : 1 : 39 : 45 : 57
8 : RAM : 1 : 30 : 31 : 25
9 : JIN : 1 : 70 : 80 : 90
10 : ANA : 1 : 90 : 80 : 79
Your entry 11 was deleted successfully
dbda@lacsds:~$ bash ./q2.sh

Activities Terminal Mar 15 17:55 dbda@lacsds: ~
Roll no : Name : Sem : M1 : M2 : M3
1 : RAM : 1 : 30 : 31 : 25
2 : JAM : 1 : 30 : 31 : 25
3 : OM : 1 : 27 : 33 : 38
4 : DOM : 1 : 30 : 31 : 25
5 : SAM : 1 : 85 : 76 : 99
6 : JAY : 1 : 85 : 95 : 67
7 : JIM : 1 : 39 : 45 : 57
8 : RAM : 1 : 30 : 31 : 25
9 : JIN : 1 : 70 : 80 : 90
10 : ANA : 1 : 90 : 80 : 79
11 : TIM : 1 : 98 : 77 : 88
11 : TIM : 1 : 98 : 77 : 88 was added successfully
dbda@lacsds:~$ bash ./q2.sh
Press 1 for addition.
Press 2 for deletion.
Press 3 for searching.
Enter number from 1 to 3: 2
Enter the number of line you want to delete from records: 11
Roll no : Name : Sem : M1 : M2 : M3
1 : RAM : 1 : 30 : 31 : 25
2 : JAM : 1 : 30 : 31 : 25
3 : OM : 1 : 27 : 33 : 38
4 : DOM : 1 : 30 : 31 : 25
5 : SAM : 1 : 85 : 76 : 99
6 : JAY : 1 : 85 : 95 : 67
7 : JIM : 1 : 39 : 45 : 57
8 : RAM : 1 : 30 : 31 : 25
9 : JIN : 1 : 70 : 80 : 90
10 : ANA : 1 : 90 : 80 : 79
Your entry 11 was deleted successfully
dbda@lacsds:~$ bash ./q2.sh
Press 1 for addition.
Press 2 for deletion.
Press 3 for searching.
Enter number from 1 to 3: 3
Enter specific word from record to find it: RAM
1 : RAM : 1 : 30 : 31 : 25
8 : RAM : 1 : 30 : 31 : 25
dbda@lacsds:~$ bash ./q2.sh
```

Activities Terminal Mar 15 17:55 dbda@lacsds: ~

```
GNU nano 6.2 q2.sh
echo "Press 1 for addition."
echo "Press 2 for deletion."
echo "Press 3 for searching."

read -p "Enter number from 1 to 3: " n

case $n in
  1)
    read -p "Enter details you want to add(in format = roll no : name : sem : m1 : m2 : m3) : " a
    echo "$a" >> database.txt
    cat database.txt
    echo "$a was added successfully"
    ;;
  2)
    read -p "Enter the number of line you want to delete from records: " d
    cp database.txt test.txt
    sed "/^$d /d" test.txt > database.txt
    cat database.txt
    echo "Your entry $d was deleted successfully"
    ;;
  3)
    read -p "Enter specific word from record to find it: " f
    cat database.txt | grep "$f"
    ;;
  *)
    echo "Invalid Entry"
esac
```

Read 27 lines

^G Help	^O Write Out	^W Where Is	^K Cut	^T Execute	^C Location	M-U Undo	M-A Set Mark
^X Exit	^R Read File	^H Replace	^U Paste	^J Justify	^_ Go To Line	M-E Redo	M-C Copy

Q3

```
Activities Terminal Mar 15 18:11 dbda@lacs: ~
dbda@lacs:~$ bash ./q2.sh
Press 1 for addition.
Press 2 for deletion.
Press 3 for searching.
Enter number from 1 to 3: 3
Enter specific word from record to find it: RAM
1 : RAM : 1 : 30 : 31 : 25
8 : RAM : 1 : 30 : 31 : 25
dbda@lacs:~$ nano q2.sh
dbda@lacs:~$ nano q3.sh
dbda@lacs:~$ bash ./q3.sh
enter 10 numbers1
./q3.sh: line 8: [: missing `]'
enter 10 numbers2
./q3.sh: line 8: [: missing `]'
enter 10 numbers3
./q3.sh: line 8: [: missing `]'
enter 10 numbers4
./q3.sh: line 8: [: missing `]'
enter 10 numbers5
./q3.sh: line 8: [: missing `]'
enter 10 numbers0
./q3.sh: line 8: [: missing `]'
enter 10 numbers-9
./q3.sh: line 8: [: missing `]'
enter 10 numbers^[A^[[A^C
dbda@lacs:~$ nano q3.sh
dbda@lacs:~$ bash ./q3.sh
enter 10 numbers1
enter 10 numbers2
enter 10 numbers3
enter 10 numbers-4
enter 10 numbers-6
enter 10 numbers-7
enter 10 numbers0
enter 10 numbers0
enter 10 numbers9
enter 10 numbers0
3 are zeros, 4 are positives, 3 are negatives.
dbda@lacs:~$
```

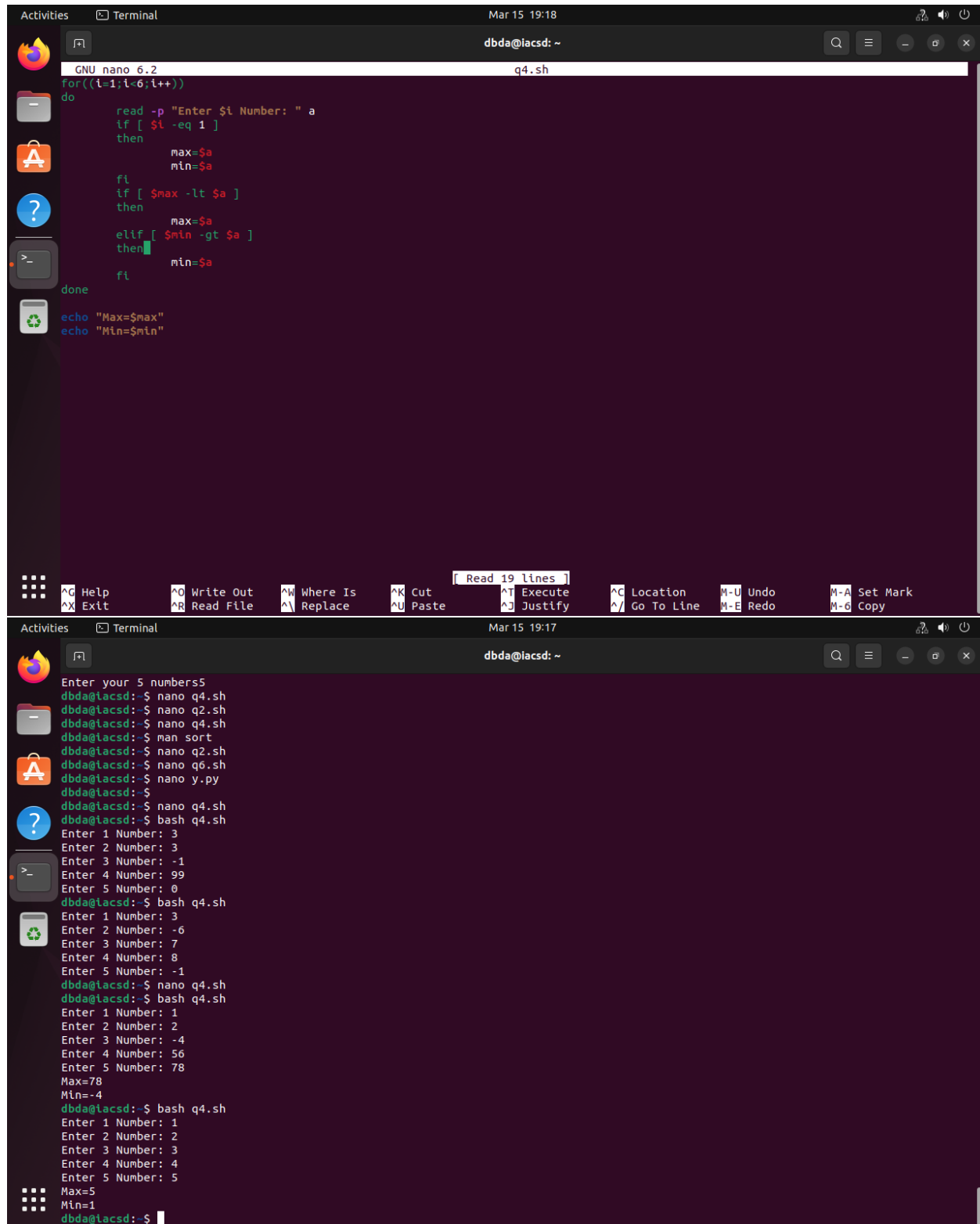
```
Activities Terminal Mar 15 18:12 dbda@lacs: ~
GNU nano 6.2 q3.sh
zero=0
pos=0
neg=0

for i in {1..10}
do
    read -p "enter 10 numbers" num
    if [ $num -eq 0 ]
    then
        ((zero++))
    elif [ $num -lt 0 ]
    then
        ((neg++))
    else
        ((pos++))
    fi
done
echo "$zero are zeros, $pos are positives, $neg are negatives."
```

Read 18 lines

Help	Write Out	Where Is	Cut	Execute	Location	Undo	Set Mark
Exit	Read File	Replace	Paste	Justify	Go To Line	Redo	Copy

Q4



```
GNU nano 6.2 q4.sh
for((i=1;i<6;i++))
do
    read -p "Enter $i Number: " a
    if [ $i -eq 1 ]
    then
        max=$a
        min=$a
    fi
    if [ $max -lt $a ]
    then
        max=$a
    elif [ $min -gt $a ]
    then
        min=$a
    fi
done
echo "Max=$max"
echo "Min=$min"
```

Activities Terminal Mar 15 19:18 dbda@iacsd: ~

Read 19 lines

Help Exit Write Out Read File Where Is Replace Cut Paste Execute Justify Location Go To Line Undo Redo Set Mark Copy

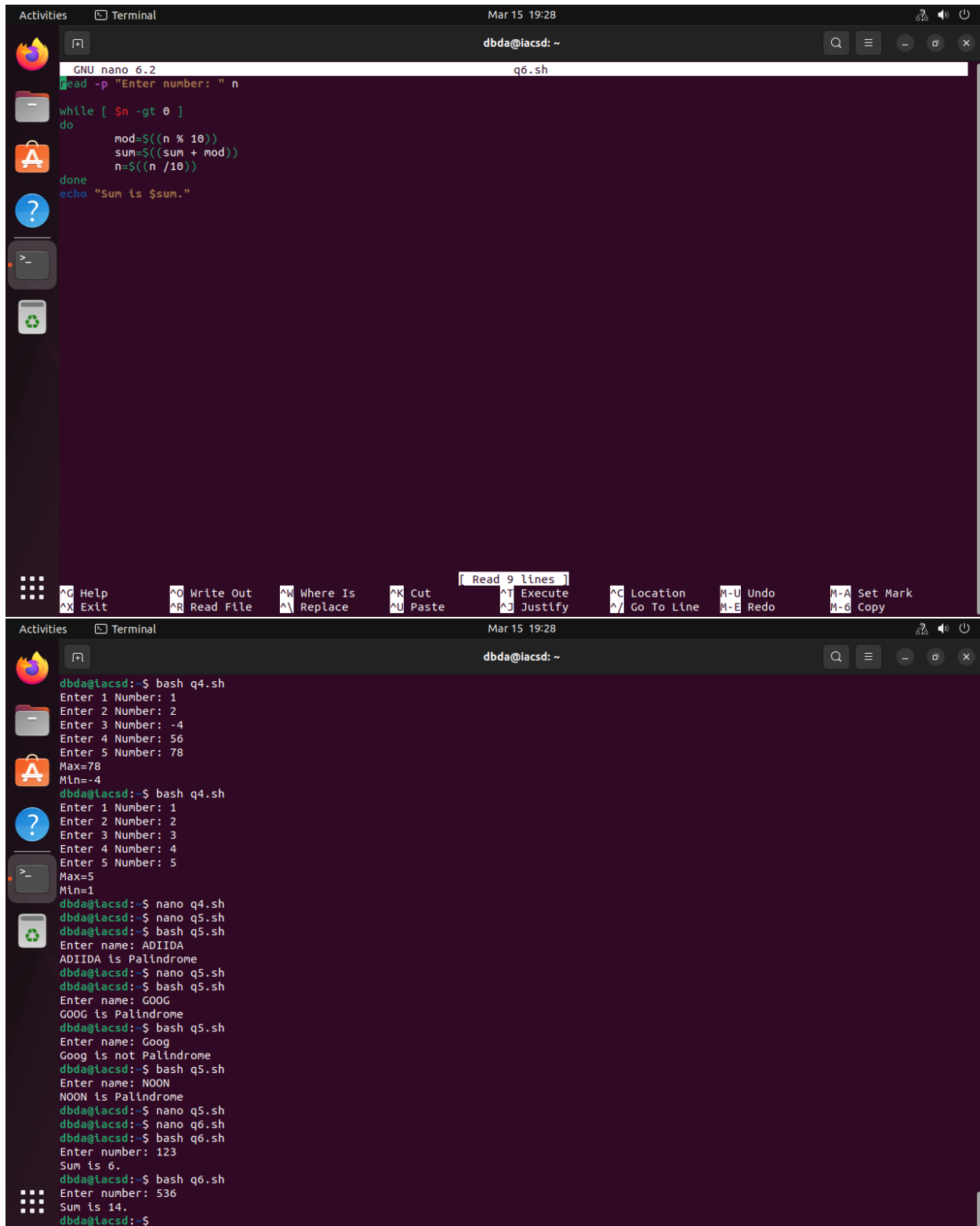
```
dbda@iacsd:~$ nano q4.sh
dbda@iacsd:~$ nano q2.sh
dbda@iacsd:~$ nano q4.sh
dbda@iacsd:~$ man sort
dbda@iacsd:~$ nano q2.sh
dbda@iacsd:~$ nano q6.sh
dbda@iacsd:~$ nano y.py
dbda@iacsd:~$ nano q4.sh
dbda@iacsd:~$ bash q4.sh
Enter 1 Number: 3
Enter 2 Number: 3
Enter 3 Number: -1
Enter 4 Number: 99
Enter 5 Number: 0
dbda@iacsd:~$ bash q4.sh
Enter 1 Number: 3
Enter 2 Number: -6
Enter 3 Number: 7
Enter 4 Number: 8
Enter 5 Number: -1
dbda@iacsd:~$ nano q4.sh
dbda@iacsd:~$ bash q4.sh
Enter 1 Number: 1
Enter 2 Number: 2
Enter 3 Number: -4
Enter 4 Number: 56
Enter 5 Number: 78
Max=78
Min=-4
dbda@iacsd:~$ bash q4.sh
Enter 1 Number: 1
Enter 2 Number: 2
Enter 3 Number: 3
Enter 4 Number: 4
Enter 5 Number: 5
Max=5
Min=1
dbda@iacsd:~$
```

Q5

```
Activities Terminal Mar 15 19:25 dbda@lacs: ~
GNU nano 6.2 q5.sh
read -p "Enter name: " name
d=$(rev<<$name)
if [ $name == $d ]
then
    echo "$name is Palindrome"
else
    echo "$name is not Palindrome"
fi

Enter 5 Number: 0
dbda@lacs:~$ bash q4.sh
Enter 1 Number: 3
Enter 2 Number: -6
Enter 3 Number: 7
Enter 4 Number: 8
Enter 5 Number: -1
dbda@lacs:~$ nano q4.sh
dbda@lacs:~$ bash q4.sh
Enter 1 Number: 1
Enter 2 Number: 2
Enter 3 Number: -4
Enter 4 Number: 56
Enter 5 Number: 78
Max=78
Min=-4
dbda@lacs:~$ bash q4.sh
Enter 1 Number: 1
Enter 2 Number: 2
Enter 3 Number: 3
Enter 4 Number: 4
Enter 5 Number: 5
Max=5
Min=1
dbda@lacs:~$ nano q4.sh
dbda@lacs:~$ nano q5.sh
dbda@lacs:~$ bash q5.sh
Enter name: ADIIDA
ADIIDA is Palindrome
dbda@lacs:~$ nano q5.sh
dbda@lacs:~$ bash q5.sh
Enter name: GOOG
GOOG is Palindrome
dbda@lacs:~$ bash q5.sh
Enter name: Goog
Goog is not Palindrome
dbda@lacs:~$ bash q5.sh
Enter name: NOON
NOON is Palindrome
dbda@lacs:~$
```

Q6



The screenshot displays a Linux terminal window with a dark purple background. The terminal shows the user 'dbda@lacsds' in the home directory. The user has created three shell scripts: q4.sh, q5.sh, and q6.sh. q4.sh is a script that takes five numbers as input and calculates their maximum and minimum values. q5.sh is a script that takes a name as input and checks if it is a palindrome. q6.sh is a script that takes a number as input and calculates the sum of its digits. The terminal shows the user running each script multiple times with different inputs to verify their functionality.

```
GNU nano 6.2 q6.sh
read -p "Enter number: " n
while [ $n -gt 0 ]
do
    mod=$((n % 10))
    sum=$((sum + mod))
    n=$((n / 10))
done
echo "Sum is $sum."
```

dbda@lacsds:~\$ bash q4.sh
Enter 1 Number: 1
Enter 2 Number: 2
Enter 3 Number: -4
Enter 4 Number: 56
Enter 5 Number: 78
Max=78
Min=-4
dbda@lacsds:~\$ bash q4.sh
Enter 1 Number: 1
Enter 2 Number: 2
Enter 3 Number: 3
Enter 4 Number: 4
Enter 5 Number: 5
Max=5
Min=1
dbda@lacsds:~\$ nano q4.sh
dbda@lacsds:~\$ nano q5.sh
dbda@lacsds:~\$ bash q5.sh
Enter name: ADIIDA
ADIIDA is Palindrome
dbda@lacsds:~\$ nano q5.sh
dbda@lacsds:~\$ bash q5.sh
Enter name: GOOG
GOOG is Palindrome
dbda@lacsds:~\$ bash q5.sh
Enter name: Goog
Goog is not Palindrome
dbda@lacsds:~\$ bash q5.sh
Enter name: NOON
NOON is Palindrome
dbda@lacsds:~\$ nano q5.sh
dbda@lacsds:~\$ nano q6.sh
dbda@lacsds:~\$ bash q6.sh
Enter number: 123
Sum is 6.
dbda@lacsds:~\$ bash q6.sh
Enter number: 536
Sum is 14.
dbda@lacsds:~\$

Q7



```
GNU nano 6.2 q7.sh
echo "Press 1 to create user"
echo "Press 2 to delete user"
echo "Press 3 to create group"
echo "Press 4 to delete group"
read -p "Enter your choice: " n

case $n in
1)
    read -p "Enter user name: " name
    sudo adduser $name
    cat /etc/passwd | grep "$name"
    ;;
2)
    read -p "Enter user name: " name
    sudo deluser $name
    cat /etc/passwd | grep "$name"
    ;;
3)
    read -p "Enter user name: " name
    sudo addgroup $name
    cat /etc/group | grep "$name"
    ;;
4)
    read -p "Enter user name: " name
    sudo delgroup $name
    cat /etc/group | grep "$name"
    ;;
esac
```

Read 28 lines

^G Help	^O Write Out	^W Where Is	^K Cut	^T Execute	^C Location	M-U Undo	M-A Set Mark
^X Exit	^R Read File	^A Replace	^U Paste	^J Justify	^_ Go To Line	M-E Redo	M-G Copy

```
Activities Terminal Mar 15 19:44 dbda@iacsd: ~
dbda@iacsd:~$ nano q7.sh
dbda@iacsd:~$ bash q7.sh
Press 1 to create user
Press 2 to delete user
Press 3 to create group
Press 4 to delete group
Enter your choice: 1
Enter user name: deo
Adding user 'deo' ...
Adding new group 'deo' (1006) ...
Adding new user 'deo' (1009) with group 'deo' ...
Creating home directory '/home/deo' ...
Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for deo
Enter the new value, or press ENTER for the default
    Full Name []: deo
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] y
deo:x:1009:1006:deo,,,:/home/deo:/bin/bash
dbda@iacsd:~$ bash q7.sh
Press 1 to create user
Press 2 to delete user
Press 3 to create group
Press 4 to delete group
Enter your choice: 2
Enter user name: deo
Removing user 'deo' ...
Warning: group 'deo' has no more members.
Done.
dbda@iacsd:~$ bash q7.sh
Press 1 to create user
Press 2 to delete user
Press 3 to create group
Press 4 to delete group
Enter your choice: 3
Enter user name: movie
Adding group 'movie' (GID 1006) ...
Done.
movie:x:1006:
dbda@iacsd:~$ bash q7.sh
Press 1 to create user
Press 2 to delete user
Press 3 to create group
Press 4 to delete group
Enter your choice: 4
Enter user name: movie
Removing group 'movie' ...
Done.
dbda@iacsd:~$
```