1 Write a shell script which will generate the O/P as follows

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```
[admin@hostname01 ~]$ nano patt.sh
[admin@hostname01 ~]$ chmod +x patt.sh
[admin@hostname01 ~]$ ls -l
total 8
-rw-r--r--. 1 admin admin   0 Jan 27 22:24 chap1
-rw-r--r--. 1 admin admin   0 Jan 27 22:24 chap2
-rw-r--r--. 1 admin admin   0 Jan 27 22:24 chap3
-rw-r--r--. 1 admin admin   0 Jan 27 22:24 chap9
-rw-r--r--. 1 admin admin   0 Jan 27 22:24 chapa
-rw-r--r--. 1 admin admin   0 Jan 27 22:24 chapb
-rw-r--r--. 1 admin admin   0 Jan 27 22:24 chapc
-rw-r--r--. 1 admin admin   0 Jan 27 22:24 chapz
drwxr-xr-x. 2 admin admin  36 Jan 28 19:05 Desktop
drwxr-xr-x. 2 admin admin   6 Aug 25  2022 Documents
drwxr-xr-x. 2 admin admin  50 Aug 25  2022 Downloads
drwxr-xr-x. 2 admin admin   6 Aug 25  2022 Music
-rwxr-xr-x. 1 admin admin 110 Jan 28 19:21 patt.sh
drwxr-xr-x. 2 admin admin   6 Aug 25  2022 Pictures
```

```
drwxr-xr-x. 2 admin admin   6 Aug 25  2022 Public
drwxr-xr-x. 2 admin admin   6 Aug 25  2022 Templates
-rw-r--r--. 1 admin admin 100 Jan 27 23:54 users
drwxr-xr-x. 2 admin admin   6 Aug 25  2022 Videos
[admin@hostname01 ~]$ ./patt.sh
*
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***
****
[admin@hostname01 ~]$
```

2 Accept the first name, middle name, and last name of a person in variables fname, mname and lname respectively. Greet the person (take his full name) using appropriate message.

```
[admin@hostname01 ~]$ nano greet.sh
[admin@hostname01 ~]$ chmod +x greet.sh
[admin@hostname01 ~]$ ./greet.sh
Enter your first name:Supreet
Enter your middle name:Suresh
Enter your last name:Birajdar
Hello Supreet Suresh Birajdar
[admin@hostname01 ~]$
```

3 Display the name of files in the current directory along with the names of files with maximum & minimum size. The file size is considered in bytes.

```
[admin@hostname01 ~]$ vim filesize.sh
[admin@hostname01 ~]$ ./filesize.sh
Files in the current directory (sorted by size in bytes):
 0 ./chap1
 0 ./chap2
 0 ./chap3
 0 ./chap9
 0 ./chapa
 0 ./chapb
 0 ./chapc
 0 ./chapz
 4 ./.bash_logout
 4 ./.bash_profile
 4 ./.bashrc
 4 ./filesize.sh
 4 ./greet.sh
 4 ./patt.sh
 4 ./users
 8 ./.bash_history
 8 ./.viminfo
12 ./.pat.sh.swp

File with maximum size: 12 ./.pat.sh.swp
File with minimum size:  0 ./chap1
[admin@hostname01 ~]$
```

Vim filesize.sh:

```
temp_file=$(mktemp)

find . -maxdepth 1 -type f ! -name "dev" ! -name "null" -exec ls -s {} + | sort -n > "$temp_file"

if [ -s "$temp_file" ]; then
    min=$(head -1 "$temp_file")
    max=$(tail -1 "$temp_file")

    echo "Files in the current directory (sorted by size in bytes):"
    cat "$temp_file"
    echo
    echo "File with maximum size: $max"
    echo "File with minimum size: $min"
else
    echo "No files found in the current directory."
fi

rm -f "$temp_file"
```

4 Write a script which when executed checks out whether it is a working day or not?(Note: Working day Mon-Fri)

```
[admin@hostname01 ~]$ nano weather.sh
 #!/bin/bash


 read -p "Enter a day of the week which you want to check: " day
 # Convert the input to lowercase for case-insensitive comparison
 day=$(echo "$day" | tr '[:upper:]' '[:lower:]')
 if echo "$day" | grep -iqE "^(mon|tue|wed|thu|fri)$"; then
```

```
    echo "$day is a working day."
  else
    echo "$day is not a working day."
  Fi
```

```
[admin@hostname01 ~]$ chmod +x weather.sh
[admin@hostname01 ~]$ ./weather.sh
Enter a day of the week which you want to check: mon
mon is a working day.
```

5 Write a script that accepts a member into HP health club, if the weight of the person is withing the range of 30-250 Kgs.

```
[admin@hostname01 ~]$ nano hp.sh
!/bin/bash
read -p "Enter your weight in kg: " weight
if [ "$weight" -lt 30 ] || [ "$weight" -gt 250 ]; then
  echo "Sorry, your weight is outside the acceptable range (30-250 kg). You cannot join the HP Health Club."
else
  echo "Welcome to HP Health Club! "
fi
[admin@hostname01 ~]$ chmod +x hp.sh
[admin@hostname01 ~]$ ./hp.sh
Enter your weight in kg: 59
Welcome to HP Health Club!
```

6 Write a shell script that greets the user with an appropriate message depending on the system time.

```
[admin@hostname01 ~]$ nano timegreet.sh

#!/bin/bash

read -p "Enter the hour (0-23 only): " hour

if [ "$hour" -lt 0 ] || [ "$hour" -ge 24 ]; then

  echo "Invalid input! Please enter a number between 0 and 23."

  exit 1

fi

# Greet based on the time of day

if [ "$hour" -ge 5 ] && [ "$hour" -lt 12 ]; then

  echo "Good Morning!"

elif [ "$hour" -ge 12 ] && [ "$hour" -lt 17 ]; then

  echo "Good Afternoon!"

elif [ "$hour" -ge 17 ] && [ "$hour" -lt 21 ]; then

  echo "Good Evening!"

else

  echo "Good Night!"

fi

[admin@hostname01 ~]$ chmod +x timegreet.sh

[admin@hostname01 ~]$ ./timegreet.sh

Enter the hour (0-23): 22

Good Night!
```

7 A data file file has some student records including rollno, names and subject marks. The fields are separated by a ":". Write a shell script that accepts roll number from the user, searches it in the file and if the roll number is present - allows the user to modify name and marks in 3 subjects.
If the roll number is not present, display a message "Roll No Not Found". Allow the user to modify one record at a time.

[admin@hostname01 ~]$ nano modfify_stu.sh

```
#!/bin/bash

file="student_records.txt"

read -p "Enter the roll number to search: " rollno

record=$(grep "^$rollno:" "$file")

if [ -n "$record" ]; then

  echo "Record found: $record"

  IFS=":" read -r roll name marks1 marks2 marks3 <<< "$record"


  # Allow user to modify name and marks for modification

  read -p "Enter new name (current: $name): " new_name

  read -p "Enter new mark for subject 1 (current: $marks1): " new_marks1

  read -p "Enter new mark for subject 2 (current: $marks2): " new_marks2

  read -p "Enter new mark for subject 3 (current: $marks3): " new_marks3


  sed -i
"s/^$rollno:$name:$marks1:$marks2:$marks3$/$rollno:$new_name:$new_marks1:$new_marks2:
$new_marks3/" "$file"


  echo "Record updated successfully!"

else

  # If roll number is not found

  echo "Roll No Not Found"
```

```
fi
[admin@hostname01 ~]$ ./modfify_stu.sh
Enter the roll number to search: 102
Record found: 102:Supreet:85:90:95
Enter new name (current: Supreet): Raj
Enter new mark for subject 1 (current: 85): 90
Enter new mark for subject 2 (current: 90): 95
Enter new mark for subject 3 (current: 95): 97
Record updated successfully!
[admin@hostname01 ~]$ cat studentrecord.txt
101:Rahul:70:80:90
102:Raj:95:92:97
103:Sushil:66:76:84
```

8 Modify program 7 to accept the RollNo from the command line.

```
[admin@hostname01 ~]$ nano modfify_stu.sh
        # To Accept roll number
        read -p "Enter the roll number to search: " rollno

        [admin@hostname01 ~]$ ./modfify_stu.sh
        Enter the roll number to search: 102
        Record found: 102:Supreet:95:92:95
```

9 Modify the program 7 to accept the RollNo and display the record and ask for delete confirmation. Once confirmed delete the record and update the data file.

```
[admin@hostname01 ~]$ nano del_stu.sh

        #!/bin/bash

file="studentrecord.txt"

if [ -z "$1" ]; then

  read -p "Enter the roll number to search: " rollno

else

  # Use the command line argument for roll number

  rollno=$1

fi

record=$(grep "^$rollno:" "$file")

if [ -n "$record" ]; then

  echo "Record found: $record"

  read -p "want to delete record type y : " confirm


 if [ "$confirm" == "y" ] || [ "$confirm" == "Y" ]; then


    sed -i "/^$rollno:/d" "$file"

    echo "Record deleted successfully!"

  else

    echo "Deletion aborted."

  fi

else
```

```
  echo "Roll No Not Found"
fi
[admin@hostname01 ~]$ chmod +x del_stu.sh
[admin@hostname01 ~]$ ./del_stu.sh
Enter the roll number to search: 103
Record found: 103:Sushil:66:76:84
want to delete record type y : y
Record deleted successfully!
```

10 Write a script that takes a command line argument and reports on its file type (regular file, directory file, etc.). For more than one argument generate error message.

```
[admin@hostname01 ~]$ nano filereport.sh
if [ "$#" -ne 1 ]; then
  echo "Error: Please provide exactly one argument."
  echo "Usage: $0 <file_path>"
  exit 1
fi
file_path=$1
if [ -e "$file_path" ]; then
  file_type=$(file "$file_path")
  echo "$file_type"
else
  echo "Error: $file_path does not exist."
  exit 1
fi
```

[admin@hostname01 ~]$ chmod +x filereport.sh

[admin@hostname01 ~]$ ./filereport.sh networrk.txt

networrk.txt: ASCII text, with very long lines

[admin@hostname01 ~]$ ./filereport.sh errorfile.txt

Error: errorfile.txt does not exist.

[admin@hostname01 ~]$ ./filereport.sh styles

styles: directory

11 Add some student records in the "student" file manually. The fields to be considered are "RollNo", "Name", "Marks_Hindi", "Marks_Maths", "Marks_Physics".

admin@hostname01 ~]$ touch student

[admin@hostname01 ~]$ vim student

[admin@hostname01 ~]$ cat student

101:Supreet:97:87:90

102:Raj:70:73:86

103:Sushil:91:65:82

[admin@hostname01 ~]$ nano studentrec.sh

[admin@hostname01 ~]$ chmod +x studentrec.sh

[admin@hostname01 ~]$ ./studentrec.sh

Enter Roll No: 104

Enter Name: Om

Enter Marks in Hindi: 78

Enter Marks in Maths: 90

Enter Marks in Physics: 89

Write a script which does the following:

a If the roll number already exists, then store the record and the following message
"roll number exists" in a log file "log1".

[admin@hostname01 ~]$ ./studentrec.sh

Enter Roll No: 102

Enter Name: Sup

Roll number 102 exists.

b If the marks in the subjects is not in the range of 1 – 99 then store such a record followed by a message "marks out of range" in "log1"

[admin@hostname01 ~]$ ./studentrec.sh

Enter Roll No: 106

Enter Name: Priti

Enter Marks in Hindi: 90

Enter Marks in Maths: 78

Enter Marks in Physics: 101

Marks out of range.

c If the data is valid, the calculate total, percentage, grade and display on the terminal

[admin@hostname01 ~]$ ./studentrec.sh

Enter Roll No: 105

Enter Name: nik

Enter Marks in Hindi: 90

Enter Marks in Maths: 34

Enter Marks in Physics: 67

Total Marks: 191

Percentage: 63%

Below is the shell code for this :

```
#!/bin/bash

 student_file="student"

log_file="log1"


read -p "Enter Roll No: " roll_no

read -p "Enter Name: " name

read -p "Enter Marks in Hindi: " marks_hindi

read -p "Enter Marks in Maths: " marks_maths

read -p "Enter Marks in Physics: " marks_physics


#Here I have checked for roll number already exists or not

if grep -q "^$roll_no:" "$student_file"; then

  echo "Roll number $roll_no exists."

  echo "roll number exists" >> "$log_file"

  exit 1

fi


#Here I have checked for its in range or not

if [ "$marks_hindi" -lt 1 ] || [ "$marks_hindi" -gt 99 ] || [ "$marks_maths" -lt 1 ] || [
"$marks_maths" -gt 99 ] || [ "$marks_physics" -lt 1 ] || [ "$marks_physics" -gt 99 ]; then

  echo "Marks out of range."

  echo "marks out of range" >> "$log_file"
```

```
  exit 1
fi

echo "$roll_no:$name:$marks_hindi:$marks_maths:$marks_physics" >> "$student_file"

total=$((marks_hindi + marks_maths + marks_physics))
percentage=$((total / 3))

echo "Total Marks: $total"
echo "Percentage: $percentage%"
```