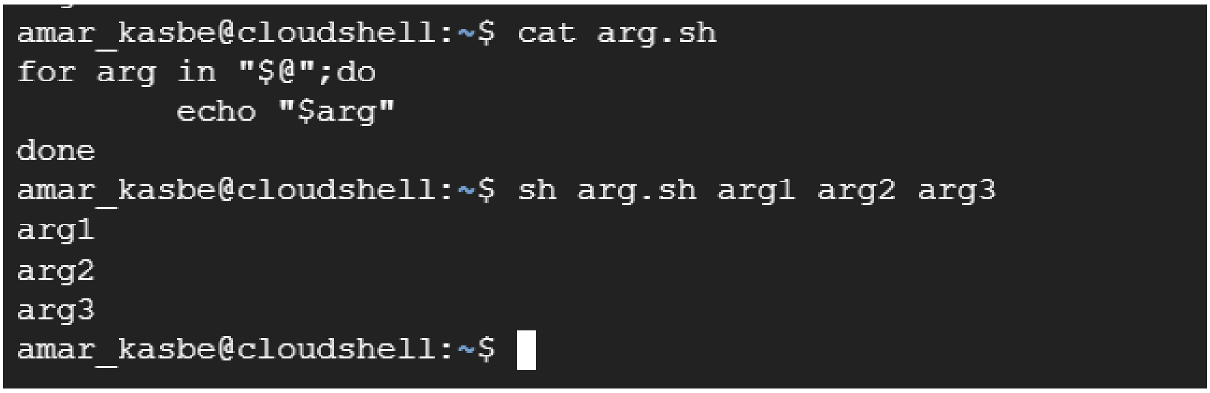
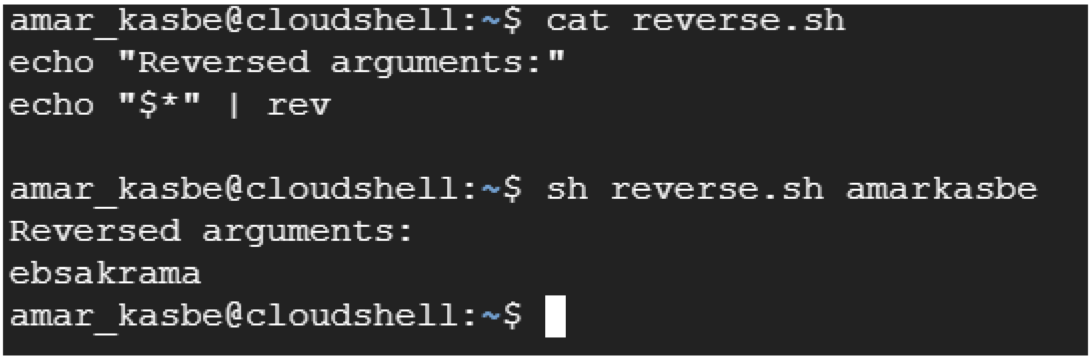
Shell Scripting Assignment 4

1. How to print all the arguments provided to the script?



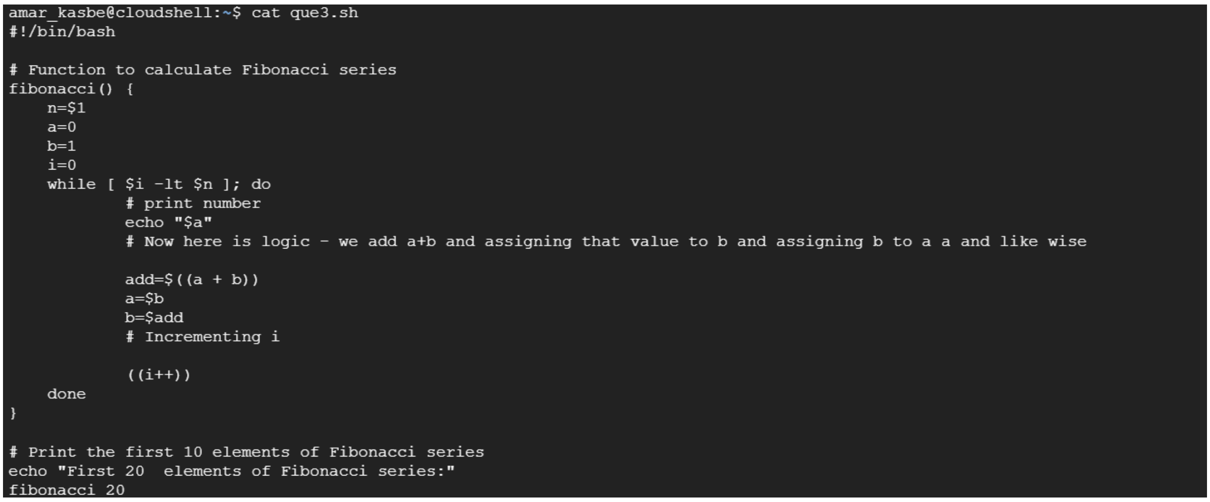
```
amar_kasbe@cloudshell:~$ cat arg.sh
for arg in "$@";do
        echo "$arg"
done
amar_kasbe@cloudshell:~$ sh arg.sh arg1 arg2 arg3
arg1
arg2
arg3
amar_kasbe@cloudshell:~$
```

2. Print a given number, in reverse order using a Shell script such that the input is provided using command Line Argument only.

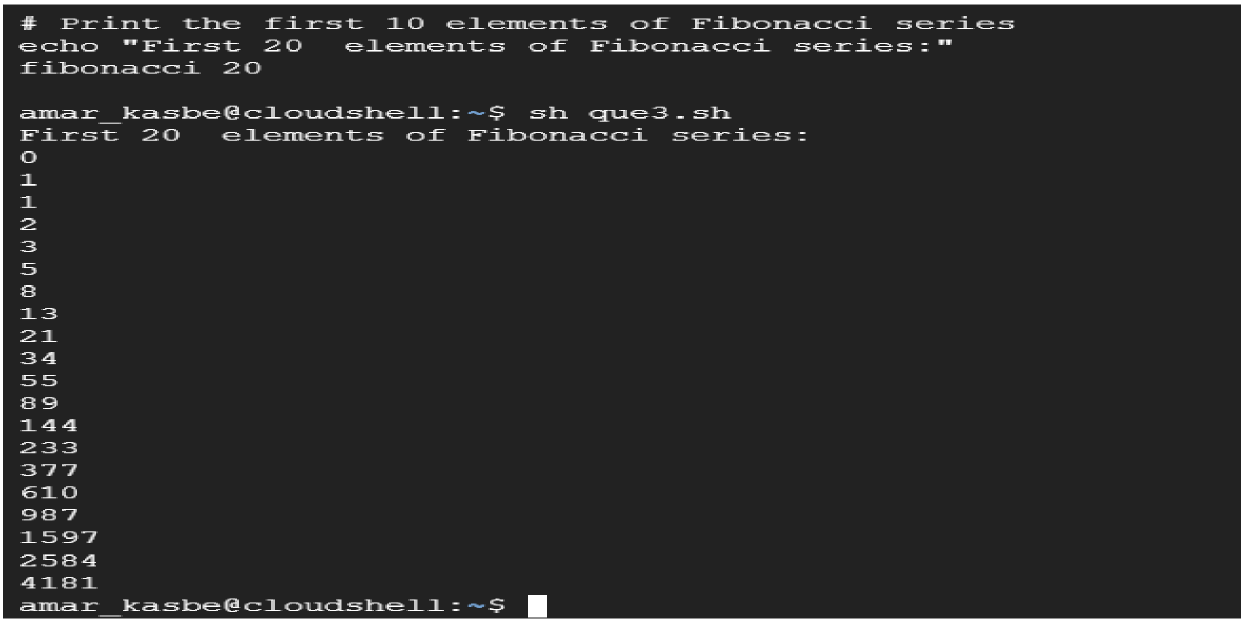


```
amar_kasbe@cloudshell:~$ cat reverse.sh
echo "Reversed arguments:"
echo "$*" | rev

amar_kasbe@cloudshell:~$ sh reverse.sh amarkasbe
Reversed arguments:
ebsakrama
amar_kasbe@cloudshell:~$
```

3. Write a script to print the first 10 elements of Fibonacci series.

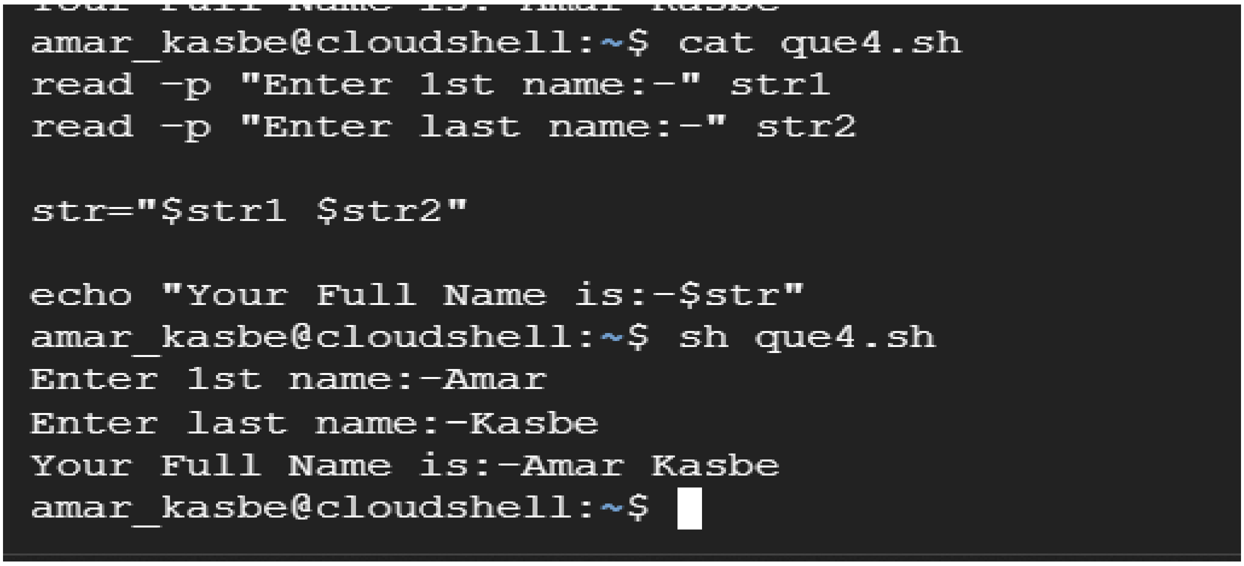


```
amar_kasbe@cloudshell:~$ cat que3.sh
#!/bin/bash

# Function to calculate Fibonacci series
fibonacci() {
    n=$1
    a=0
    b=1
    i=0
    while [ $i -lt $n ]; do
            # print number
            echo "$a"
            # Now here is logic - we add a+b and assigning that value to b and assigning b to a a and like wise

            add=$((a + b))
            a=$b
            b=$add
            # Incrementing i

            ((i++))
    done
}

# Print the first 10 elements of Fibonacci series
echo "First 20  elements of Fibonacci series:"
fibonacci 20
```



```
# Print the first 10 elements of Fibonacci series
echo "First 20  elements of Fibonacci series:"
fibonacci 20

amar_kasbe@cloudshell:~$ sh que3.sh
First 20  elements of Fibonacci series:
0
1
1
2
3
5
8
13
21
34
55
89
144
233
377
610
987
1597
2584
4181
amar_kasbe@cloudshell:~$
```

4. How to add two strings?

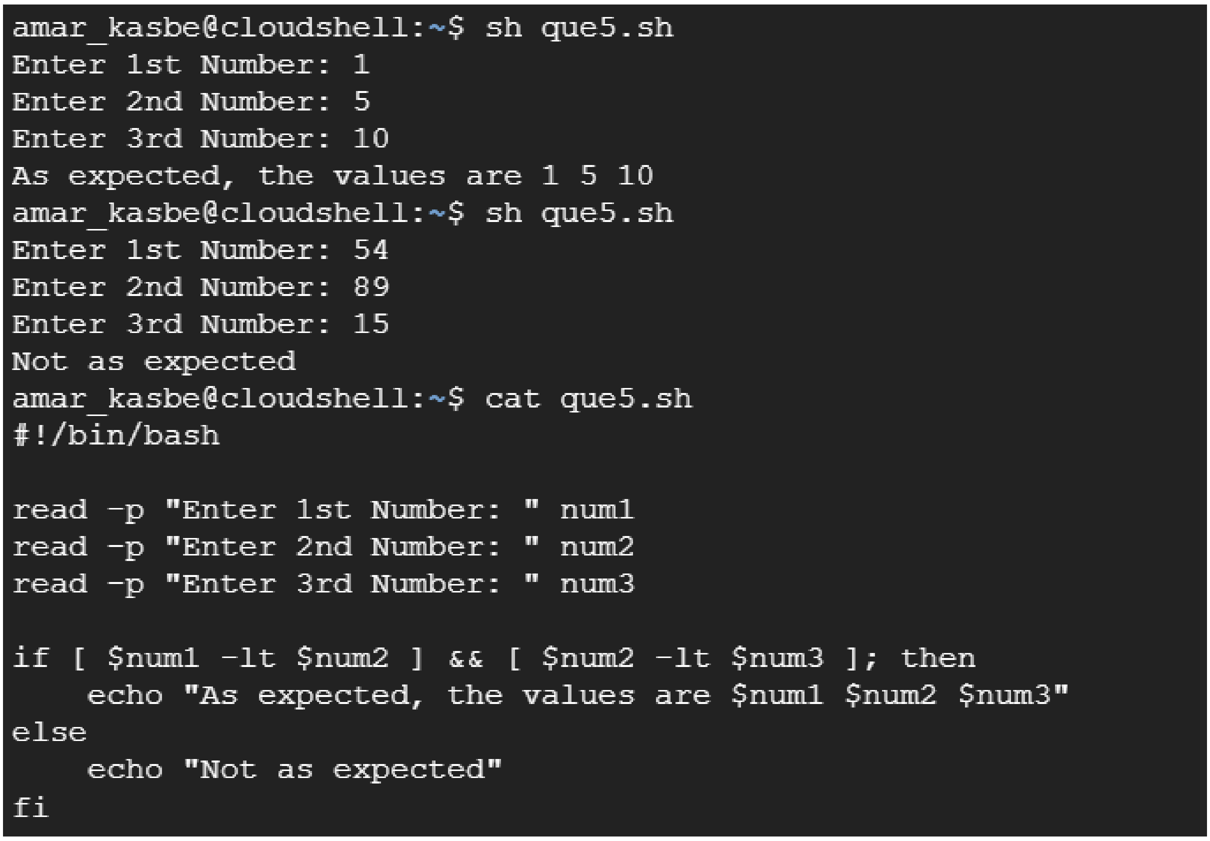


```
Your Full Name is:-Amar Kasbe
amar_kasbe@cloudshell:~$ cat que4.sh
read -p "Enter 1st name:-" str1
read -p "Enter last name:-" str2

str="$str1 $str2"

echo "Your Full Name is:-$str"
amar_kasbe@cloudshell:~$ sh que4.sh
Enter 1st name:-Amar
Enter last name:-Kasbe
Your Full Name is:-Amar Kasbe
amar_kasbe@cloudshell:~$
```

5. Write a shell script using Logical AND operator to check for the given

Expected Output1:
enter value for a
0
enter value for b
2
enter value for c
10
as Expected the values are 0 2 10

Expected Output2: (Note these values can be anything)
enter value for a
5
enter value for b
3
enter value for c
4
not as expected

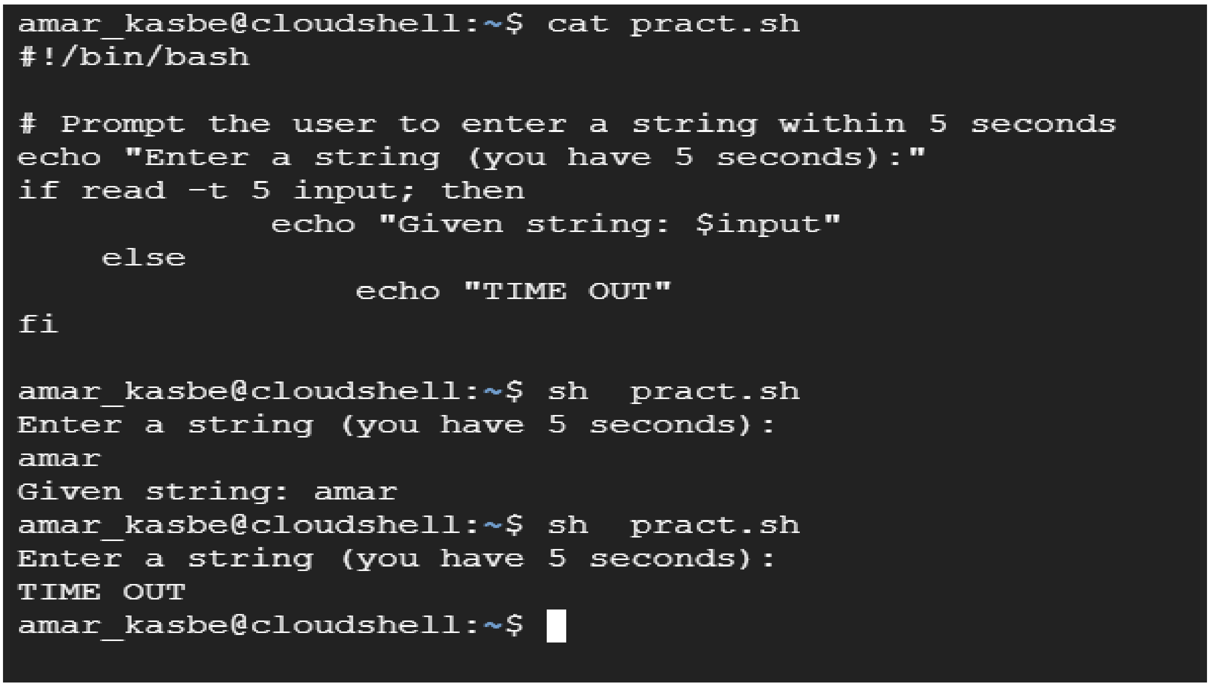


```
amar_kasbe@cloudshell:~$ sh que5.sh
Enter 1st Number: 1
Enter 2nd Number: 5
Enter 3rd Number: 10
As expected, the values are 1 5 10
amar_kasbe@cloudshell:~$ sh que5.sh
Enter 1st Number: 54
Enter 2nd Number: 89
Enter 3rd Number: 15
Not as expected
amar_kasbe@cloudshell:~$ cat que5.sh
#!/bin/bash

read -p "Enter 1st Number: " num1
read -p "Enter 2nd Number: " num2
read -p "Enter 3rd Number: " num3

if [ $num1 -lt $num2 ] && [ $num2 -lt $num3 ]; then
    echo "As expected, the values are $num1 $num2 $num3"
else
    echo "Not as expected"
fi
```

6. Write a shell script on time based input meaning input has to be read within 5 sec or else it will show time out (time out and return failure if a complete line of input is not read within TIMEOUT seconds)

Expected Output1:
enter a string
TIME OUT

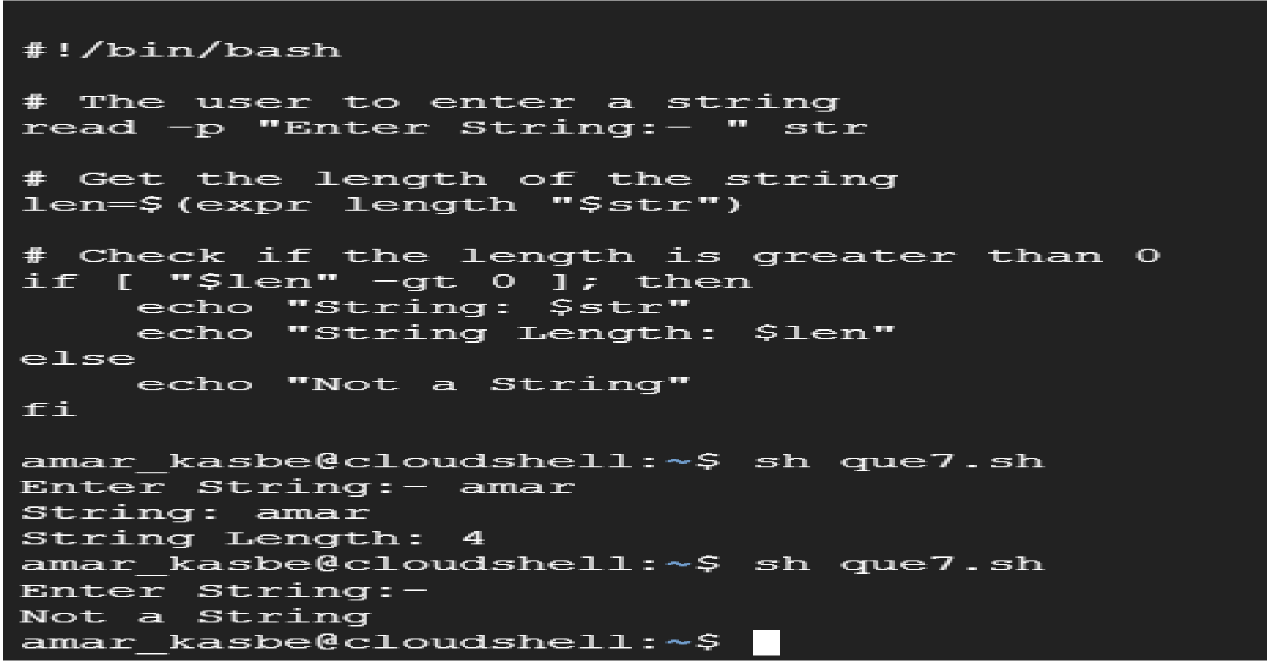
Expected Output 2:
enter a string
farha
given string=farha



```
amar_kasbe@cloudshell:~$ cat pract.sh
#!/bin/bash

# Prompt the user to enter a string within 5 seconds
echo "Enter a string (you have 5 seconds):"
if read -t 5 input; then
            echo "Given string: $input"
    else
                echo "TIME OUT"
fi

amar_kasbe@cloudshell:~$ sh  pract.sh
Enter a string (you have 5 seconds):
amar
Given string: amar
amar_kasbe@cloudshell:~$ sh  pract.sh
Enter a string (you have 5 seconds):
TIME OUT
amar_kasbe@cloudshell:~$ 
```

7. Write a shell script to check whether the string entered by the user is null or not. if not then print the string and its length

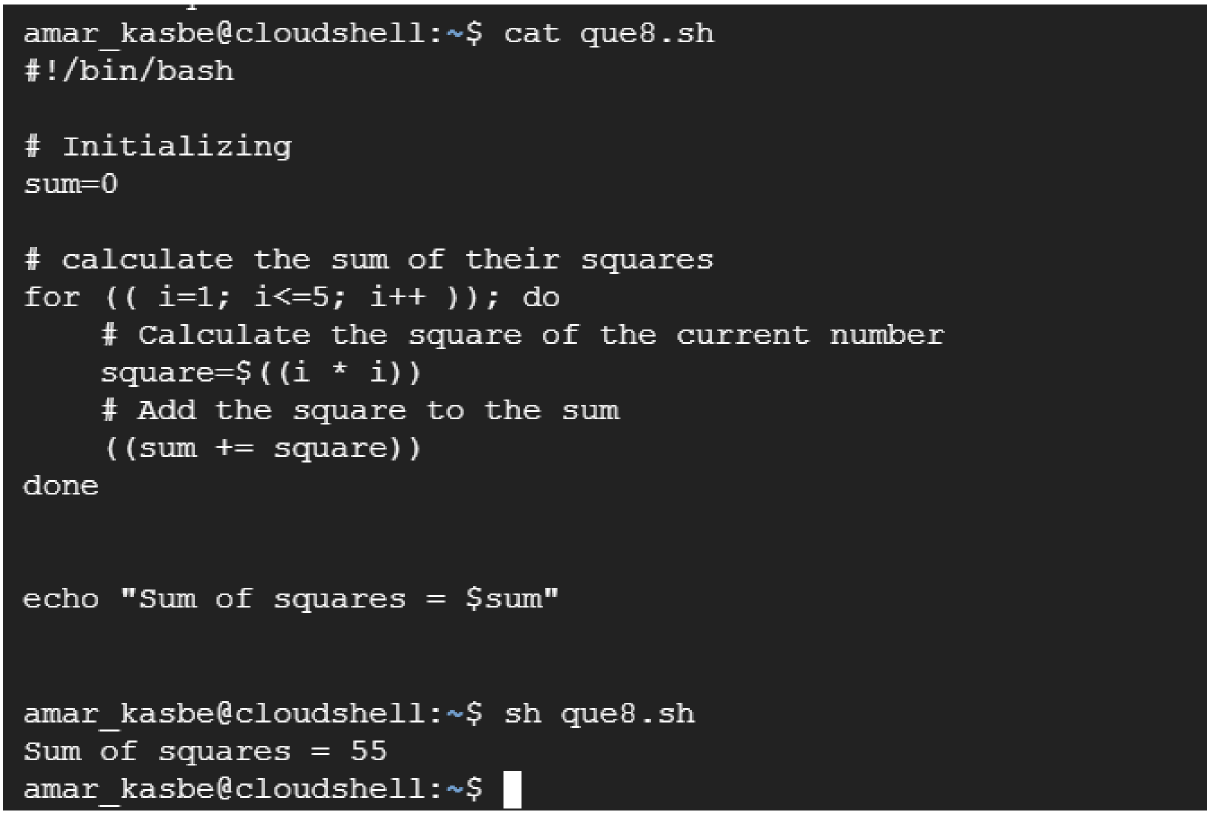
Expected Output1:
enter a string
No input
Expected Output 2:
enter a string
farhaqureshi
length= 12



```
#!/bin/bash

# The user to enter a string
read -p "Enter String:- " str

# Get the length of the string
len=$(expr length "$str")

# Check if the length is greater than 0
if [ "$len" -gt 0 ]; then
    echo "String: $str"
    echo "String Length: $len"
else
    echo "Not a String"
fi

amar_kasbe@cloudshell:~$ sh que7.sh
Enter String:- amar
String: amar
String Length: 4
amar_kasbe@cloudshell:~$ sh que7.sh
Enter String:-
Not a String
amar_kasbe@cloudshell:~$ 
```

8. Write a shell script to print sum of squares till 5 i.e $1^2+2^2+3^2+4^2+5^2$

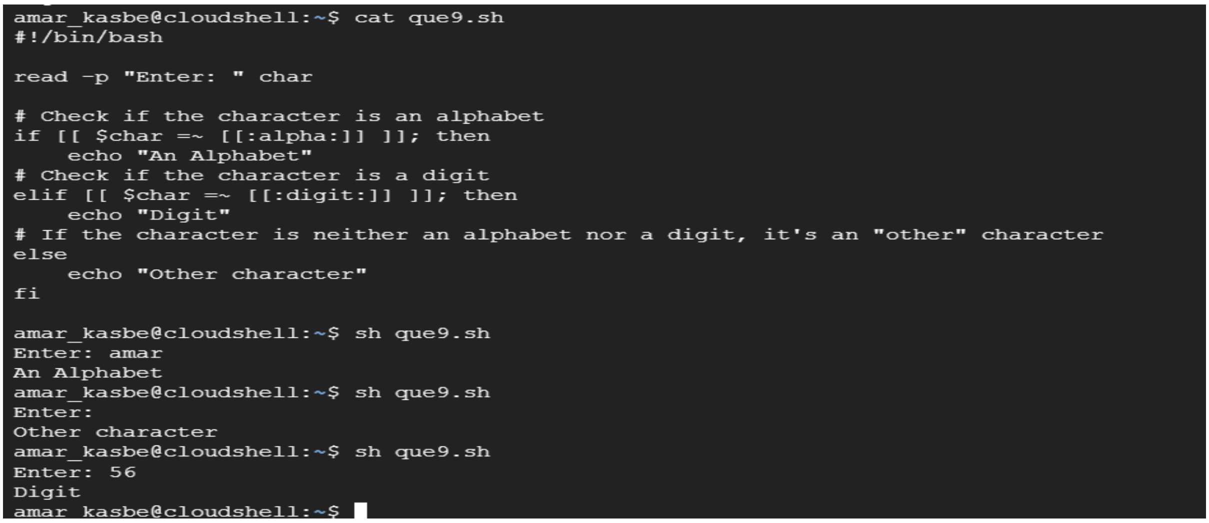
using for loop
Expected Output:
sum of squares =55



```
amar_kasbe@cloudshell:~$ cat que8.sh
#!/bin/bash

# Initializing
sum=0

# calculate the sum of their squares
for (( i=1; i<=5; i++ )); do
    # Calculate the square of the current number
    square=$((i * i))
    # Add the square to the sum
    ((sum += square))
done


echo "Sum of squares = $sum"


amar_kasbe@cloudshell:~$ sh que8.sh
Sum of squares = 55
amar_kasbe@cloudshell:~$
```

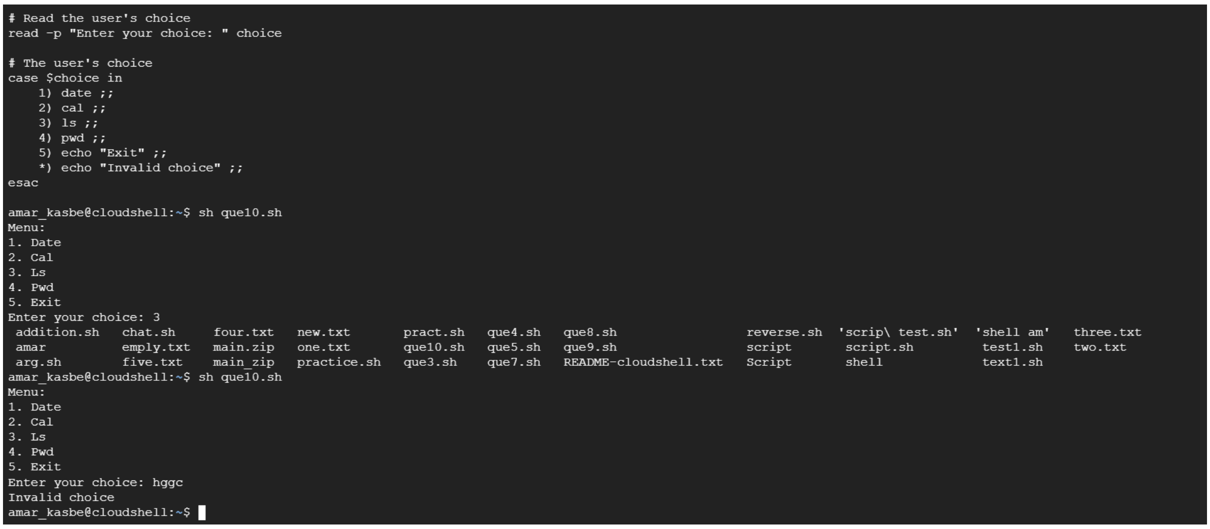
9. Write a shell script to check whether is given char is alpha or digit or other

Expected Output1:
enter a charA
An Alphabet
Expected Output2:
enter a char#
other char
Expected Output3:
enter a char7
digit



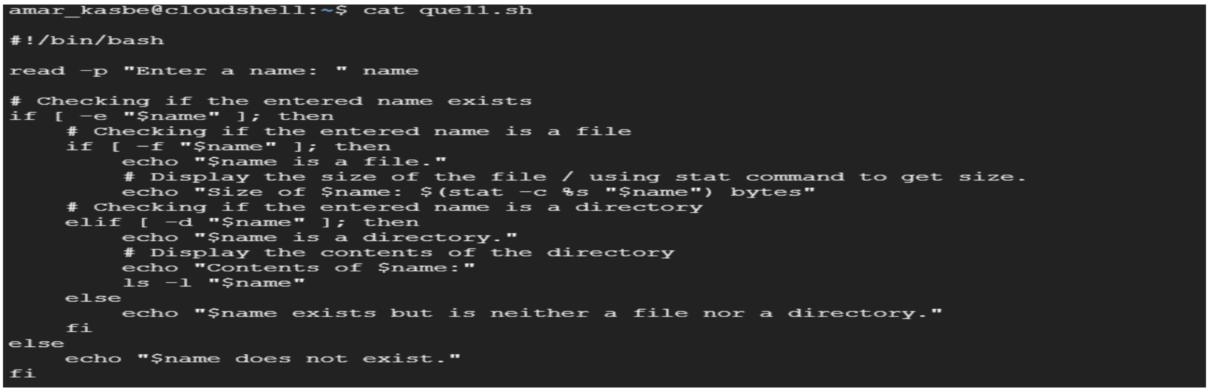
```
amar_kasbe@cloudshell:~$ cat que9.sh
#!/bin/bash

read -p "Enter: " char

# Check if the character is an alphabet
if [[ $char =~ [[:alpha:]] ]]; then
    echo "An Alphabet"
# Check if the character is a digit
elif [[ $char =~ [[:digit:]] ]]; then
    echo "Digit"
# If the character is neither an alphabet nor a digit, it's an "other" character
else
    echo "Other character"
fi

amar_kasbe@cloudshell:~$ sh que9.sh
Enter: amar
An Alphabet
amar_kasbe@cloudshell:~$ sh que9.sh
Enter:
Other character
amar_kasbe@cloudshell:~$ sh que9.sh
Enter: 56
Digit
amar_kasbe@cloudshell:~$
```

10. Write a shell script to display menu like “1. Date, 2. Cal, 3. Ls, 4. Pwd, 5. Exit” and execute the commands depending on user choice.

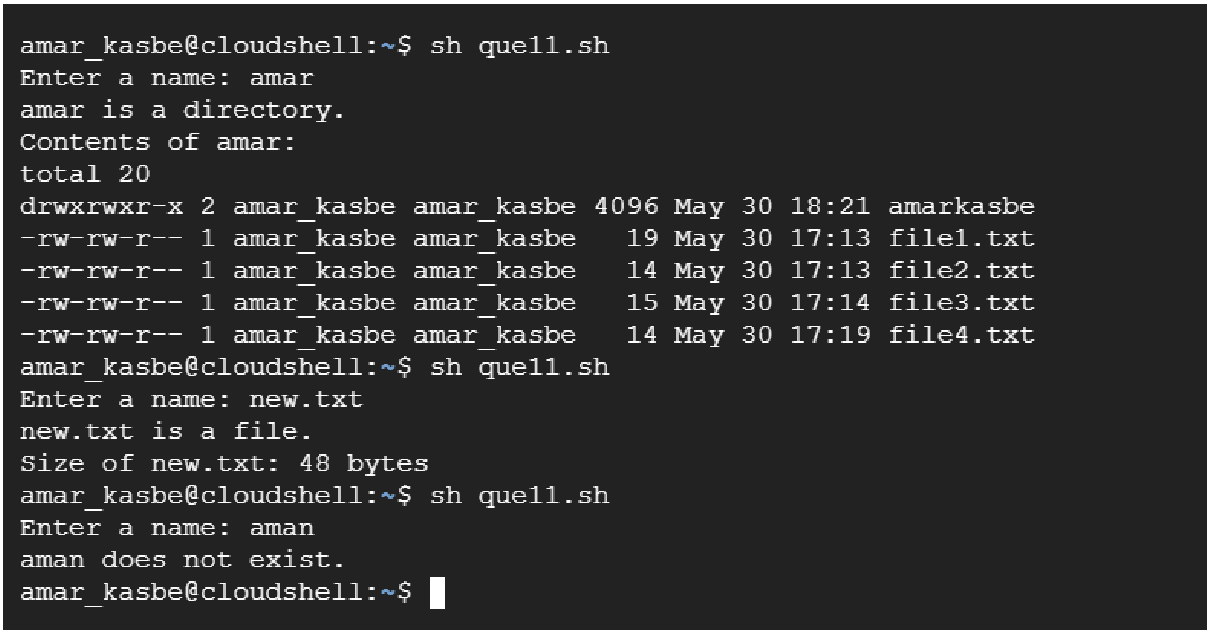


```
# Read the user's choice
read -p "Enter your choice: " choice

# The user's choice
case $choice in
    1) date ;;
    2) cal ;;
    3) ls ;;
    4) pwd ;;
    5) echo "Exit" ;;
    *) echo "Invalid choice" ;;
esac

amar_kasbe@cloudshell:~$ sh que10.sh
Menu:
1. Date
2. Cal
3. Ls
4. Pwd
5. Exit
Enter your choice: 3
 addition.sh   chat.sh     four.txt   new.txt       pract.sh   que4.sh   que8.sh                reverse.sh  'scrip\ test.sh'  'shell am'   three.txt
 amar          emply.txt   main.zip   one.txt       que10.sh   que5.sh   que9.sh                script       script.sh         test1.sh    two.txt
 arg.sh        five.txt    main_zip   practice.sh   que3.sh    que7.sh   README-cloudshell.txt  Script       shell             text1.sh
amar_kasbe@cloudshell:~$ sh que10.sh
Menu:
1. Date
2. Cal
3. Ls
4. Pwd
5. Exit
Enter your choice: hggc
Invalid choice
amar_kasbe@cloudshell:~$
```

11. Write a shell script to accept the name from the user and check whether user entered name is file or directory. If name is file display its size and if it is directory display its contents (list of files in the directory).

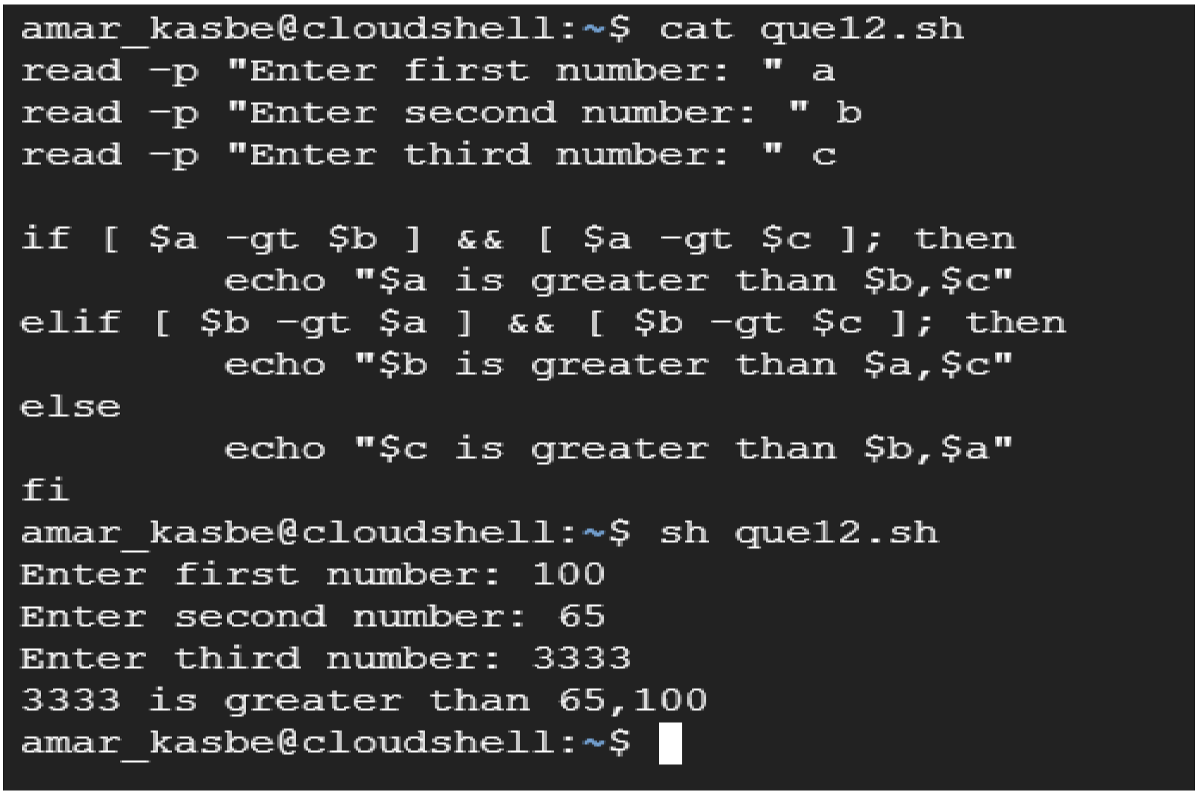


```
amar_kasbe@cloudshell:~$ cat que11.sh
#!/bin/bash
read -p "Enter a name: " name
# Checking if the entered name exists
if [ -e "$name" ]; then
    # Checking if the entered name is a file
    if [ -f "$name" ]; then
        echo "$name is a file."
        # Display the size of the file / using stat command to get size.
        echo "Size of $name: $(stat -c %s "$name") bytes"
    # Checking if the entered name is a directory
    elif [ -d "$name" ]; then
        echo "$name is a directory."
        # Display the contents of the directory
        echo "Contents of $name:"
        ls -l "$name"
    else
        echo "$name exists but is neither a file nor a directory."
    fi
else
    echo "$name does not exist."
fi
```



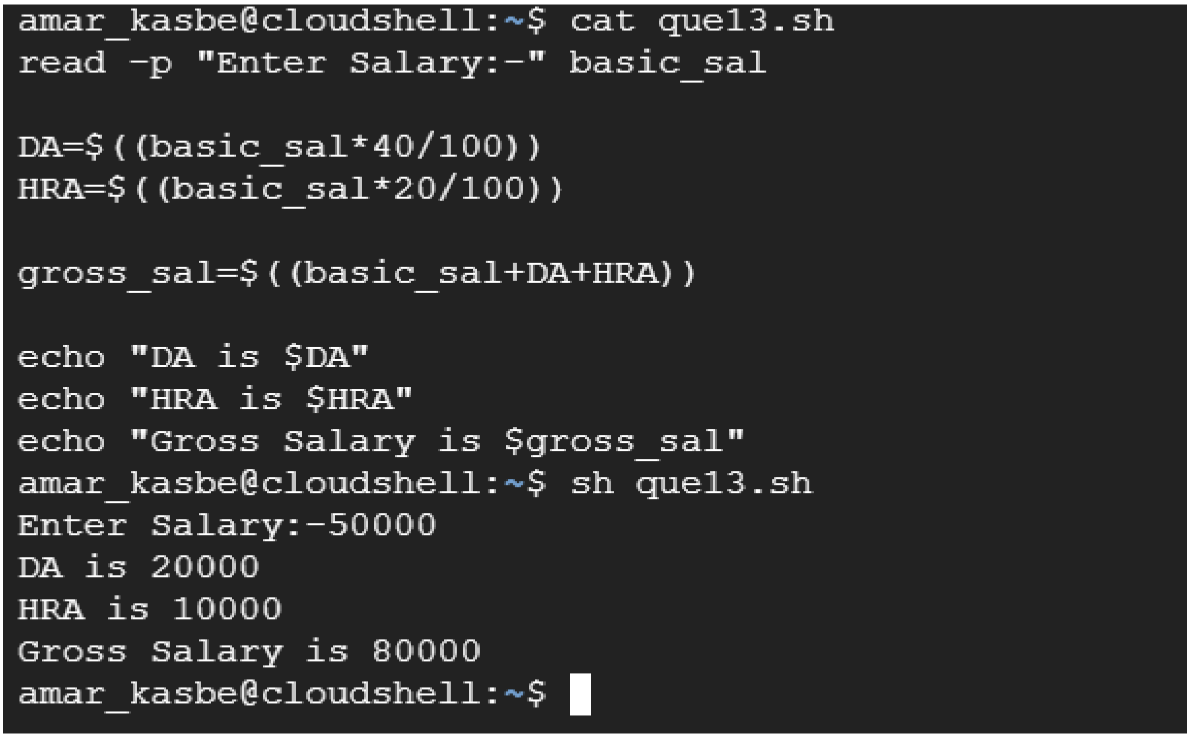
```
amar_kasbe@cloudshell:~$ sh que11.sh
Enter a name: amar
amar is a directory.
Contents of amar:
total 20
drwxrwxr-x 2 amar_kasbe amar_kasbe 4096 May 30 18:21 amarkasbe
-rw-rw-r-- 1 amar_kasbe amar_kasbe   19 May 30 17:13 file1.txt
-rw-rw-r-- 1 amar_kasbe amar_kasbe   14 May 30 17:13 file2.txt
-rw-rw-r-- 1 amar_kasbe amar_kasbe   15 May 30 17:14 file3.txt
-rw-rw-r-- 1 amar_kasbe amar_kasbe   14 May 30 17:19 file4.txt
amar_kasbe@cloudshell:~$ sh que11.sh
Enter a name: new.txt
new.txt is a file.
Size of new.txt: 48 bytes
amar_kasbe@cloudshell:~$ sh que11.sh
Enter a name: aman
aman does not exist.
amar_kasbe@cloudshell:~$ 
```

12.	Write a Program to find the greatest of three numbers



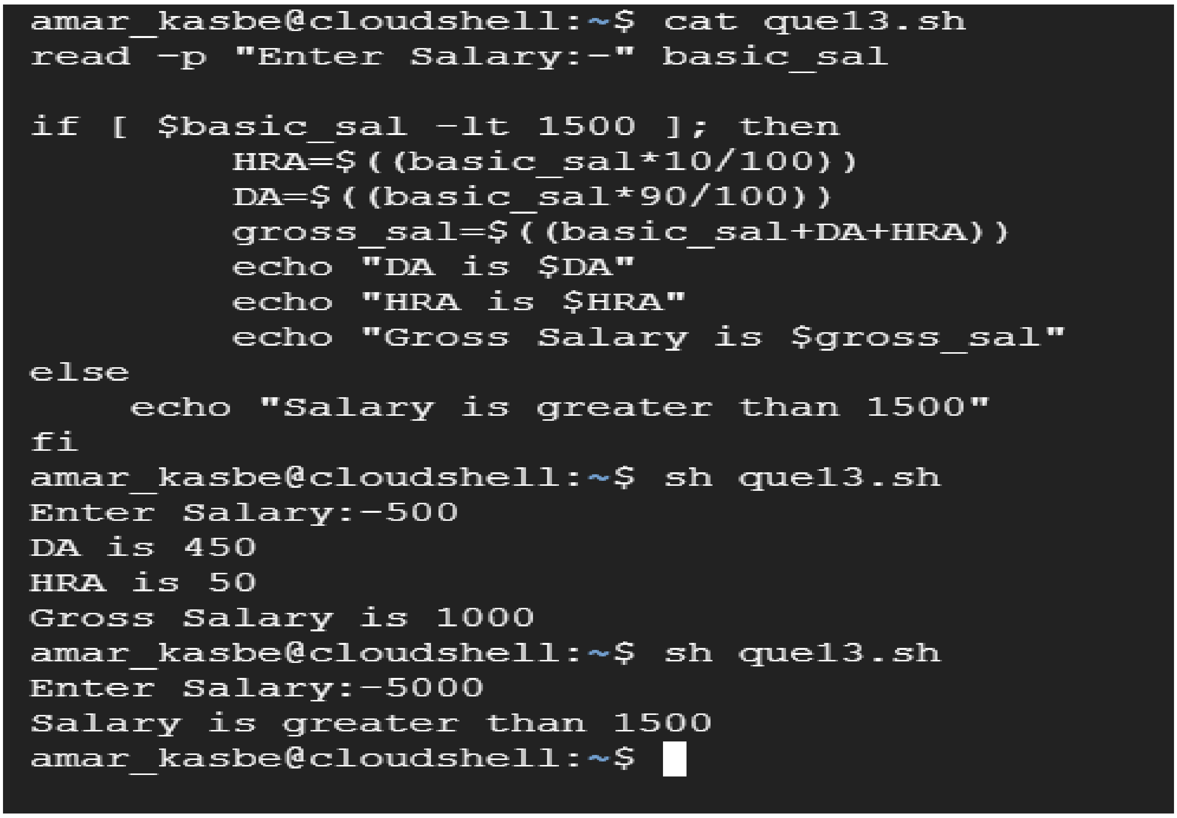
```
amar_kasbe@cloudshell:~$ cat que12.sh
read -p "Enter first number: " a
read -p "Enter second number: " b
read -p "Enter third number: " c

if [ $a -gt $b ] && [ $a -gt $c ]; then
        echo "$a is greater than $b,$c"
elif [ $b -gt $a ] && [ $b -gt $c ]; then
        echo "$b is greater than $a,$c"
else
        echo "$c is greater than $b,$a"
fi
amar_kasbe@cloudshell:~$ sh que12.sh
Enter first number: 100
Enter second number: 65
Enter third number: 3333
3333 is greater than 65,100
amar_kasbe@cloudshell:~$ 
```

13.	Write a program to calculate gross salary if the DA is 40%, HRA is 20% of basic salary. Accept basic salary form user and display gross salary (Result can be floating point value).



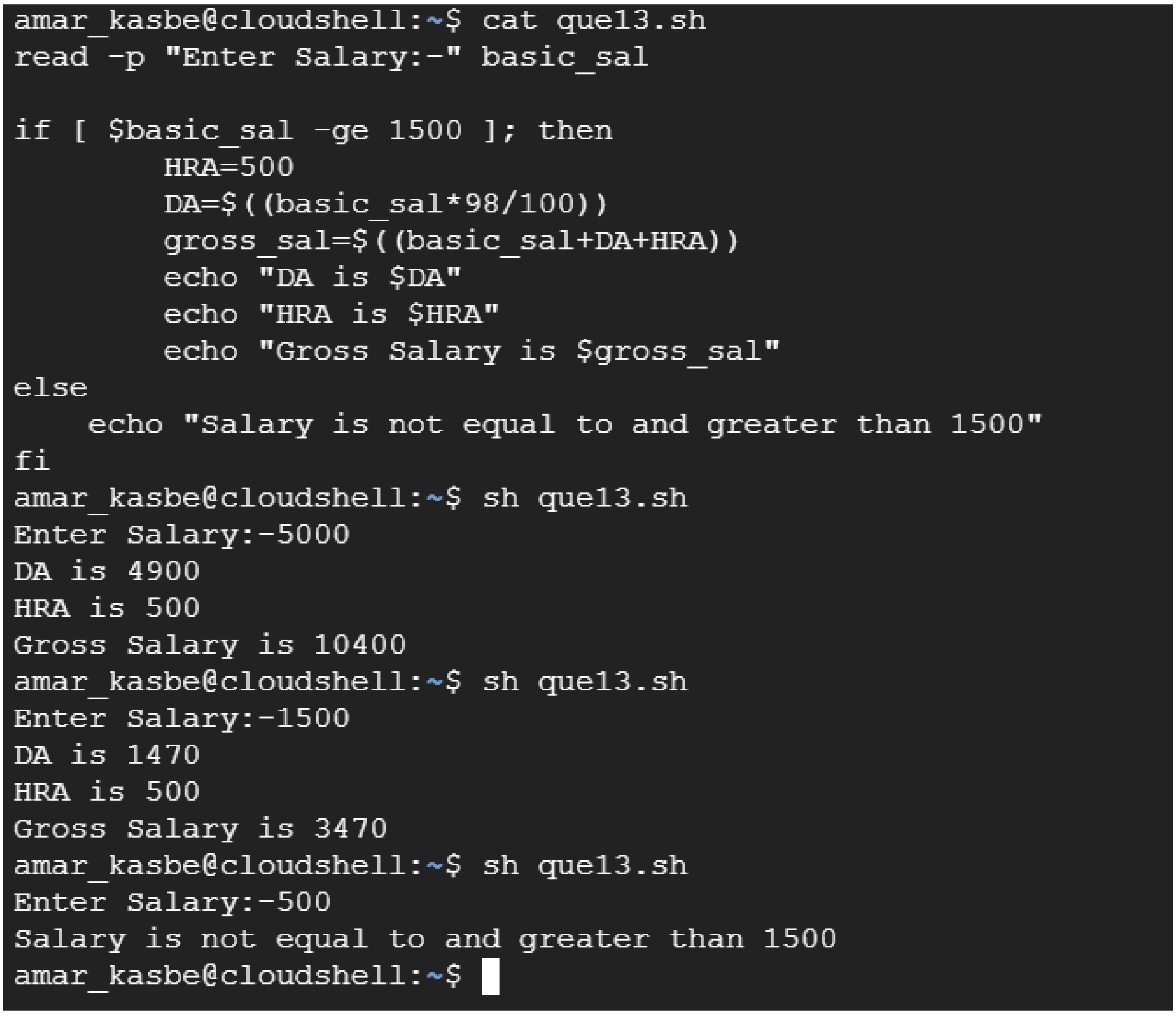
```
amar_kasbe@cloudshell:~$ cat que13.sh
read -p "Enter Salary:-" basic_sal

DA=$((basic_sal*40/100))
HRA=$((basic_sal*20/100))

gross_sal=$((basic_sal+DA+HRA))

echo "DA is $DA"
echo "HRA is $HRA"
echo "Gross Salary is $gross_sal"
amar_kasbe@cloudshell:~$ sh que13.sh
Enter Salary:-50000
DA is 20000
HRA is 10000
Gross Salary is 80000
amar_kasbe@cloudshell:~$
```

14.	Write a shell script that computes the gross salary of a employee according to the following rules:
a.	. If basic salary is < 1500 then HRA =10% of the basic and DA =90% of the basic.



```
amar_kasbe@cloudshell:~$ cat que13.sh
read -p "Enter Salary:-" basic_sal

if [ $basic_sal -lt 1500 ]; then
        HRA=$((basic_sal*10/100))
        DA=$((basic_sal*90/100))
        gross_sal=$((basic_sal+DA+HRA))
        echo "DA is $DA"
        echo "HRA is $HRA"
        echo "Gross Salary is $gross_sal"
else
    echo "Salary is greater than 1500"
fi
amar_kasbe@cloudshell:~$ sh que13.sh
Enter Salary:-500
DA is 450
HRA is 50
Gross Salary is 1000
amar_kasbe@cloudshell:~$ sh que13.sh
Enter Salary:-5000
Salary is greater than 1500
amar_kasbe@cloudshell:~$
```

b.	If basic salary is >=1500 then HRA =Rs500 and DA=98% of the basic.The basic salary is entered interactively through the keyboard.



```
amar_kasbe@cloudshell:~$ cat que13.sh
read -p "Enter Salary:-" basic_sal

if [ $basic_sal -ge 1500 ]; then
        HRA=500
        DA=$((basic_sal*98/100))
        gross_sal=$((basic_sal+DA+HRA))
        echo "DA is $DA"
        echo "HRA is $HRA"
        echo "Gross Salary is $gross_sal"
else
    echo "Salary is not equal to and greater than 1500"
fi
amar_kasbe@cloudshell:~$ sh que13.sh
Enter Salary:-5000
DA is 4900
HRA is 500
Gross Salary is 10400
amar_kasbe@cloudshell:~$ sh que13.sh
Enter Salary:-1500
DA is 1470
HRA is 500
Gross Salary is 3470
amar_kasbe@cloudshell:~$ sh que13.sh
Enter Salary:-500
Salary is not equal to and greater than 1500
amar_kasbe@cloudshell:~$
```