7. Shell Script

1. Write a shell script that accepts two integers as its arguments and computes the value of the first number raised to the power of the second number.

Program

```
echo "Enter a and b"
read a b
echo $a"^"$b"="$((a ** b))
```

Output

```
mits@mits-H610M-H-V2-DDR4:~$ bash prgm3.sh
Enter a and b
2 3
2^3=8
```

2. Write a shell script to
a) Find the length of a word/sentence
b) Concatenate 2 strings
c) Find & replace string

a) Find the length of a word/sentence

Program

```
string='Hello, World'
echo Length is ${#string}
```

Output

```
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash pgm5.sh
Length is 12
```

b) Concatenate 2 strings

Program

```
s1="Hello"
s2="World"
echo "${s1} ${s2}"
```

Output

```
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash pgm5.sh
Hello World
```

c) Find & replace string

Program

```
read -p "Enter the original string: " original
read -p "Enter the string to find: " to_find
read -p "Enter the string to replace with: " replace_with
mod="${original//$to_find/$replace_with}"
echo "The modified string is: $mod"
```

Output

```
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash pgm5.sh
Enter the original string: my name is hanna
Enter the string to find: hanna
Enter the string to replace with: maria
The modified string is: My name is maria
```

3. Write a shell script that computes the gross salary of a employee according to the following rules:
i) if basic salary is < 1500 then HRA=10% of the basic and DA =90% of the basic.
ii) If basic salary is >=1500 then HRA=Rs500 and DA=98% of the basic.

Program

```
echo "Enter the basic salary of the employee:"
read bs
hra=0
da=0
if [ $bs -lt 1500 ]
then
hra=$(echo "scale=2; 0.10 * $bs" | bc)
da=$(echo "scale=2; 0.90 * $bs" | bc)
else
hra=500
da=$(echo "scale=2; 0.98 * $bs" | bc)
fi
gs=$(echo "scale=2; $bs + $hra + $da" | bc)
echo "Basic Salary: Rs. $bs"
echo "HRA: Rs. $hra"
echo "DA: Rs. $da"
echo "Gross Salary: Rs. $gs"
```

Output

```
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash salary.sh
Enter the basic salary of the employee:
10000
Basic Salary: Rs. 10000
HRA: Rs. 500
DA: Rs. 9800.00
Gross Salary: Rs. 20300.00
```

4. Write a shell script to find the largest of 3 numbers.

Program

```
echo "Enter three numbers:"
read a b c
if [ $a -gt $b ]
then
    if [ $a -gt $c ]
    then
        echo $a "is greatest"
    else
        echo $c "is greatest"
    fi
else
    if [ $b -gt $c ]
    then
        echo $b "is greatest"
    else
        echo $c "is greatest"
    fi
fi
```

Output

```
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash largest.sh
Enter three numbers:
2 3 4
4 is greatest
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash largest.sh
Enter three numbers:
4 3 2
4 is greatest
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash largest.sh
Enter three numbers:
2 4 3
4 is greatest
```

5. Write a shell script that receives any number of file names as arguments check if every arguments supplied is a file or a directory and reports accordingly, whenever the argument is a file or directory.

Program

```
for f in "$@"
do
    if [ -f "$f" ];
    then
            echo "$f is a file."
    elif [ -d "$f" ]
    then
            echo "$f is a directory."
    else
            echo "$f does not exist or is neither a file nor a directory."
    fi
done
```

Output

```
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash pgm12.sh pgm17.sh
mca file.txt
pgm17.sh is a file.
mca is a directory.
file.txt does not exist or is neither a file nor a directory.
```

6. Write a shell script to convert the contents of a file into uppercase.

Program

```
echo "Enter file name"
read b
if [ ! -f $b ]
then
	echo "file doesnt exist"
else
	tr 'a-z' 'A-Z'<$b
fi
```

Output

```
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash filedir.sh
Enter file name
largest.sh
#AIM: WRITE A SHELL SCRIPT TO FIND THE LARGEST OF 3 NUMBERS.
#PROGRAM
ECHO "ENTER THREE NUMBERS:"
READ A B C
IF [ $A -GT $B ]
THEN
	IF [ $A -GT $C ]
	THEN
		ECHO $A "IS GREATEST"
	ELSE
		ECHO $C "IS GREATEST"
	FI
ELSE
	IF [ $B -GT $C ]
	THEN
		ECHO $B "IS GREATEST"
	ELSE
		ECHO $C "IS GREATEST"
	FI
FI
```

7. Write a shell script that delete all lines containing a specified word.

Program

```
read -p "Enter file name:" fname
if [ -f $fname ]
then
    read -p "Enter word to delete:" word
    echo "File before removing $word:"
    cat $fname
    grep -v -i $word $fname > test
    mv test $fname
    echo "File after removing $word:"
    cat $fname
else
    echo "The file $fname is not existing"
fi
```

Output

```
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash pgm12.sh
Enter file name:name
Enter word to delete:susan
File before removing susan:
Hanna Maria Benny
Anna Susan Benny
Anitha Benny
Jenney Susan John
Jane Ann John
File after removing susan:
Hanna Maria Benny
Anitha Benny
Jane Ann John
```

8. Write a shell script to find whether a given number is prime.

Program

```
echo "Enter a number to check whether it is prime or not:"
read n
flag=0
for ((i=2;i<=n/2;i++))
do
    if [ $((n % i)) -eq 0 ]
    then
          flag=1
          break
    fi
done
if [ $flag -eq 0 ]
then
      echo "$n is prime number"
else
      echo "$n is not prime number"
fi
```

Output

```
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash prime.sh
Enter a number to check whether it is prime or not:
2
2 is prime number
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash prime.sh
Enter a number to check whether it is prime or not:
10
10 is not prime number
```

9. Write a shell script to print the pattern

1
2 2
3 3 3
4 4 4 4

Program

```
read -p "Enter the number of rows:" n
for ((i=1;i<=n;i++))
do
    for ((j=1;j<=i;j++))
    do
        echo -n $i ""
    done
    echo ""
done
```

Output

```
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash pattern.sh
Enter the number of rows:4
1
2 2
3 3 3
4 4 4 4
```

10. Write a shell program to perform simple calculator operations like addition, subtraction, multiplication or division depending upon the user input

Program

```
while true
do
echo "MENU"
echo "1.Addition"
echo "2.Subtraction"
echo "3.Multiplication"
echo "4.Division"
echo "5.Remainder"
echo "6.Exit"
echo "Enter two numbers: "
read a b
echo "Enter your choice: "
read c
if [ $c -eq 6 ]
then
        echo "Exiting.."
        break
fi
case "$c" in
        "1")
        echo "Sum is $((a+b))"
        ;;
        "2")
        echo "Difference is $((a-b))"
        ;;
        "3")
        echo "Product is $((a*b))"
        ;;
        "4")
        echo "Quotient is $((a/b))"
          ;;
          "5")
          echo "Remainder is $((a%b))"
          ;;
          *)
          echo -n "Invalid option"
          echo
          ;;
esac
done
```

Output

```
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash opt.sh
MENU
1.Addition
2.Subtraction
3.Multiplication
```

```
4.Division
5.Remainder
6.Exit
Enter two numbers:
2 3
Enter your choice:
1
Sum is 5
MENU
1.Addition
2.Subtraction
3.Multiplication
4.Division
5.Remainder
6.Exit
Enter two numbers:
4 5
Enter your choice:
2
Difference is -1
MENU
1.Addition
2.Subtraction
3.Multiplication
4.Division
5.Remainder
6.Exit
Enter two numbers:
6 5
Enter your choice:
3
Product is 30
MENU
1.Addition
2.Subtraction
3.Multiplication
4.Division
5.Remainder
6.Exit
Enter two numbers:
24 3
Enter your choice:
4
Quotient is 8
MENU
1.Addition
2.Subtraction
3.Multiplication
4.Division
5.Remainder
6.Exit
Enter two numbers:
```

25 4
Enter your choice:
5
Remainder is 1
MENU
1.Addition
2.Subtraction
3.Multiplication
4.Division
5.Remainder
6.Exit
Enter two numbers:
5 6
Enter your choice:
6
Exiting..

11. Write a menu-driven shell script for a snack shop that allows the user to select the items and generate a bill.

Program

```
total=0
q1=0
q2=0
q3=0
while true
do
    echo "SNACK ITEMS"
    echo "1.Puffs - 25/-"
    echo "2.Cream Bun - 10/-"
    echo "3.Juice - 60/-"
    echo "4.Generate Bill"
    echo
    read -p "Enter the option:" ch
    echo
    case "$ch" in
        "1")
        p=25
        read -p "Enter the quantity of puffs:" q1
        total=$((total+ p * q1))
        ;;
        "2")
        p=10
        read -p "Enter the quantity of bun:" q2
        total=$((total + p * q2))
        ;;
        "3")
        p=60
        read -p "Enter the quantity of juice:" q3
        total=$((total + p * q3))
        ;;
        "4")
        echo "----------------------"
        echo "                BAKE HOUSE     "
        echo "----------------------"
        echo "                BILL         "
        echo
        echo -n -e "Item\tQty\t  Amt"
        echo
        if [ "$q1" -gt 0 ]
        then
            echo "Puffs  $q1 x 25/- = $((q1 * 25))/-"
        fi
        if [ "$q2" -gt 0 ]
        then
            echo "Bun $q2 x 10/- = $((q2 * 10))/-"
        fi
        if [ "$q3" -gt 0 ]
```

```
        then
                echo "Juice  $q3 x 60/- = $((q3 * 60))/-"
        fi
        echo "----------------------"
        echo "Total Amount to pay: "Rs.$total
        echo "THANK YOU FOR SHOPPING"
        echo "----------------------"
        break
        ;;
        *)
        echo "Invalid choice. Please try again."
        ;;
esac
done
```

Output

```
mits@mits-H610M-H-V2-DDR4:~/Hanna/N&SA/shell script$ bash menudriven.sh
SNACK ITEMS
1.Puffs - 25/-
2.Cream Bun - 10/-
3.Juice - 60/-
4.Generate Bill
Enter the option:1
Enter the quantity of puffs:1
SNACK ITEMS
1.Puffs - 25/-
2.Cream Bun - 10/-
3.Juice - 60/-
4.Generate Bill
Enter the option:2
Enter the quantity of bun:2
SNACK ITEMS
1.Puffs - 25/-
2.Cream Bun - 10/-
3.Juice - 60/-
4.Generate Bill
Enter the option:4

----------------------
  BAKE HOUSE
----------------------
       BILL

Item   Qty         Amt
Puffs  1 x 25/- = 25/-
Bun    2 x 10/- = 20/-
----------------------
Total Amount to pay: Rs.45
THANK YOU FOR SHOPPING
 ----------------------
```