

- Write a shell script to run the following operations by reading 2 numbers and one choice from the user:

Addition

Subtraction

Multiplication

Division

Average

It should be a choice based program i.e. if the input is 1, Addition should be performed

Input

```
#!/bin/bash
show_menu() {
    echo "choose an operation:"
    echo "1.Addition"
    echo "2.Subtraction"
    echo "3.Multiplication"
    echo "4.Division"
    echo "5.Average"
}
read -p "Enter the two numbers: " num1 num2
show_menu
read -p "Enter the choice (1-5): " choice
case $choice in
    1)
        result=$(echo "$num1 + $num2")
        cat << EOF
The Addition of two numbers is ${result}
EOF
;;
    2)
        result=$(echo "$num1 - $num2")
        cat << EOF
The Subtraction of two numbers is ${result}
EOF
;;
    3)
        result=$(echo "$num1 * $num2")
        cat << EOF
The Multiplication of two numbers is ${result}
EOF
;;
    4)
        if [ "$num2" -ne 0 ]; then
            result=$(echo "scale=2; $num1 / $num2")
            cat << EOF
The Division of two numbers is ${result}
EOF
        else
            cat << EOF
Division by Zero is undefined
        fi
    5)
        # Average calculation
        sum=$((num1 + num2))
        result=$((sum / 2))
        cat << EOF
The Average of two numbers is ${result}
EOF
    *)
        cat << EOF
Invalid choice
EOF
esac
```

```

EOF
        fi
    ii
5)
    result=$(echo "scale=2; ($num1 + $num2) / 2")
    cat << EOF
The Average of two numbers is ${result}
EOF
ii
*)
    cat << EOF
Invalid choice!
EOF
ii
esac

```

Output

```

ubuntu@DESKTOP-LKEG2D3:~$ vim arithmeticoperations.sh
ubuntu@DESKTOP-LKEG2D3:~$ chmod u+x arithmeticoperations.sh
ubuntu@DESKTOP-LKEG2D3:~$ ./arithmeticoperations.sh
Enter the two numbers: 2 4
choose an operation:
1.Addition
2.Subtraction
3.Multiplication
4.Division
5.Average
Enter the choice (1-5): 1
The Addition of two numbers is 2 + 4

```

- Write a shell script to check whether a number is a palindrome or not

Input

```
#!/bin/bash
show_palindrome() {
    read -p "Enter the number: " num
    reverse=$(echo "$num" | rev)
    if [ "$num" == "$reverse" ]; then
        cat << EOF
        ${num} is a palindrome.
        EOF
    else
        cat << EOF
        ${num} is not a palindrome.
        EOF
    fi
}
show_palindrome
```

Output

```
ubuntu@DESKTOP-LKEG2D3:~$ vim palindrome.sh
ubuntu@DESKTOP-LKEG2D3:~$ chmod u+x palindrome.sh
ubuntu@DESKTOP-LKEG2D3:~$ ./palindrome.sh
Enter the number: 121
121 is a palindrome.
ubuntu@DESKTOP-LKEG2D3:~$ ./palindrome.sh
Enter the number: 345
345 is not a palindrome.
```

- Write a script to run the following operations by reading an input and a choice from the user:

ROT13 Encode

ROT13 Decode

Input

```
#!/bin/bash
show_menu() {
    echo "choose an operation: "
    echo "1.ROT13 Encode"
    echo "2.ROT13 Decode"
}
show_menu
read -p "Enter the choice (1-2): " choice
read -p "Enter the string: " input
case $choice in
    1)
        cat << EOF
The Encoded string is : $(echo "$input" | tr 'A-Za-z' 'N-ZA-Mn-za-m')
EOF
        ;;
    2)
        cat << EOF
The Decoded string is : $(echo "$input" | tr 'A-Za-z' 'N-ZA-Mn-za-m')
EOF
        ;;
    *)
        cat << EOF
Invalid choice!
EOF
        ;;
esac
~
```

Output

```
ubuntu@DESKTOP-LKEG2D3:~$ vim ROT13.sh
ubuntu@DESKTOP-LKEG2D3:~$ chmod u+x ROT13.sh
ubuntu@DESKTOP-LKEG2D3:~$ ./ROT13.sh
choose an operation:
1.ROT13 Encode
2.ROT13 Decode
Enter the choice (1-2): 1
Enter the string: linux
The Encoded string is : yvahk
ubuntu@DESKTOP-LKEG2D3:~$ ./ROT13.sh
choose an operation:
1.ROT13 Encode
2.ROT13 Decode
Enter the choice (1-2): 2
Enter the string: yvahk
The Decoded string is : linux
```

- Using functions, write a shell script program to check whether a file named “persistence” is present in your system.

Input

```
#!/bin/bash
check_filename() {
    if [ -f 'persistence' ]; then
        cat << EOF
The file named persistence exist in the system.
EOF
    else
        cat << EOF
The file named persistence do not exist in the system.
EOF
    fi
}
check_filename
~
~
```

Output

```
ubuntu@DESKTOP-LKEG2D3:~$ vim checkingfilename.sh
ubuntu@DESKTOP-LKEG2D3:~$ chmod u+x checkingfilename.sh
ubuntu@DESKTOP-LKEG2D3:~$ ./checkingfilename.sh
The file named persistence do not exist in the system.
```


