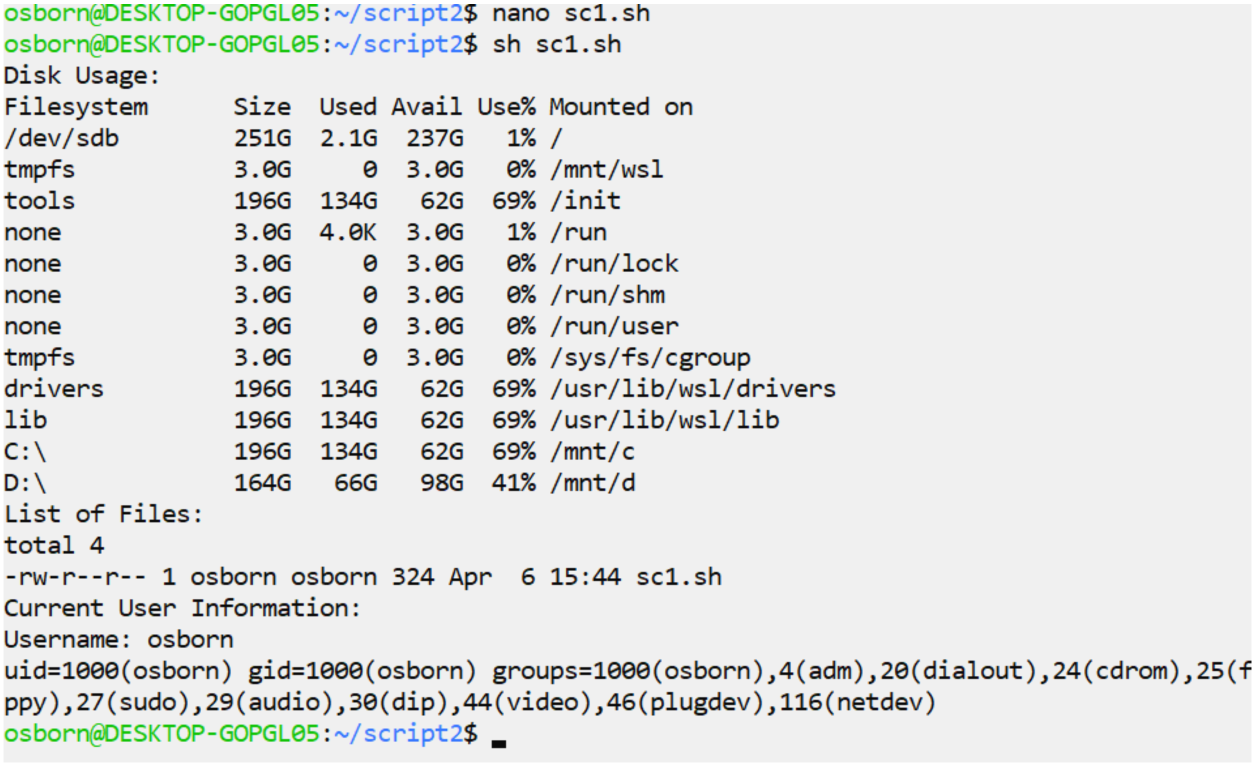
Assignment 10

a) Simple implementation of basic LINUX commands,

Definition: Implementing basic Linux commands in shell scripts involves creating scripts that automate tasks typically performed using command-line utilities. This can include tasks like file manipulation, text processing, system administration, etc.

Syntax: Use shell scripting syntax (#!/bin/bash) to write scripts that invoke Linux commands using appropriate options and parameters.

```
#!/bin/bash

# Simple script to display disk usage using 'df' command
echo "Disk Usage:"
df -h

# Script to list files in a directory using 'ls' command
echo "List of Files:"
ls -l

# Script to display current user information using 'whoami' and 'id' commands
echo "Current User Information:"
echo "Username: $(whoami)"
id
```



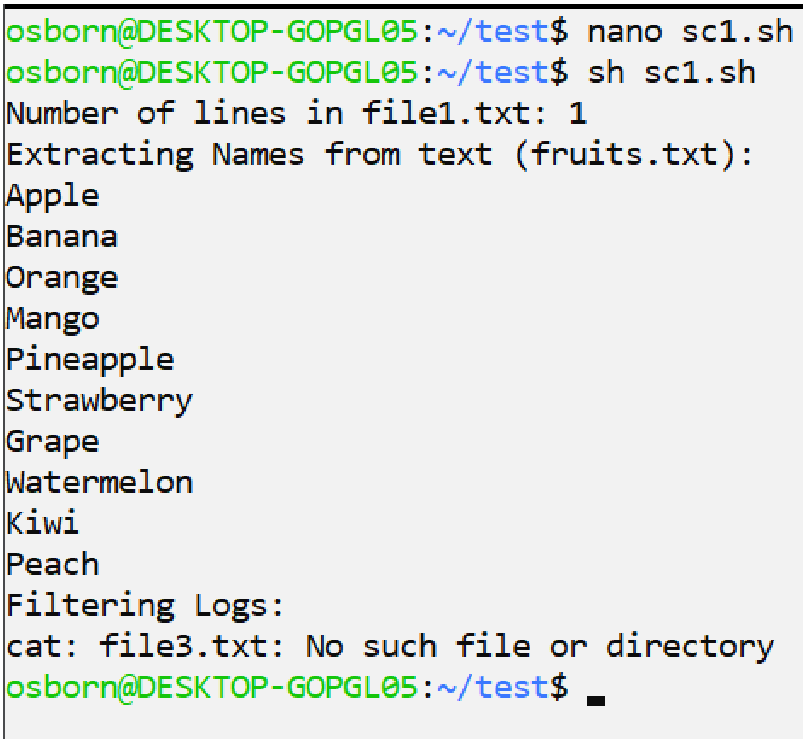
```
osborn@DESKTOP-GOPGL05:~/script2$ nano sc1.sh
osborn@DESKTOP-GOPGL05:~/script2$ sh sc1.sh
Disk Usage:
Filesystem      Size  Used Avail Use% Mounted on
/dev/sdb        251G  2.1G  237G   1% /
tmpfs           3.0G     0  3.0G   0% /mnt/wsl
tools           196G  134G   62G  69% /init
none            3.0G  4.0K  3.0G   1% /run
none            3.0G     0  3.0G   0% /run/lock
none            3.0G     0  3.0G   0% /run/shm
none            3.0G     0  3.0G   0% /run/user
tmpfs           3.0G     0  3.0G   0% /sys/fs/cgroup
drivers         196G  134G   62G  69% /usr/lib/wsl/drivers
lib             196G  134G   62G  69% /usr/lib/wsl/lib
C:\             196G  134G   62G  69% /mnt/c
D:\             164G   66G   98G  41% /mnt/d
List of Files:
total 4
-rw-r--r-- 1 osborn osborn 324 Apr  6 15:44 sc1.sh
Current User Information:
Username: osborn
uid=1000(osborn) gid=1000(osborn) groups=1000(osborn),4(adm),20(dialout),24(cdrom),25(f
ppy),27(sudo),29(audio),30(dip),44(video),46(plugdev),116(netdev)
osborn@DESKTOP-GOPGL05:~/script2$
```

b) utilities, filters, etc. using shell scripts.

Definition: Shell scripts can leverage Linux utilities and filters (like grep, sed, awk, cut, sort, etc.) to process and manipulate data efficiently.

Syntax: Combine commands and filters within scripts to perform complex operations on text, files, and system resources.

```
#!/bin/bash

# Script to count number of lines in a file using 'wc' command
file="file1.txt"
line_count=$(wc -l < "$file")
echo "Number of lines in $file: $line_count"

# Script to extract specific data from a text file using 'awk' command
echo "Extracting Names from text (fruits.txt):"
awk -F ',' '{print $1}' fruits.txt

# Script to filter log entries based on a keyword using 'grep' command
echo "Filtering Logs:"
grep "No" error.txt
```



```
osborn@DESKTOP-GOPGL05:~/test$ nano sc1.sh
osborn@DESKTOP-GOPGL05:~/test$ sh sc1.sh
Number of lines in file1.txt: 1
Extracting Names from text (fruits.txt):
Apple
Banana
Orange
Mango
Pineapple
Strawberry
Grape
Watermelon
Kiwi
Peach
Filtering Logs:
cat: file3.txt: No such file or directory
osborn@DESKTOP-GOPGL05:~/test$ 
```

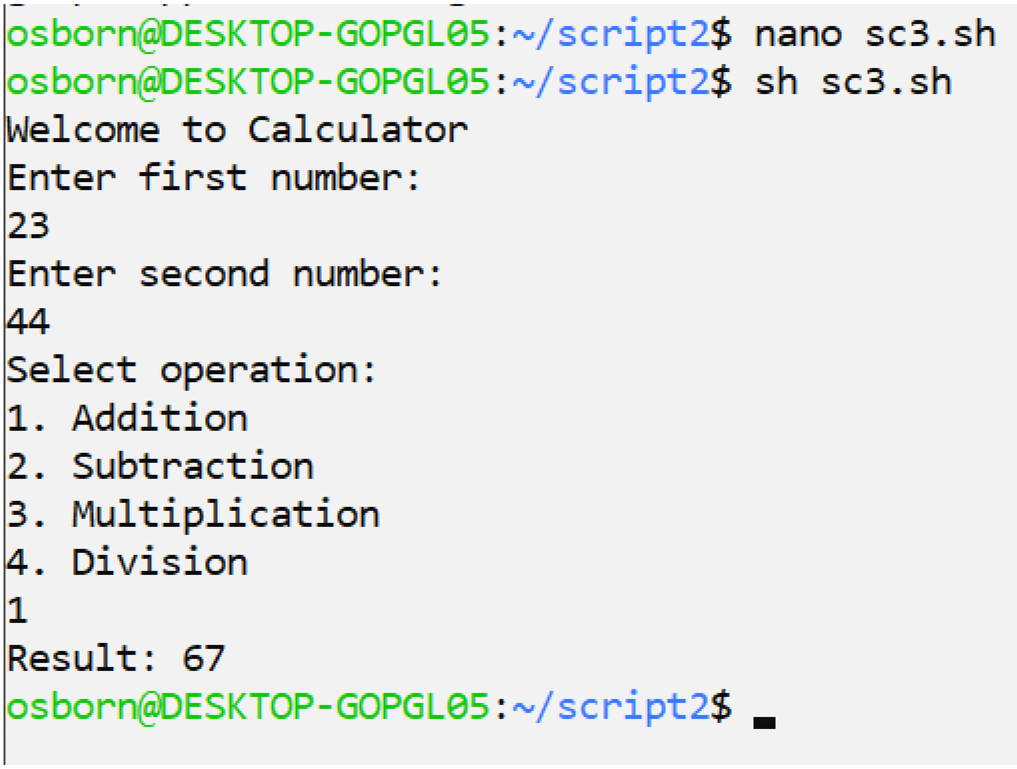
c) WAP of a calculator using switch in shell scripting

Definition: Implementing a calculator using a case statement in shell scripting allows users to perform arithmetic operations based on user input.

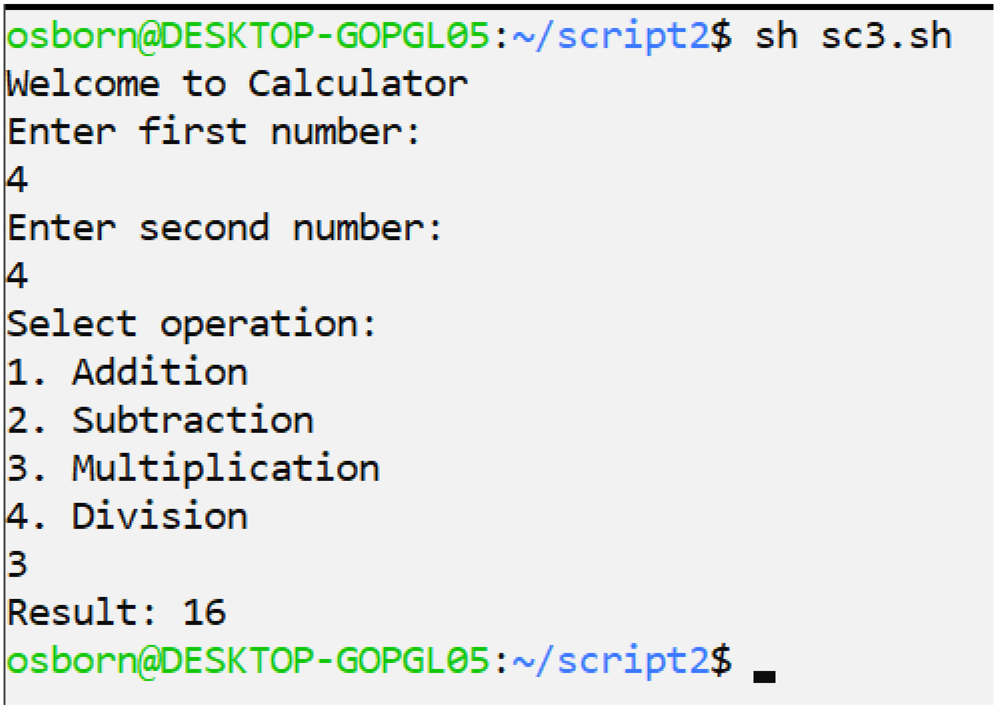
Syntax: Use case statement to evaluate user input and execute corresponding operations.

```
#!/bin/bash

# Calculator script using case statement
echo "Welcome to Calculator"

echo "Enter first number:"
read num1

echo "Enter second number:"
read num2

echo "Select operation:"
echo "1. Addition"
echo "2. Subtraction"
echo "3. Multiplication"
echo "4. Division"

read choice

case $choice in
    1)
        result=$((num1 + num2))
        echo "Result: $result"
        ;;
    2)
        result=$((num1 - num2))
        echo "Result: $result"
        ;;
    3)
        result=$((num1 * num2))
        echo "Result: $result"
        ;;
    4)
        if [ $num2 -eq 0 ]; then
            echo "Error: Division by zero!"
        else
            result=$(echo "scale=2; $num1 / $num2" | bc)
            echo "Result: $result"
        fi
        ;;
    *)
        echo "Invalid choice! Please select a valid operation."
        ;;
```

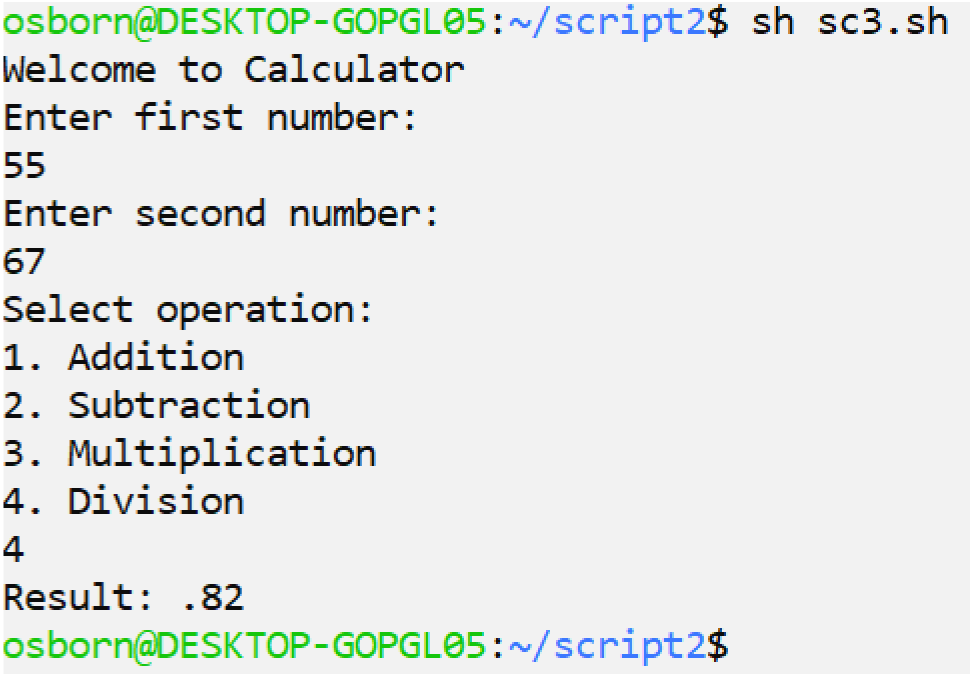
esac



```
osborn@DESKTOP-GOPGL05:~/script2$ nano sc3.sh
osborn@DESKTOP-GOPGL05:~/script2$ sh sc3.sh
Welcome to Calculator
Enter first number:
23
Enter second number:
44
Select operation:
1. Addition
2. Subtraction
3. Multiplication
4. Division
1
Result: 67
osborn@DESKTOP-GOPGL05:~/script2$
```



```
osborn@DESKTOP-GOPGL05:~/script2$ sh sc3.sh
Welcome to Calculator
Enter first number:
4
Enter second number:
4
Select operation:
1. Addition
2. Subtraction
3. Multiplication
4. Division
3
Result: 16
osborn@DESKTOP-GOPGL05:~/script2$
```



```
osborn@DESKTOP-GOPGL05:~/script2$ sh sc3.sh
Welcome to Calculator
Enter first number:
55
Enter second number:
67
Select operation:
1. Addition
2. Subtraction
3. Multiplication
4. Division
4
Result: .82
osborn@DESKTOP-GOPGL05:~/script2$
```