MODULE 5

Advance topics in a function

1) Write a function add to add two numbers and call the function in another file.

Script:

Add:

```
#!/bin/bash

add() {

  local result=$(( $1 + $2 ))

  echo "The sum of $1 and $2 is: $result"

}
```
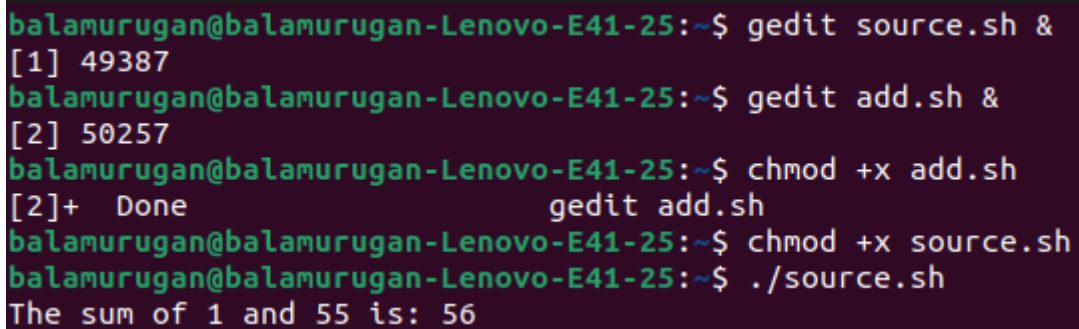
Source:

```
#!/bin/bash

source ./add.sh

add 1 55
```

```
balamurugan@balamurugan-Lenovo-E41-25:~$ gedit source.sh &
[1] 49387
balamurugan@balamurugan-Lenovo-E41-25:~$ gedit add.sh &
[2] 50257
balamurugan@balamurugan-Lenovo-E41-25:~$ chmod +x add.sh
[2]+  Done                    gedit add.sh
balamurugan@balamurugan-Lenovo-E41-25:~$ chmod +x source.sh
balamurugan@balamurugan-Lenovo-E41-25:~$ ./source.sh
The sum of 1 and 55 is: 56
```

Recursive function

1) Write a program where the recursive function calculates the sum of N numbers

Script:

```bash
#!/bin/bash

calculate_sum() {

  local n="$1"

  if [ "$n" -eq 0 ]; then

    echo "0"

  else

    read -p "Enter number $n: " number

    current_sum=$((number + $(calculate_sum "$((n - 1))")))

    echo "$current_sum"

  fi

}


read -p "Enter the number of elements (N): " N

result=$(calculate_sum "$N")

echo "Sum of the numbers is: $result"
```
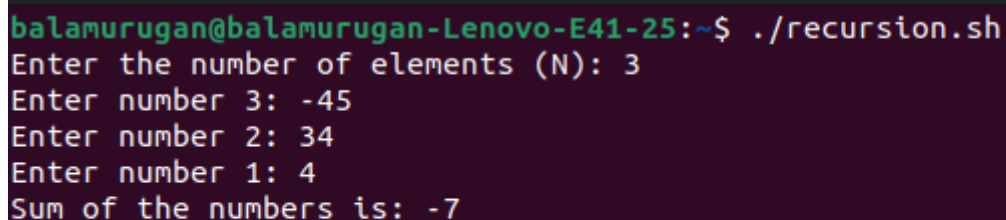
```
balamurugan@balamurugan-Lenovo-E41-25:~$ ./recursion.sh
Enter the number of elements (N): 3
Enter number 3: -45
Enter number 2: 34
Enter number 1: 4
Sum of the numbers is: -7
```

Basics of Redirection (error handling)

Create a text file with some content like your name, address. Redirect the content to a new file.

```
balamurugan@balamurugan-Lenovo-E41-25:~$ gedit red.txt
balamurugan@balamurugan-Lenovo-E41-25:~$ echo "Balamurugan" > red.txt
balamurugan@balamurugan-Lenovo-E41-25:~$ echo "202, 7G Rainbow colony, Dubai" >> red.txt
balamurugan@balamurugan-Lenovo-E41-25:~$ cat red.txt
Balamurugan
202, 7G Rainbow colony, Dubai
balamurugan@balamurugan-Lenovo-E41-25:~$ cat red.txt > newred.txt
balamurugan@balamurugan-Lenovo-E41-25:~$ cat newred.txt
Balamurugan
202, 7G Rainbow colony, Dubai
```

Write a program in any language like C, C++, Java. And redirect the output or error to a new file.

```
balamurugan@balamurugan-Lenovo-E41-25:~$ cat bala.c
#include<stdio.h>
int main()
{
        printf("The output is printed!!!\n");
}
balamurugan@balamurugan-Lenovo-E41-25:~$ gcc -o bala bala.c
balamurugan@balamurugan-Lenovo-E41-25:~$ ./bala > rd.txt
balamurugan@balamurugan-Lenovo-E41-25:~$ cat rd.txt
The output is printed!!!
```

More on Redirection

1) Create X_file.txt file with some content.
2) Redirect the content of both out_file.txt and X_file.txt to a new file

```
balamurugan@balamurugan-Lenovo-E41-25:~$ gedit X_file.txt
balamurugan@balamurugan-Lenovo-E41-25:~$ cat X_file.txt
I am Balamurugan
ECE final year student
balamurugan@balamurugan-Lenovo-E41-25:~$ gedit out_file.txt
balamurugan@balamurugan-Lenovo-E41-25:~$ cat out_file.txt
I got placed in Embedur Systems
balamurugan@balamurugan-Lenovo-E41-25:~$ cat X_file.txt out_file.txt > final.txt
balamurugan@balamurugan-Lenovo-E41-25:~$ cat final.txt
I am Balamurugan
ECE final year student
I got placed in Embedur Systems
```

Here document and Here string

1) Convert a string to uppercase using:
    a) Here document
    b) Here string

Hint: tr a-z A-Z

Script:

```bash
#!/bin/bash

read -p "Enter a string: " user_input

uppercase=$(tr 'a-z' 'A-Z' <<< "$user_input")

echo "Uppercase: $uppercase"
```