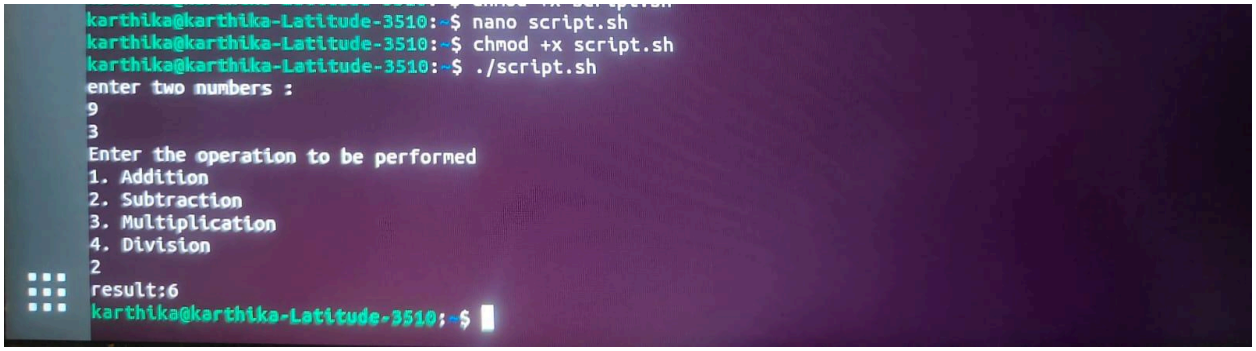
QUESTION 1]

```
echo "Enter the numbers:"

read a

read b

echo "Enter the operation to be performed"

echo "1. Addition"

echo "2. Subtraction"

echo "3. Multiplication"

echo "4. Division"

read ch

case $ch in

1)res=$(echo" $a + $b" | bc);;

2)res=$(echo "Sa $b" | bc);;

3)res=$(echo "Sa * $b" | bc);;

4) res=$(echo "scale-2; $a/ $b" | bc);

esac

echo "Answer: $res"
```



QUESTION 2

```
read -p "Enter the number of elements in the array: " size

# Initialize an empty array and sum variable

arr=()

total=0

# Loop to take input from the user and populate the array

echo "Enter the elements of the array:" for ((i=0; i<$size; i++))

do

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read -p "Element [$i]: " element

arr+=($element)

done

# Calculate the sum of array elements

for num in "${arr[@]}"

do

total=$((total + num))

done

# Display the sum

echo "The sum of the array elements is: $total"
```

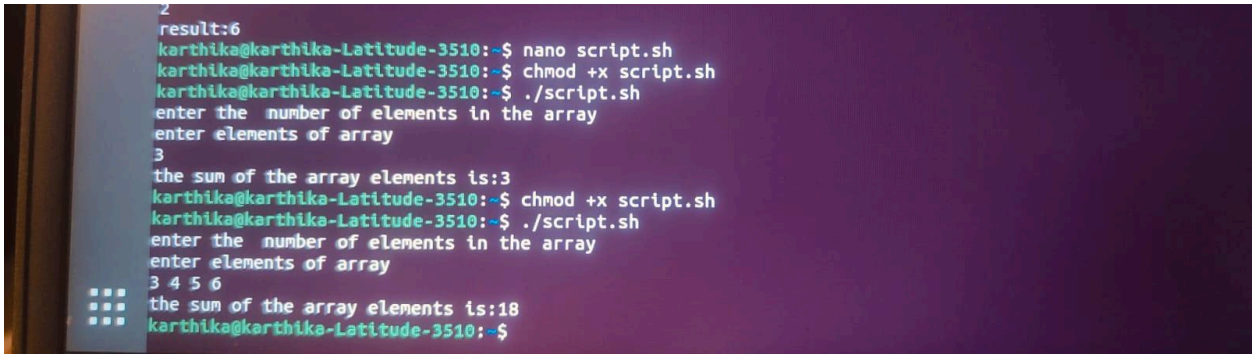

Question 3

```
#!/bin/bash

read -p "Enter the number of elements in the array: " size

# Initialise the concatenated string variable
concatenated_string=""

# Read all elements of the array in one line
echo "Enter the elements of the array (space-separated):"
 # -a allows you to read multiple elements into an array
read -a arr

# Concatenate the array elements
for str in "${arr[@]}"; do
    concatenated_string+="$str"
done

# Display the concatenated result
echo "The concatenated string is: $concatenated_string"
```

Question 4

```
count_lines() {

# Check if file exists if [ -f "$1" ]; then

# Use wc to count the number of lines

line_count=$(wc -l < "$1")
```

```
echo "The file '$1' contains $line_count lines."

else

echo "Error: File '$1' does not exist."

exit 1

fi

}

# Prompt the user to enter the filename

read -p "Enter the file name: "file_name

# Call the count_lines function with the file name as an argument count_lines "$file_name"
```

Question 5

Question 5

```
#!/bin/bash

count_lines() {
   total_lines=0  # Initialize the total lines counter

   for file in "$@"; do  # Loop through all provided file arguments
      if [ -f "$file" ]; then  # Check if the file exists
         line_count=$(wc -l < "$file")  # Count the lines in the file
         echo "The file '$file' contains $line_count lines."
         total_lines=$((total_lines + line_count))  # Add to the total
      else
         echo "Error: The file '$file' does not exist."
      fi
   done

   return $total_lines  # Return the total lines count (note: this will be in the exit status)
}

# Call the function with all provided arguments
count_lines "$@"

# Capture the returned total lines count from the function
```

```
total=$?  # Get the exit status (which is the total lines)

# Display the total number of lines across all files
echo "The total number of lines across all files is: $total"
```

Question 6

```
#!/bin/bash

# Loop through all files and directories in the current directory
for item in *; do
    if [ -d "$item" ]; then
        echo "$item is a directory."
    elif [ -f "$item" ]; then
        echo "$item is a file."
    else
        echo "$item is neither a file nor a directory."
    fi
done
```