

Question1:

```
import java.util.Scanner;

import java.util.InputMismatchException;

class Calculator
{

    public void add(float a,float b, float c)
    {
        System.out.println(a+"+"+b+"+"+c+"="+ (a+b+c));
    }

    public void add(float a,float b)
    {
        System.out.println(a+"+"+b+"="+ (a+b));
    }


    public void subtract(float a,float b, float c)
    {
        System.out.println(a+"-"+b+"-"+c+"="+ (a-b-c));
    }

    public void subtract(float a,float b)
    {
        System.out.println(a+"-"+b+"="+ (a-b));
    }


    public void product(float a,float b)
```



```

{
    System.out.println(a+"*"+b+"="+a*b);
}

public void division(float a,float b)
{
    System.out.println(a+"/"+b+"="+a/b);
}
}

public class Main
{
    public static void main (String[] args) {
        Calculator cal=new Calculator();
        Scanner sc=new Scanner(System.in);
        System.out.println("Author: T. ISWARYA\nSAP ID:51834773");
        try
        {
            System.out.println("1. ADD\n2. SUBTRACT\n3. MULTIPLICATION\n4. DIVISION\n5. EXIT\nEnter
your choice: ");
            int op=sc.nextInt();
            switch(op)
            {
                case 0:
                    System.out.println("Exit...");
                    System.exit(0);
                    break;

```



case 1:

```
System.out.print("Enter operand 1: ");  
  
float add1=sc.nextFloat();  
  
System.out.print("Enter operand 2: ");  
  
float add2=sc.nextFloat();  
  
System.out.print("Enter operand 3(if you want. else enter 0): ");  
  
float add3=sc.nextFloat();  
  
if(add3==0)  
{  
    cal.add(add1, add2);  
}  
  
else  
{  
    cal.add(add1, add2, add3);  
}  
  
break;
```

case 2:

```
System.out.print("Enter operand 1: ");  
  
float sub1=sc.nextFloat();  
  
System.out.print("Enter operand 2: ");  
  
float sub2=sc.nextFloat();  
  
System.out.print("Enter operand 3(if you want. else enter 0): ");  
  
float sub3=sc.nextFloat();  
  
if(sub3==0)  
{  
    cal.subtract(sub1, sub2);  
}  
  
}
```



```

        else
        {
            cal.subtract(sub1, sub2, sub3);
        }
        break;
    case 3:
        System.out.print("Enter operand 1: ");
        float mul1=sc.nextFloat();
        System.out.print("Enter operand 2: ");
        float mul2=sc.nextFloat();
        cal.product(mul1,mul2);
        break;
    case 4:
        System.out.print("Enter operand 1: ");
        float div1=sc.nextFloat();
        System.out.print("Enter operand 2: ");
        float div2=sc.nextFloat();
        if(div2==0)
        {
            throw new ArithmeticException("Number cannot be divided by zero!!");
        }
        cal.division(div1,div2);
        break;
    default:
        System.out.println("Invalid choice: ");
    }
}

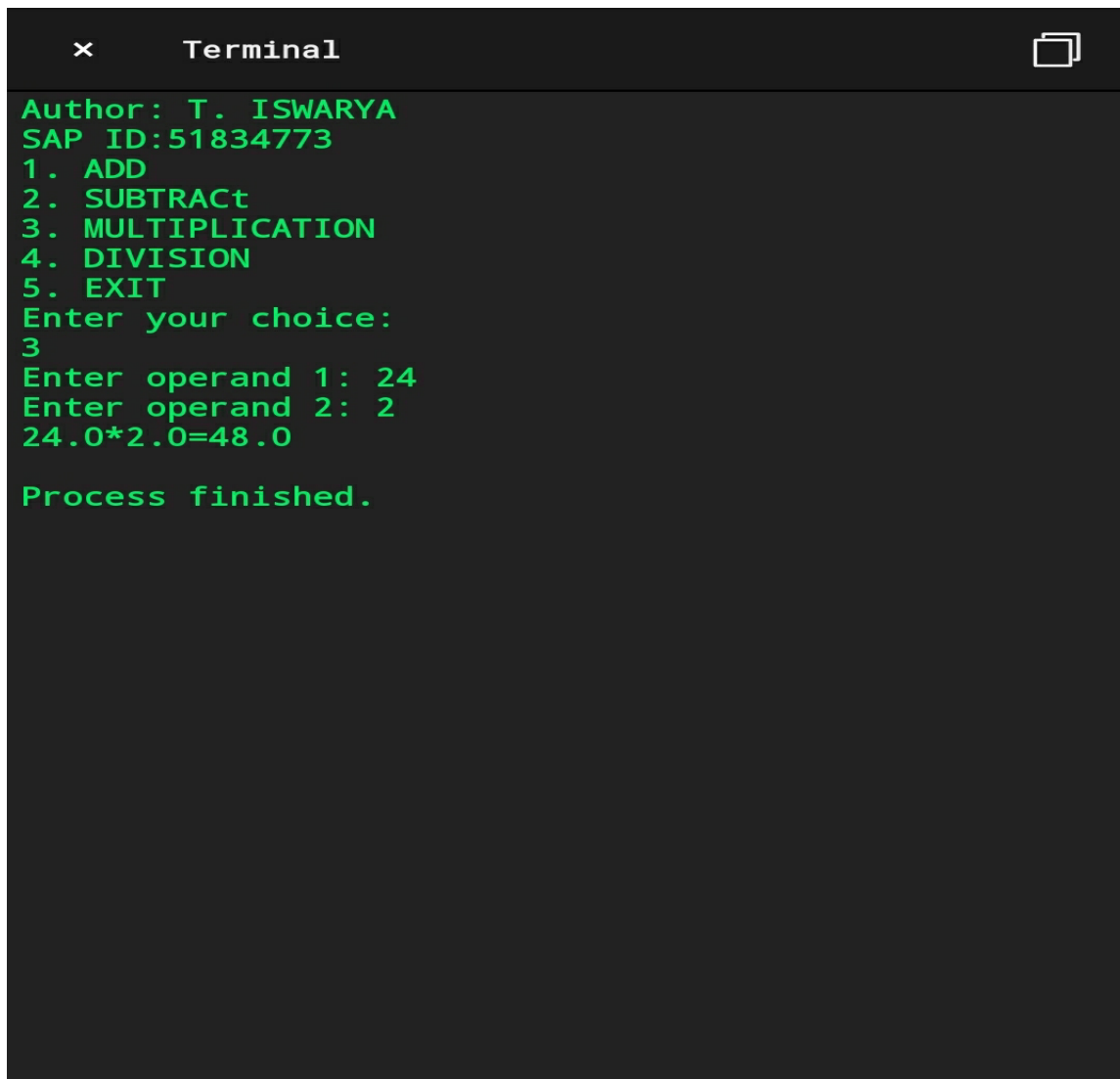
```



```
catch(InputMismatchException ime)
{
    System.out.println("You have entered input of wrong datatype!!");
}

catch(ArithmeticException ae)
{
    System.out.println(ae.getMessage());
}
```

Output:

A terminal window titled "Terminal" with a dark background and green text. The output shows the program's execution flow: author information, a menu of operations, user input for choice 3, operands 24 and 2, the calculation result 48.0, and a final "Process finished." message.

```
x      Terminal

Author: T. ISWARYA
SAP ID:51834773
1. ADD
2. SUBTRACT
3. MULTIPLICATION
4. DIVISION
5. EXIT
Enter your choice:
3
Enter operand 1: 24
Enter operand 2: 2
24.0*2.0=48.0

Process finished.
```



Question 3:

```
import java.util.*;

public class Main
{
    public static void main (String[] args)
    {
        System.out.println("Author :T. Iswarya \n SAP ID:51834773 ");
        int count=0;
        int rem=0 ;
        Scanner sc=new Scanner(System.in);
        System.out.println("enter a number :");
        int n= sc.nextInt();
        while(n>0)
        {
            rem=n%10;
            if(rem%2!=0)
            {
```



```
        count++;  
    }  
    n=n/10;  
  
}  
System.out.println("no of odd digits in number are ; "+count);  
  
}  
}
```



Output:

```
x Terminal
Author : T. Iswarya
SAP ID:51834773
enter a number :
52
no of odd digits in number are ; 1

Process finished.
```



Question 2:

```
public class Main
{
    public static boolean isPalindrome(String string, int low, int
high)
    {
        if (low >= high) {
            return true;
        }

        if (string.charAt(low) != string.charAt(high)) {
            return false;
        }

        return isPalindrome(string, low + 1, high - 1);
    }

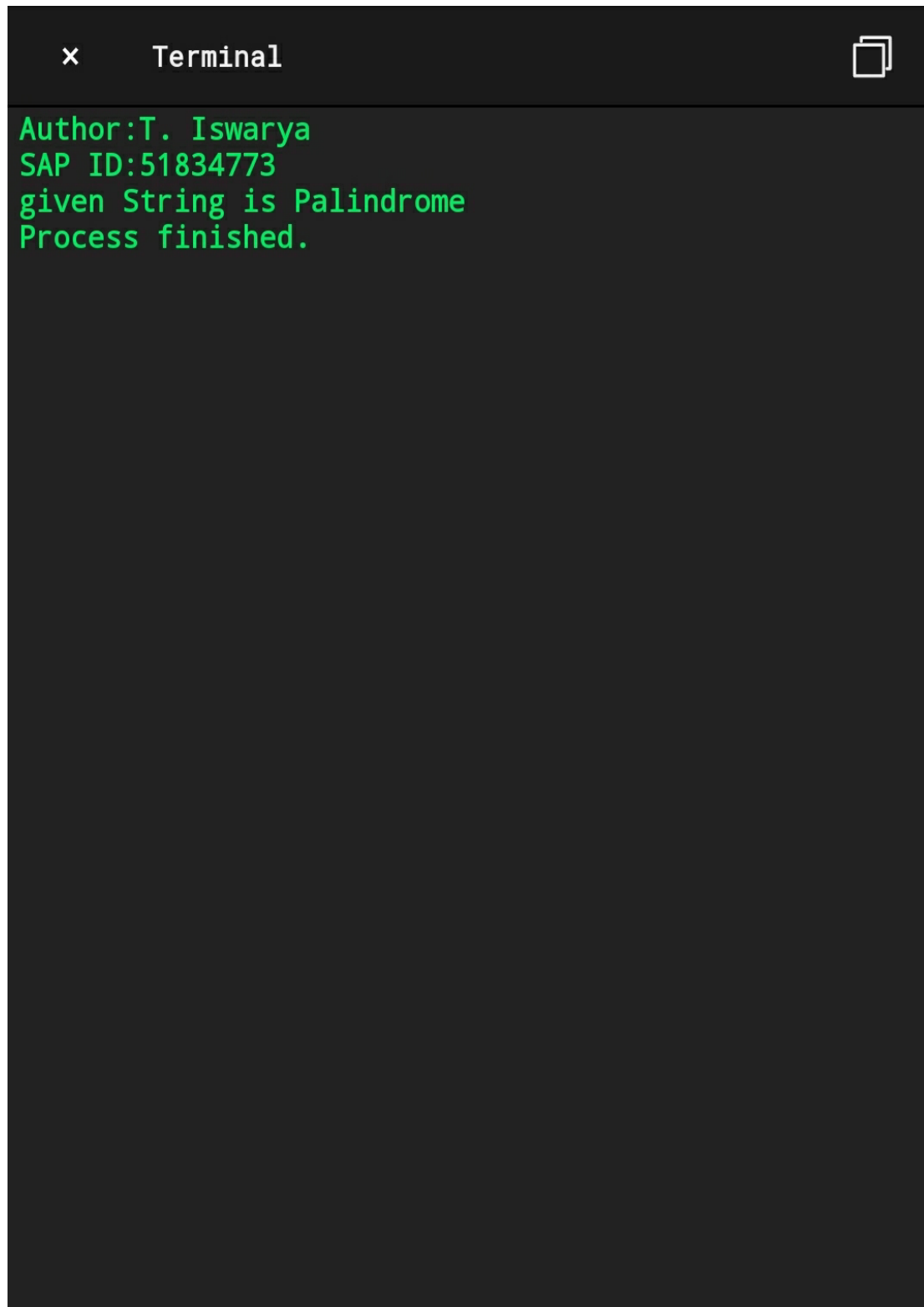
    public static void main(String[] args)
    {
        String string = "level";
```



```
        if (isPalindrome(string, 0, string.length() - 1)) {  
            System.out.println("Author:T. Iswarya \nSAP  
ID:51834773 ");  
            System.out.print("given String is Palindrome");  
        } else {  
            System.out.print("given String is Not  
Palindrome");  
        }  
    }  
}
```



Output:

A terminal window with a dark background. The title bar at the top shows a close button (x), the text 'Terminal', and a maximize button. The output text is displayed in green.

```
Author:T. Iswarya
SAP ID:51834773
given String is Palindrome
Process finished.
```

Question5:

```
import java.util.Arrays;

class Main
{
    public static void swap(int[] arr, int a, int b)
    {
        int temp = arr[a];
        arr[a] = arr[b];
        arr[b] = temp;
    }

    public static void bubbleSort(int[] arr, int m)
    {
        for (int a = 0; a < m - 1; a++) {
            if (arr[a] > arr[a + 1]) {
                swap(arr, a, a + 1);
            }
        }
        if (m - 1 > 1) {
```



```
        bubbleSort(arr, m - 1);  
    }  
}
```

```
public static void main(String[] args)  
{  
    int[] arr = { 12,3,21,2,41,5 };
```

```
        bubbleSort(arr, arr.length);
```

```
        System.out.println("Author:T.Iswarya\n SAP ID:51834773");  
        System.out.println(Arrays.toString(arr));  
    }  
}
```



Output:

```
x    Terminal    [icon]
Author:T.Iswarya
SAP ID:51834773
[2, 3, 5, 12, 21, 41]
Process finished.
```

