JAVA L47=48
DIGITAL ASSIGNMENT 1

NAME- SAURABH SINGH
ID- 19BCI0184

BASICS OF JAVA

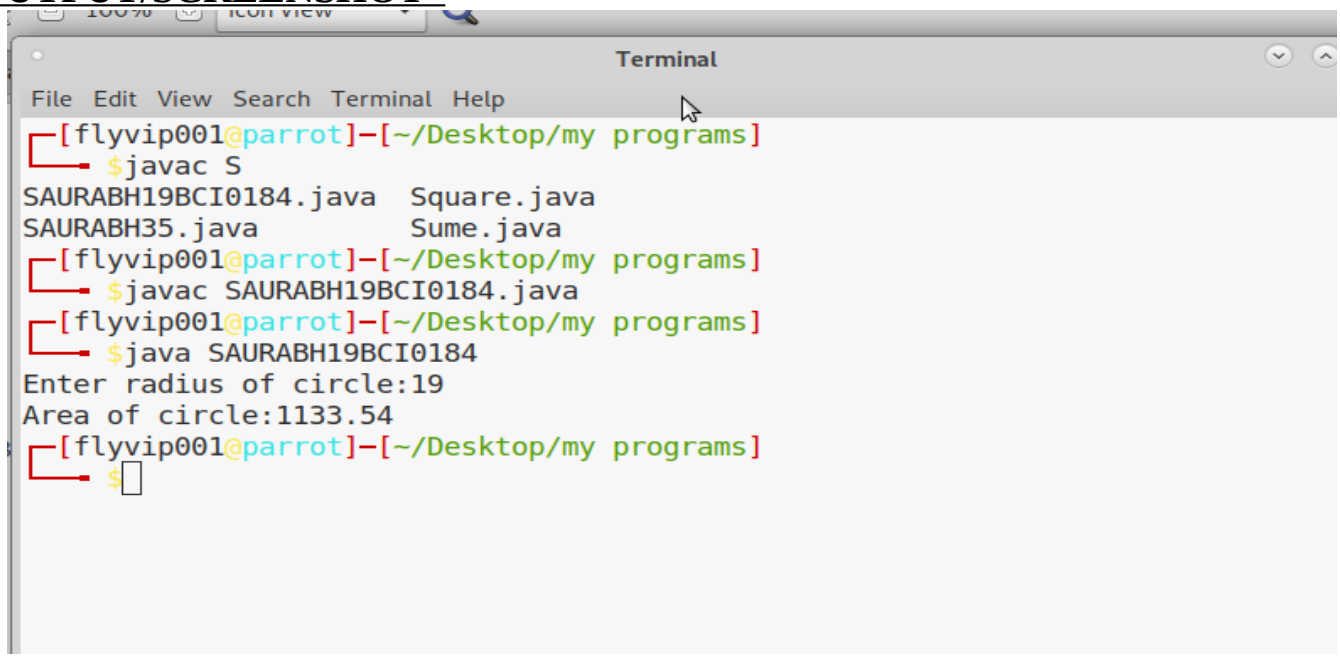
UNIQUE MARK- LINUX SYSTEM - flyvip001@parrot in terminal

1. Read the radius and print the area of a circle

Code:

```
import java.util.Scanner;
public class SAURABH35
{
   public static void main(String[] args)
   {
      int a;
      Scanner r = new Scanner(System.in);
      System.out.print("Enter the number to check:");
      a = r.nextInt();
      if(a % 5 == 0 & a % 3 ==0)
      {
         System.out.println(a +" is divisible by 3 and 5");
      }
      else
      {
         System.out.println(a +" is not divisible by 3 and 5");
      }
   }
}
```

OUTPUT/SCREENSHOT-

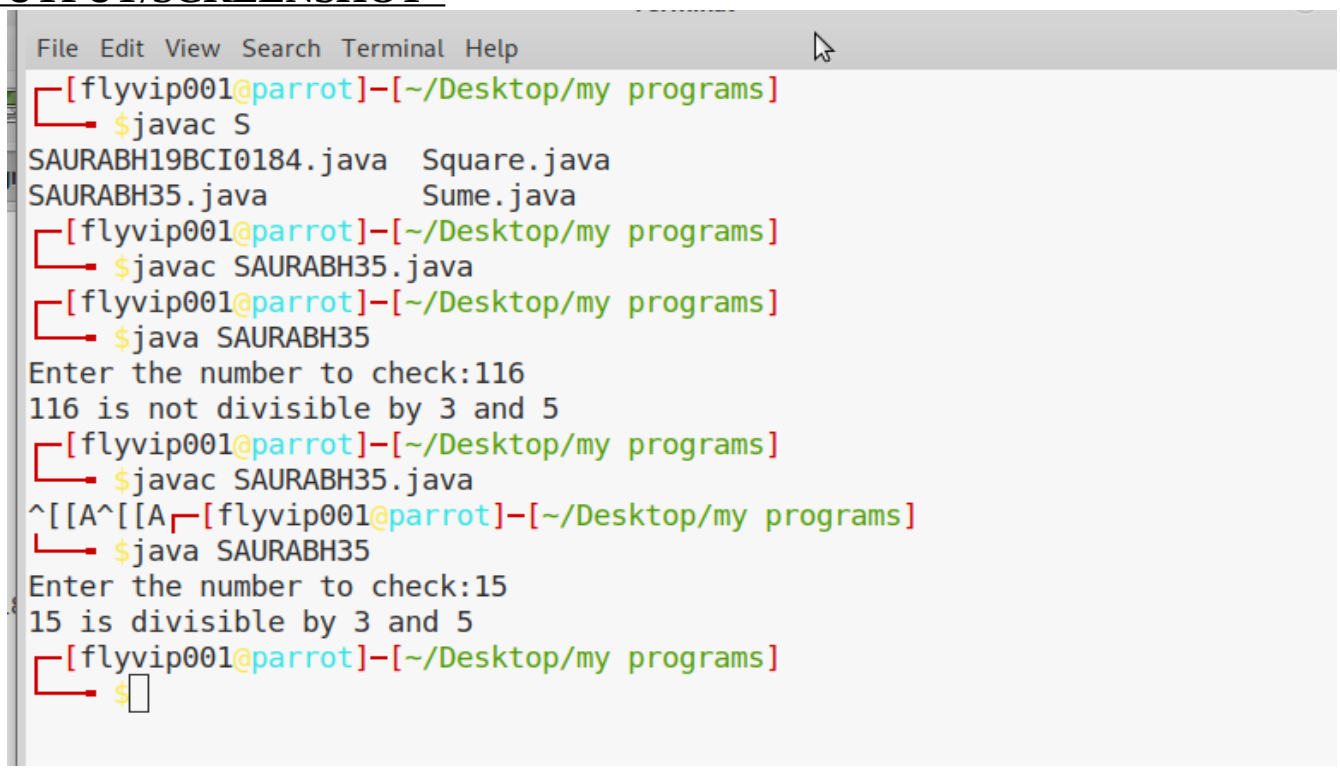


2. Read the number and check whether it is divisible by 3 and 5.
Code:

```
import java.util.Scanner;
public class SAURABH35
{
   public static void main(String[] args)
   {
      int a;
      Scanner r = new Scanner(System.in);
      System.out.print("Enter the number to check:");
      a = r.nextInt();
      if(a % 5 == 0 & a % 3 ==0)
      {
         System.out.println(a +" is divisible by 3 and 5");
      }
      else
      {
         System.out.println(a +" is not divisible by 3 and 5");
```

```
    }
  }
}
```

OUTPUT/SCREENSHOT-



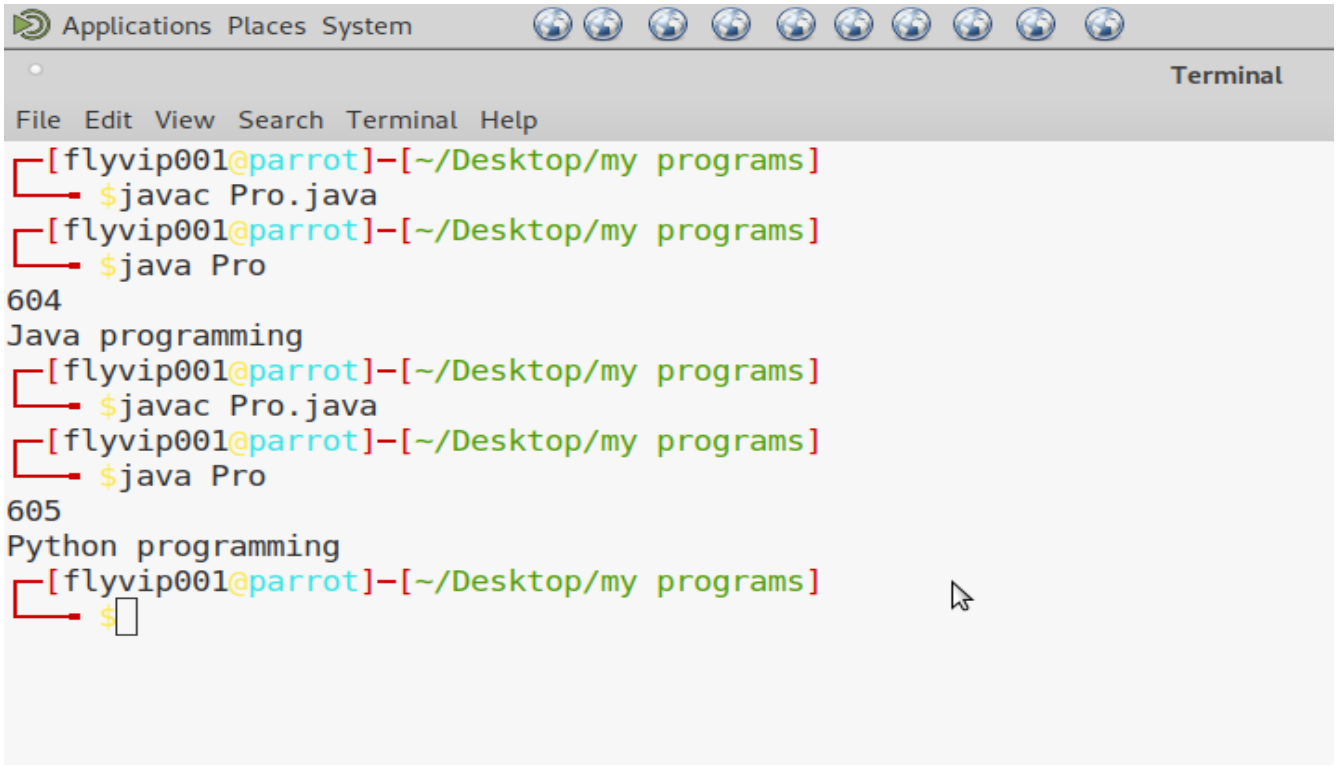
3. Display Subject Name based on room number. If the user enters 604 then display Java Programming , If the user enters 605 then display Python programming for any other input display Invalid input to the user

Code:

```
import java.util.Scanner;
public class Pro{
   public static void main(String args[]){
   Scanner inp=new Scanner(System.in);
   int rm=inp.nextInt();
   if(rm==604){
   System.out.println("Java programming");
   }
   else if(rm==605){
```

```
System.out.println("Python programming");}
else
System.out.println("Invalid input");}
}
```

OUTPUT/SCREENSHOT-

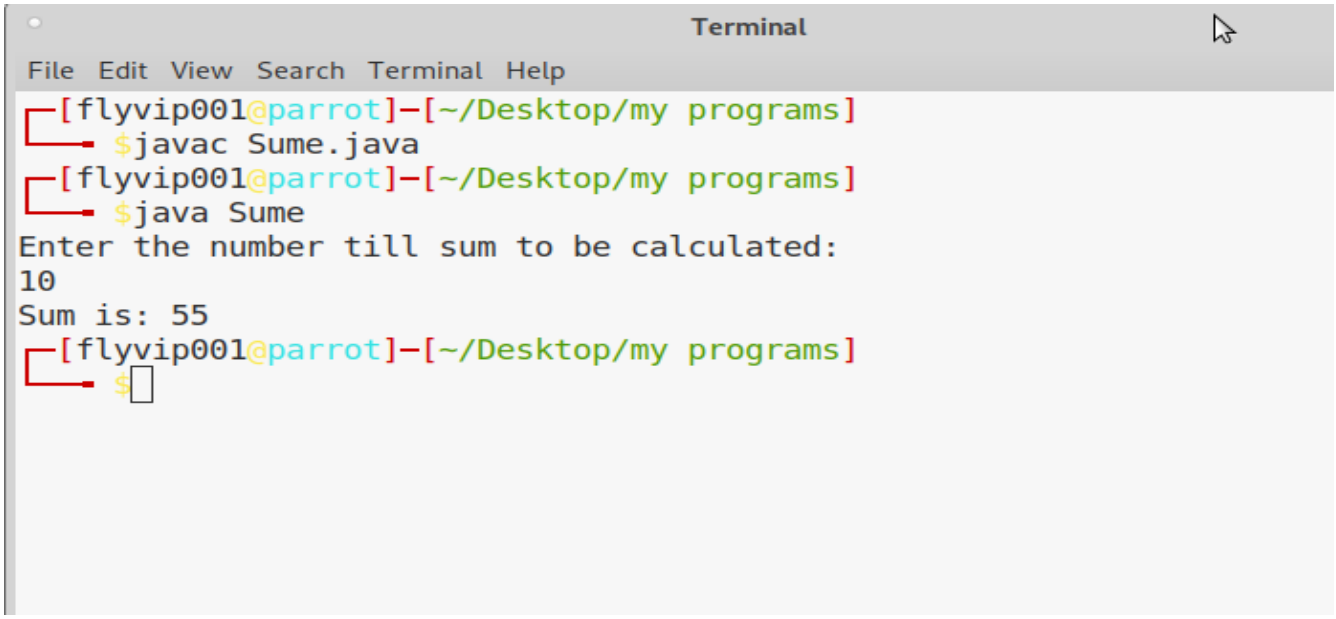


4. Print the sum of first n numbers. If n is 3 then print the sum of 1+2+3 to the user. Get n from the user
Code:

```
import java.util.Scanner;
public class Sume{
   public static void main(String args[]){
   int count=1,total=0;
   Scanner inp= new Scanner(System.in);
   System.out.println("Enter the number till sum to be calculated: ");
   int no= inp.nextInt();
   while(count<=no)
```

```
    {
    total=total+(count)
    count++;}
    System.out.println("Sum is: "+total);
    }
}
```

OUTPUT/SCREENSHOT-

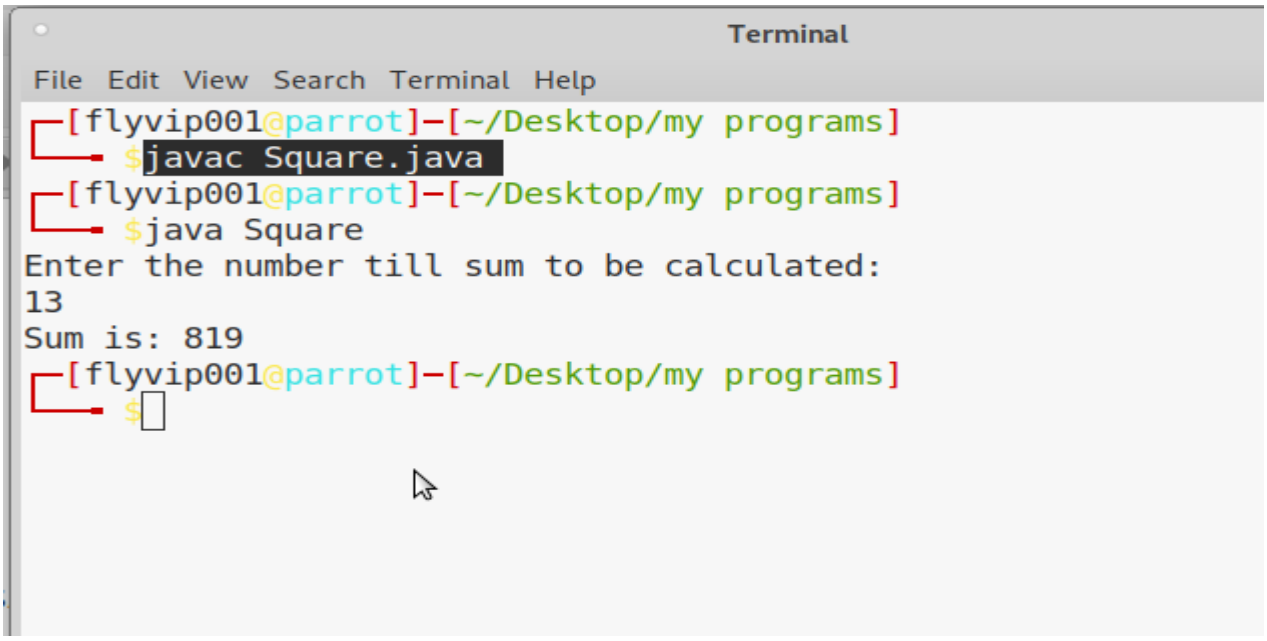


5. Print the sum of the series 1^2+2^2+32^ up to n terms
Code:

```
import java.util.Scanner;
public class Square{
    public static void main(String args[]){
    int count=1,total=0;
    Scanner inp= new Scanner(System.in);
    System.out.println("Enter the number till sum to be calculated: ");
    int no= inp.nextInt();
    while(count<=no)
    {
```

```
    total=total+count*count;
    count++;}
    System.out.println("Sum is: "+total);
    }
}
```

OUTPUT/SCREENSHOT-

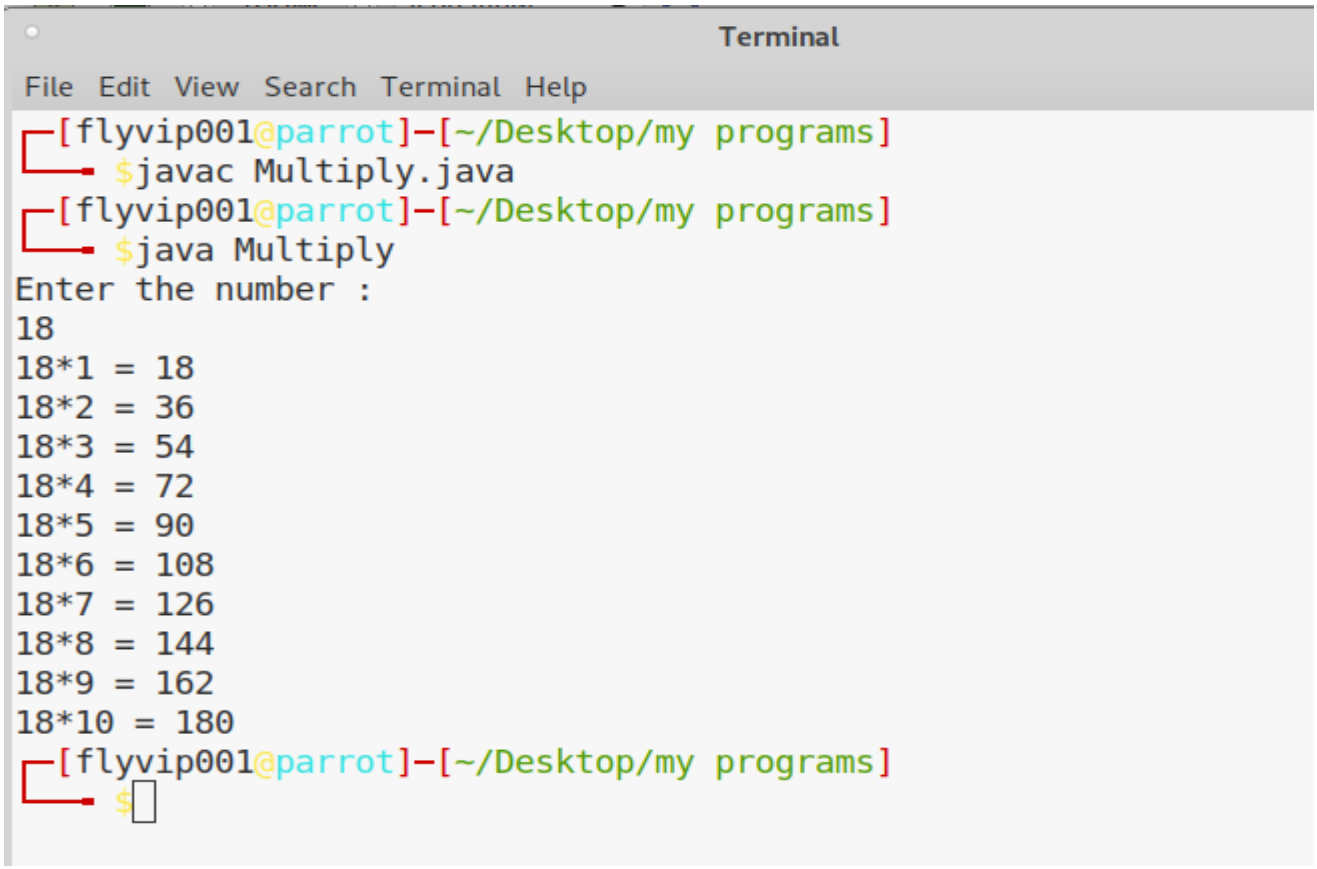


6. Print the multiplication table by getting the n from the user.
Code:

```
import java.util.Scanner;
public class Multiply{
    public static void main(String args[]){
    Scanner inp= new Scanner(System.in);
    System.out.println("Enter the number : ");
    int no= inp.nextInt();
    for(int i=1;i<=10;i++)
    {
        System.out.println(no+"*"+i+" = "+no*i);

    }}
```

}

OUTPUT/SCREENSHOT-

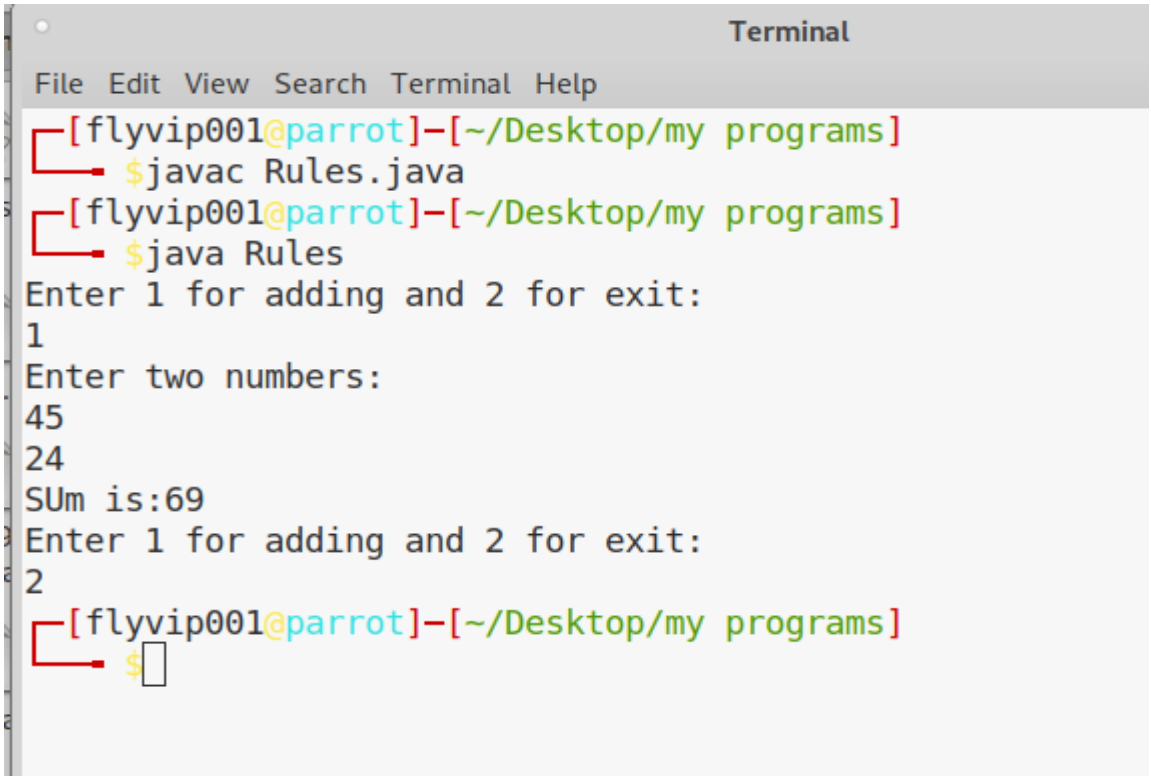


7. Provide the option of adding two numbers to the user until the user wants to exit.
Code:

```
import java.util.*;
import java.lang.*;
public class Rules{
	public static void main(String[] args) {
		Scanner inp= new Scanner(System.in);
		while(true){
		System.out.println("Enter 1 for adding and 2 for exit:");
		int num= inp.nextInt();
```

```
        switch(num){
            case 1:
            System.out.println("Enter two numbers:");
            int n1=inp.nextInt();
            int n2=inp.nextInt();
            int sum=n1+n2;
            System.out.println("SUm is:"+sum);
            break;
            case 2:
            System.exit(0);}}
        }}
```

OUTPUT/SCREENSHOT-



8. Print this pattern for n lines

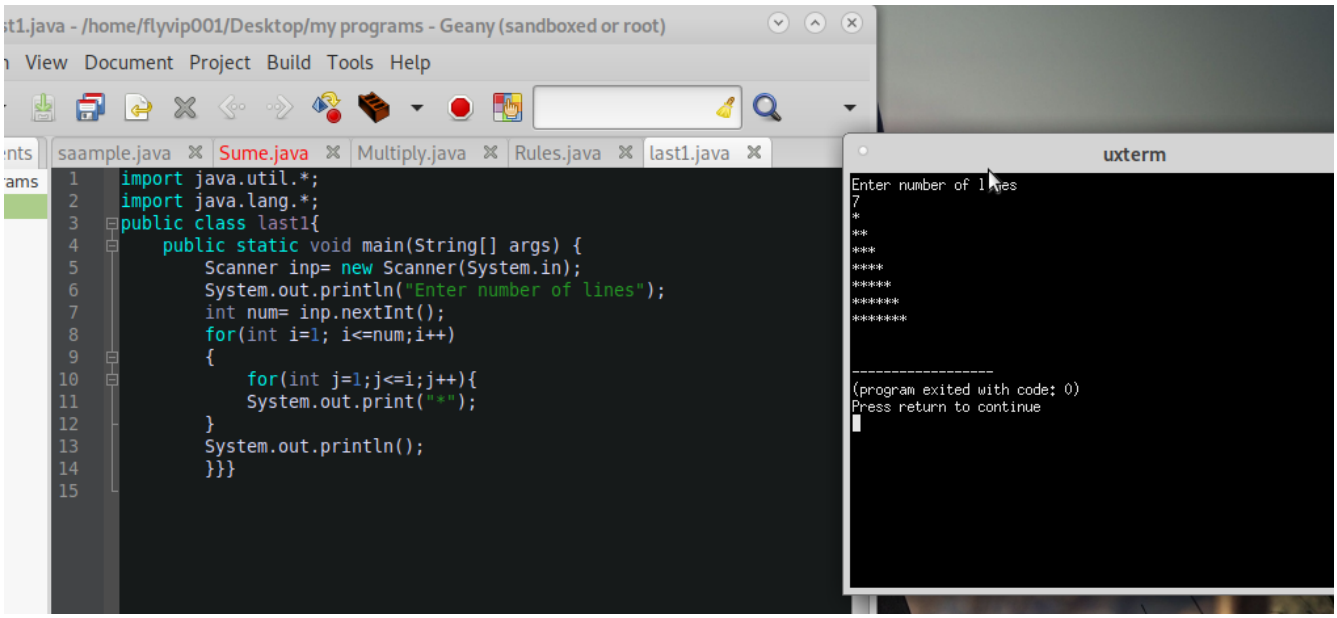
(a)

*****

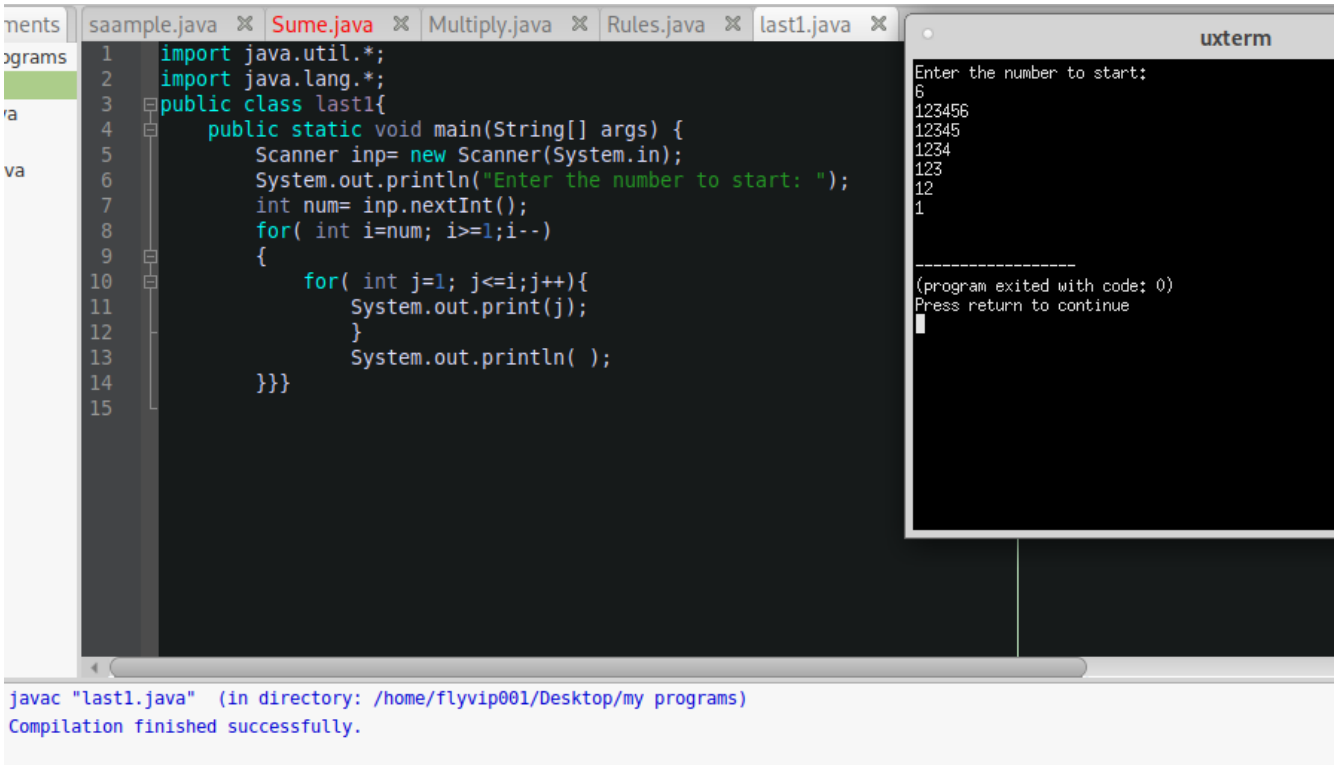
******

****

Code and screenshot of terminal:



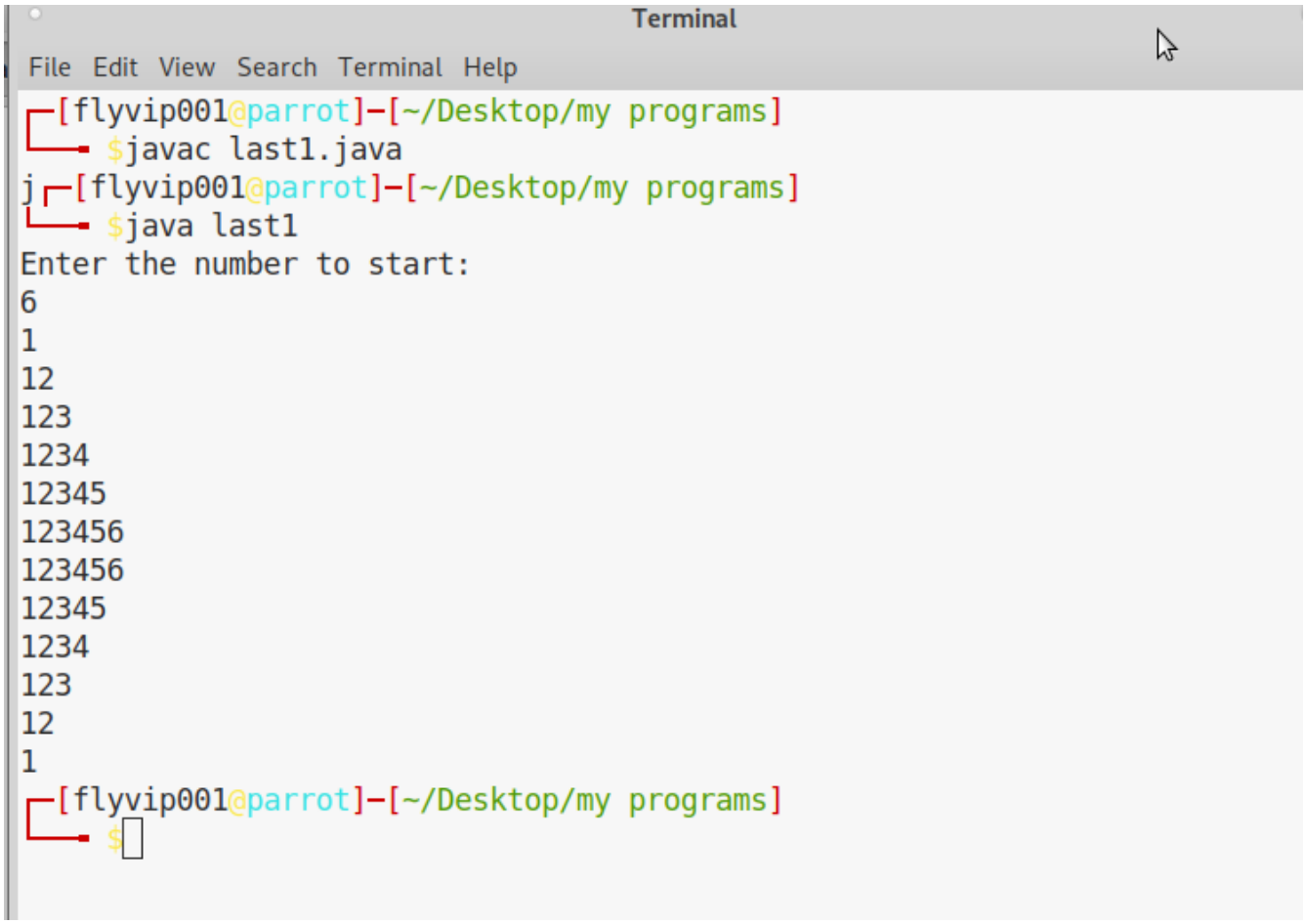
(b)
1234
123
12
1



(c)
1
12
123
1234
12345
123456
123456
12345
1234
123
12
1
CODE:

```
import java.util.*;
import java.lang.*;
public class last1{
	public static void main(String[] args) {
		Scanner inp= new Scanner(System.in);
		System.out.println("Enter the number to start: ");
		int num= inp.nextInt();
		for( int i=1 ;i<=num;i++)
		{
			for( int j=1; j<=i;j++){
				System.out.print(j);
				}
				System.out.println( );}
		for( int i=num; i>=1;i--)
		{
			for( int j=1; j<=i;j++){
				System.out.print(j);
				}
				System.out.println( );
		}}}
```

OUTPUT/SCREENSHOT-



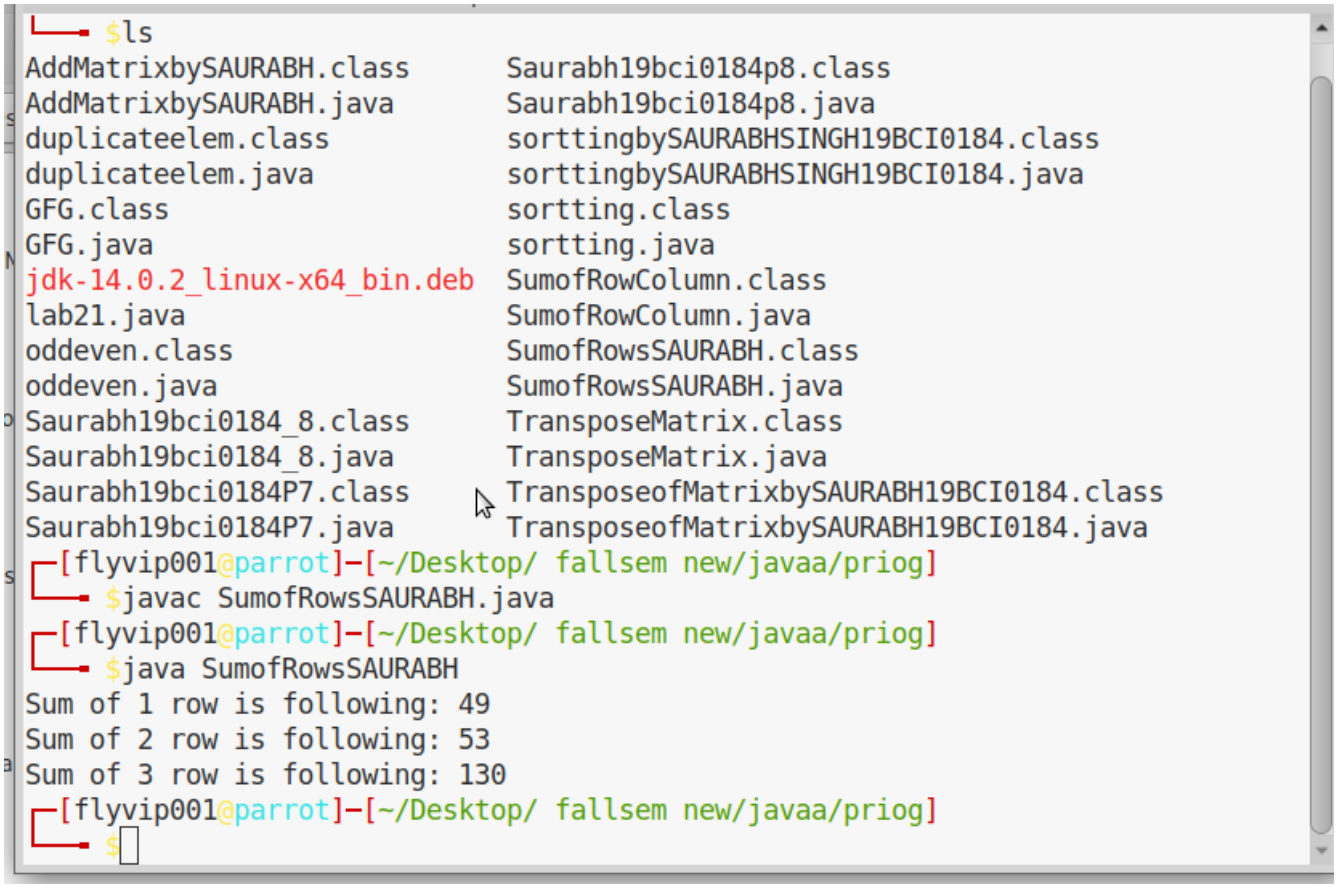
ARRAYS

9. Write a java Program to display the sum of rows in a matrix
Code:

```
public class SumofRowsSAURABH
{
   public static void main(String[] args) {
      int row, col, sumofRow;

      int a[][] = {
                  {12, 24, 13},
                  {34, 3, 16},
```

```
                {52, 29, 49}
            };

      row = a.length;
      col= a[0].length;

    for(int i = 0; i < row; i++)
    {
       sumofRow = 0;
       for(int j = 0; j < col; j++){
         sumofRow +=a[i][j];
       }
       System.out.println("Sum of " + (i+1) +" row is following: " +
sumofRow);
    }

  }
}
```

OUTPUT/SCREENSHOT-



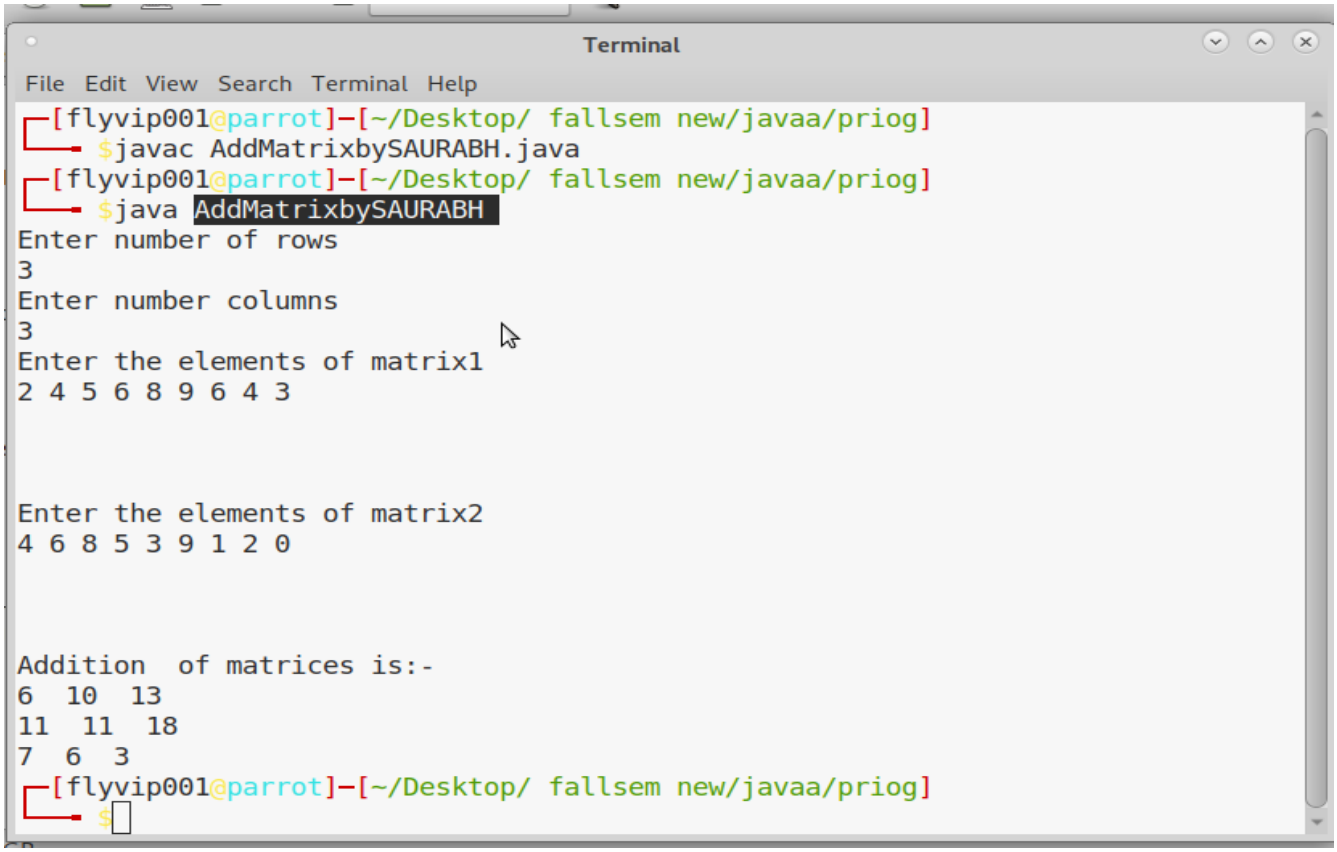
10. Write a java Program to display the addition of two matrix
Code:

```
import java.util.Scanner;
class AddMatrixbySAURABH
{
public static void main(String args[])
{
int r, c,i,j;
Scanner temp = new Scanner(System.in);

System.out.println("Enter number of rows");
r = temp.nextInt();

System.out.println("Enter number columns");
c = temp.nextInt();
```

```
int matrix1[][] = new int[r][c];
int matrix2[][] = new int[r][c];
int addofmatrix[][] = new int[r][c];

System.out.println("Enter the elements of matrix1");

for ( i= 0 ; i < r ; i++ )
{

for ( j= 0 ; j < c ;j++ )
matrix1[i][j] = temp.nextInt();

System.out.println();
}
System.out.println("Enter the elements of matrix2");

for ( i= 0 ; i < r ; i++ )
{

for ( j= 0 ; j < c ;j++ )
matrix2[i][j] = temp.nextInt();

System.out.println();
}

for ( i= 0 ; i < r ; i++ )
for ( j= 0 ; j < c ;j++ )
addofmatrix[i][j] = matrix1[i][j] + matrix2[i][j] ;

System.out.println("Addition  of matrices is:-");

for ( i= 0 ; i < r ; i++ )
{
for ( j= 0 ; j < c ;j++ )
System.out.print(addofmatrix[i][j]+"  ");
```

```
System.out.println();
}
}
}
```

OUTPUT/SCREENSHOT-



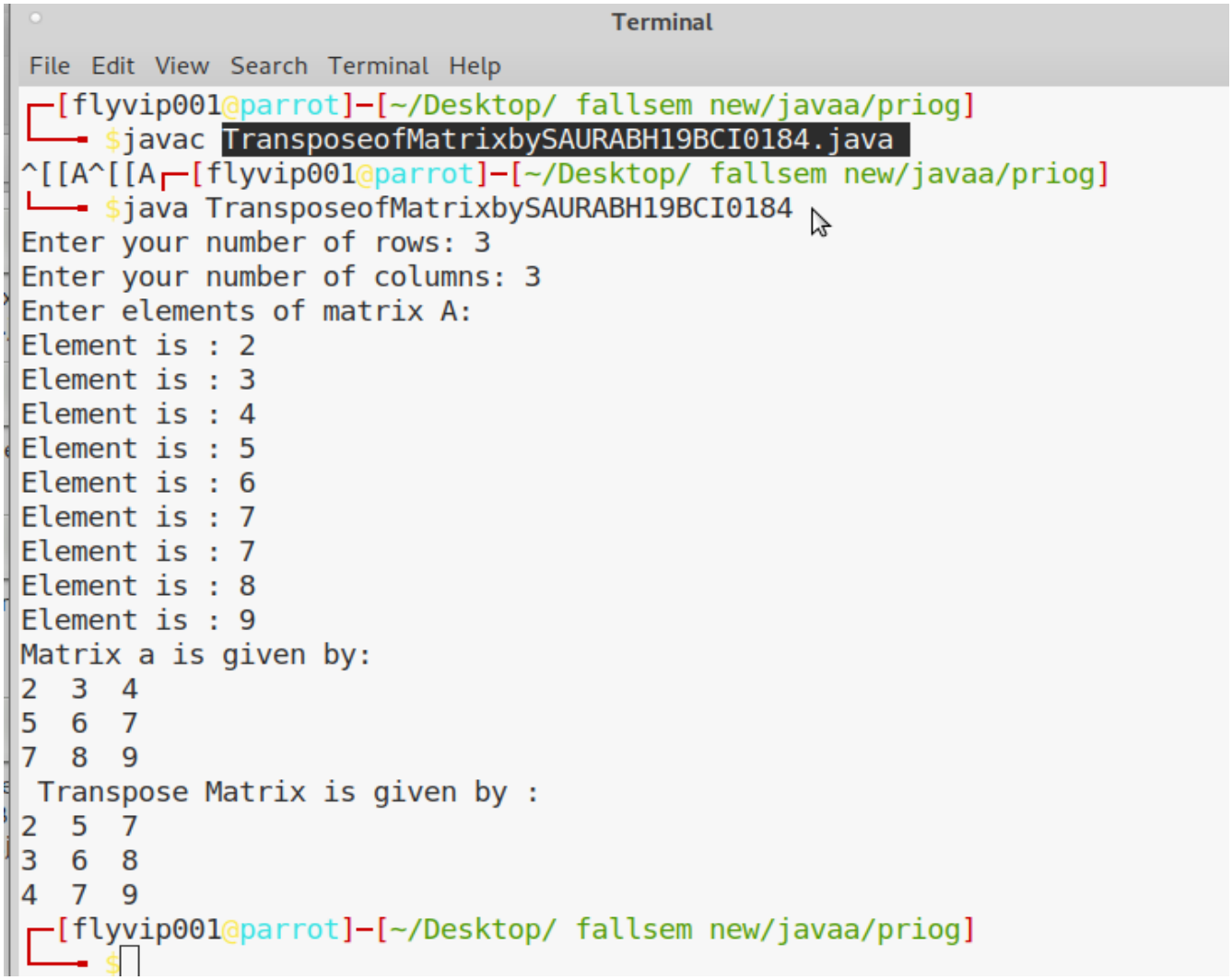
11. Write a java Program to display the transpose of a matrix

Code:

```
import java.util.*;

public class TransposeofMatrixbySAURABH19BCI0184
{
	public static void main(String args[])
	{
		int r,c;
```

```
        Scanner temp=new Scanner(System.in);
        System.out.print("Enter your number of rows: ");
        r=temp.nextInt();
        System.out.print("Enter your number of columns: ");
        c=temp.nextInt();

        int a[][]=new int[r][c];
        System.out.println("Enter elements of matrix A:");
        for(int i=0; i<r; i++)
        {
            for(int j=0; j<c; j++)
            {
                System.out.print("Element is : ");
                a[i][j]=temp.nextInt();
            }
        }
        System.out.println("Matrix a is given by:");
        for(int i=0; i<r; i++){
            for(int j=0; j<c; j++){
                System.out.print(a[i][j] + "  ");
            }
            System.out.print("\n");
        }
        System.out.println(" Transpose Matrix is given by : ");
        for(int i=0; i<c; i++){
            for(int j=0; j<r; j++){
                System.out.print(a[j][i] + "  ");
            }
            System.out.print("\n");
        }

    }
}
```

OUTPUT/SCREENSHOT-



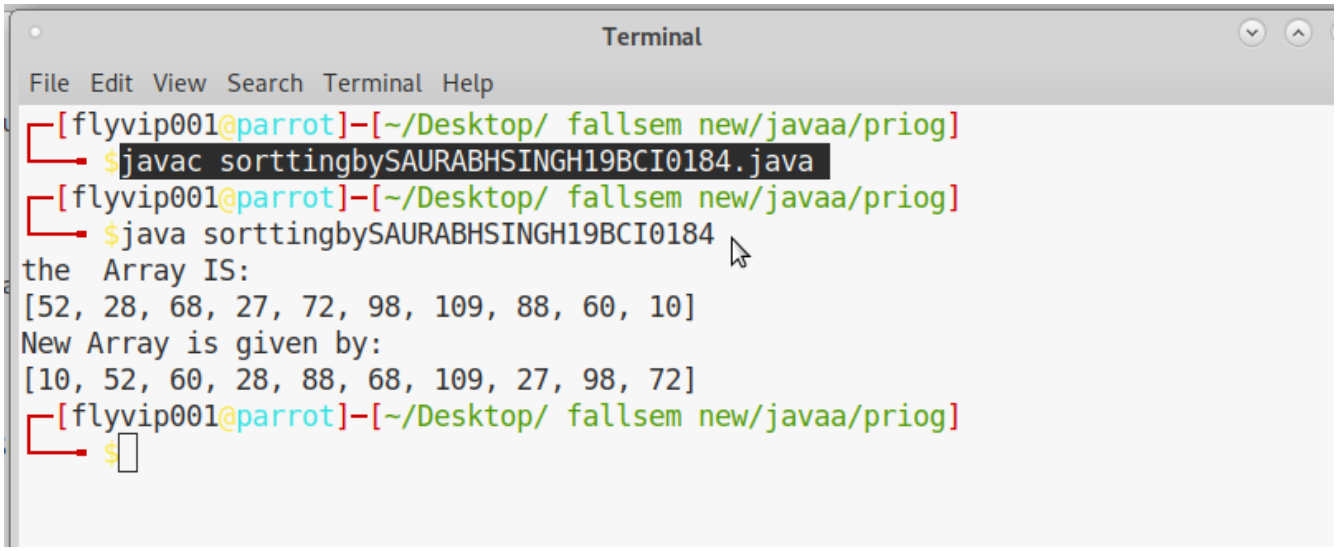
12. Write a Java program to sort an array of positive integers of an given array, in the sorted array the value of the first element should be maximum, second value should be minimum value, third should be second maximum, fourth second be second minimum and so on.

Code:

```
import java.util.Arrays;

public class sorttingbySAURABHSINGH19BCI0184
{
        public static void main(String[] args)
   {
```

```
        int numbers[] = new int[]{52, 28, 68, 27, 72, 98, 109, 88, 60, 10};
        int resultarra[];

        System.out.println("the  Array IS:  ");
        System.out.println(Arrays.toString(numbers));

        resultarra = rearrange(numbers,numbers.length);

        System.out.println("New Array is given by: ");
        System.out.println(Arrays.toString(resultarra));

    }

     static int[] rearrange(int[] new_arra, int n)
    {
        int temp[] = new int[n];

         int small_num = 0, large_num = n-1;
         boolean flag = true;

        for (int i=0; i < n; i++)
        {
            if (flag)
                temp[i] = new_arra[large_num--];
            else
                temp[i] = new_arra[small_num++];

            flag = !flag;
        }

        return temp;
    }
}
```

OUTPUT/SCREENSHOT-



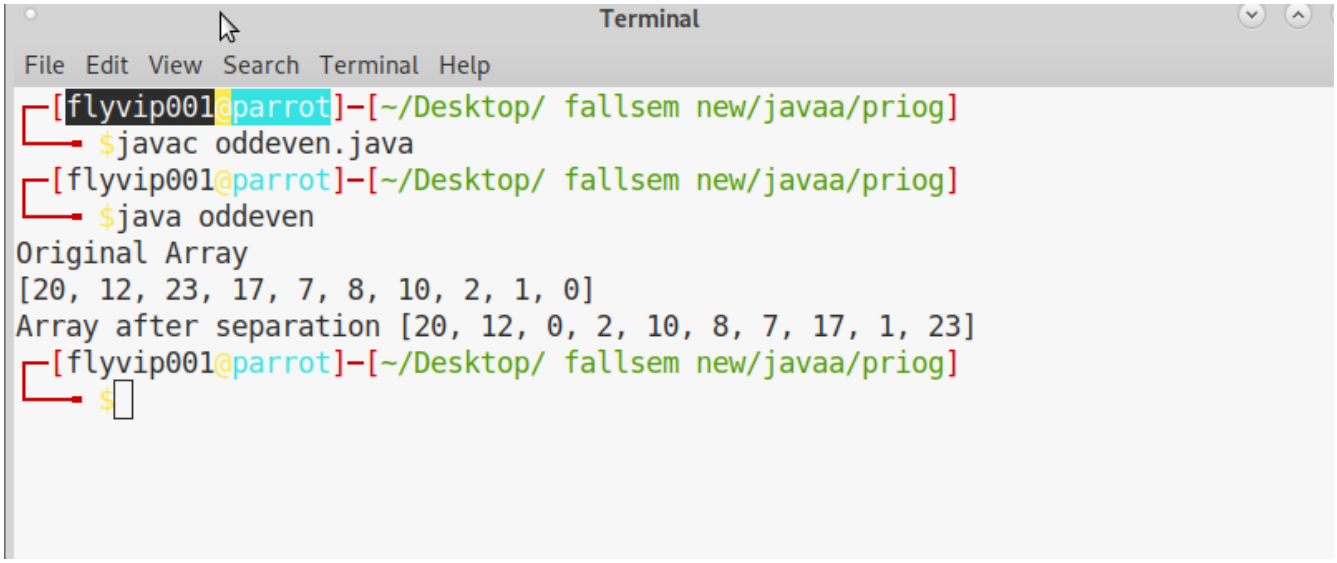
13. Write a Java program to separate even and odd numbers of an given array of integers. Put all even numbers first, and then odd numbers.

Code:

```
import java.util.Arrays;
public class oddeven
{

      public static void main (String[] args)
   {
     int nums[] = {20, 12, 23, 17, 7, 8, 10, 2, 1, 0};
     int result[];
     System.out.println("Original Array ");
     System.out.println(Arrays.toString(nums));

     result = sepoddeven(nums);

     System.out.print("Array after separation is given by: ");
     System.out.println(Arrays.toString(result));
   }

   static int [] sepoddeven(int arr[])
   {
```

```
        int ls = 0, rs = arr.length - 1;
        while (ls < rs)
        {
            while (arr[ls]%2 == 0 && ls < rs)
                ls++;

            while (arr[rs]%2 == 1 && ls < rs)
                right_side--;

            if (ls < rs)
            {
                int temp = arr[ls];
                arr[ls] = arr[rs];
                arr[right_side] = temp;
                ls++;
                rs--;
            }
        }
        return arr;
    }
}
```

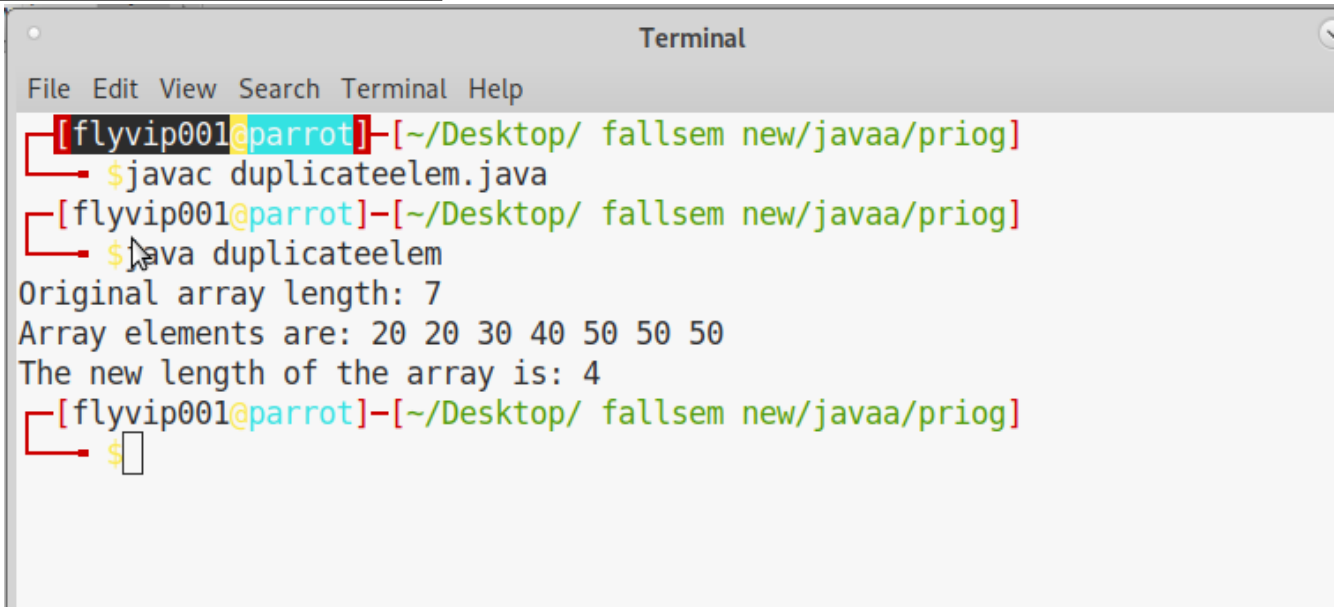
OUTPUT/SCREENSHOT-



14. Write a Java program to remove the duplicate elements of a given array and return the new length of the array.
Code:

```
public class duplicateelem {
   public static void main(String[] args) {
        int nums[] = {20, 20, 30, 40, 50, 50, 50};
                System.out.println("Original array length: "+nums.length);
                System.out.print("Array elements are: ");
       for (int i = 0; i < nums.length; i++)
        {
           System.out.print(nums[i]+" ");
        }
                System.out.println("\nThe new length of the array is:
"+array_sort(nums)             }
    public static int array_sort(int[] nums) {
         int index = 1;
        for (int i = 1; i < nums.length; i++) {
           if (nums[i] != nums[index-1])
               nums[index++] = nums[i];
        }
          return index;  }}
```

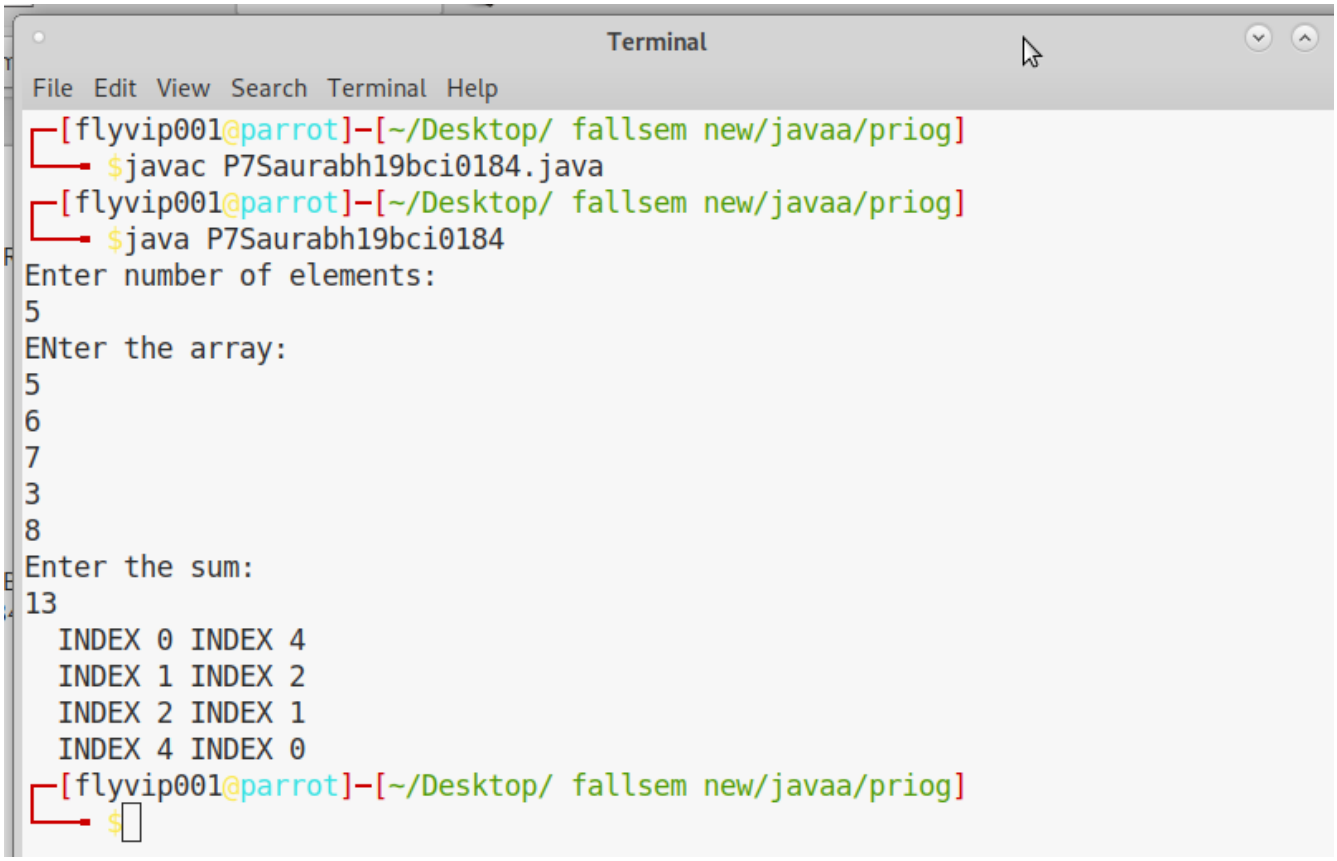
OUTPUT/SCREENSHOT-



15. Write a Java program to find the sum of the two elements of a given array which is equal to a given integer.
Code:

```
import java.util.Scanner;
public class P7Saurabh19bci0184 {
public static void main( String args[]){
Scanner sc=new Scanner(System.in);
System.out.println("Enter number of elements: ");
int a=sc.nextInt();
int b[];
b=new int[a];
System.out.println("ENter the array: ");
for(int i=0;i<a;i++){
b[i]=sc.nextInt();}
System.out.println("Enter the sum: ");
int c=sc.nextInt();
for(int i=0;i<a;i++){
for(int j=0;j<a;j++){
if(c==b[i]+b[j]){
System.out.print("  INDEX " + i );
System.out.print(" INDEX " + j );
System.out.println();
}
}
}
}
}
```

OUTPUT/SCREENSHOT-



16. Write a program to demonstrate the knowledge of students in multidimensional arrays and looping constructs. Eg., If there are 4 batches in BTech - "CSE1007" course, read the count of the slow learners (who have scored <25) in each batch. Tutors should be assigned in the ratio of 1:4 (For every 4 slow learners, there should be one tutor). Determine the number of tutors for each batch. Create a 2- D jagged array with 4 rows to store the count of slow learners in the 4 batches. The number of columns in each row should be equal to the number of groups formed for that particular batch (Eg., If there are 23 slow learners in a batch, then there should be 6 tutors and in the jagged array, the corresponding row should store 4, 4, 4, 4, 4,3). Use for-each loop to traverse the array and print the details. Also print the number of batches in which all tutors have exactly 4 students.

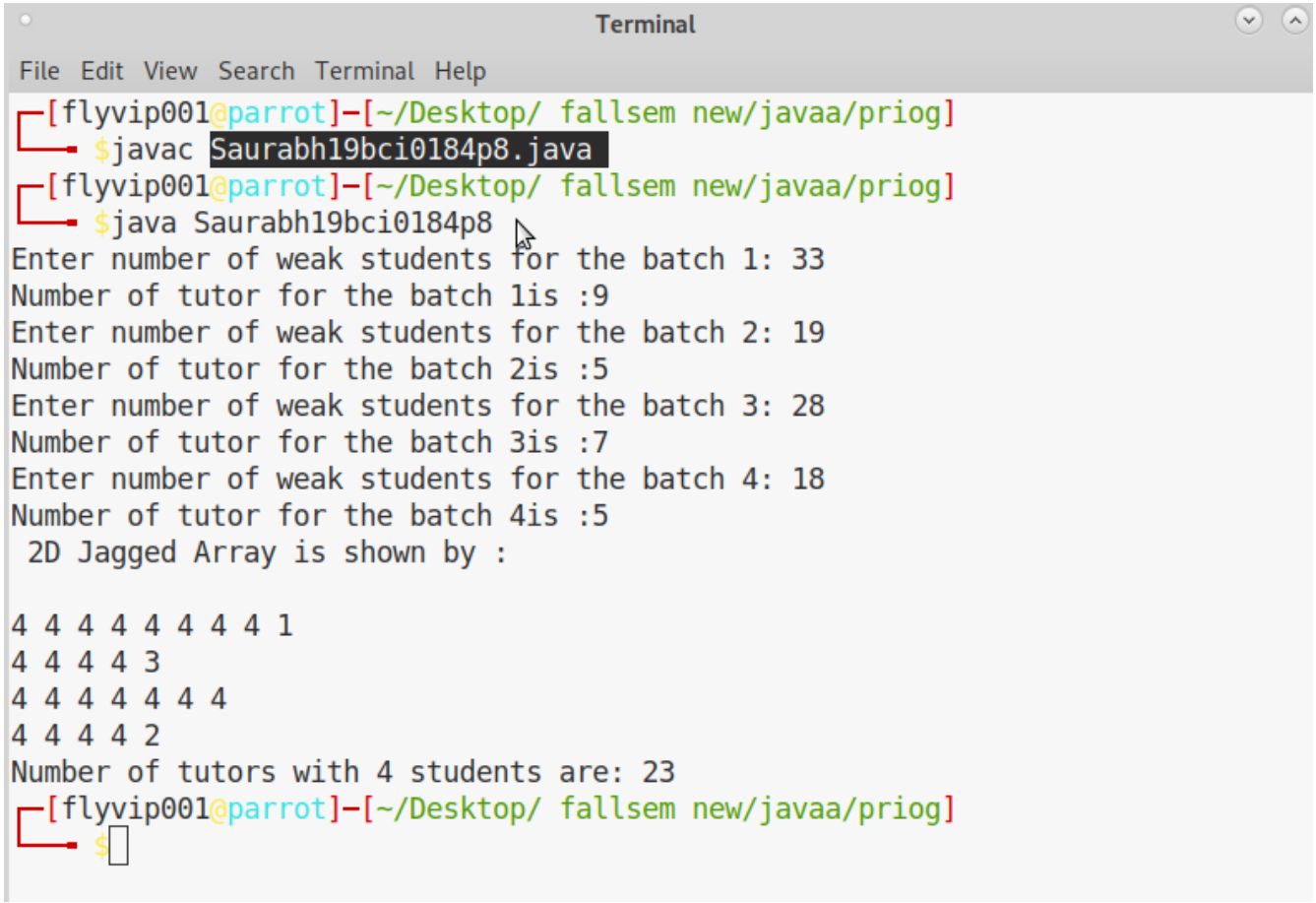
Code:

```
import java.util.Scanner;
```

```
public class Saurabh19bci0184p8 {

        public static void main(String[] args) {
       double k;
       int a, b;


       int arr[][] = new int[4][];
       Scanner rit = new Scanner(System.in);
       for(a = 0; a < arr.length; a++){
          System.out.print("Enter number of weak students for the batch " + (a+1)
+ ": ");
          k = rit.nextDouble();
          int n= (int)k/4;
          System.out.print("Number of tutor for the batch " +(a+1) +"is :");
          if ((k/4)>(n)){
                              System.out.println(n+1);}
          else {
                              System.out.println(n);}
          arr[a] = new int[(int)Math.ceil(k/4)];
          for(b = 0; b < arr[a].length; b++)
          {
             if(k >= 4)
                arr[a][b] = 4;
             else
                arr[a][b] = (int)k;
             k = k - 4;
          }

       }
       rit.close();

       int jaggres = 0;
       System.out.println(" 2D Jagged Array is shown by : ");
       System.out.println();
       for (a = 0; a < arr.length; a++) {
```

```
        for (b = 0; b < arr[a].length; b++) {
                System.out.print(arr[a][b] + " ");
                if(arr[a][b] == 4)
                    jaggres++;
        }
        System.out.println();
    }

    System.out.println("Number of tutors with 4 students are: " + jaggres );
  }
}
```

OUTPUT/SCREENSHOT-



STRINGS

17. Write a java Program to check whether given string is palindrome or not.
Code:

```
import java.util.*;
public class quesSAURABH19bci0184 {
	public static void main(String[] args) {
		Scanner sc = new Scanner(System.in);
		String s;
		int len;
		String r = "";

		s = sc.nextLine();
		len = s.length();
		for(int i=len-1; i>=0; i--){
			r = r + s.charAt(i);
		}
		if(s.equals(r)){
			System.out.println("The string is a palindrome.");
		}
		else {
			System.out.println("The string is not a palindrome.");
		}}}
```

OUTPUT/SCREENSHOT-

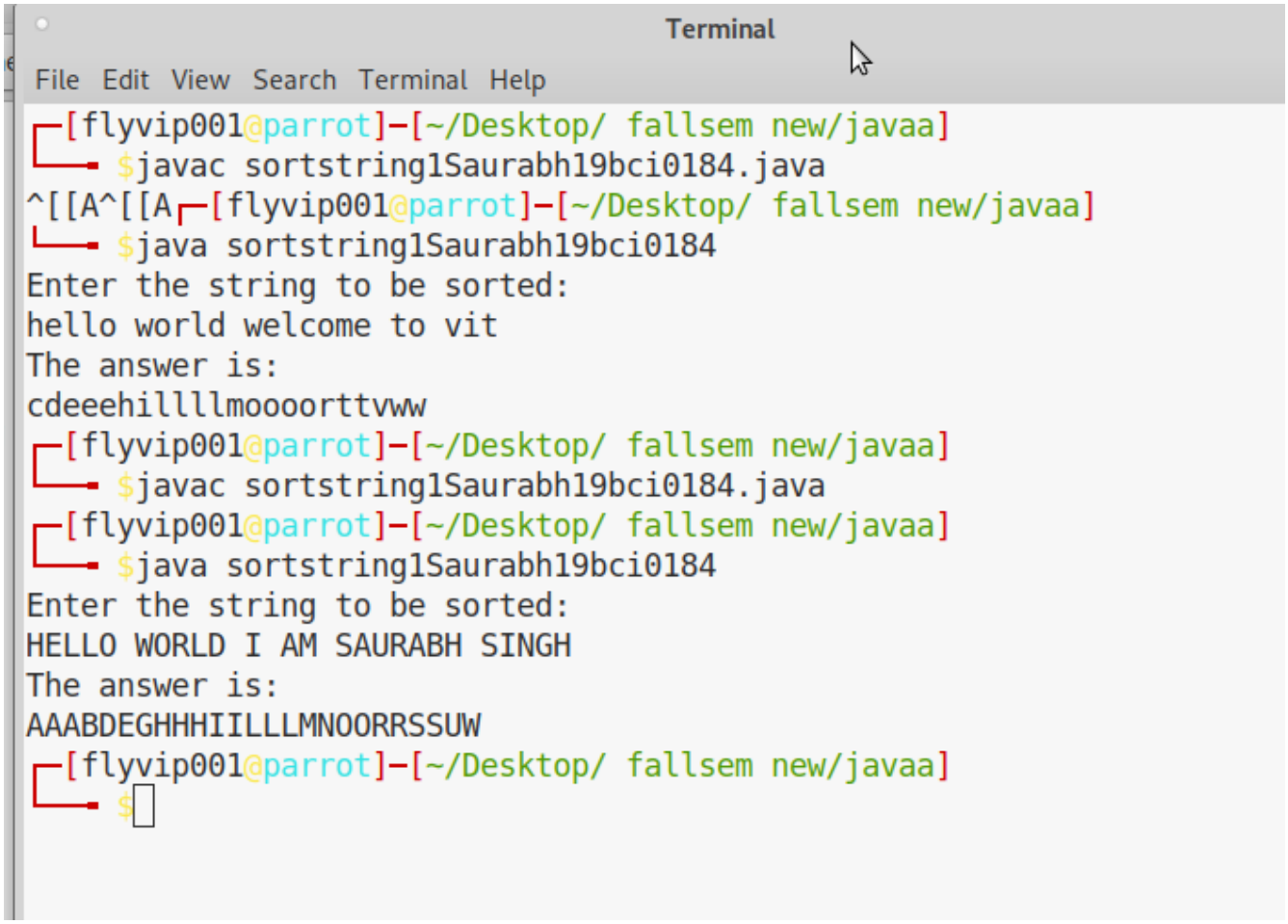
18. Write a Java program to sort a string array in ascending order.
Input the string: hello world welcome to vit
Expected Output: cdeeehillllmoooorttvww

Code:

```
import java.util.Scanner;
public class sortstring1Saurabh19bci0184 {
	public static void main(String args[]){
		Scanner tip = new Scanner(System.in);
		String str1;
		System.out.println("Enter the string to be sorted: ");
		str1=tip.nextLine();
		str1=str1.replaceAll("\\s","");
		int length= str1.length();
		char s[]=str1.toCharArray();
		for(int i=0;i<length;i++)
		for(int j=i+1;j<length;j++){
			if (s[i]>s[j])
```

```
                {
                        char mp=s[i];
                        s[i]=s[j];
                        s[j]=mp;
                }
        }
        String str2= new String(s);
        System.out.println("The answer is:" );
        System.out.println(str2);
    }

}
```

OUTPUT/SCREENSHOT-



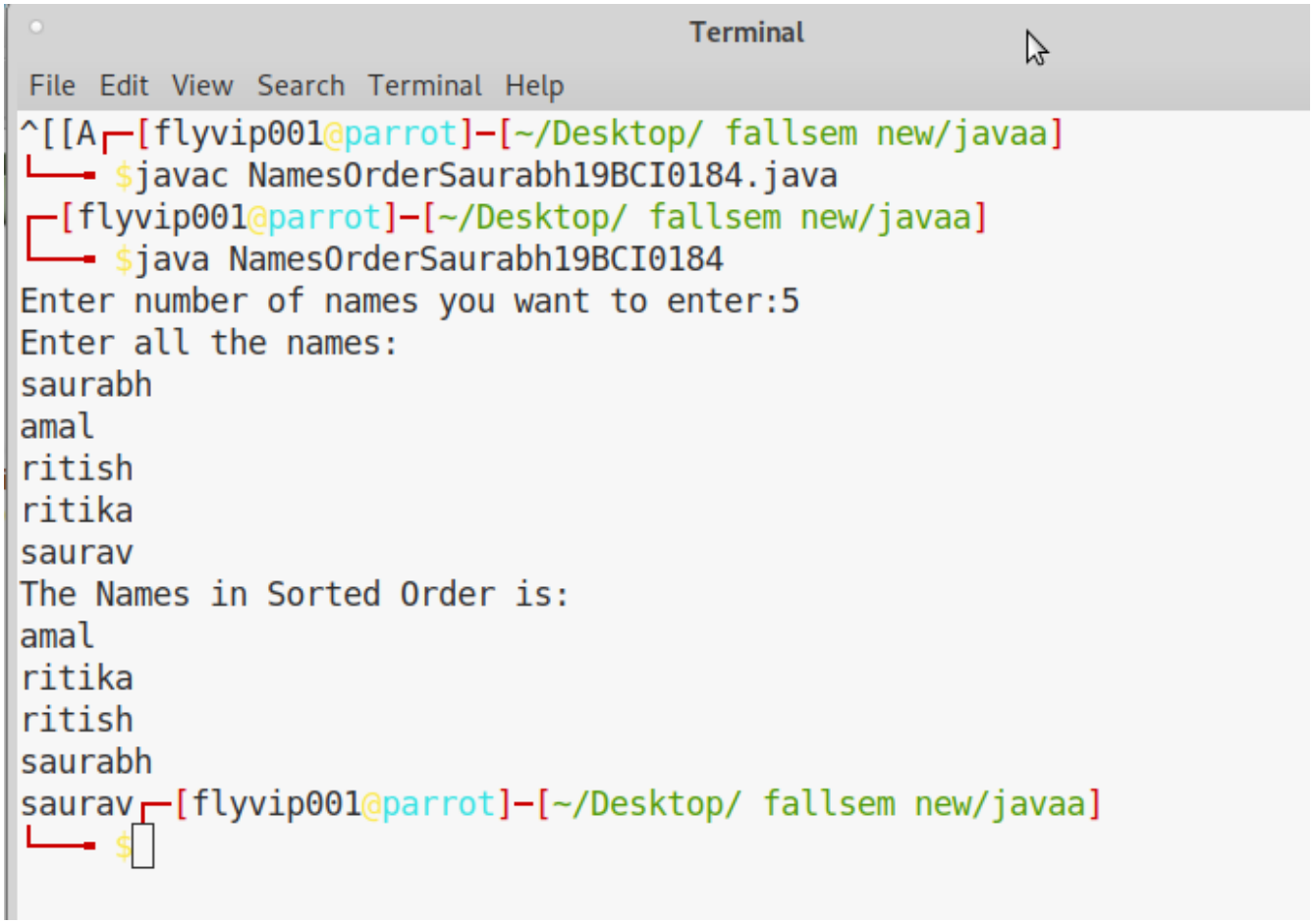
19. Write a java program to sort the names in descending order.

Code:

```
import java.util.Scanner;
public class NamesOrderSaurabh19BCI0184
{
   public static void main(String[] args)
   {
      String t;
      Scanner scan = new Scanner(System.in);
      System.out.print("Enter number of names you want to enter:");
      int m = scan.nextInt();
      String namesort[] = new String[m];
      Scanner string = new Scanner(System.in);
      System.out.println("Enter all the names:");
      for(int i = 0; i < m; i++)
      {
         namesort[i] = string.nextLine();
      }
      for (int i = 0; i < m; i++)
      {
         for (int j = i + 1; j < m; j++)
         {
            if (namesort[i].compareTo(namesort[j])>0)
            {
               t = namesort[i];
               namesort[i] = namesort[j];
               namesort[j] = t;
            }
         }
      }
      System.out.println("The Names in Sorted Order is: ");

      for (int i = 0; i < m - 1; i++)
```

```
        {
            System.out.println(namesort[i]);
        }
        System.out.print(namesort[m - 1]);
    }

}
```

OUTPUT/SCREENSHOT-



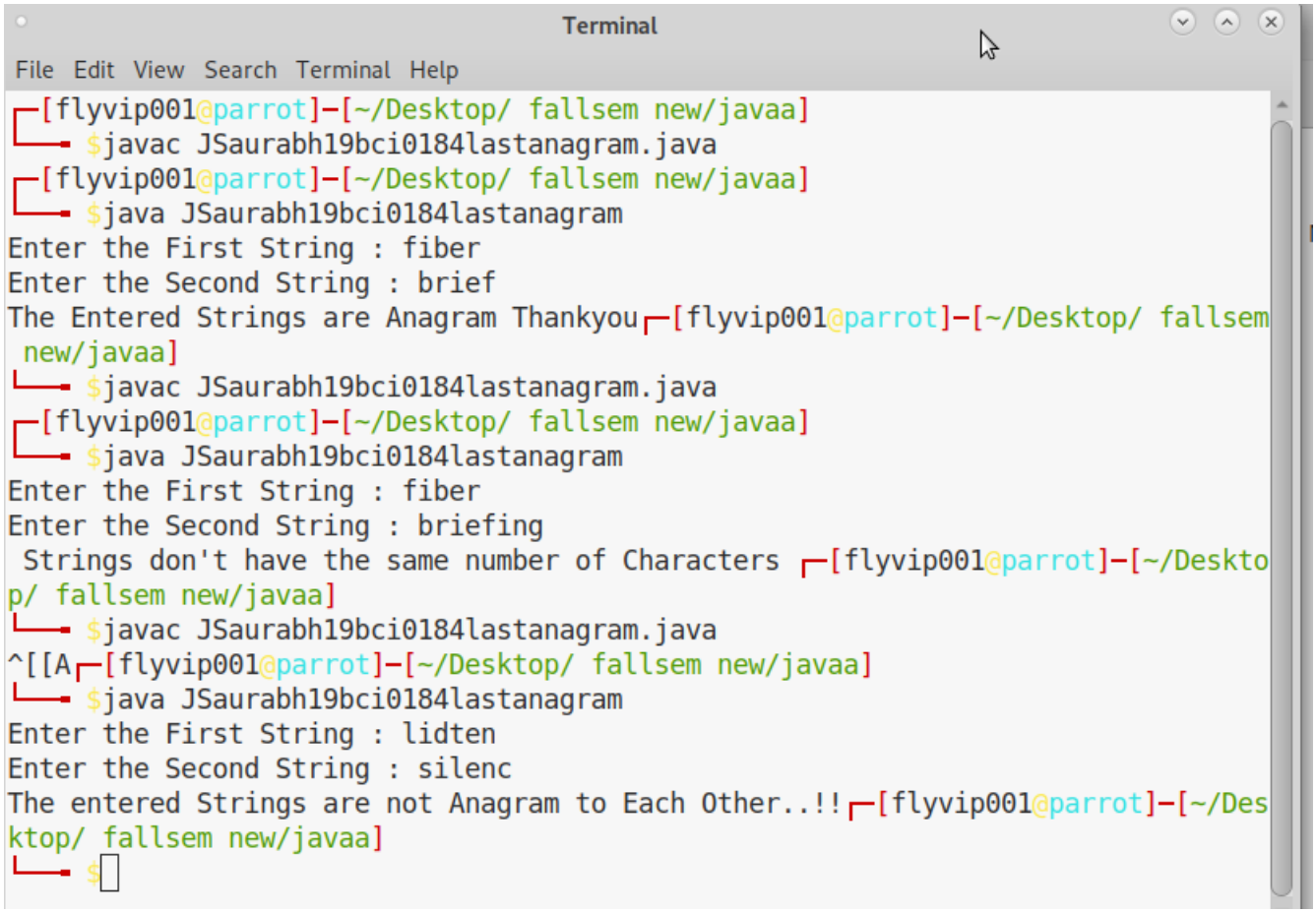
20. Write a java Program to check whether the given two strings are anagram or not.

Code:

```
import java.util.Scanner;

public class JSaurabh19bci0184lastanagram
{
   public static void main(String[] input)
   {
      String str1, str2;
      int lena, lenb, lenc;
      int temp=0, antitemp=0;
      Scanner strn = new Scanner(System.in);

      System.out.print("Enter the First String : ");
      str1 = strn.nextLine();
      System.out.print("Enter the Second String : ");
      str2 = strn.nextLine();

      lenb = str1.length();
      lenc = str2.length();

      if(lenb == lenc)
      {
         lena = lenb;
         for(int i=0; i<lena; i++)
         {
            temp= 0;
            for(int j=0; j<lena; j++)
            {
               if(str1.charAt(i) == str2.charAt(j))
               {
                  temp = 1;
                  break;
               }
            }
            if(temp == 0)
            {
```

```
                antitemp = 1;
                break;
            }
        }
        if(antitemp== 1)
        {
            System.out.print("The entered Strings are not Anagram to Each
Other..!!");
        }
        else
        {
            System.out.print("The Entered Strings are Anagram Thankyou");
        }
    }
    else
    {
        System.out.print(" Strings don't have the same number of Characters ");
    }
  }
}
```

OUTPUT/SCREENSHOT-



THANKYOU

SAURABH SINGH
19BCI0184

@flyvip001