Practical No. 1:

Write a java program to take input as a command line argument. Your name, course, university rollno and semester. Display the information.

Name:

University Roll No:

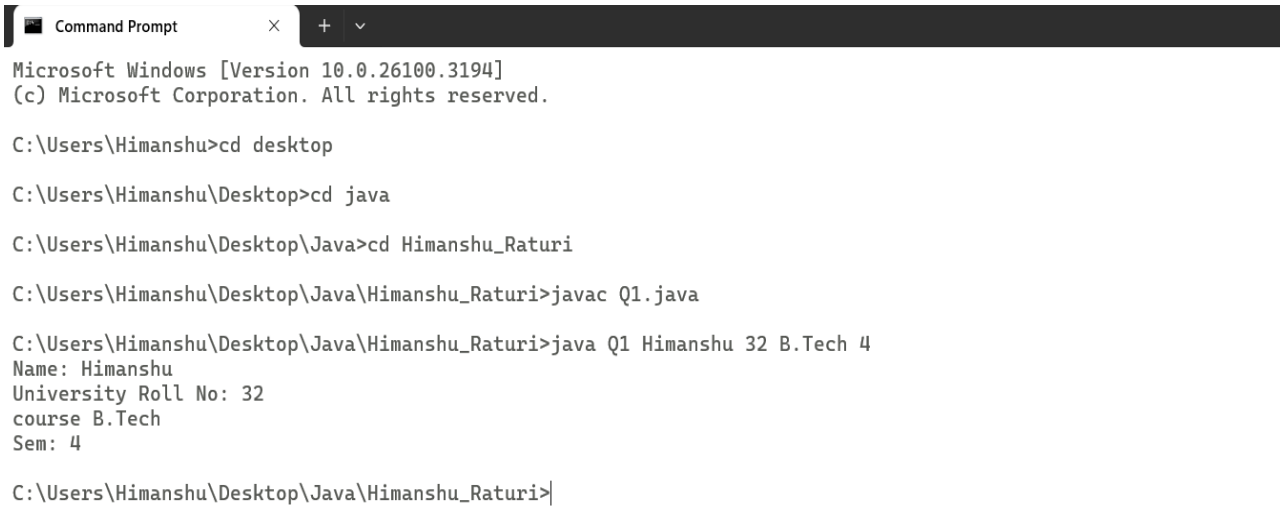
Course:

Semester:

Source Code:

```
public class Q1 {
  public static void main(String[] args) {
    String name = args[0];
    int RollNo = Integer.parseInt(args[1]);
    String course = args[2];
    int sem = Integer.parseInt(args[3]);
    System.out.println("Name: " + name);
    System.out.println("University Roll No: " + RollNo);
    System.out.println("course " + course);
    System.out.println("Sem: " + sem);
  }
}
```

Output:


Command Prompt
Microsoft Windows [Version 10.0.26100.3194]
(c) Microsoft Corporation. All rights reserved.
C:\Users\Himanshu>cd desktop
C:\Users\Himanshu\Desktop>cd java
C:\Users\Himanshu\Desktop\Java>cd Himanshu_Raturi
C:\Users\Himanshu\Desktop\Java\Himanshu_Raturi>javac Q1.java
C:\Users\Himanshu\Desktop\Java\Himanshu_Raturi>java Q1 Himanshu 32 B.Tech 4
Name: Himanshu
University Roll No: 32
course B.Tech
Sem: 4
C:\Users\Himanshu\Desktop\Java\Himanshu_Raturi>

Practical No. 2:

Using the switch statement, write a menu-driven program to calculate the maturity amount of a bank deposit.

The user is (i) Term Deposit (ii) Recurring Deposit

For option (i) accept Principal (p), rate of interest (r) and time period in years (n). Calculate and output the maturity amount (a) receivable using the formula a = p[1 + r / 100]n.

For option (ii) accept monthly installment (p), rate of interest (r) and time period in months (n). Calculate and output the maturity amount (a) receivable using the formula a = p * n + p * n(n + 1) / 2 * r / 100 * 1 / 12. For an incorrect option, an appropriate error message should be displayed.

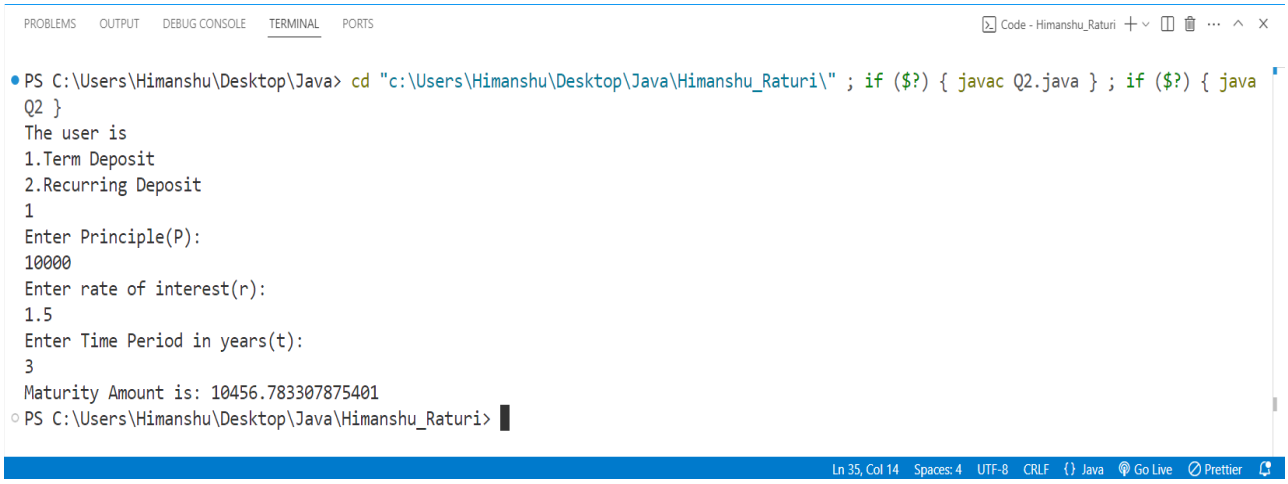
Source Code:

```
import java.util.Scanner;

//import java.lang.*;

public class Q2

{

   public static void main(String args[])

   {

      System.out.println("The user is\n1.Term Deposit\n2.Recurring Deposit");

      Scanner sc = new Scanner(System.in);

      int Choice = sc.nextInt();

      switch(Choice)

      {

         case 1:

         {

            System.out.println("Enter Principle(P): ");

            int Princ = sc.nextInt();

            System.out.println("Enter rate of interest(r): ");

            float Rate = sc.nextFloat();

            System.out.println("Enter Time Period in years(t): ");

            int t = sc.nextInt();

            double Maturity = Princ*Math.pow(1+Rate/100,t);
```

```
            System.out.println("Maturity Amount is: " + Maturity);
            break;
        }
        case 2:
        {
            System.out.println("Enter Monthly installment(P): ");
            double p = sc.nextInt();
            System.out.println("Enter Rate of Interest(r): ");
            double r = sc.nextInt();
            System.out.println("Enter Time period(yrs): ");
            double t = sc.nextInt();
            double Maturity =  p * t + p * t*(t + 1) / 2 * r / 100 * 1 / 12;
            System.out.println("Maturity is: " + Maturity);
            break;
        }
      }
      sc.close();
   }
}
```


Name: Himanshu Raturi **Roll No: 32** **Sec: A2**

Output:


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Code - Himanshu_Raturi
PS C:\Users\Himanshu\Desktop\Java> cd "c:\Users\Himanshu\Desktop\Java\Himanshu_Raturi\" ; if ($?) { javac Q2.java } ; if ($?) { java Q2 }
The user is
1.Term Deposit
2.Recurring Deposit
1
Enter Principle(P):
10000
Enter rate of interest(r):
1.5
Enter Time Period in years(t):
3
Maturity Amount is: 10456.783307875401
PS C:\Users\Himanshu\Desktop\Java\Himanshu_Raturi>
Ln 35, Col 14
Spaces: 4
UTF-8
CRLF
Java
Go Live
Prettier

Practical No. 3:

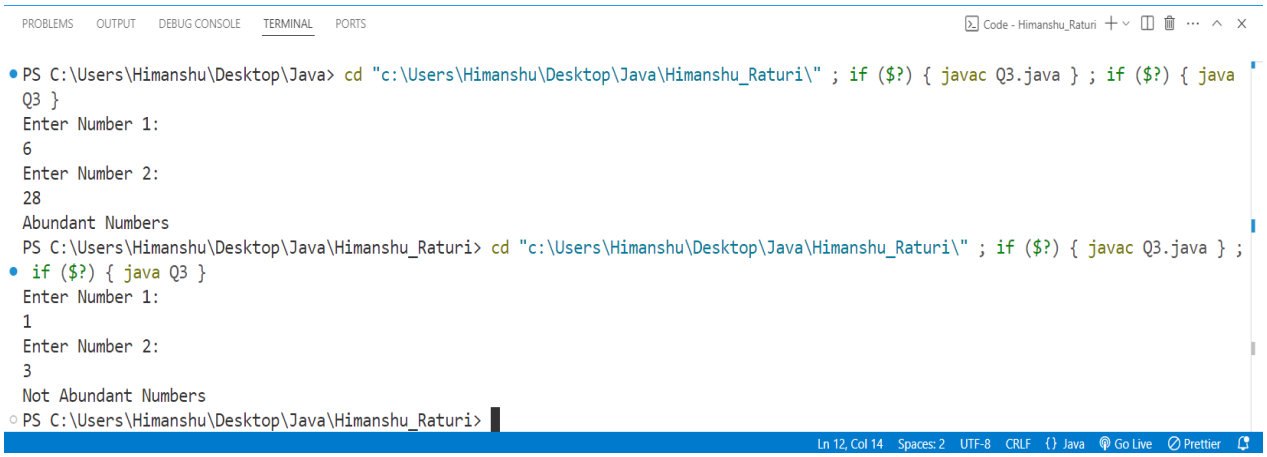
Program to find if the given numbers are Friendly pair or not (Amicable or not). Friendly Pair are two or more numbers with a common abundance

Source Code:

```
import java.util.Scanner;


public class Q3 {
  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter Number 1: ");
    int num1 = sc.nextInt();
    System.out.println("Enter Number 2: ");
    int num2 = sc.nextInt();
    int sum1 = 0, sum2 = 0;
    for (int i = 1; i <= num1 / 2; i++)
    {
      if (num1 % i == 0)
      {
        sum1 += i;
      }
    }
    for (int i = 1; i <= num2 / 2; i++) {
      if (num2 % i == 0) {
        sum2 += i;
      }
    }
    if ((sum1 == num1) && (sum2 == num2)) {
      System.out.println("Abundant Numbers");
    } else {
```

```
      System.out.println("Not Abundant Numbers");
    }
    sc.close();
  }
}
```

Output:



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Practical No. 4:

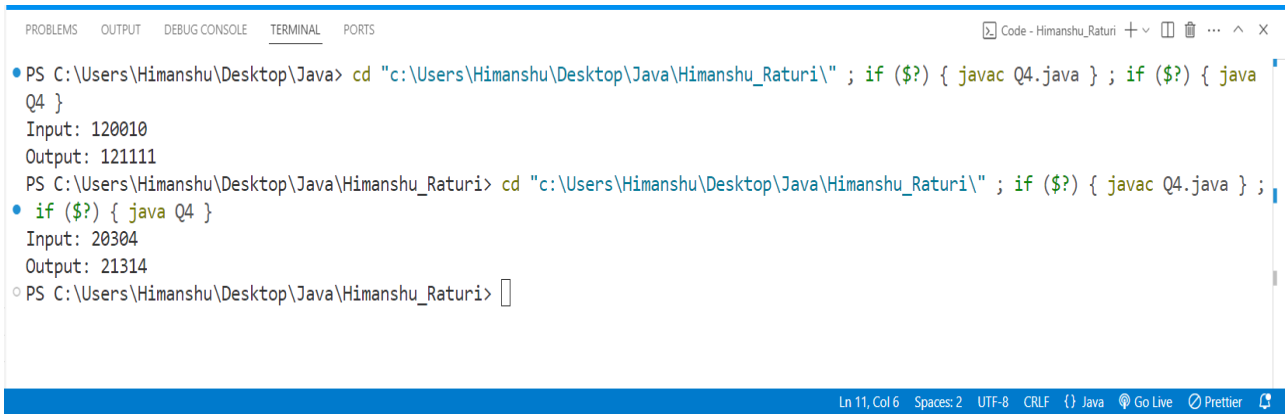
Program to replace all 0's with 1 in a given integer. Given an integer as an input, all the 0's in the number has to be replaced with 1.

Source Code:

```
import java.util.Scanner;


public class Q4 {


  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Input: ");
    int num = sc.nextInt();
    if (num == 0) {
      num = 1;
    }
    int x = 0;
    while (num > 0) {
      int val = num % 10;
      if (val == 0) {
        val = 1;
      }
      x = x * 10 + val;
      num = num / 10;
    }
    int ans = 0;
    while (x > 0) {
      int val = x % 10;
      ans = ans * 10 + val;
      x = x / 10;
```

```
    }
    System.out.print("Output: " + ans);
    sc.close();
  }
}
```

Output:


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Code - Himanshu_Raturi
PS C:\Users\Himanshu\Desktop\Java> cd "c:\Users\Himanshu\Desktop\Java\Himanshu_Raturi\" ; if ($?) { javac Q4.java } ; if ($?) { java Q4 }
Input: 120010
Output: 121111
PS C:\Users\Himanshu\Desktop\Java\Himanshu_Raturi> cd "c:\Users\Himanshu\Desktop\Java\Himanshu_Raturi\" ; if ($?) { javac Q4.java } ; if ($?) { java Q4 }
Input: 20304
Output: 21314
PS C:\Users\Himanshu\Desktop\Java\Himanshu_Raturi>
Ln 11, Col 6
Spaces: 2
UTF-8
CRLF
Java
Go Live
Prettier

Practical No. 5:

Printing an array into Zigzag fashion. Suppose you were given an array of integers, and you are told to sort the integers in a zigzag pattern. In general, in a zigzag pattern, the first integer is less than the second integer, which is greater than the third integer, which is less than the fourth integer, and so on. Hence, the converted array should be in the form of e1 < e2 > e3 < e4 > e5 < e6.

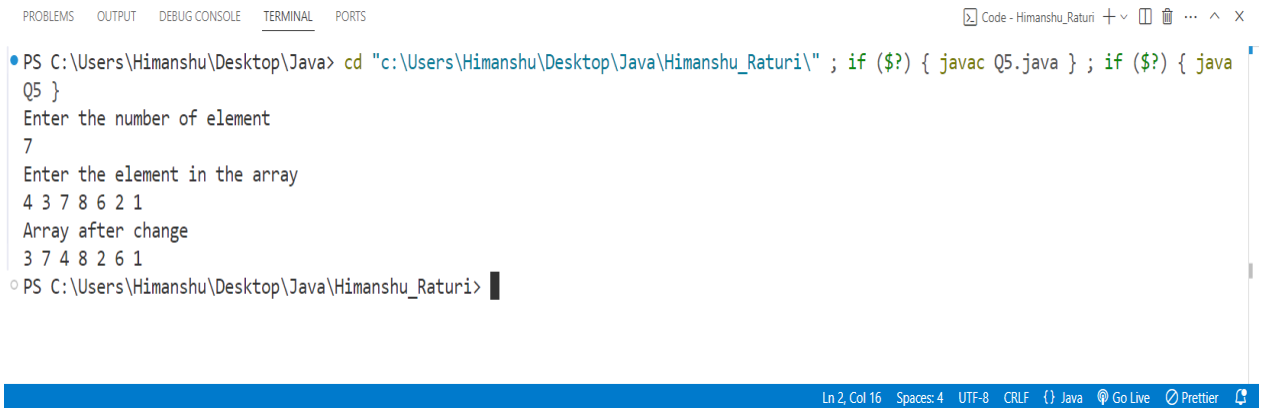
Source Code:

```
import java.util.Scanner;

public class java5 {

   public static void main(String[] args) {

      {

         Scanner in=new Scanner(System.in);

         int n;

         System.out.println("Enter the number of element");

         n=in.nextInt();

         int arr[]=new int[n];

         int temp;

         System.out.println("Enter the element in the array ");

         for(int i=0;i<n;i++)

         {

            arr[i]=in.nextInt();

         }

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

         {

            if(i%2==0)

            {

               if(arr[i]>arr[i+1])

               {

                  temp=arr[i];

                  arr[i]=arr[i+1];
```

```
                arr[i+1]=temp;
            }
        }
        else
        {
            if(arr[i]<arr[i+1])
            {
                temp=arr[i];
                arr[i]=arr[i+1];
                arr[i+1]=temp;
            }
        }
    }
    System.out.println("Array after change ");
    for(int i=0;i<n;i++)
    {
        System.out.print(arr[i]+" ");
    }
    in.close();
  }
 }
}
```


Name: Himanshu Raturi **Roll No: 32** **Sec: A2**

Output:



Name: Himanshu Raturi **Roll No: 32** **Sec: A2**

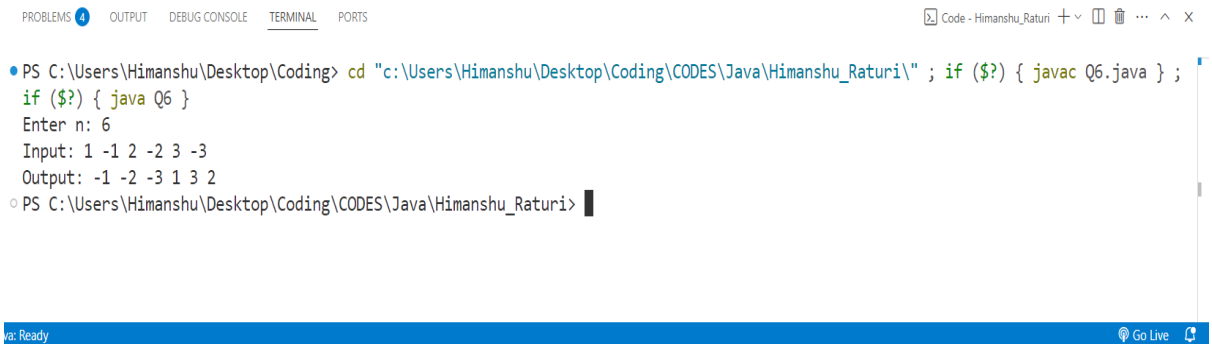
Practical No. 6: The problem to rearrange positive and negative numbers in an array .
Method: This approach moves all negative numbers to the beginning and positive numbers to the end but changes the order of appearance of the elements of the array.

Source Code:

```
package CODES.Java.Himanshu_Raturi;

import java.util.Scanner;

public class Q6

{

   public static void main(String args[])

   {

      Scanner sc = new Scanner(System.in);

      System.out.print("Enter n: ");

      int n = sc.nextInt();

      int arr[] = new int[n];

      System.out.print("Input: ");

      for(int i = 0 ; i < n ; i++)

      {

         arr[i] = sc.nextInt();

      }

      int first = 0;

      for(int i = 0; i < n ; i++)

      {

         if(arr[i] < 0 )

         {

            int temp = arr[i];

            arr[i] = arr[first];

            arr[first] = temp;

            first++;

         }

      }
```

```
        System.out.print("Output: ");
        for(int i = 0 ; i < n ; i++)
        {
            System.out.print(arr[i] + " ");
        }
        sc.close();
    }
}
```

Output:


PROBLEMS 4
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Code - Himanshu_Raturi
PS C:\Users\Himanshu\Desktop\Coding> cd "c:\Users\Himanshu\Desktop\Coding\CODES\Java\Himanshu_Raturi\" ; if ($?) { javac Q6.java } ;
if ($?) { java Q6 }
Enter n: 6
Input: 1 -1 2 -2 3 -3
Output: -1 -2 -3 1 3 2
PS C:\Users\Himanshu\Desktop\Coding\CODES\Java\Himanshu_Raturi>
va: Ready
Go Live

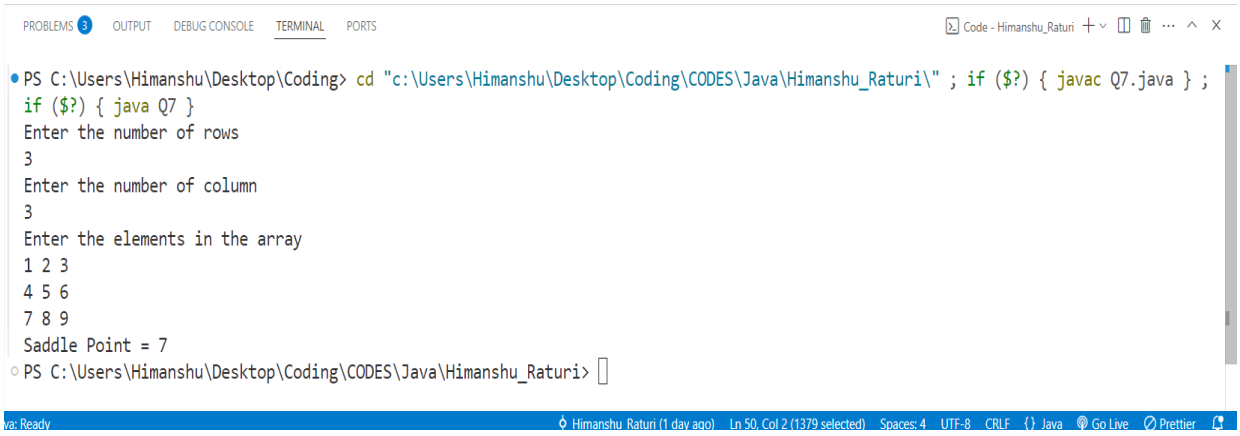
Practical No. 7: Program to find the saddle point coordinates in a given matrix. A saddle point is an element of the matrix, which is the minimum element in its row and the maximum in its column.

Source Code:

```
package CODES.Java.Himanshu_Raturi;

import java.util.Scanner;

public class Q7 {

   public static void main(String args[])

   {

      Scanner sc=new Scanner(System.in);

      System.out.println("Enter the number of rows");

      int rows=sc.nextInt();

      System.out.println("Enter the number of column");

      int columns=sc.nextInt();

      int arr[][]=new int[rows][columns];

      System.out.println("Enter the elements in the array ");

      for(int i=0;i<rows;i++)

      {

         for(int j=0;j<columns;j++)

         {

            arr[i][j]=sc.nextInt();


         }

      }

      for(int i=0;i<rows;i++)

      {

         int min=arr[i][0];

         int colindex=0;

         for(int j=0;j<columns;j++)

         {
```

```
            if(arr[i][j]<min)
            {
                min=arr[i][j];
                colindex=j;
            }
        }
        int max=arr[0][colindex];
        for(int k=0;k<rows;k++)
        {
            if(arr[k][colindex]>max)
            {
                max=arr[k][colindex];
            }
        }
        if(min==max)
        {
            System.out.println("Saddle Point = "+min );
            break;
        }
    }
    sc.close();
  }

}
```

OUTPUT:


PROBLEMS 3
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Code - Himanshu_Raturi
PS C:\Users\Himanshu\Desktop\Coding> cd "c:\Users\Himanshu\Desktop\Coding\CODES\Java\Himanshu_Raturi\" ; if ($?) { javac Q7.java } ; if ($?) { java Q7 }
Enter the number of rows
3
Enter the number of column
3
Enter the elements in the array
1 2 3
4 5 6
7 8 9
Saddle Point = 7
PS C:\Users\Himanshu\Desktop\Coding\CODES\Java\Himanshu_Raturi>
Himanshu_Raturi (1 day ago)
Ln 50, Col 2 (1379 selected)
Spaces: 4
UTF-8
CRLF
Java
Go Live
Prettier

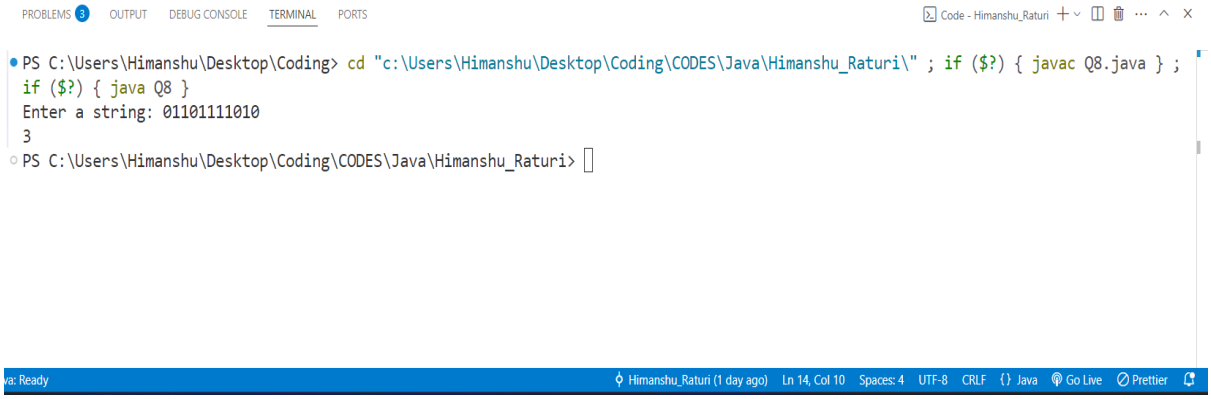
Practical No. 8: Program to find all the patterns of 0(1+)0 in the given string. Given a string containing 0's and 1's, find the total number of 0(1+)0 patterns in the string and output it.
0(1+)0 - There should be at least one '1' between the two 0's.

Source Code:

```
package CODES.Java.Himanshu_Raturi;

import java.util.Scanner;

public class Q8

{

   public static void main(String args[])

   {

      String str;

      Scanner sc = new Scanner(System.in);

      System.out.print("Enter a string: ");

      str = sc.nextLine();

      //String str = new String("01101111010");

      int count = 0 ;

      for(int i =0 ; i < str.length() - 1; i++)

      {

         if(str.charAt(i) == '0' && str.charAt(i+1) == '1')

         {

            count++;

         }

      }

      System.out.println(count);

      sc.close();

   }

}
```


Name: Himanshu Raturi **Roll No: 32** **Sec: A2**

Output:


PROBLEMS 3
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Code - Himanshu_Raturi
PS C:\Users\Himanshu\Desktop\Coding> cd "c:\Users\Himanshu\Desktop\Coding\CODES\Java\Himanshu_Raturi\" ; if ($?) { javac Q8.java } ;
if ($?) { java Q8 }
Enter a string: 01101111010
3
PS C:\Users\Himanshu\Desktop\Coding\CODES\Java\Himanshu_Raturi>
va: Ready
Himanshu_Raturi (1 day ago)
Ln 14, Col 10
Spaces: 4
UTF-8
CRLF
{} Java
Go Live
Prettier

Practical No. 9: Write a java program to create a class named 'Bank ' with the following data members:
Name of depositor
Address of depositor
Account Number
Balance in account

Class 'Bank' has a method for each of the following:
1 - Generate a unique account number for each depositor
For first depositor, account number will be 1001, for second depositor it will be 1002 and so on
2 - Display information and balance of depositor
3 - Deposit more amount in balance of any depositor
4 - Withdraw some amount from balance deposited
5 - Change address of depositor

Source code:

```
package CODES.Java.Himanshu_Raturi;

import java.util.Scanner;

public class Q9_Bank

{

String name , address ;

int accno;

double balance;

void setName(String name)

{

   this.name = name;

}

void setAddress(String address)

{

   this.address = address;

}

void setAccno(int i)

{
```

```
    this.accno = accno + 1001 + i;
}
void setBalance(double balance)
{
    this.balance = balance;
}
int getacc()
{
    return accno;
}
void display() {
System.out.println("Name: " + name + "\n" +
                   "Address: " + address + "\n" +
                   "Account Number: " + accno + "\n" +
                   "Balance:INR " + balance);
}

void deposit(int amt)
{
    balance += amt;
    System.out.println("INR " + amt+" has been successfully deposited.\n" + "Total amount is: "+balance);
}
void withdraw(int amt)
{
    if(amt > balance)
    {
        System.out.println("Insufficient Balance availble.");
    }else
```

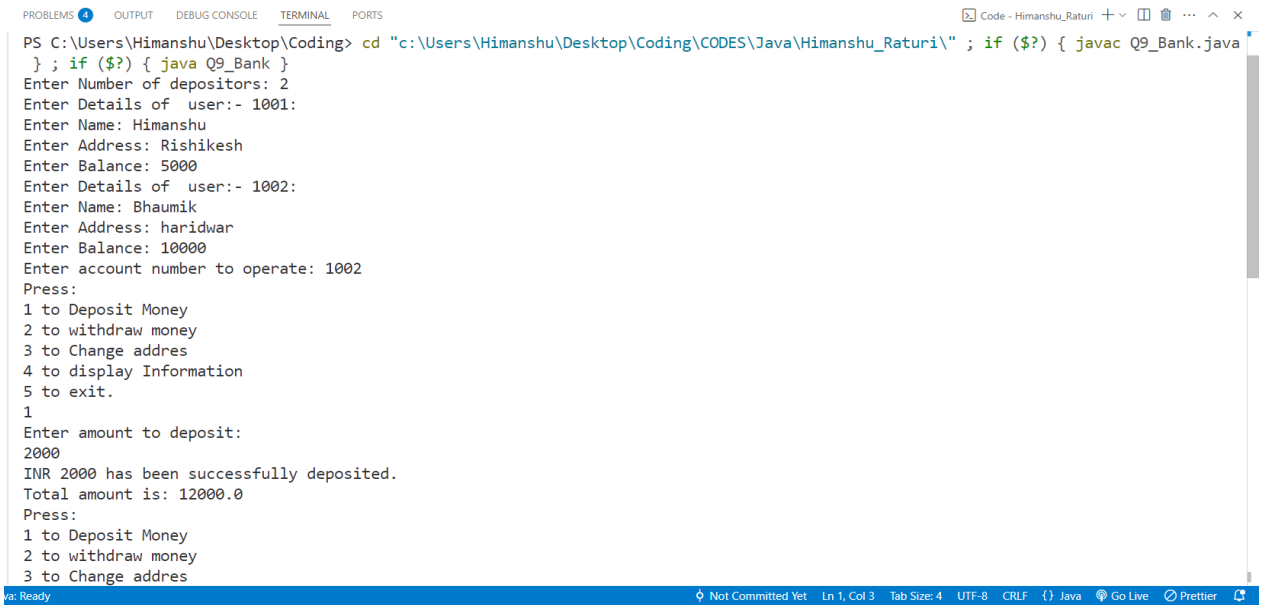
```
    {
        balance -= amt;
        System.out.println(amt+" has been successfully withdrawed.\n" + "Total amount is: "+balance);
    }
}
void changeAddress(String add)
{
    System.out.println("Address has been successfully changed from "+ address + " to " + add);
    address = add;

}
public static void main(String args[])
{
    int n;
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter Number of depositors: ");
    n = sc.nextInt();
    Q9_Bank depositors[] = new Q9_Bank[n];
    for(int i = 0 ; i < n ; i++)
    {
        depositors[i] = new Q9_Bank();
    }
    for(int i = 0 ; i < n; i++)
    {
        String name , address ;
        double balance;
        System.out.println("Enter Details of "  + " user:- " +(1001+i)+":" );
        System.out.print("Enter Name: ");
```

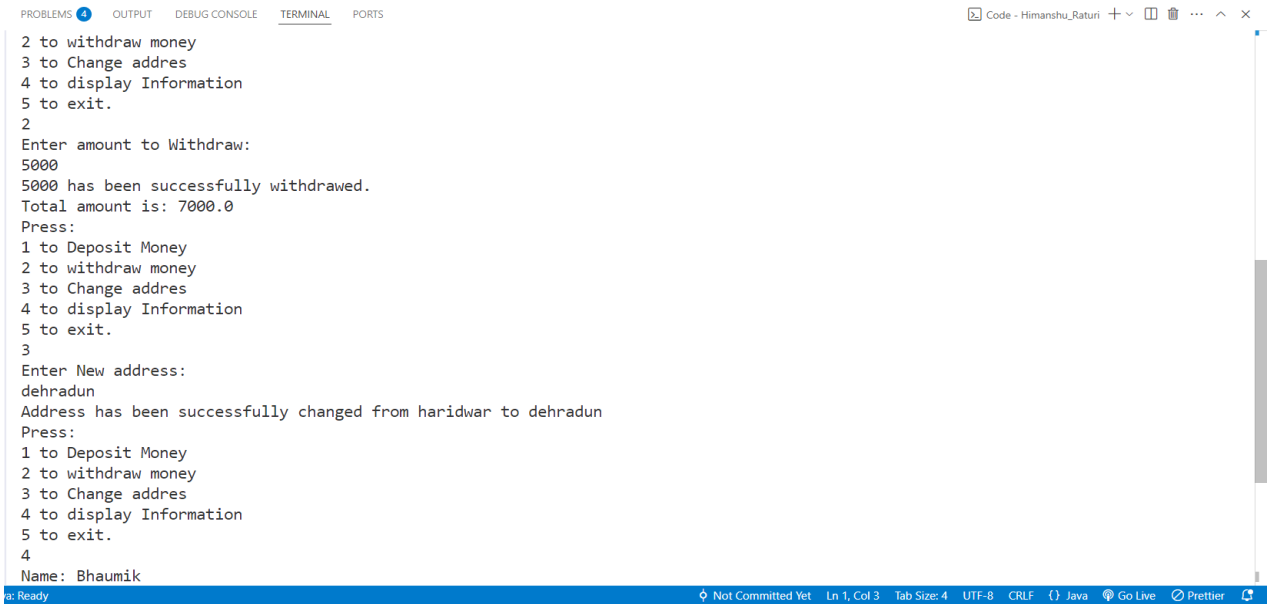
```
        name = sc.next();
        depositors[i].setName(name);
        System.out.print("Enter Address: ");
        address = sc.next();
        depositors[i].setAddress(address);
        depositors[i].setAccno(i);
        System.out.print("Enter Balance: ");
        balance = sc.nextDouble();
        depositors[i].setBalance(balance);
    }
    int choice;

    int accno;
    System.out.print("Enter account number to operate: ");
    accno = sc.nextInt();
    do
    {
    System.out.println("Press:\n" + "1 to Deposit Money\n" + "2 to withdraw money\n" + "3 to
Change addres\n"+ "4 to display Information\n"+ "5 to exit.");
    choice = sc.nextInt();
    switch(choice)
    {
        case 1:
                {
                    int amt;
                    System.out.println("Enter amount to deposit: ");
                    amt = sc.nextInt();
                    for(int i = 0 ; i < n ;i++)
                    {
```

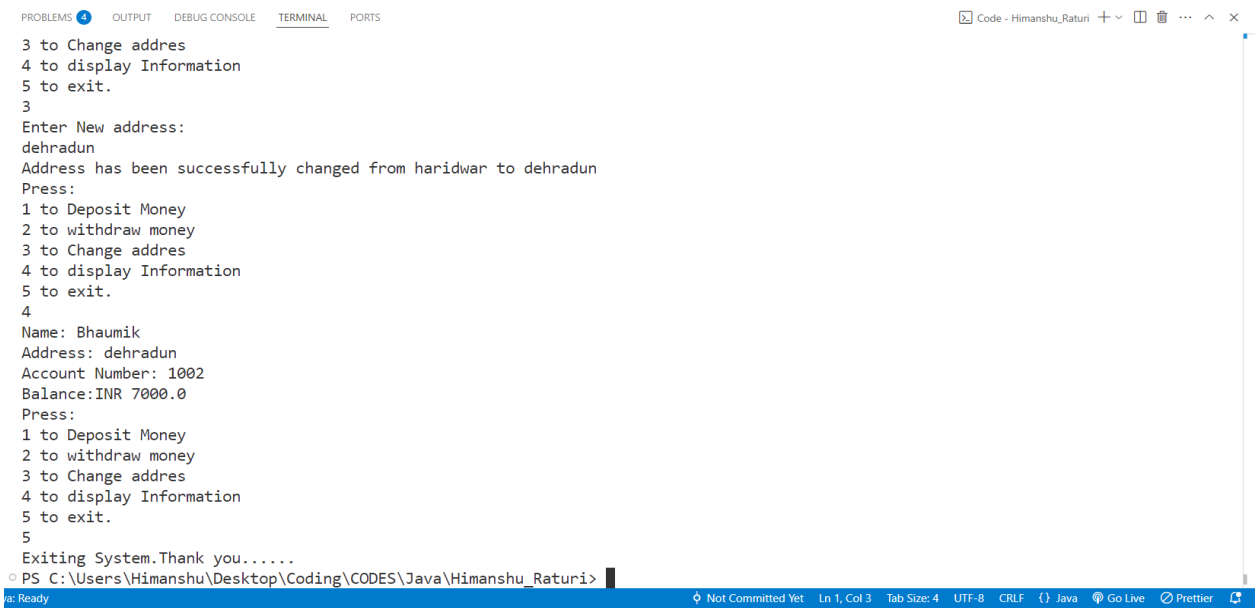
```
            if(depositors[i].getacc() == accno)
            {
               depositors[i].deposit(amt);
               break;
            }
         }
         break;
      }
   case 2:
      {
         int amt;
         System.out.println("Enter amount to Withdraw: ");
         amt = sc.nextInt();
         for(int i = 0 ; i < n ;i++)
         {
            if(depositors[i].getacc() == accno)
            {
               depositors[i].withdraw(amt);
               break;
            }
         }
         break;
      }
   case 3:
      {
         String add;
         System.out.println("Enter New address: ");
         add = sc.next();
         for(int i = 0 ; i < n ;i++)
```

```
                {
                    if(depositors[i].getacc() == accno)
                    {
                        depositors[i].changeAddress(add);
                        break;
                    }
                }
                break;
            }
        case 4:
            {
                for(int i = 0 ; i < n ;i++)
                {
                    if(depositors[i].getacc() == accno)
                    {
                        depositors[i].display();
                        break;
                    }
                }
                break;
            }
    }
}while(choice != 5);
System.out.println("Exiting System.Thank you.....");
sc.close();
}
}
```

Output:


PROBLEMS 4
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Code - Himanshu_Raturi
PS C:\Users\Himanshu\Desktop\Coding> cd "c:\Users\Himanshu\Desktop\Coding\CODES\Java\Himanshu_Raturi\" ; if ($?) { javac Q9_Bank.java } ; if ($?) { java Q9_Bank }
Enter Number of depositors: 2
Enter Details of user:- 1001:
Enter Name: Himanshu
Enter Address: Rishikesh
Enter Balance: 5000
Enter Details of user:- 1002:
Enter Name: Bhaumik
Enter Address: haridwar
Enter Balance: 10000
Enter account number to operate: 1002
Press:
1 to Deposit Money
2 to withdraw money
3 to Change addres
4 to display Information
5 to exit.
1
Enter amount to deposit:
2000
INR 2000 has been successfully deposited.
Total amount is: 12000.0
Press:
1 to Deposit Money
2 to withdraw money
3 to Change addres
va: Ready
Not Committed Yet
Ln 1, Col 3
Tab Size: 4
UTF-8
CRLF
Java
Go Live
Prettier


PROBLEMS 4
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Code - Himanshu_Raturi
2 to withdraw money
3 to Change addres
4 to display Information
5 to exit.
2
Enter amount to Withdraw:
5000
5000 has been successfully withdrawed.
Total amount is: 7000.0
Press:
1 to Deposit Money
2 to withdraw money
3 to Change addres
4 to display Information
5 to exit.
3
Enter New address:
dehradun
Address has been successfully changed from haridwar to dehradun
Press:
1 to Deposit Money
2 to withdraw money
3 to Change addres
4 to display Information
5 to exit.
4
Name: Bhaumik
a: Ready
Not Committed Yet
Ln 1, Col 3
Tab Size: 4
UTF-8
CRLF
Java
Go Live
Prettier


PROBLEMS 4
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Code - Himanshu_Raturi
3 to Change addres
4 to display Information
5 to exit.
3
Enter New address:
dehradun
Address has been successfully changed from haridwar to dehradun
Press:
1 to Deposit Money
2 to withdraw money
3 to Change addres
4 to display Information
5 to exit.
4
Name: Bhaumik
Address: dehradun
Account Number: 1002
Balance:INR 7000.0
Press:
1 to Deposit Money
2 to withdraw money
3 to Change addres
4 to display Information
5 to exit.
5
Exiting System.Thank you.....
PS C:\Users\Himanshu\Desktop\Coding\CODES\Java\Himanshu_Raturi>
Not Committed Yet
Ln 1, Col 3
Tab Size: 4
UTF-8
CRLF
Java
Go Live
Prettier