JAVA LAB PROGRAM

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/*Ques1. Write a java program to take input as a command

line 20 argument. Your name, course, university

rollno and semester Display the information.

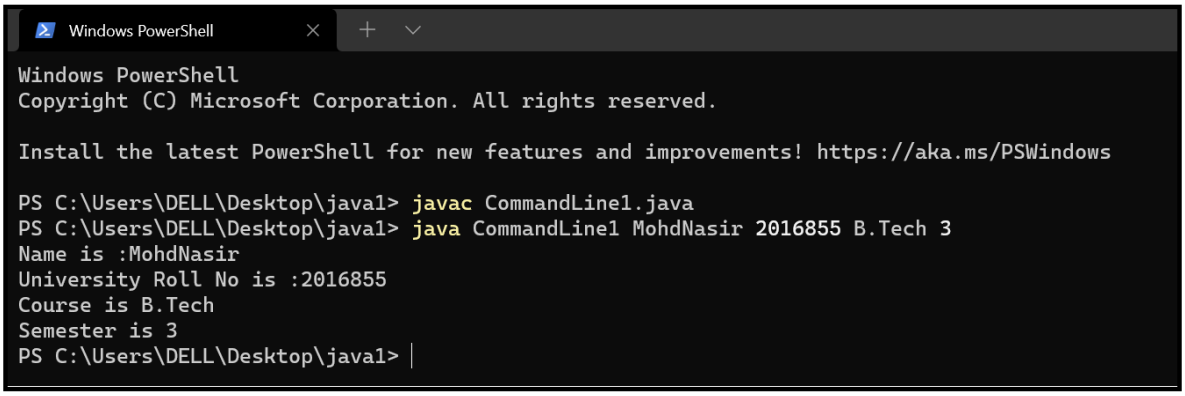
Name:

UniversityRollNo:

Course:

Semester:*/

```
public class CommandLine1 {
   public static void main(String[] args) {
      String Name = args[0];
      int UniversityRollNo = Integer.parseInt(args[1]);
      String Course = args[2];
      int Semester = Integer.parseInt(args[3]);
      System.out.println("Name is :" + Name);
      System.out.println("University Roll No is :" + UniversityRollNo);
      System.out.println("Course is " + Course);
      System.out.println("Semester is " + Semester);
   }
}
```


Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
PS C:\Users\DELL\Desktop\java1> javac CommandLine1.java
PS C:\Users\DELL\Desktop\java1> java CommandLine1 MohdNasir 2016855 B.Tech 3
Name is :MohdNasir
University Roll No is :2016855
Course is B.Tech
Semester is 3
PS C:\Users\DELL\Desktop\java1>

/*Ques2. Using the switch statement, write a menu-driven program to calculate the maturity amount of a bank deposit. The user is given the following options:

(i). Term Deposit

(ii).Recurring Deposit

For option (i) accept Principal (p), rate of interest() and time period in years (n). Calculate and outpute 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* rl 100 1/12 For an incorrect option, an appropriate error message should be displayed.

The use ScannerClass to take input.*/

```
import java.util.Scanner;
import java.lang.Math;

public class MaturityAmount2 {
   void TermDeposit() {
      float Principle, IntrestRate, Time;
      double Amount;
      Scanner obj = new Scanner(System.in);
      System.out.print("Input Principle :");
      Principle = obj.nextFloat();
      System.out.print("Input Intrest Rate :");
      IntrestRate = obj.nextFloat();
      System.out.print("Input Time (Years) :");
      Time = obj.nextFloat();
```

```
    Amount = Principle * Math.pow(((100 + IntrestRate) / 100), Time);
    System.out.print("Total Amount is :");
    System.out.printf("%.2f", Amount);
    obj.close();
}

void RecurringDeposit() {
    float MonthlyInstallment, IntrestRate, Time;
    double Amount;
    Scanner obj = new Scanner(System.in);
    System.out.print("Input Monthly Installment :");
    MonthlyInstallment = obj.nextFloat();
    System.out.print("Input Intrest Rate :");
    IntrestRate = obj.nextFloat();
    System.out.print("Input Time (Month) :");
    Time = obj.nextFloat();
    Amount = MonthlyInstallment * Time
          + MonthlyInstallment * Time * ((Time + 1) / 2) * (IntrestRate / 100) * (1 / 12);
    System.out.print("Total Amount is :");
    System.out.printf("%.2f", Amount);
    obj.close();
}

public static void main(String[] args) {
    System.out.println("1. FOr Term Deposit");
    System.out.println("2. For Recuring Deposit");
    Scanner obj = new Scanner(System.in);
    int choice = obj.nextInt();
    MaturityAmount2 ClassObject = new MaturityAmount2();
    switch (choice) {
       case 1:
```

```
            ClassObject.TermDeposit();
            break;
        case 2:
            ClassObject.RecurringDeposit();
            break;
        default:
            System.out.println("Please Choice Correct Option.");
      }
      obj.close();
   }
}
```

Output Clear

```
java -cp /tmp/buoEQ2Icig Main
1. For Term Deposit
2. For Recuring Deposit
1
Input Principle :11098
Input Intrest Rate :9.6
Input Time (Years) :5
Total Amount is :17550.82
```

Output Clear

```
java -cp /tmp/ztr1Faa9pT MaturityAmount2
1. FOr Term Deposit
2. For Recuring Deposit
2
Input Monthly Installment :2000
Input Intrest Rate :12
Input Time (Month) :24
Total Amount is :48000.00
```

/*Ques3. 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.
(Sum of divisors of 6)/6 (Sum of divisors of 28)/28
Program to check whether the given numbers are friendly pair or not*/

```
import java.util.Scanner;

public class FriendlyPair3 {
   void AbundantNumber() {
      int number1, number2, sum1 = 0, sum2 = 0;
      Scanner obj = new Scanner(System.in);
      System.out.print("Input number 1: ");
      number1 = obj.nextInt();
      System.out.print("Input number 1: ");
      number2 = obj.nextInt();
      int i = 1;
      while (i <= (number1) / 2) {
         if (number1 % i == 0)
            sum1 = sum1 + i;
         i++;
      }
      i = 1;
      while (i <= (number2) / 2) {
         if (number2 % i == 0) {
            sum2 = sum2 + i;
         }
         i++;
      }

      if ((sum1 == number1) && (sum2 == number2))
```

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

    public static void main(String[] args) {
        FriendlyPair3 ClassObject = new FriendlyPair3();
        ClassObject.AbundantNumber();
    }
}
```

Output Clear

```
java -cp /tmp/BsTDi7ZMVE FriendlyPair3
Input number 1: 6
Input number 1: 28
Abundant Numbers
```

Output Clear

```
java -cp /tmp/BsTDi7ZMVE FriendlyPair3
Input number 1: 65
Input number 1: 87
Not Abundant Numbers
```

/*Ques4. Program to replace al 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.

For example, consider the following number

Input: 102405

Output: 112415

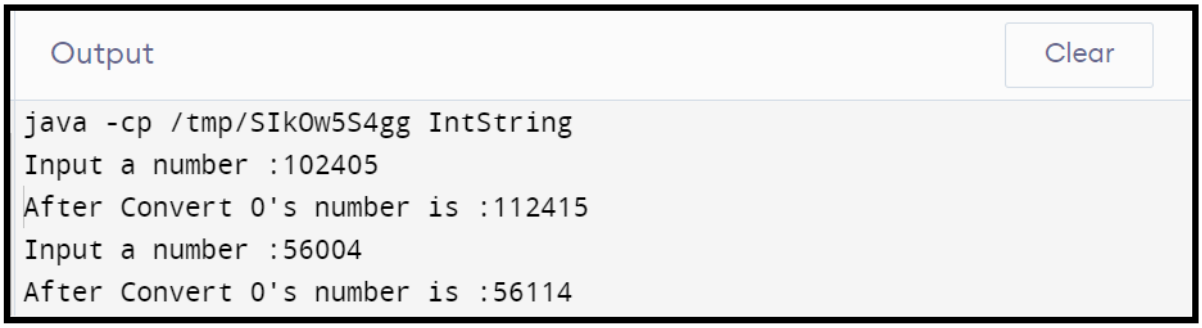
Input: 56004

Output: 56114

Steps to replace all 0's with 1 in a given integer*/

```
import java.util.Scanner;


public class Convert0In1 {
   void Replace0And1() {
       int number;
       Scanner obj = new Scanner(System.in);
       System.out.print("Input a number :");
       number = obj.nextInt();
       String str = Integer.toString(number);
      System.out.print("After Convert 0's number is :");
       char[] ch = new char[str.length()];
       for (int i = 0; i < str.length(); i++) {
          ch[i] = str.charAt(i);
          if (ch[i] == '0')
             ch[i] = '1';
          System.out.print(ch[i]);
       }
       obj.close();
   }
```

```
    public static void main(String[] args) {
        Convert0In1 ClassObject = new Convert0In1 ();
        ClassObject.Replace0And1();
    }
}
```



/*Ques5. Printing an array into Zigzag fashion. Suppose you 29 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 integeris less than the second integer, which is greaterthan 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.

Input 1

7

4 3 7 8 6 2 1

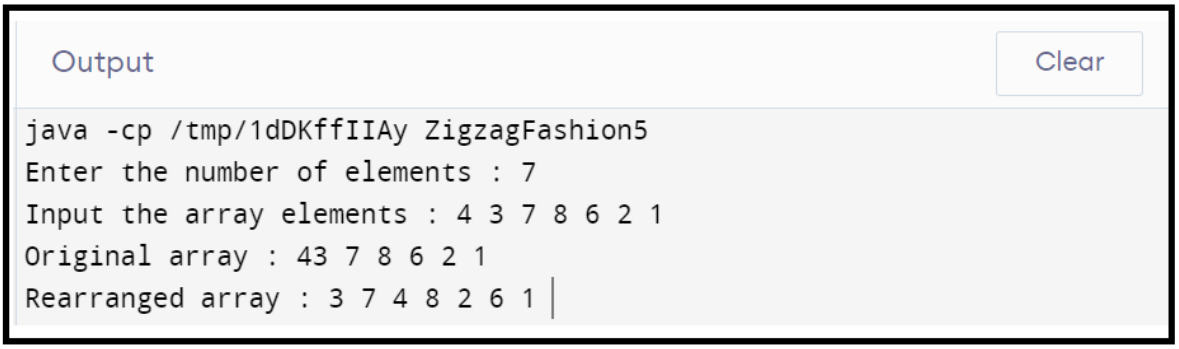
Output 1:

3 7 4 8 2 6 6 1*/

```
import java.util.*;

public class ZigzagFashion5 {

   public static void main(String args[]) {
      Scanner input = new Scanner(System.in);
      System.out.print("Enter the number of elements : ");
      int n = input.nextInt();

      int arr[] = new int[n];
      System.out.print("Input the array elements : ");
      for (int i = 0; i < n; i++) {
         arr[i] = input.nextInt();
      }

      System.out.print("Original array : ");
```

```
    for (int i = 0; i < n; i++) {
        System.out.printf("%d ", arr[i]);
    }
    int temp;
    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.print("\nRearranged array : ");
    for (int i = 0; i < n; i++) {
        System.out.printf("%d ", arr[i]);
    }

}
```

}


Output
Clear
java -cp /tmp/1dDKffIIAy ZigzagFashion5
Enter the number of elements : 7
Input the array elements : 4 3 7 8 6 2 1
Original array : 43 7 8 6 2 1
Rearranged array : 3 7 4 8 2 6 1

/*Ques6. The problem to rearrange positive and negative 32 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.

Input: 1 -1 2 -2 3 -3

Output: -1 -2 -3 1 3 2 */

```
import java.util.*;

public class RearrangeArray6 {

   public static void main(String args[]) {
      Scanner input = new Scanner(System.in);
      System.out.print("Enter the number of elements : ");
      int n = input.nextInt();

      int arr[] = new int[n];
      System.out.print("Input the array elements : ");
      for (int i = 0; i < n; i++) {
         arr[i] = input.nextInt();
      }

      System.out.print("Original array : ");
      for (int i = 0; i < n; i++) {
         System.out.printf("%d ", arr[i]);
      }

      int j = 0, temp; // order not maintained
```

```
        for (int i = 0; i < n; i++) {
            if (arr[i] < 0) {
                if (i != j) {
                    temp = arr[j];
                    arr[j] = arr[i];
                    arr[i] = temp;
                }
                j++;
            }
        }

        System.out.print("\nRearranged array : ");
        for (int i = 0; i < n; i++) {
            System.out.printf("%d ", arr[i]);
        }

    }
}
```

Output Clear

```
java -cp /tmp/8n2ukn7Jq3 RearrangeArray6
Enter the number of elements : 6
Input the array elements : -1 1 -2 2 -3 3
Original array : -1 1 -2 2 -3 3
Rearranged array : -1 -2 -3 2 1 3
```

/*Ques7. Program to find the saddle point coordinates in a given 34 matrix. A saddle point is an element of the matrix, which is the minimum element in its row and the maximum in its column.

Mat[3][3]

1 2 3

4 5 6

7 8 9

Here, 7 is the saddle point because it is the minimum element in its row and maximum element in its column*/

```
import java.util.*;

public class SaddlePoint7 {
   public static void main(String args[]) {
      Scanner input = new Scanner(System.in);
      System.out.print("Enter no of rows : ");
      int row = input.nextInt();
      System.out.print("Enter no of columns : ");
      int column = input.nextInt();
      int[][] arr = new int[row][column];
      System.out.println("Enter elements : ");
      for (int i = 0; i < row; i++) {
         for (int j = 0; j < column; j++) {
            arr[i][j] = input.nextInt();
         }
      }
      int min = 0, max = 0;
      int position[][] = { { 0, 0 }, { 0, 0 } };
      int i, j, k;
```

```
        for (i = 0; i < row; i++) {
            min = arr[i][0];
            for (j = 0; j < column; j++) {
                if (min >= arr[i][j]) {
                    min = arr[i][j];
                    position[0][0] = i;
                    position[0][1] = j;
                }
            }
            j = position[0][1];
            max = arr[0][j];
            for (k = 0; k < row; k++) {
                if (max <= arr[k][j]) {
                    max = arr[i][j];
                    position[1][0] = k;
                    position[1][1] = j;
                }
            }
            if (min == max) {
                if (position[0][0] == position[1][0] && position[0][1] == position[1][1]) {
                    System.out.println("Saddle Point (" + position[0][0] + "," + position[0][1] + ") : " + min);
                }
            }

        }

    }
}
```

Output Clear

```
java -cp /tmp/ogodnM4YcS SaddlePoint7
Enter no of rows : 3
Enter no of columns : 3
Enter elements :
1 2 3
4 5 6
7 8 9
Saddle Point (2,0) : 7
```

/*Ques8. 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.

o(1+)0 There should be at least one 1' between the two 0's.

For example, consider the following string.

Input: 01101111010

Output: 3

Explanation:

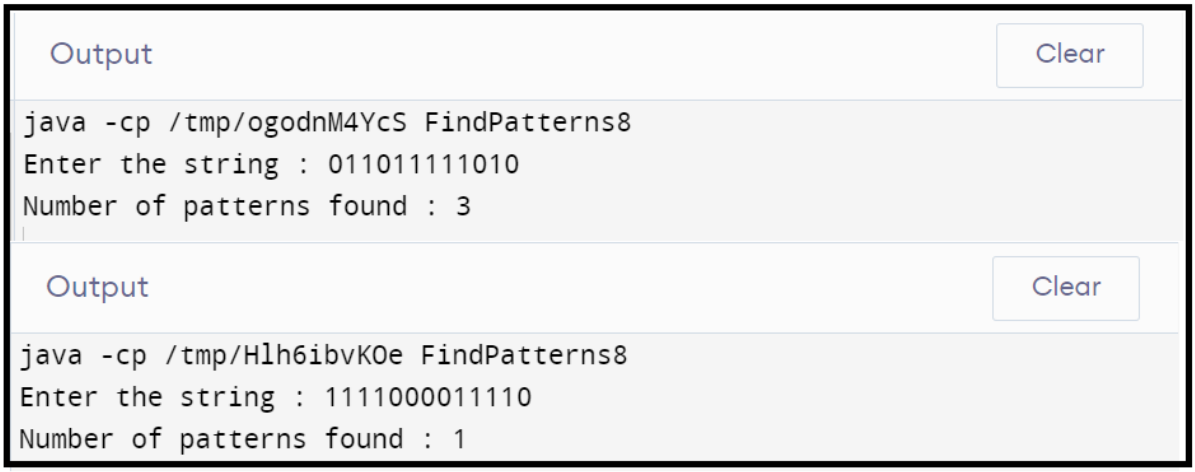
01101111010 -count=1

01101111010 - count 2

01101111010- count=3*/

```
import java.util.*;

public class FindPatterns8 {
   public static void main(String[] args) {
      Scanner obj = new Scanner(System.in);
      System.out.printf("Enter the string : ");
      String str = obj.nextLine();
      int count = 0;
      char ch = str.charAt(0);
      int i = 1;
      while (i < str.length()) {
         if (str.charAt(i) == '1' && ch == '0') {
            while (str.charAt(i) == '1') {
               i++;
            }
            if (str.charAt(i) == '0') {
               count++;
            }
```

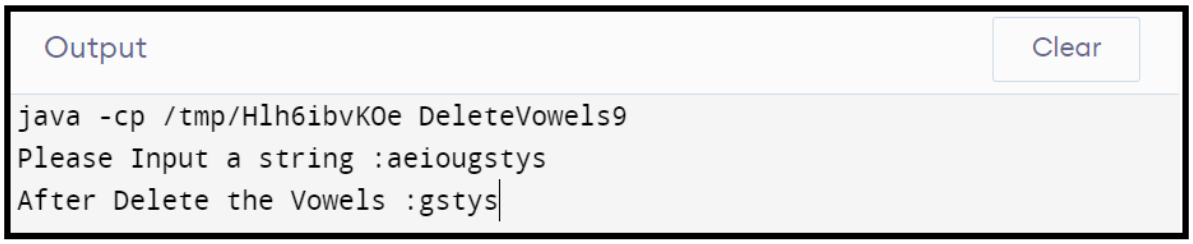
```
        }
        ch = str.charAt(i);
        i++;
      }
      System.out.println("Number of patterns found : " + count);
   }
}
```



/*Ques9. Write a java program to delete vowels from

given string 39 using StringBuffer class*/

```
import java.util.Scanner;


public class DeleteVowels9 {
   public static void main(String[] args) {
      Scanner obj = new Scanner(System.in);
      System.out.print("Please Input a string :");
      String s = obj.nextLine();
      StringBuffer str = new StringBuffer(s);
      for (int i = 0; i < str.length(); i++) {
         if (str.charAt(i) == 'a' || str.charAt(i) == 'e' || str.charAt(i) == 'i' || str.charAt(i) == 'o'
               || str.charAt(i) == 'u') {
            str.deleteCharAt(i);
            i--;
         }
      }
      System.out.println("After Delete the Vowels :"+str);
      obj.close();
   }
}
```



/*Ques10. 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 accountnumberfor each depositor

For first depositor, account numberwill 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 */

```
import java.util.Scanner;


public class Bank10 {
   String NameDepositer;
   String AddressOfDepositer;
   int AccountNumber = 1000;
   float BalanceInAccount;


   static int count = 1;


   Bank10() {
      AccountNumber = AccountNumber + count;
      count++;
   }
```

```
void ChangeAddress(String address) {
    AddressOfDepositer = address;
    System.out.println("Address Successfully Change");
}

void GetInformation() {
    Scanner obj = new Scanner(System.in);
    System.out.print("Enter Account Holder Name :");
    NameDepositer = obj.nextLine();
    System.out.print("Enter Address Of Account Holder :");
    AddressOfDepositer = obj.nextLine();
    System.out.print("Enter Balance in Account :");
    BalanceInAccount = obj.nextFloat();
}

void WithdrawAmount(float amount) {
    if (amount <= BalanceInAccount) {
        BalanceInAccount = BalanceInAccount - amount;
        System.out.println("Amount Successfully Withdrawal.");
        System.out.println("Available Balance is :" + BalanceInAccount);
    } else
        System.out.println("Amount is Invalid.");

}

void DepositeAmount(float amount) {
    BalanceInAccount = BalanceInAccount + amount;
    System.out.println("Amount Successfully Deposite.");
    System.out.println("Available Balance is :" + BalanceInAccount);
}
```

```
    void DisplayInformation() {
        System.out.println("Account Number is :" + AccountNumber);
        System.out.println("Name Of Account Holder is :" + NameDepositer);
        System.out.println("Address of Account Holder is :" + AddressOfDepositer);
        System.out.println("Available Balance is :" + BalanceInAccount);
    }

    public static void main(String[] args) {
        int customers, i;
        float amount;
        Scanner obj = new Scanner(System.in);
        System.out.print("Enter No of Customers :");
        customers = obj.nextInt();
        Bank10 arr[] = new Bank10[customers];
        for (i = 0; i < customers; i++) {
            arr[i] = new Bank10();
            System.out
                    .println("**********Please Enter Customer " + (i + 1) + "
Details**********");
            arr[i].GetInformation();
        }
        while (true) {
            int choice, accnumber, condition;
            System.out.println("Choice a Option.");
            System.out.println("1. For Show the Information");
            System.out.println("2. For Deposite the Amount.");
            System.out.println("3. For Withdrwal the Amount.");
            System.out.println("4. For Change the Address.");
            choice = obj.nextInt();
            System.out.print("Please Enter Customers Account Number.");
            accnumber = obj.nextInt();
```

```
for (i = 0; i < customers; i++)
   if (arr[i].AccountNumber == accnumber)
      break;
if (i == customers) {
   System.out.println("Wrong Account Number Please Try Again.");
   continue;
}
System.out.println("Account Holder Name is :" + arr[i].NameDepositer);
System.out.print("For Continue press 1 :");
condition = obj.nextInt();
if (condition != 1)
   break;
switch (choice) {
   case 1:
      arr[i].DisplayInformation();
      break;
   case 2:
      System.out.print("Please Enter Deposite Amount :");
      amount = obj.nextFloat();
      arr[i].DepositeAmount(amount);
      arr[i].DisplayInformation();
      break;
   case 3:
      System.out.print("Please Enter withdrawal Amount :");
      amount = obj.nextFloat();
      arr[i].WithdrawAmount(amount);
      arr[i].DisplayInformation();
      break;
   case 4:
      String str;
      str = obj.nextLine();
```

```
                System.out.println("Please Enter a new Address :");
                arr[i].ChangeAddress(str);
                arr[i].DisplayInformation();
                break;
            default:
                System.out.println("Choice Correct Option.");
                break;
        }
        System.out.print("For Continue press 1 :");
        condition = obj.nextInt();
        if (condition != 1)
            break;
      }
   }
}
```

Output Clear

```
Enter No of Customers :2
**********Please Enter Customer 1 Details
    **********
Enter Account Holder Name :Mohd Nasir
Enter Address Of Account Holder :Bijnor
Enter Balance in Account :56431
**********Please Enter Customer 2 Details
    **********
Enter Account Holder Name :Naushad Zakir
Enter Address Of Account Holder :Dehradun
Enter Balance in Account :54262
Choice a Option.
1. For Show the Information
2. For Deposite the Amount.
3. For Withdrwal the Amount.
4. For Change the Address.
1
Please Enter Customers Account Number.1001
Account Holder Name is :Mohd Nasir
For Continue press 1 :1
Account Number is :1001
Name Of Account Holder is :Mohd Nasir
Address of Account Holder is :Bijnor
Available Balance is :56431.0
For Continue press 1 :1
Choice a Option.
1. For Show the Information
2. For Deposite the Amount.
3. For Withdrwal the Amount.
4. For Change the Address.
2
Please Enter Customers Account Number.1001
Account Holder Name is :Mohd Nasir
For Continue press 1 :0
```

/*Ques12. Write a Java program to create a class called ArrayDemo and overload arrayFunc() function void arrayFunc(int 0, int) To find all pairs of elements in an Array whose sum is equal to a given number:

void arrayFunc(int AD, int p, int BO, int q)> Given two sorted arrays A and B of size p and q, Overload method arrayFunc() to merge elements of A with B by maintaining the sorted order i.e. fll A with first p smallest elements and fill B with remaining elements

Example:

Input

int[] A = { 1,5, 6,7,8, 10

int] B {2, 4, 9}

Output:

Sorted Arrays:

A:[1, 2, 4, 5,6,7]

B: [8, 9, 10]*/

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

public class ArrayDemo12 {
   static void ArrayFunc(int arr[], int low, int high, int target) {
      Arrays.sort(arr);
      while (low <= high) {
         if (arr[low] + arr[high] == target) {
            System.out.println(arr[low] + " " + arr[high]);
            low++;
            high--;
```

```
        } else if ((arr[low] + arr[high]) > target)
            high--;
        else
            low++;
    }
}

static void ArrayFunc(int A[], int p, int B[], int q) {
    int i = 0, j = 0, k = 0;
    int temp[] = new int[p + q];
    while (i < p && j < q) {
        if (A[i] < B[j]) {
            temp[k] = A[i];
            k++;
            i++;
        } else {
            temp[k] = B[j];
            j++;
            k++;
        }
    }
    while (i < p) {
        temp[k] = A[i];
        i++;
        k++;
    }
    while (j < q) {
        temp[k] = B[j];
        j++;
        k++;
    }
```

```
    i = 0;
    j = 0;
    for (k = 0; k < (p + q); k++) {
        if (k < p) {
            A[i] = temp[k];
            i++;
        } else {
            B[j] = temp[k];
            j++;
        }
    }
}

static void PrintArray(int arr[], int size) {
    int i = 0;
    for (i = 0; i < size; i++) {
        System.out.print(arr[i] + " ");
    }
}

public static void main(String[] args) {
    int size, size1, size2, target, choice;
    Scanner obj = new Scanner(System.in);
    System.out.println("1. For Find Out the pairs.");
    System.out.println("2. For Merge Elements.");
    choice = obj.nextInt();
    switch (choice) {
        case 1:
            System.out.print("Please Input Array Size :");
            size = obj.nextInt();
            System.out.println("Input Array Elements.");
```

```
            int arr[] = new int[size];
            for (int i = 0; i < size; i++)
               arr[i] = obj.nextInt();
            System.out.print("Input target :");
            target = obj.nextInt();
            Arrays.sort(arr);
            ArrayFunc(arr, 0, size - 1, target);
         case 2:
            System.out.print("Please Input Array1 Size :");
            size1 = obj.nextInt();
            System.out.println("Input Array Elements.");
            int arr1[] = new int[size1];
            for (int i = 0; i < size1; i++)
               arr1[i] = obj.nextInt();
            System.out.print("Please Input Array1 Size :");
            size2 = obj.nextInt();
            System.out.println("Input Array Elements.");
            int arr2[] = new int[size1];
            for (int i = 0; i < size2; i++)
               arr2[i] = obj.nextInt();
            ArrayFunc(arr1, size1, arr2, size2);
            PrintArray(arr1, size1);
            System.out.println("");
            PrintArray(arr2, size2);
            break;
         default:
            System.out.println("Wrong Choice.");
            break;
      }
   }
}
```

Output Clear

```
java -cp /tmp/NnT2zJGJ9F ArrayDemo12
1. For Find Out the pairs.
2. For Merge Elements.2
Please Input Array1 Size :6
Input Array Elements.
1 5 6 7 8 10
Please Input Array1 Size :3
Input Array Elements.
2 4 9
A[] :1 2 4 5 6 7
B[] :8 9 10
```

Output Clear

```
java -cp /tmp/0tJFKdesa9 ArrayDemo12
1. For Find Out the pairs.
2. For Merge Elements.
1
Please Input Array Size :7
Input Array Elements.4 6 5 -10 8 5 20
Input target :10
-10 20
4 6
5 5
```

/*Ques14. Write a java program to implement abstract class and abstract method with following details:

Create a abstract Base Class Data members: Temperature double temp;

Method members: void setTempData(double) abstact void changeTemp()

SubClass Fahrenheit (subclass of Temperature) Data members: double ctemp;

method member: Override abstract method changeTemp() to convert Fahrenheit temperature into degree Celsius by using formula C=5/9*(F-32) and display converted temperatureSub Class Celsius Temperature) Data member: double ftemp;

Method member: (subclass of Override abstract method changeTemp() to convert degree Celsius into Fahrenheit temperature by using formula F=9/5 c+32 and display converted temperature */

```
import java.util.Scanner;
import java.util.concurrent.CountDownLatch;

abstract class Tempreture {
   double temp;

   void SetTempData(double t) {
      temp = t;
   }

   abstract void ChangeTemp();
}

class Fahrenheit extends Tempreture {
   double Ftemp;

   void ChangeTemp() {
      Ftemp = (5.0 / 9) * (temp - 32);
      System.out.printf("Tempreture in Celsius :%.2f", Ftemp);
```

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

class Celsius extends Tempreture {
    double Ctemp;

    void ChangeTemp() {
        Ctemp = (9.0 / 5) * temp + 32;
        System.out.printf("Tempreture in Farenheit :%.2f", Ctemp);
        System.out.println("");
    }
}

public class FarToCel14 {
    public static void main(String[] args) {
        Fahrenheit object = new Fahrenheit();
        Celsius object1 = new Celsius();
        Scanner obj = new Scanner(System.in);
        double temp;
        System.out.print("Enter Tempreture in Fahrenheit :");
        temp = obj.nextDouble();
        object.SetTempData(temp);
        object.ChangeTemp();
        System.out.print("Enter Tempreture in Celsious :");
        temp = obj.nextDouble();
        object1.SetTempData(temp);
        object1.ChangeTemp();
    }
}
```

Output Clear

```
java -cp /tmp/bX6XpXAAga FarToCel14
Enter Tempreture in Fahrenheit :98
Tempreture in Celsius :36.67
Enter Tempreture in Celsious :32
Tempreture in Farenheit :89.60
```

/*Ques15. Write a java program to create an interface that consists of a method to display volume () as an abstract method and redefine this method in the derived classes to suit their requirements.Create classes called Cone, Hemisphere and Cylinder that implements the interface. Using these three classes, design a program that will accept dimensions of a cone, cylinder interactively and display the volumes and hemisphere.
Volume of cone (1/3)pir^2h
Volume of hemisphere = (2/3)pir^3
Volume of cylinder = pir^2h */

```
import java.util.Scanner;

interface Interface {
   void Volume();
}

class Cone implements Interface {
   float radius;
   float hight;

   void GetDataCone() {
      Scanner obj = new Scanner(System.in);
      System.out.print("Please Enter Radius for Cone :");
      radius = obj.nextFloat();
      System.out.print("Please Enter Hight for Cone :");
      hight = obj.nextFloat();
   }

   public void Volume() {
      double val;
```

```
        val = (1.0 / 3) * radius * radius * 3.14 * hight;
        System.out.printf("Volume Of Cone is :%.2f", val);
        System.out.println();
    }
}

class Hemisphere implements Interface {
    float radius;

    void GetDataHemisphare() {
        Scanner obj1 = new Scanner(System.in);
        System.out.print("Please Enter Radius for Hemisphere :");
        radius = obj1.nextFloat();
    }

    public void Volume() {
        double val;
        val = (2.0 / 3) * radius * radius * 3.14 * radius;
        System.out.printf("Volume Of Hemisphere is :%.2f", val);
        System.out.println();
    }
}

class Cylinder implements Interface {
    float radius;
    float hight;

    void GetDataCylinder() {
        Scanner obj = new Scanner(System.in);
        System.out.printf("Please Enter Radius for Cylinder :");
        radius = obj.nextFloat();
```

```
        System.out.printf("Please Enter Hight for Cylinder :");
        hight = obj.nextFloat();
    }

    public void Volume() {
        double val;
        val = radius * radius * 3.14 * hight;
        System.out.printf("Volume Of Cylinder is :%.2f", val);
        System.out.println();
    }
}

public class VolumeInterface15 {
    public static void main(String[] args) {
        Cone ConeObject = new Cone();
        Hemisphere HemispphareObject = new Hemisphere();
        Cylinder CylinderObject = new Cylinder();
        ConeObject.GetDataCone();
        ConeObject.Volume();
        HemispphareObject.GetDataHemisphare();
        HemispphareObject.Volume();
        CylinderObject.GetDataCylinder();
        CylinderObject.Volume();
    }
}
```

Output Clear

```
java -cp /tmp/RzvTbuUKaX Main
Please Enter Radius for Cone :12
Please Enter Hight for Cone :21
Volume Of Cone is :3165.12
Please Enter Radius for Hemisphere :23
Volume Of Hemisphere is :25469.59
Please Enter Radius for Cylinder :23
Please Enter Hight for Cylinder :54
Volume Of Cylinder is :89697.24
```