**PROGRAMMING IN JAVA WITH AWT**

**CSA – 0908**

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**1.Write a Java program for Two sum.**

**PROGRAM**

import java.util.HashMap;

import java.util.Map;

public class R192211326 {

public static int[] findTwoSum(int[] nums, int target) {

Map<Integer, Integer> map = new HashMap<>();

for (int i = 0; i < nums.length; i++) {

int complement = target - nums[i];

if (map.containsKey(complement)) {

return new int[] { map.get(complement), i };

}

map.put(nums[i], i);

}

throw new IllegalArgumentException("No two sum solution");

}

public static void main(String[] args) {

int[] nums = {3,2,4};

int target = 6;

int[] result = findTwoSum(nums, target);

System.out.println("Indices: " + result[0] + ", " + result[1]);

}

}

**OUTPUT**

Indices: 1, 2

**1.REVERSE WORD:**

import java.util.Scanner;

public class ReverseWord {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

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

String inputWord = scanner.nextLine();

String reversedWord = "";

for (int i = inputWord.length() - 1; i >= 0; i--) {

reversedWord += inputWord.charAt(i);

}

System.out.println("Reversed word: " + reversedWord);

}

}

OUTPUT:

Enter a word: ABHI

Reversed word: IHBA

2.VALID USERNAME OR NOT:

import java.util.\*;

public class validusername

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

String S1=input.nextLine();

String S2=input.nextLine();

if(S1==S2)

{

System.out.println("USERNAME IS VALID");

}

else{

System.out.println("USERNAME IS INVALID");

}

}

}

**OUTPUT:**

saveetha@123

sse@123

USERNAME IS INVALID

**3.REVERSE A NUMBER:**

import java.util.Scanner;

public class ReverseNumber {

public static void main(String[] args) {

int number = 4584, reversed = 0;

while (number != 0) {

int digit = number % 10;

reversed = reversed \* 10 + digit;

number /= 10;

}

System.out.println(reversed);

}

}

**OUTPUT:**

4854

**4.ELIGIBLE FOR VOTE OR NOT:**

import java.util.\*;

public class vote

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

int age=input.nextInt();

if(age>18)

{

System.out.println("person is eligible to vote");

}

else if(age<=18){

System.out.println("person is not eligible to vote.he is eligible after"+(18-age));

}

else{

System.out.println("not eligible");

}

}

}

**OUTPUT:**

17

person is not eligible to vote.he is eligible after1

**5.LCM AND GCD:**

import java.util.\*;

public class LCMandGCD {

public static int gcd(int a, int b) {

while (b != 0) {

int temp = b;

b = a % b;

a = temp;

}

return a;

}

public static int lcm(int a, int b, int gcd) {

return (a \* b) / gcd;

}

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter the first number: ");

int num1 = input.nextInt();

System.out.print("Enter the second number: ");

int num2 = input.nextInt();

int gcdResult = gcd(num1, num2);

int lcmResult = lcm(num1, num2, gcdResult);

System.out.println("GCD of " + num1 + " and " + num2 + " is: " + gcdResult);

System.out.println("LCM of " + num1 + " and " + num2 + " is: " + lcmResult);

}

}

**OUTPUT:**

Enter the first number: 23

Enter the second number: 12

GCD of 23 and 12 is: 1

LCM of 23 and 12 is: 276

**6.Right aligned triangle pattern:**

import java.util.Scanner;

public class RightAlignedTrianglePattern {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter the number of rows (n): ");

int n = input.nextInt();

for (int i = 1; i <= n; i++) {

for (int j = n; j > i; j--) {

System.out.print(" ");

}

for (int k = 1; k <= i; k++) {

System.out.print("\*");

}

System.out.println();

}

}

}

**OUTPUT:**

Enter the number of rows (n): 5

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

**7.PASCAL NUMBER PATTERN:**

import java.util.\*;

public class pascalTraingleNumber

{

public static void main(String[]args)

{

int n=7;

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

{

int a=1;

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

{

System.out.println(" ");

}

for(int j=1;j<=i;j++)

{

System.out.println(a+" ");

a=a\*(i-j)/j;

}

System.out.println();

}

}

}

**OUTPUT:**

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

**8.SIMPLE INTEREST:**

import java.util.\*;

public class SimpleInterest

{

public static void main(String[]args)

{

int pri=10;

int rate=30;

int time=3000;

int SimpleInterest=(pri\*time\*rate)/100;

System.out.println(SimpleInterest);

}

}

**OUTPUT:**

18000

**9. M TO N BY SKIPPING K NUMBERS IN BETWEEN:**

import java.util.\*;

public class mtonnumbersskipk

{

public static void main(String[]args)

{

int i;

int m=50;

int n=100;

int k=7;

for(i=m;i<=n;i=i+k+1)

{

System.out.print(i+" ");

} }

}

**OUTPUT:**

50 58 66 74 82 90 98

**10.MATRIX ADITION:**

import java.util.Scanner;

public class MatrixAdd {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

int rows = 2;

int cols = 2;

int[][] mat1 = new int[rows][cols];

int[][] mat2 = new int[rows][cols];

int[][] mat\_sum = new int[rows][cols];

System.out.println("Enter elements of the first 2x2 matrix:");

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

for (int j = 0; j < cols; j++) {

mat1[i][j] = input.nextInt();

}

}

System.out.println("Enter elements of the second 2x2 matrix:");

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

for (int j = 0; j < cols; j++) {

mat2[i][j] = input.nextInt();

}

}

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

for (int j = 0; j < cols; j++) {

mat\_sum[i][j] = mat1[i][j] + mat2[i][j];

}

}

System.out.println("Sum of the two matrices:");

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

for (int j = 0; j < cols; j++) {

System.out.print(mat\_sum[i][j] + "\t");

}

System.out.println();

}

}

}

**OUTPUT:**

Enter elements of the first 2x2 matrix:

2

3

4

5

Enter elements of the second 2x2 matrix:

1

2

3

4

Sum of the two matrices:

3 5

7 9

**11.RECTANGLE PATTERN:**

import java.util.Scanner;

public class RectanglePattern {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the symbol to use: ");

char symbol = scanner.next().charAt(0);

System.out.print("Enter the width of the rectangle: ");

int width = scanner.nextInt();

System.out.print("Enter the height of the rectangle: ");

int height = scanner.nextInt();

for (int i = 0; i < height; i++) {

for (int j = 0; j < width; j++) {

System.out.print(symbol + " ");

}

System.out.println();

}

}

}

**OUTPUT:**

Enter the symbol to use: #

Enter the width of the rectangle: 8

Enter the height of the rectangle: 3

**12.FIBONACCI SERIES**

import java.util.\*;

public class fibonnaci

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

int n=input.nextInt();

int a1=0,a2=1,a3;

int a[]=new int[50];

for(int i=0;i<10;i++)

{5

a[i]=a1;

System.out.print(a[i]+" ");

a3=a1+a2;

a1=a2;

a2=a3;

}

int sum=0;

for(int i=0;i<=n\*2;i=i+2)

{

sum=sum+a[i];

}

System.out.println("\nSum: "+sum);

}

}

**OUTPUT:**

5

0 1 1 2 3 5 8 13 21 34

Sum: 33

**13.ORDERING OF WORDS:**

import java.util.\*;

public class Order {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

String[] arr = {"Banana", "Apple", "Carrot", "Radish", "Jack"};

int len = arr.length;

System.out.print("Enter order (A for Ascending, D for Descending): ");

char order = input.next().charAt(0);

if (order == 'A') {

for (int i = 0; i < len; i++) {

for (int j = i + 1; j < arr.length; j++) {

if (arr[i].compareTo(arr[j]) > 0) {

String temp = arr[i];

arr[i] = arr[j];

arr[j] = temp;

}

}

}

} else if (order == 'D') {

for (int i = 0; i < len; i++) {

for (int j = i + 1; j < arr.length; j++) {

if (arr[i].compareTo(arr[j]) < 0) {

String temp = arr[i];

arr[i] = arr[j];

arr[j] = temp;

}

}

}

} else {

System.out.println("Invalid order! Please enter 'A' for Ascending or 'D' for Descending.");

return;

}

for (String item : arr) {

System.out.println(item);

}

}

}

**OUTPUT:**

Enter order (A for Ascending, D for Descending): A

Apple

Banana

Carrot

Jack

Radish

**14.MATRIX MULTIPLICATION**

import java.util.Scanner;

public class MatrixMul {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

int rows = 2;

int cols = 2;

int[][] mat1 = new int[rows][cols];

int[][] mat2 = new int[rows][cols];

int[][] mat\_mul = new int[rows][cols];

System.out.println("Enter elements of the first 2x2 matrix:");

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

for (int j = 0; j < cols; j++) {

mat1[i][j] = input.nextInt();

}

}

System.out.println("Enter elements of the second 2x2 matrix:");

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

for (int j = 0; j < cols; j++) {

mat2[i][j] = input.nextInt();

}

}

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

for (int j = 0; j < cols; j++) {

mat\_mul[i][j] = mat1[i][j] \* mat2[i][j];

}

}

System.out.println("product of the two matrices:");

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

for (int j = 0; j < cols; j++) {

System.out.print(mat\_mul[i][j] + "\t");

}

System.out.println();

}

}

}

**OUTPUT:**

Enter elements of the first 2x2 matrix:

1

2

4

Enter elements of the second 2x2 matrix:

2

3

4

5

product of the two matrices:

2 6

12 20

**15.PATTERN**

1

11

111

11

1

CODE:

import java.util.\*;

public class Pattern

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

System.out.print("Enter the number to be printed: ");

int x=input.nextInt();

System.out.print("Max Number of time printed: ");

int n=input.nextInt();

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

{

for(int j=1;j<=i;j++)

{

System.out.print(x);

}

System.out.println();

}

for(int i=n-1;i>=1;i--)

{

for(int j=1;j<=i;j++)

{

System.out.print(x);

}

System.out.println();

}

}

}

**OUTPUT:**

Enter the number to be printed: 1

Max Number of time printed: 3

1

11

111

11

1

**16.SPECIAL CHARACTERS**

import java.util.\*;

public class SpecialCharacters

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

String s=input.nextLine();

int len=s.length();

char a[]=new char[len];

int sp=0;

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

{

a[i]=s.charAt(i);

if(a[i]>=65 && a[i]<=90 ||a[i]>=97 &&a[i]<=122

|| a[i]>=48 && a[i]<=57)

{

}

else

{

sp++;

System.out.print(a[i]);

}

}

System.out.println("\n"+sp);

}

}

**OUTPUT**

sse@23#

@#

2

**17.COMPOSITE NUMBERS**

import java.util.\*;

public class composite

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

int a=input.nextInt();

int b=input.nextInt();

for(int i=a+1;i<=b;i++)

{

int c=0;

for(int j=1;j<=b;j++)

{

if(i%j==0)

c++;

}

if(c>2)

System.out.print(i+" ");

}

}

}

**OUTPUT:**

12

45

14 15 16 18 20 21 22 24 25 26 27 28 30 32 33 34 35 36 38 39 40 42 44 45

**18.INVERTED FULL PYRAMID**

import java.util.\*;

public class Invertedpyramid

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

int n=input.nextInt();

for(int i=n;i>=1;i--)

{

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

{

System.out.print(" ");

}

for(int k=1;k<=i;k++)

{

System.out.print(" \*");

}

System.out.println();

}

}

}

**OUTPUT:**

5

\* \* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

**19.MEAN ,MODE,MEDIAN**

import java.util.\*;

public class ModeMedianMean

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

int a[]={16,18,27,16,23,21,19};

int len=a.length;

int sum=0;

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

{

sum=sum+a[i];

}

int mean=sum/len;

System.out.println("mean: "+mean);

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

{

for(int j=i+1;j<len;j++)

{

if(a[i]>a[j])

{

int temp=a[i];

a[i]=a[j];

a[j]=temp;

}

}

}

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

{

if(len%2==0)

{

int mid=len/2;

System.out.print("median: "+a[mid-1]);

break;

}

else

{

int mid=(len+1)/2;

System.out.print(mid);

System.out.println("median: "+a[mid-1]);

break;

}

}

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

{

for(int j=i+1;j<len;j++)

{

if(a[i]==a[j])

{

System.out.println("mode: "+a[i]);

break;

}

}

}

}

}

**OUTPUT:**

mean: 20

median: 19

mode: 16

**20.FACTORIAL OF A NUMBER**

import java.util.\*;

public class Factorial

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

int n=input.nextInt();

int fact=1;

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

{

fact=fact\*i;

}

System.out.print(fact);

}

}

**OUTPUT:**

6

720

**21.PATTERN**

%

%%

%%%

**CODE:**

import java.util.Scanner;

public class Pattern

{

public static void main(String args[])

{

int n;

Scanner input=new Scanner(System.in);

n=input.nextInt();

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

{

for(int j=1;j<=i;j++){

System.out.print("% ");

}

System.out.println(" ");

}

}

}

**OUTPUT:**

6

%

% %

% % %

% % % %

% % % % %

% % % % % %

**22.LEAP YEAR OR NOT**

import java.util.\*;

public class leapyear

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

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

String year=input.next();

String a[]=year.split("/");

String d=a[2];

int num=Integer.parseInt(d);

if((num%4==0 && num%100!=0)|| num%400==0)

System.out.println("It is a leap year");

else

System.out.println("Not a leap year");

}

}

**OUTPUT:**

Enter year: 4/02/2023

Not a leap year

**23.NUMBER OF FACTORS**

import java.util.\*;

public class NumberOfFactors

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

int n=input.nextInt();

int factors=0;

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

{

if(n%i==0)

factors=factors+1;

}

System.out.print("Number of factors = "+factors);

}

}

**OUTPUT:**

6

Number of factors = 4

**24.PERFECT NUMBER**

import java.util.Scanner;

public class PerfectNumberCheck {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter the given number: ");

int number = input.nextInt();

int sum = 0;

for (int i = 1; i <= number / 2; i++) {

if (number % i == 0) {

sum += i;

}

}

if (sum == number && number != 0) {

System.out.println("It's a Perfect Number");

} else {

System.out.println("It's not a Perfect Number");

}

}

}

**OUTPUT:**

Enter the given number: 6

It's a Perfect Number

**25.NUMBER OF VOWELS**

import java.util.Scanner;

public class NoOfVowels {

public static void main(String[] args) {

Scanner input=new Scanner(System.in);

String name=input.nextLine();

int len=name.length();

char a[]=new char[len];

int vow=0;

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

{

a[i]=name.charAt(i);

if(a[i]=='a'||a[i]=='e'||a[i]=='i'||a[i]=='o'||a[i]=='u'

||a[i]=='A'||a[i]=='E'||a[i]=='I'||a[i]=='O'||a[i]=='U')

vow=vow+1;

}

System.out.println(vow);

}

}

**OUTPUT:**

sse

1

**26.HOLLOW SQUARE PATTERN**

import java.util.Scanner;

public class HollowSquare {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter the size of the square: ");

int n = sc.nextInt();

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

for (int j = 0; j < n; j++) {

if (i == 0 || i == n - 1 || j == 0 || j == n - 1) {

System.out.print("\* ");

} else {

System.out.print(" ");

}

}

System.out.println();

}

}

}

OUTPUT:

Enter the size of the square: 6

\* \* \* \* \* \*

\* \*

\* \*

\* \*

\* \*

\* \* \* \* \* \*

**27.SEPARTING THE VOWELS AND CONSONANTS**

import java.util.Scanner;

public class ConstsntAndVowelsSeperately {

public static void main(String[] args) {

Scanner input=new Scanner(System.in);

String name=input.nextLine();

int len=name.length();

char a[]=new char[len];

char vow[]=new char[len];

char con[]=new char[len];

int v=0,c=0;

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

{

a[i]=name.charAt(i);

if(a[i]=='a'||a[i]=='e'||a[i]=='i'||a[i]=='o'||a[i]=='u'

||a[i]=='A'||a[i]=='E'||a[i]=='I'||a[i]=='O'||a[i]=='U') {

vow[v] = a[i];

v++;

}

else {

con[c] = a[i];

c++;

}

}

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

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

{

System.out.print(vow[i]);

}

System.out.print("\nConsonants: ");

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

{

System.out.print(con[j]);

}

}

}

**OUTPUT:**

abhi is a good girl

Vowels: aiiaooi

Consonants: bh s gd grl

**28.FIBONACCI SERIES**

import java.util.Scanner;

public class ConstsntAndVowelsSeperately {

public static void main(String[] args) {

Scanner input=new Scanner(System.in);

int n=input.nextInt();

int a1=0,a2=1;

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

{

System.out.print(a1+" ");

int a3=a1+a2;

a1=a2;

a2=a3;

}

}

}

**OUTPUT:**

6

0 1 1 2 3 5

**29.PATTERN**

1

2 2

3 3 3

4 4 4 4

import java.util.Scanner;

public class NumberPattern {

public static void main(String[] args) {

Scanner input=new Scanner(System.in);

int n=input.nextInt();

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

{

for(int j=1;j<=i;j++)

{

System.out.print(i);

}

System.out.println();

}

}

}

**OUTPUT:**

4

1

22

333

4444

**30.SQUARE AND CUBE OF A DECIMAL NUMBER**

import java.util.Scanner;

public class SquareAndCubeOfDecimalNumber{

public static void main(String[] args) {

Scanner input=new Scanner(System.in);

float n=input.nextFloat();

System.out.print("square: "+(n\*n));

System.out.print("cube: "+(n\*n\*n));

}

}

**OUTPUT:**

0.6

square: 0.36

cube: 0.21600002

**31.FREQUENCY OF A NUMBER**

import java.util.Arrays;

import java.util.Scanner;

public class ak {

public static void main(String[] args)

{

Scanner input=new Scanner(System.in);

int a[]=new int[] {1,2,8,3,2,2,2,5,1};

int t[]=new int[a.length];

int visited=-1;

for(int i=0;i<a.length;i++)

{

int count=1;

for(int j=i+1;j<a.length;j++)

{

if(a[i]==a[j])

{

count++;

t[j]=visited;

}

}

if(t[i]!=visited)

t[i]=count;

}

for(int i=0;i<a.length;i++)

{

if(t[i]!=visited)

System.out.println(a[i]+" "+t[i]);

}

}

}

**OUTPUT:**

1 2

2 4

8 1

3 1

5 1

**32.PERFECT OR NOT**

import java.util.\*;

public class PerfectNumberOrNot

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

int n=input.nextInt();

int factors=0;

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

{

if(n%i==0)

factors=factors+i;

}

if(n==factors)

System.out.print("It's a perfect number");

}

}

**OUTPUT:**

6

It's a perfect number

**33.PATTERN**

1

4 9

16 25 36

49 64 81 100

import java.util.\*;

public class Pattern

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

int n=input.nextInt();

int k=1;

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

{

for(int j=1;j<=i;j++)

{

System.out.print(k\*k+" ");

k++;

}

System.out.println();

}

}

}

**OUTPUT:**

4

1

4 9

16 25 36

49 64 81 100

**34.COMPOSITE NUMBERS IN AN ARRAY**

import java.util.\*;

public class CompositeNumbersInAnArray

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

int arr[]={16,18,27,16,23,21,19};

int len=arr.length;

int count=0;

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

{

int c=0;

for(int j=1;j<100;j++)

{

if(arr[i]%j==0)

{

c++;

}

}

if(c>2)

count++;

}

System.out.println(count);

}

}

**OUTPUT:**

5

**35. nth odd number after n odd number**

import java.util.\*;

public class CompositeNumbersInAnArray

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

int n=input.nextInt();

int arr[]=new int[100];

int j=1;

for(int i=1;i<100;i++)

{

if(i%2!=0) {

arr[j] = i;

j++;

}

}

System.out.print(arr[n\*2]);

}

}

**OUTPUT:**

4

15

**36. given character is present in a string or not.**

import java.util.\*;

public class CompositeNumbersInAnArray

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

String str=input.nextLine();

char c=input.next().charAt(0);

char arr[]=new char[str.length()];

int len=str.length();

int x=0;

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

{

arr[i]=str.charAt(i);

if(arr[i]==c)

{

System.out.println(c+" is found in string at index: "+(i+1));

x=1;

}

}

if(x==0)

System.out.print("character not found");

}

}

**OUTPUT:**

I AM A PROGRAMMER

P

P is found in string at index: 8

**37.PATTERN**

1

2 2

3 3 3

4 4 4 4

3 3 3

2 2

1

import java.util.\*;

public class CompositeNumbersInAnArray

{

public static void main(String[]args)

{

Scanner input=new Scanner(System.in);

int n=input.nextInt();

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

{

for(int j=1;j<=i;j++)

{

System.out.print(i);

}

System.out.println();

}

for(int i=n-1;i>=1;i--)

{

for(int j=1;j<=i;j++)

{

System.out.print(i);

}

System.out.println();

}

}

}

**OUTPUT:**

4

1

22

333

4444

333

22

1

**38.ARMSTRONG NUMBER**

import java.util.Scanner;

public class ArmstrongCheck {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter a number: ");

int number = sc.nextInt();

int original = number, result = 0;

while (original != 0) {

int digit = original % 10;

result += Math.pow(digit, 3);

original /= 10;

}

if (result == number) {

System.out.println(number + " is an Armstrong number.");

} else {

System.out.println(number + " is not an Armstrong number.");

}

}

}

**OUTPUT:**

Enter a number:

153

153 is an Armstrong number.

39.REVERSE A WORD ALPHABETICALLY

import java.util.Scanner;

import java.util.Arrays;

public class ak

{

public static void main(String args[])

{

Scanner input=new Scanner(System.in);

String name=input.nextLine();

int len=name.length();

char arr[]=new char[len];

String Alpha;

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

{

arr[i]=name.charAt(i);

}

Arrays.sort(arr);

for(int i=len-1;i>=0;i--)

{

System.out.print(arr[i]+" ");

}

}

}

**OUTPUT:**

MOSQUE

U S Q O M E

**40.REMOVING VOWELS**

import java.util.Scanner;

import java.util.Arrays;

public class RemovingVowels

{

public static void main(String args[])

{

Scanner input=new Scanner(System.in);

String name=input.nextLine();

String n1=name.replaceAll("[aeiouAEIOU]","");

System.out.println(n1);

}

}

OUTPUT:

I AM NOT WRITING THE ASSIGNMENT

M NT WRTNG TH SSGNMNT

**41.SQUARE OF A PERFECT SQUARE**

import java.util.Scanner;

import java.lang.Math;

public class ak

{

public static void main(String args[])

{

Scanner input=new Scanner(System.in);

double n=input.nextInt();

double sqrt=Math.pow(n,0.5);

double sq=Math.sqrt(n);

System.out.println(sqrt+","+"-"+sqrt);

}

}

**OUTPUT:**

6561

81.0,-81.0

**42.Write a program to implement insertion sort on a array of integers using loops and conditional statements.**

**PROGRAM**

import java.util.Arrays;

class R192211326 {

public static void main(String[] args) {

int[] arr = {9, 3, 7, 5, 6, 4, 2, 8};

for (int i = 1; i < arr.length; i++) {

int key = arr[i];

int j = i - 1;

while (j >= 0 && arr[j] > key) {

arr[j + 1] = arr[j];

j = j - 1;

}

arr[j + 1] = key;

}

System.out.println("Sorted array: " + Arrays.toString(arr));

}

}

**OUTPUT**

Sorted array: [2, 3, 4, 5, 6, 7, 8, 9]

**43.Merge Two Sorted Lists.**

**PROGRAM**

import java.util.ArrayList;

import java.util.Arrays;

import java.util.List;

public class R192211326 {

public static void main(String[] args) {

List<Integer> list1 = Arrays.asList(1, 3, 5, 7);

List<Integer> list2 = Arrays.asList(2, 4, 6, 8);

List<Integer> mergedList = mergeSortedLists(list1, list2);

System.out.println("Merged list: " + mergedList);

}

public static List<Integer> mergeSortedLists(List<Integer> list1, List<Integer> list2) {

List<Integer> mergedList = new ArrayList<>();

int i = 0, j = 0;

while (i < list1.size() && j < list2.size()) {

if (list1.get(i) <= list2.get(j)) {

mergedList.add(list1.get(i));

i++;

} else {

mergedList.add(list2.get(j));

j++;

}

}

while (i < list1.size()) {

mergedList.add(list1.get(i));

i++;

}

while (j < list2.size()) {

mergedList.add(list2.get(j));

j++;

}

return mergedList;

}

}

**OUTPUT**

Merged list: [1, 2, 3, 4, 5, 6, 7, 8]

**44. Java program Roman to Integer.**

**PROGRAM**

public class R192211326 {

public static String intToRoman(int num) {

String[] romanSymbols = {"M", "CM", "D", "CD", "C", "XC", "L", "XL", "X", "IX", "V", "IV", "I"};

int[] values = {1000, 900, 500, 400, 100, 90, 50, 40, 10, 9, 5, 4, 1};

StringBuilder roman = new StringBuilder();

for (int i = 0; i < values.length; i++) {

while (num >= values[i]) {

roman.append(romanSymbols[i]);

num -= values[i];

}

}

return roman.toString();

}

public static void main(String[] args) {

int number = 1994;

String romanNumeral = intToRoman(number);

System.out.println("The Roman numeral for " + number + " is: " + romanNumeral);

}

}

**OUTPUT**

The Roman numeral for 1994 is: MCMXCIV

**45.Java Program for Longest Common Prefix.**

**PROGRAM**

public class R192211326 {

public static String longestCommonPrefix(String[] strs) {

if (strs == null || strs.length == 0) {

return "";

}

String prefix = strs[0];

for (int i = 1; i < strs.length; i++) {

while (strs[i].indexOf(prefix) != 0) {

prefix = prefix.substring(0, prefix.length() - 1);

if (prefix.isEmpty()) {

return "";

}

}

}

return prefix;

}

public static void main(String[] args) {

String[] strs = {"flower", "flow", "flight"};

String result = longestCommonPrefix(strs);

System.out.println("The longest common prefix is: " + result);

}

}

**OUTPUT**

The longest common prefix is: f l

**46.Java Program to ADD Binary.**

**PROGRAM**

public class R192211326 {

public static String addBinary(String a, String b) {

int sum = 0;

int i = a.length() - 1;

int j = b.length() - 1;

int carry = 0;

StringBuilder result = new StringBuilder();

while (i >= 0 || j >= 0 || carry != 0) {

sum = carry;

if (i >= 0) {

sum += a.charAt(i--) - '0';

}

if (j >= 0) {

sum += b.charAt(j--) - '0';

}

carry = sum / 2;

result.append(sum % 2);

}

return result.reverse().toString();

}

public static void main(String[] args) {

String a = "11";

String b = "11";

String result = addBinary(a, b);

System.out.println("The sum of " + a + " and " + b + " is " + result);

}

}

**OUTPUT**

The sum of 11 and 11 is 110