1. **Perfect numbers:**

import java.util.\*;

public class Main{

public static void main(String[] args){

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

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

int sum=0;

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

{

if(n%i==0){

System.out.println(i);

sum=sum+i;

}

}

if(sum==n)

{

System.out.println("It is a perfect number");

}

else{

System.out.println("It is a not perfect number");

}

}

}

1. **Fibonacci series:**

import java.util.\*;

public class Main{

public static void main(String a[]){

System.out.println("enter the number:");

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

int n1=0,n2=1,n3;

System.out.print(n1 + "" +n2);

for(int i=2;i<=n;i++){

n3=n1+n2;

n1=n2;

n2=n3;

System.out.print(n3);

}

}

}

1. **Reverse a number:**

import java.util.\*;

public class Main{

public static void main(String args[]){

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

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

int rev=0,rem;

while(n!=0){

rem=n%10;

rev=rev\*10+rem;

n=n/10;

}

System.out.println(rev);

}

}

1. **Pattern:**

\*

\* \*

\* \* \*

\* \* \* \*

import java.util.\*;

public class Main{

public static void main(String [] a){

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

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

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

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

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

}

System.out.println();

}

}

}

1. **Pattern:**

\* \* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

import java.util.\*;

public class Main{

public static void main(String [] a){

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

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

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

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

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

}

System.out.println();

}

}

}

6)**Pattern:**

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

import java.util.\*;

public class Main{

public static void main(String [] a){

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

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

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

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

System.out.print(j + “ “);

}

System.out.println();

}

}

}

1. **Pattern:**  \*
2. \* \*
3. \* \* \*

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

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

Scanner sc = new Scanner(System.in);

int n = sc.nextInt();

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

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

System.out.print(" ");

}

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

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

}

System.out.println();

}

}

}

**9)Pattern**

1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

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

Scanner sc = new Scanner(System.in);

int n = sc.nextInt();

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

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

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

}

System.out.println();

} }

}

**Reverse a string**

import java.util.\*;

public class Main{

public static void main(String[] args){

System.out.println("Enter the string:");

Scanner sc=new Scanner(System.in);

String str=sc.next();

String str1="";

int len=str.length();

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

{

str1=str1+str.charAt(i);

}

System.out.println(str1);

}

}

**PYRAMID**

import java.util.\*;

public class Main{

public static void main(String[] args){

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

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

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

{

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

System.out.print(" ");

}

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

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

}

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

}

}

}

**REVERSE PYRAMID**

import java.util.\*;

public class Main {

public static void main(String[] args) {

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

Scanner sc = new Scanner(System.in);

int n = sc.nextInt();

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

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

System.out.print(" ");

}

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

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

}

System.out.println();

}

}

}

**SKIPPING NUMBERS**

import java.util.\*;

public class Main{

public static void main(String[] arg){

Scanner sc=new Scanner(System.in);

System.out.println("Enter the starting number:");

int m=sc.nextInt();

System.out.println("Enter the ending number:");

int n=sc.nextInt();

System.out.println("Enter the skipping number:");

int k=sc.nextInt();

while(m<=n){

if(m==k){

m++;

continue;

}

System.out.println(m);

m++;

}

}

}

**DIAMOND:**

import java.util.\*;

public class Main {

public static void main(String[] args) {

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

Scanner sc = new Scanner(System.in);

int n = sc.nextInt();

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

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

System.out.print(" ");

}

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

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

}

System.out.println();

}

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

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

System.out.print(" ");

}

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

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

}

System.out.println();

}

}

}

**ARMSTRONG**

import java.util.\*;

public class Main{

public static void main(String[] args){

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

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

int cube=0,rem,ori;

ori=n;

while(n!=0){

rem=n%10;

cube=cube+(rem\*rem\*rem);

n=n/10;

}

System.out.println(cube);

if(cube==ori)

{

System.out.println("Armstrong Number");

}

else{

System.out.println("Not Armstrong Number");

}

}

}

**ASCENDING OR DESCENDING**

import java.util.\*;

class Main {

public static void main(String[] args) {

String option;

String str;

Scanner s = new Scanner(System.in);

System.out.println("enter list of name:");

str=s.nextLine();

System.out.println("enter choice A/D:");

option=s.nextLine();

switch(option){

case "A":

String[]data=str.split(" ");

Arrays.sort(data);

for (String output:data){

System.out.println(output);

}

break;

case "D":

String[]data1=str.split(" ");

Arrays.sort(data1,Collections.reverseOrder());

for (String output:data1) {

System.out.println(output);

}

break;

default:

System.out.print("Invalid choice");

break;

}

}

}

**VOWELS,CON,DIG,SP**

import java.util.\*;

public class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter the statement:");

String str = sc.next();

str = str.toLowerCase();

int c = 0, v = 0, d = 0, s = 0;

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

char ch = str.charAt(i);

if ((ch >= 'a' && ch <= 'z')) {

if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {

v++;

} else {

c++;

}

} else if (ch>='0' && ch<='9') {

d++;

} else {

s++;

}

}

System.out.println("Vowels: " + v);

System.out.println("Consonants: " + c);

System.out.println("Digits: " + d);

System.out.println("Special characters: " + s);

}}

**ARRAY BASIC**

import java.util.\*;

public class Main{

public static void main(String[] args){

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

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

System.out.println("Enter the numbers:");

int[] arr=new int[n];

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

arr[i]=sc.nextInt();

}

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

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

if(arr[j]<arr[j+1]){ **///// if (arr[j].compareTo(arr[j + 1]) < 0) (for string)**

int temp=arr[j];

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

arr[j+1]=temp;

}

}

}

System.out.println("sorted array:");

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

System.out.println(arr[i]);

}}

}

**PERFECT SQUARE:**

import java.util.\*;

class Main{

public static void main(String[]args){

int n,f=0;

Scanner s=new Scanner(System.in);

System.out.println("enter number = ");

n=s.nextInt();

f= (int) Math.sqrt(n);

if((f\*f)==n){

System.out.println("perfect square");

}

else{

System.out.println("not perfect square");

}

}

}

**LCM AND GCD**

import java.io.\*;

import java.util.\*;

class Main{

public static void main(String args[])

{

Scanner scan=new Scanner(System.in);

System.out.println("enter the number");

int n1=scan.nextInt();

System.out.println("enter the number");

int n2=scan.nextInt();

int gcd=Findgcd(n1,n2);

int lcm=(n1\*n2)/gcd;

System.out.println("gcd of"+n1+"and"+n2+"is"+gcd);

System.out.println("lcm of"+n1+"and"+n2+"is"+lcm);

}

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

while(b!=0){

int temp=b;

b=a%b;

a=temp;

}

return a;

}

}

**LEAP YEAR**

import java.util.\*;

public class Main{

public static void main(String[] args){

System.out.println("Enter the year:");

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

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

System.out.println("It IS A LEAP YEAR");

}

else{

System.out.println("It IS not A LEAP YEAR");

}

}

}

**SQUARE,CUBE OF DECIMAL NUMBER:**

import java.util.\*;

public class Main{

public static void main(String[] args){

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

Scanner sc=new Scanner(System.in);

float n=sc.nextFloat();

float square=(n\*n);

float cube=(n\*n\*n);

System.out.println("Square of a number:" + square);

System.out.println("cube of a number:" + cube);

}

}

**PATTERN USING SQUARE OF A NUMBER:**

import java.util.\*;

public class Main{

public static void main(String[] args){

System.out.println("Enter the no of rows:");

Scanner sc=new Scanner(System.in);

int n=sc.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();

}

}

}

**MATRIX ADDITION:**

import java.util.Scanner;

public class Main{

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

double[][] matrix1 = new double[2][2];

for (int i = 0; i < 2; i++) {

for (int j = 0; j < 2; j++) {

System.out.printf("Element (%d, %d): ", i + 1, j + 1);

matrix1[i][j] = sc.nextDouble();

}

}

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

double[][] matrix2 = new double[2][2];

for (int i = 0; i < 2; i++) {

for (int j = 0; j < 2; j++) {

System.out.printf("Element (%d, %d): ", i + 1, j + 1);

matrix2[i][j] = sc.nextDouble();

}

}

System.out.println("The sum of the two 2x2 matrices is:");

double[][] sum = new double[2][2];

for (int i = 0; i < 2; i++) {

for (int j = 0; j < 2; j++) {

sum[i][j] = matrix1[i][j] + matrix2[i][j];

}

}

for (int i = 0; i < 2; i++) {

for (int j = 0; j < 2; j++) {

System.out.printf("%.2f ", sum[i][j]);

}

System.out.println();

}

}

}

**MATRIX MUL:**

import java.util.\*;

public class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

// Input for the first matrix

System.out.println("Enter the first matrix: ");

int[][] mat1 = new int[2][2];

for (int i = 0; i < 2; i++) {

for (int j = 0; j < 2; j++) {

System.out.printf("Elements(%d, %d): ", i + 1, j + 1);

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

}

}

// Input for the second matrix

System.out.println("Enter the second matrix: ");

int[][] mat2 = new int[2][2];

for (int i = 0; i < 2; i++) {

for (int j = 0; j < 2; j++) {

System.out.printf("Elements(%d, %d): ", i + 1, j + 1);

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

}

}

// Matrix multiplication

int[][] product = new int[2][2];

for (int i = 0; i < 2; i++) {

for (int j = 0; j < 2; j++) {

for (int k = 0; k < 2; k++) {

product[i][j] += mat1[i][k] \* mat2[k][j];

}

}

}

// Displaying the result

System.out.println("Multiplication of Matrix: ");

for (int i = 0; i < 2; i++) {

for (int j = 0; j < 2; j++) {

System.out.printf("%d ", product[i][j]);

}

System.out.println();

}

// Closing the Scanner

sc.close();

}

}

**HOLLOW REC:**

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

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

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

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

int rows = scanner.nextInt();

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

int columns = scanner.nextInt();

printHollowRectanglePattern(symbol, rows, columns);

}

public static void printHollowRectanglePattern(char symbol, int rows, int columns) {

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

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

if (i == 0 || i == rows - 1 || j == 0 || j == columns - 1) {

System.out.print(symbol);

} else {

System.out.print(" ");

}

}

System.out.println();

}

}

}

**ROMAN TO INTEGER:**

import java.util.\*;

public class Main {

public static void main(String[] args) {

System.out.println("Enter the String:");

Scanner sc = new Scanner(System.in);

String n = sc.next();

n=n.toUpperCase();

char[] num=n.toCharArray();

int k=0;

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

if(num[i]=='I'){

k=k+1;

}

else if(num[i]=='V'){

k=k+5;

}

else if(num[i]=='X'){

k=k+10;

}

else if(num[i]=='L'){

k=k+50;

}

else if(num[i]=='C'){

k=k+100;

}

else if(num[i]=='D'){

k=k+500;

}

else if(num[i]=='M'){

k=k+1000;

}

else{

System.out.println("Enter the Valid choice!!");

break;

}

}

System.out.println(k);

}

}

**TAX :**

import java.util.\*;

public class Main{

public static void main(String[] args){

System.out.println("Enter the amt:");

Scanner sc=new Scanner(System.in);

double interest=0.0;

int amt=sc.nextInt();

if(amt<=250000){

System.out.println("N0 TAX NEEDED");

}

else if(amt>=250001 && amt<=500000){

interest=(amt/100)\*10;

System.out.println(interest);

}

else if(amt>=500001 && amt<=1000000){

interest=(amt/100)\*20;

System.out.println(interest);

}

else if(amt>1000000){

interest=(amt/100)\*30;

System.out.println(interest);

}

}

}

**MULTIPLE INHERITENCE:**

import java.util.\*;

interface subject{

void getmarks();

}

interface grade{

void total();

void Avg();

void display();

}

class student implements subject,grade{

Scanner sc=new Scanner(System.in);

String str;

int n1,n2,n3,n4,n5,n6,tot,avg;

public void getmarks(){

System.out.println("Enter the name :");

str=sc.next();

System.out.println("Enter the Marks :");

n1=sc.nextInt();

n2=sc.nextInt();

n3=sc.nextInt();

n4=sc.nextInt();

n5=sc.nextInt();

n6=sc.nextInt();

}

public void total(){

tot=n1+n2+n3+n4+n5+n6;

}

public void Avg(){

avg=tot/6;

}

public void display(){

if(avg>=75){

System.out.println("Distincation");

}

else if(avg>=60 && avg<=75){

System.out.println("1 st division");

}

else if(avg>=50 && avg<=60){

System.out.println("2 nd division");

}

else if(avg>=40 && avg<=50){

System.out.println("3 rd division");

}

else{

System.out.println("FAIL");

}

}

}

public class Main{

public static void main(String[] args){

student stu=new student();

stu.getmarks();

stu.total();

stu.Avg();

stu.display();

}

}

**COMPOSITE NUM:**

import java.util.\*;

public class Main{

public static void main(String[] args){

System.out.println("Enter the a and b:");

Scanner sc=new Scanner(System.in);

int a=sc.nextInt();

int b=sc.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 + " ");

}

}

}

}

**PRIME AND COMPOSITE:**

import java.util.\*;

public class Main {

public static void main(String[] args) {

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

Scanner sc = new Scanner(System.in);

int n = sc.nextInt();

int[] arr = new int[n];

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

arr[i] = sc.nextInt();

}

int pri = 0, com = 0;

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

int c = 0;

int x = arr[i];

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

if (x % j == 0) {

c++;

}

}

if (c > 2) {

com++;

} else {

pri++;

}

}

System.out.println("Composite Count: " + com);

System.out.println("Prime Count: " + pri);

}

}

**TO CHECK A POSITION OF A LETTER IN A STRING**

import java .util.\*;

public class Main

{

public static void main(String[] args) {

String str,k;

Scanner s=new Scanner(System.in);

System.out.print("enter string = ");

str=s.nextLine();

System.out.print("enter value to search = ");

k=s.nextLine();

char[] data=str.toCharArray();

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

if(data[i]==k.charAt(0)){

System.out.print(data[i]+" is present in given string and its value is "+(i+1));

}

}}

}

**Mth Maximum and Nth Minimum**

import java.util.\*;

public class Main{

public static void main(String[] args){

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

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

int[] arr=new int[n];

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

arr[i]=sc.nextInt();

}

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

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

if(arr[j]>arr[j+1]){

int temp=arr[j];

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

arr[j+1]=temp;

}

}

}

System.out.println("Sorted Array:");

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

System.out.println(arr[i]);

}

System.out.println("Enter the mth max and nth min:");

int m=sc.nextInt();

int b=sc.nextInt();

int max=arr[n-m];

int min=arr[b-1];

System.out.println(max);

System.out.println(min);

int sum=max+min;

int diff=max-min;

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

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

}

}

**UPPER,LOWER,NUMBER**

import java.util.\*;

public class Main{

public static void main(String[] args){

System.out.println("Enter the string:");

Scanner sc=new Scanner(System.in);

String str=sc.next();

int upper=0,lower=0,num=0;

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

char ch=str.charAt(i);

if(ch=='\*')

break;

else if(ch>='a' && ch<='z'){

lower++;

}

else if(ch>='A' && ch<='Z'){

upper++;

}

else {

num++;

}

}

System.out.println(lower);

System.out.println(upper);

System.out.println(num);

}

}

**OOPS:**

import java.util.\*;

class bank {

String dname, acctp;

int accno;

double bal;

public bank(String depname, String acctype, double balan, int accnum) {

this.dname = depname;

this.acctp = acctype;

this.bal = balan;

this.accno = accnum;

}

public void deposit(double amount) {

if (amount > 0) {

bal = bal + amount;

System.out.println("Amount deposited successfully");

System.out.println("balance: " + bal);

} else {

System.out.println("invalid amount");

}

}

public void withdrawal(double amount) {

if (amount > 0) {

if (bal - amount < 500) {

System.out.println("maintain minimum balance 500:");

} else {

bal = bal - amount;

System.out.println("transaction successful.");

System.out.println("balance: " + bal);

}

} else {

System.out.println("invalid transaction.");

}

}

}

public class Main {

public static void main(String[] args) {

Scanner s = new Scanner(System.in);

String tname, ttype;

double tbal, depo, withdra;

int taccno;

System.out.println("depositor name:");

tname = s.next();

System.out.println("transaction type:");

ttype = s.next();

System.out.println("Account balance:");

tbal = s.nextDouble();

System.out.println("Account no:");

taccno = s.nextInt();

bank b = new bank(tname, ttype, tbal, taccno);

System.out.println("account bal: " + tbal);

System.out.println("enter the deposit amount:");

depo = s.nextDouble();

b.deposit(depo);

System.out.println("enter withdrawal amount:");

withdra = s.nextDouble();

b.withdrawal(withdra);

}

}

**LEAP YEAR:**

import java.util.\*;

public class Main{

public static void main(String[] args) {

Scanner aa = new Scanner(System.in);

System.out.println("enter the date/month/year");

String n = aa.next();

String[] d = n.split("/",3);

int x = Integer.parseInt(d[2]);

if(x%4==0)

{

System.out.println("it is leap year");

}

else

{

System.out.println("it is not leap year");

}

}}

**FREQUENCY**

import java.util.\*;

public class Main {

public static void main(String[] args) {

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

Scanner sc = new Scanner(System.in);

int n = sc.nextInt();

int[] a = new int[n];

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

a[i] = sc.nextInt();

}

int[] c = new int[n];

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

c[i] = 1;

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

if (a[i] == a[j] && a[i] != -1) {

c[i]++;

a[j]=-1;

}

}

if (a[i] != -1) {

System.out.println(a[i] + " Frequency is " + c[i]);

}

}

}

}

**DUPLICATE:**

**public** **static** **void** main(String[] args) {

Scanner aa = **new** Scanner(System.***in***);

System.***out***.println("enter the no of elements");

**int** n = aa.nextInt();

**int** a[]=**new** **int**[n];

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

{

System.***out***.println("enter the elements");

a[i]=aa.nextInt();

}

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

{

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

{

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

{

a[i]=-1;

}

}

}

System.***out***.println("removed duplicate is");

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

**if**(a[i]!=-1)

{

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

}

}

}

**POS AND NEG AVG:**

import java.util.\*;

public class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int n = sc.nextInt();

int[] arr = new int[n];

System.out.println("Enter the elements:");

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

arr[i] = sc.nextInt();

}

int p = 0, s1 = 0, s2 = 0, i = 0,ne=0;

while (i < n) {

if (arr[i] == -1) {

break;

}

if (arr[i] > 0) {

p++;

s1 = s1 + arr[i];

} else {

ne++;

s2 = s2 + arr[i];

}

i++;

}

System.out.println("Positive Count: " + p);

System.out.println("Negative Sum: " + ne);

double pos=s1/p;

double neg=s2/ne;

System.out.print("POS AVG:"+ pos);

System.out.print("Neg avg" + neg);

}

}

**CONSTRUCTOR** :

import java.util.\*;

class abc{

abc(int n1,int n2){

System.out.print(n1+ " " + n2);

}

}

public class Main extends abc{

Main(int n1,int n2){

super(n1,n2);

}

public static void main(String[] args){

Scanner sc=new Scanner(System.in);

int a=sc.nextInt();

int b=sc.nextInt();

Main obj=new Main(a,b);

}

}