1. Find out if the given number is an Armstrong number.

Logic : - if 153 is the supplied value, the (1^3)+(5^3)+(3^3)=1+125+27=153

This is the same as supplied value hence it is an Armstrong number.

**package** problem1;

**import** java.util.\*;

**public** **class** armstrong {

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

{

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

**int** n,num,rem,sum=0;

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

n=sc.nextInt();

num=n;

**while**(num!=0)

{

rem=num%10;

sum=sum+rem\*rem\*rem;

num=num/10;

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

}

**if**(sum==n)

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

**else**

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

}

}

o/p

Enter the number

153

27

152

153

153 is an Armstrong number

1. Find out all the Armstrong numbers falling in the range of 100-999

**package** problem2;

**public** **class** armstrong {

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

{

**for** (**int** k = 100 ; k <= 1000 ; k++)

{

**int** n = k;

**int** rem = 0;

**int** sum= 0;

**while** (n > 0)

{

rem = n % 10;

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

n = n / 10;

}

**if** (k == sum)

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

}

}

}

Output:

153is Armstrong number

370is Armstrong number

371is Armstrong number

407is Armstrong number

1. Find out the simple as well as compound interest of supplied value.

package program3;

import java.util.Scanner;

import java.lang.math;

public class simple {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

int n=153;

System.out.print(n+"is the principle");

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

double rate = input.nextDouble();

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

double time = input.nextDouble();

System.out.print("Enter number of times interest is compounded: ");

int number = input.nextInt();

double interest = (n \* time \* rate) / 100;

double amount = n \*Math.pow(1 + (rate /number), time \* number);

double compund = amount-n;

System.out.println("Principal: " + n);

System.out.println("Interest Rate: " + rate);

System.out.println("Time Duration: " + time);

System.out.println("Simple Interest: " + interest);

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

System.out.println("coumpound" + compund);

input.close();

}

}

Output:

153is the principleEnter the rate: 2

Enter the time: 1

Enter number of times interest is compounded: 1

Principal: 153

Interest Rate: 2.0

Time Duration: 1.0

Simple Interest: 3.06

amount:459.0

coumpound306.0

1. There is an Array which is of the size 15, which may or may not be sorted. You should write a program to accept a number and search if it in contained in the array.

package problem5;

public class search {

public static int searching(int[] arr, int key){

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

if(arr[i] == key){

return i;

}

}

return -1;

}

public static void main(String a[]){

int[] a1= {5,12,14,6,78,19,1,23,26,35,37,7,52,86,47};

int key = 19;

System.out.println(key+" is found at index: "+ searching(a1, key));

}

}

Output:

1. s found at index:5
2. Using the above table write a method apply sorting Bubble Sort.

package problem6;

public class sort {

static void bubbleSort(int[] arr) {

int n = arr.length;

int temp = 0;

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

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

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

temp = arr[j-1];

arr[j-1] = arr[j];

arr[j] = temp;

}

}

}

}

public static void main(String[] args) {

int arr[] ={5,12,14,6,78,19,1,23,26,35,37,7,52,86,47};

bubbleSort(arr);//sorting array elements using bubble sort

System.out.println("Bubble Sort");

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

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

}

}

}

Output:

Bubble Sort

1 5 6 7 12 14 19 23 26 35 37 47 52 78 86

1. Accept the marks of three students for the subject A,B,C. Find the total scored and the average in all the subjects. Also Find theTotal and Average scored by students in each respective Subject.

package program7;

import java.util.Scanner;

public class student {

public static void main(String[] args)

{

Scanner scan= new Scanner(System.in);

System.out.println("Name:Ram");

System.out.println("subject A:");

double num1=scan.nextDouble();

System.out.println("subject b:");

double num2=scan.nextDouble();

System.out.println("subject C:");

double num3=scan.nextDouble();

double total=num1+num2+num3;

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

double avg1=total/3;

System.out.println("average" +avg1);

System.out.println("Name:Raj");

System.out.println("subject A:");

double num12=scan.nextDouble();

System.out.println("subject b:");

double num22=scan.nextDouble();

System.out.println("subject C:");

double num32=scan.nextDouble();

double total1=num12+num22+num32;

System.out.println("total:"+total1);

double avg2=total/3;

System.out.println("average" +avg2);

System.out.println("Name:Reema");

System.out.println("subject A:");

double num13=scan.nextDouble();

System.out.println("subject b:");

double num23=scan.nextDouble();

System.out.println("subject C:");

double num33=scan.nextDouble();

double total2=num13+num23+num33;

System.out.println("total:"+total2);

double avg3=total/3;

System.out.println("average" +avg3);

}

}

Output:

Name:Ram

subject A:

10

subject b:

9

subject C:

8

total:27.0

average9.0

Name:Raj

subject A:

12

subject b:

32

subject C:

67

total:111.0

average9.0

Name:Reema

subject A:

45

subject b:

30

subject C:

34

total:109.0

average9.0

1. Supply marks of three subject and declare the result, result declaration is based on below conditions.

Condition 1: All subjects marks are greater than 60 is Passed.

Condition 2: Any two subjects marks are greater than 60 is Promoted.

Condition 3: Any one subject marks is greater than 60 or all subjects marks less than 60 is failed.

import java.util.Scanner;

public class subject {

public static void main(String[] args)

{

Scanner scan=new Scanner(System.in);

System.out.println("sub1 marks: ");

int sub1=scan.nextInt();

System.out.println("sub2 marks: ");

int sub2=scan.nextInt();

System.out.println("sub3 marks: ");

int sub3=scan.nextInt();

if(sub1>=60&&sub2>=60&&sub3>=60)

{

System.out.println("Pass");

}

else if (sub1>=60&&sub2>=60||sub3>=60)

{

System.out.println("Promoted");

}

else

{

System.out.println("failed");

}

}

}

Output:

sub1 marks:

8

sub2 marks:

90

sub3 marks:

67

Promoted

sub1 marks:

80

sub2 marks:

45

sub3 marks:

45

Failed

sub1 marks:

80

sub2 marks:

87

sub3 marks:

90

Pass

1. Calculate the income tax on the basis of the following table.

Note: Assume slab is consider for Male, Female as well as Senior Citi.

|  |  |  |
| --- | --- | --- |
| **Slab** | **Income Range** | **Tax Payable in Percentage** |
| Slab A | 0-1,80,000 | Nil |
| Slab B | 1,81,001-3,00,000 | 10% |
| Slab C | 3,00,001-5,00,000 | 20% |
| Slab D | 5,00,001-10,00,000 | 30% |

package problem8;

import java.util.Scanner;

public class Tax {

public static void main(String[] args) {

int ctc;

double tax;

Scanner sc = new Scanner(System.in);

System.out.println("Enter the ctc ");

ctc = sc.nextInt();

if(ctc<=180000)

{

tax = ctc;

System.out.println("Slab A's " + tax + " is the display Tax Amount");

}

else if((ctc>=181001)&&(ctc<=300000))

{

tax = ctc + (ctc \* 10/100);

System.out.println("Slab B's " + tax + " is the display Tax Amount");

}

else if((ctc>=300001)&&(ctc<=500000))

{

tax = ctc + (ctc \* 20/100);

System.out.println("Slab C's " + tax + " is the display Tax Amount");

}

else if((ctc>=500001)&&(ctc<=1000000))

{

tax = ctc + (ctc \* 30/100);

System.out.println("Slab D's " + tax + " is the display Tax Amount");

}

else

{

System.out.println("Wrong Input");

}

}

Output:

Enter the ctc

10000

Slab A's 10000.0 is the display Tax Amount

1. Consider a CUI based application, where you are asking a user to enter his Logic name and password, after entering the valid user-id and password it will print the message “Welcome” along with user name. As per the validation is concerned, the program should keep a track of login attempts. After three attempts a message should be flashed saying “Contact Admin”, and the program should terminate.

**package** problem9;

**import** java.util.Scanner;

**public** **class** login {

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

String uname, pwd;

**int** count = 0, atmp;

**while**(count<3)

{

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

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

uname = sc.nextLine();

System.***out***.println("Enter password : ");

pwd = sc.nextLine();

**if**(uname.equals("Rohan") && pwd.equals("Rohan"))

{

System.***out***.println("Welcome Rohan...");

}

**else**

{

count++;

atmp = 3-count;

System.***out***.println("Try Again. Remaining attempts " + atmp);

**if**(atmp == 0)

{

System.***out***.println("Contact Admin");

}}}

}

}

Output:

Enter the login name :

Rohan

Enter password :

Rohan

Welcome Rohan...

Enter the login name :

Rohan

Enter password :

Rohan

Try Again. Remaining attempts 2

Enter the login name :

ROh

Enter password :

anu

Try Again. Remaining attempts 1

Enter the login name :

Rohan

Enter password :

ROh

Try Again. Remaining attempts 0

Contact Admin