Core java assignment

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.

**Public class** armstrong {

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

{

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

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

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

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");

}

}

output

Enter the number

1. is an Armstrong number

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

**Public class** armstrong {

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

{

int k, j=0, i;

System.***out***.println( “Armstrong numbers from 100 to 999 are: ");

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

{

**int** a = i;

**int** j = 0;

**while** (a > 0)

{

k = a % 10;

j = j + (k\* k \* k);

a= a / 10;

}

**if** (j==i)

{

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

}

}

}

Output:

Armstrong numbers from 100 to 999 are:

153

370

371

407

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

**public** **class** Sici {

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

**double** p,r,t,si,ci;

p=7000.0;

r=21.0;

t=2.0;

si = (p \* r \* t)/100;

ci = p \* Math.*pow*(1.0+r/100.0,t)-p;

System.***out***.println(si + " is Simple Interest");

System.***out***.println(ci + " is Compound Interest");

}

}

**Output:**

2940.0 is Simple Interest

3248.699999999999 is Compound Interest

4.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.

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

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

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

|  |  |  |
| --- | --- | --- |
| **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% |

Accept CTC from user and display Tax Amount

**import** java.util.Scanner;

**public** **class** TaxAmount {

**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

450000

Slab C's 540000.0 is the display Tax Amount

6.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.

**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("hello") &&pwd.equals("world"))

{

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

}

**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 :

hello

Enter password :

world

Welcome hello...

Enter the login name :

hello

Enter password :

world

Try Again. Remaining attempts 2

Enter the login name :

anu

Enter password :

anu

Try Again. Remaining attempts 1

Enter the login name :

hi

Enter password :

hii

Try Again. Remaining attempts 0

Contact Admin

7. 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.

Example:

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

**Value to be search is 19**

**import** java.util.Scanner;

**public** **class** LinearSearch {

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

// **TODO** Auto-generated method stub

**int** i,n,s,arr[];

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

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

n = sc.nextInt();

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

System.***out***.println("Enter the " + n + " elements");

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

{

arr[i]=sc.nextInt();

}

System.***out***.println("Enter the search value");

s = sc.nextInt();

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

{

**if**(arr[i]==s)

{

System.***out***.println(s + " is present");

**break**;

}

}

**if**(i==n)

System.***out***.println(s + " is not present");

}

}

**Output:**

Enter number of elements

15

Enter the 15 elements

5

12

14

6

78

19

1

23

26

35

37

7

52

86

47

Enter the search value

19

1. is present

8.Using the above table write a method apply sorting **Bubble Sort.**

**public class bubblesort{**

**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***.println(arr[i] + " ");

}

}

}

Output:

Bubble Sort

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

9. 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 the Total and Average scored by students in each respective Subject.

**import** java.util.Scanner;

**public** **class** AverageMarks {

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

// **TODO** Auto-generated method stub

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

**int** a[][] = **new** **int**[3][3];

**int** i, j;

**int** total = 0;

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

**for** (i=0;i<3;i++)

{

**for** (j=0;j<3;j++)

{

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

}

}

**for** (i=0;i<3;i++)

{

**for** (j=0;j<3;j++)

{

total=total+a[i][j];

}

}

System. ***out***. println("Total marks in all subjects is: "+ total);

System. ***out***. println("Average marks in all subjects is: "+ total/9) ;

total = 0;

**for** (i=0;i<3;i++)

{

total=0;

**for** (j=0;j<3;j++)

{

total=total+a[i][j];

}

System.***out***.println();

System. ***out***. println("Total marks for each student is: "+ total) ;

System. ***out***. println("Average marks for each student is: "+ total/3);

System.***out***.println();

total = 0;

}

}

}

**Output:**

Enter the marks

25

65

78

78

12

69

35

75

14

Total marks in all subjects is: 451

Average marks in all subjects is: 50

Total marks for each student is: 168

Average marks for each student is: 56

Total marks for each student is: 159

Average marks for each student is: 53

Total marks for each student is: 124

Average marks for each student is: 41