CORE JAVA -ASSIGNMENT 1

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

import java.util.Scanner;

import java.lang.Math;

public class Armstrong {

public static void main(String[] args) {

int num = 153, actual\_num, rem;

int res = 0;

actual\_num = num;

while (actual\_num !=0)

{

rem = actual\_num % 10;

res = res + rem\*rem\*rem;

}

if (res == num)

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

else

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

}

}

Output:

153 is an Armstrong number

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

import java.util.Scanner;

import java.lang.Math;

public class Armstrong\_Range {

public static void main(String[] args) {

//condiser a loop to initiate the range of numbers

for(int n = 100; n < 1000; n++)

{

//declaring variables

int temp, rem, res = 0, i = 0;

temp = n;

//determining the power (no. of digits)

for(; temp!= 0; temp/= 10)

{

i++;

}

temp = n;

//implementing armstrong equation

for(; temp!= 0; temp/= 10)

{

rem = temp % 10;

res += Math.pow(rem, i);

}

//validating

if(res == n)

{

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

}

}

}

}

\_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_

Output:

153 is an ArmStrong number.

370 is an ArmStrong number.

371 is an ArmStrong number.

407 is an ArmStrong number.

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

package program;

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 principle");

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

double rate = input.nextDouble();

System.out.print("Enter 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 principle

Enter 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:450.0

coumpound: 329.0

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.

import java.util.Scanner;

public class Marks {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter your Marks of Subject 1: ");

int marks1 = sc.nextInt();

System.out.println("Enter your Marks of Subject 2: ");

int marks2 = sc.nextInt();

System.out.println("Enter your Marks of Subject 3: ");

int marks3 = sc.nextInt();

if((marks1>60)&&(marks2>60)&&(marks3>60))

{

System.out.println("Passed");

}

else if (((marks1>60)&&(marks2>60))||((marks2>60)&&(marks3>60))||((marks1>60)&&(marks3>60)))

{

System.out.println("Promoted");

}

else if ((marks1>60)||(marks2>60)||(marks3>60))

{

System.out.println("Failed");

}

else

{

System.out.println("Failed");

}

}

}

Output:

Enter your Marks of Subject 1:

65

Enter your Marks of Subject 2:

89

Enter your Marks of Subject 3:

12

Promoted

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.

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 = 0;

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

}

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

{

tax = (ctc/100)\*10;

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

}

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

{

tax =(ctc/100)\*20;

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

}

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

{

tax = (ctc/100)\*30;

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

}

else

{

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

}

}

}

Output:

Enter the ctc

400000

Slab C's 80000.0 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.

import java.util.Scanner;

public class LoginUser {

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("Ritambhara") && pwd.equals("chatterjee"))

{

System.out.println("Welcome Ritambhara");

}

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 :

Admin

Enter password :

Admin@1

Welcome 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.

import java.util.Scanner;

public class LinearSearch {

public static void main(String[] args) {

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

19 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[]= {23,78,9,12,56,34,55};

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

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

{

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

}

System.out.println();

bubblesort(arr);

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

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

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

}

}

}

Output:

Array Before Bubble Sort

23

78

9

12

56

34

55

array After Bubble Sort

9

12

23

34

55

56

78

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 theTotal and Average scored by students in each respective Subject.

import java.util.Scanner;

public class AverageMarks {

public static void main(String[] args) {

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