CORE JAVA –ASSIGNMENT1

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

Logic : If 153 is the Supplied value, then 1^3+5^3+3^3 = 1+125+27=153

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

**package** org.jsp.app;

**import** java.util.Scanner;

**public** **class** Armstrong

{

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

{

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

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

**int** num=sc.nextInt();

**int** rem,temp,sum = 0;

temp = num;

**while** (num > 0)

{

rem= num % 10;

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

num /= 10;

}

**if**(temp == sum)

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

**else**

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

}

}

OUTPUT : Enter a number :

153

153 is an Armstrong number

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

**package** org.num.app;

**import** java.util.Scanner;

**public** **class** Armstrongnum

{

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

{

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

{

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

num=i;

**while** (num > 0)

{

rem= num % 10;

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

num /= 10;

}

**if**(i == sum)

{

System.***out***.println(i + " 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 the compound interest of supplied value.

**package** org.interst.app;

**public** **class** SiCi

{

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

{

**double** p,r,t,SimpleInterest,CompoundInterest;

p=400.0;

r=44.0;

t=3.0;

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

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

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

System.***out***.println(CompoundInterest + " is compound Interest");

}

}

OUTPUT : 528.0 is Simple Interest

794.3935999999999 is compound Interest

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

Condtions 1: All subjects marks is greater than 60 is passed.

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

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

**package** org.student.app;

**import** java.util.Scanner;

**public** **class** Student

{

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

{

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

System.***out***.println("Enter the marks in subject1 :");

**double** sub1=sc.nextDouble();

System.***out***.println("Enter the marks in subject2 :");

**double** sub2=sc.nextDouble();

System.***out***.println("Enter the marks in subject3 :");

**double** sub3=sc.nextDouble();

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

{

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

}

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

{

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

}

**else**

{

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

}

}

}

OUTPUT: Enter the marks in subject1 :

65

Enter the marks in subject2 :

60

Enter the marks in subject3 :

70

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

| **Slab** | **Income range** | **Tax Payable in percent** |
| --- | --- | --- |
| Slab A | 0 - 1,80,000 | Nil |
| Slab B | 1,80,001 - 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

**package** org.income.app;

**import** java.util.Scanner;

**public** **class** IncomeTax

{

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

{

**double** tax = 0, CTC;

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

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

CTC = scanner.nextDouble();

**if**(CTC <= 180000)

{

tax = 0;

}

**else** **if**(CTC > 180000 && CTC <= 300000)

{

tax = (CTC/100)\*10;

System.***out***.println("Income tax payable is : " + tax);

}

**else** **if**(CTC > 300000 && CTC <= 500000)

{

tax = (CTC/100)\*20;

System.***out***.println("Income tax payable is : " + tax);

}

**else** **if**(CTC > 500000 && CTC <= 1000000)

{

tax = (CTC/100)\*30;

System.***out***.println("Income tax payable is : " + tax);

}

}

}

OUTPUT :

Enter income :

1000000

Income tax payable is : 300000.0

6. Consider a CUI based application, where you are asking a user to enter his Login 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** org.atm.app;

**import** java.util.Scanner;

**public** **class** Atm

{

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

{

**int** count=0,atmp;

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

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

String username=sc.nextLine();

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

String password=sc.nextLine();

**if**(username.equals("Manisha Battula") && password.equals("Battula"))

{

System.***out***.println("Welcome Manisha Battula");

}

**else**

{

count++;

atmp=3-count;

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

**if**(atmp==0)

{

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

}

}

}

}

OUTPUT : Enter Username:

Manisha Battula

Enter password:

Battula

Welcome Manisha Battula

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

* Example:

| **Array Elements** | **5** | **12** | **14** | **6** | **78** | **19** | **1** | **23** | **26** | **35** | **37** | **7** | **52** | **86** | **47** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Indexes | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

* Value to be search is 19

**package** org.array.app;

**import** java.util.Arrays;

**import** java.util.Scanner;

**public** **class** Array

{

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

{

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

System.***out***.println(Arrays.*toString*(arr));

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

System.***out***.println("Enter a number to search in array : ");

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

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

{

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

{

System.***out***.println(n + " is found in the array at " + i + "th index.");

}

}

}

}

OUTPUT :

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

Enter a number to search in array :

23

23 is found in the array at 7th index

8. Using the above table write method apply sorting using Bubble sort.

**package** org.bubble.app;

**import** java.util.Arrays;

**public** **class** BubbleSort

{

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

{

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

System.***out***.println(Arrays.*toString*(arr));

**for**(**int** i = 0; i < arr.length-1; i++)

{

**for**(**int** j = 0; j < arr.length - i - 1; j++)

{

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

{

temp = arr[j];

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

arr[j+1] = temp;

}

}

}

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

System.***out***.println(Arrays.*toString*(arr));

}

}

OUTPUT :

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

Sorted Array :

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

9. Accept the marks of three students for the subjects say A,B,C. Find total scored and average in all the subjects. Also find the total and average scored by students in each respective Subject.

org.marks.app;

**import** java.util.Scanner;

**public** **class** Student

{

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

{

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

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

**double** total = 0;

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

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

{

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

{

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

}

}

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

{

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

{

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

{

total=0;

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

{

total += a[i][j];

}

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

System. ***out***. println("Total marks for student "+ (i+1) +" of each subject is: "+ total) ;

System. ***out***. println("Average marks for student "+ (i+1) +" of each subject is: "+ total/3);

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

total = 0;

}

}

}

OUTPUT:

Enter the marks

67

87

72

84

65

90

59

76

64

Total marks in all subjects is: 664.0

Average marks in all subjects is: 73.77777777777777

Total marks for student 1 of each subject is: 226.0

Average marks for student 1 of each subject is: 75.33333333333333

Total marks for student 2 of each subject is: 239.0

Average marks for student 2 of each subject is: 79.66666666666667

Total marks for student 3 of each subject is: 199.0

Average marks for student 3 of each subject is: 66.33333333333333