Core Java Assignment 1

**Question 1**

1. public class Armstrong {
2. public static void main(String[] args) {
3. int number = 330, originalNumber, remainder, result = 0;
4. originalNumber = number;
5. while (originalNumber != 0)
6. {
7. remainder = originalNumber % 10;
8. result += Math.pow(remainder, 3);
9. originalNumber /= 10;
11. }
12. if(result == number)
13. System.out.println(number + " is an Armstrong Number");
14. else
15. System.out.println(number + " is not an Armstrong number");
16. }
18. }

**Question 2**

public class ArmstrongNumber {

    public static void main(String[] args) {

        //Program to find armstrong number from 100 to 999

        //153,370.371,407

        for(int k=100; k<= 1000; k++)

        {

            int originalNumber = k;

            int d = 0;

            int result = 0;

        while (originalNumber>0)

         {

             d= originalNumber % 10;

             result = result + (d \* d \* d);

             originalNumber /= 10;

         }

         if(k==result)

         {

             System.out.println(k + " is an Armstrong Number");

         }

        }

    }

}

**Question 3**

import java.util.\*;

public class interest {

    public static void main(String[] args) {

        double pr, rate, t, sim, com;

        Scanner sc = new Scanner(System.in);

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

        pr=sc.nextDouble();

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

        t=sc.nextDouble();

        System.out.println("Enter the rate of interest");

        rate=sc.nextDouble();

        sim=(pr\*t\*rate)/100;

        com=pr\*Math.pow(1.0+rate/100.0,t)-pr;

        System.out.println("Simple Interest=" +sim);

        System.out.println("Compound Interest=" +com);

    }

}

**Question 4**

import java.util.Scanner;

public class marks {

    public static void main(String[] args) {

        int marks[]= new int[3];

        int i;

        float total=0,avg;

        Scanner scanner=new Scanner(System.in);

        for(i=0; i<3;i++)

        {

            System.out.println("Enter marks of subject"+(i+1));

            marks[i]=scanner.nextInt();

            total=total+marks[i];

        }

        scanner.close();

        avg=total/3;

        System.out.println("The student marks is:");

        if(avg>=60)

        {

            System.out.println("Passed");

        }

        else if(avg>=40&& avg<60)

        {

            System.out.println("Promoted");

        }

        else

        {

            System.out.println("Failed");

        }

    }

}

**Question 5**

import java.util.Scanner;

public class incometax {

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        System.out.println("Enter employee code");

        String empCode = in.nextLine();

        System.out.println("Enter Annual salary");

        double s= in.nextDouble();

        System.out.println("Enter Deductible annual savings");

        double d= in.nextDouble();

        double ti=s-d;

        int r=0;

        if(ti<=180000)

        r=0;

        else if(ti<=300000)

        r=10;

        else if(ti<=1000000)

        r=20;

        else

        r=30;

        double tax=ti\*r/100;

        System.out.println("Employee code is:  " +empCode);

        System.out.println("Taxable Income " +ti);

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

    }

}

**Question 6**

|  |
| --- |
| import java.util.Scanner; |
|  |  |
|  | public class Six { |
|  |  |
|  | public static void main(String[] args) { |
|  | String userId = "Ksheera"; |
|  | String password = "12345"; |
|  |  |
|  | Scanner sc = new Scanner(System.in); |
|  |  |
|  | System.out.println("Enter user name:"); |
|  | String enteredUserId = sc.nextLine(); |
|  |  |
|  | System.out.println("Enter passwprd:"); |
|  | String enteredPass = sc.nextLine(); |
|  |  |
|  | if(userId.equals(enteredUserId)) { |
|  |  |
|  | for (int i = 0; i < 3; i++) { |
|  |  |
|  | if(password.equals(enteredPass)) { |
|  | System.out.println(); |
|  | System.out.println("Login successfull"); |
|  | break; |
|  | } else{ |
|  | if(i==2) { |
|  | System.out.println(); |
|  | System.out.println("Contact admin"); |
|  | break; |
|  | } |
|  | System.out.println("wrong password enter again:"); |
|  | enteredPass = sc.nextLine(); |
|  | } |
|  | } |
|  |  |
|  | }else { |
|  | System.out.println("wrong user name"); |
|  | } |
|  | } |
|  |  |
|  | } |

**Question 7**

import java.util.Arrays;

import java.util.stream.IntStream;

class numbercheck {

    private static void check(int[] arr, int toCheckValue)

    {

        boolean test = false;

        for (int element : arr) {

            if (element == toCheckValue) {

                test = true;

                break;

            }

        }

        System.out.println("Is " + toCheckValue

                           + " present in the array: " + test);

    }

    public static void main(String[] args)

    {

        // Get the array

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

        // Get the value to be checked

        int toCheckValue = 19;

        // Print the array

        System.out.println("Array: "

                           + Arrays.toString(arr));

        // Check if this value is

        // present in the array or not

        check(arr, toCheckValue);

    }

}

Output

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

Is 19 present in the array: true

**Question 8**

import java.util.Arrays;

public class bubblesort {

    public static void main(String args[]) {

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

        bubbleSort(unsorted);

        int[] test = { 5, 3, 2, 1};

        bubbleSort(test);

    }

    public static void bubbleSort(int[] unsorted){

        System.out.println("unsorted array before sorting : " + Arrays.toString(unsorted));

        for(int i=0; i<unsorted.length -1; i++){

            for(int j= 1; j<unsorted.length -i; j++){

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

                    int temp = unsorted[j];

                    unsorted[j] = unsorted[j-1];

                    unsorted[j-1] = temp;

                }

            }

            System.out.printf("unsorted array after %d pass %s: %n", i+1, Arrays.toString(unsorted));

        }

    }

}

Output

unsorted array before sorting : [5, 12, 14, 6, 78, 19, 1, 23, 26, 35, 37, 7, 52, 86, 47]

unsorted array after 1 pass [5, 12, 6, 14, 19, 1, 23, 26, 35, 37, 7, 52, 78, 47, 86]:

unsorted array after 2 pass [5, 6, 12, 14, 1, 19, 23, 26, 35, 7, 37, 52, 47, 78, 86]:

unsorted array after 3 pass [5, 6, 12, 1, 14, 19, 23, 26, 7, 35, 37, 47, 52, 78, 86]:

unsorted array after 4 pass [5, 6, 1, 12, 14, 19, 23, 7, 26, 35, 37, 47, 52, 78, 86]:

unsorted array after 5 pass [5, 1, 6, 12, 14, 19, 7, 23, 26, 35, 37, 47, 52, 78, 86]:

unsorted array after 6 pass [1, 5, 6, 12, 14, 7, 19, 23, 26, 35, 37, 47, 52, 78, 86]:

unsorted array after 7 pass [1, 5, 6, 12, 7, 14, 19, 23, 26, 35, 37, 47, 52, 78, 86]:

unsorted array after 8 pass [1, 5, 6, 7, 12, 14, 19, 23, 26, 35, 37, 47, 52, 78, 86]:

unsorted array after 9 pass [1, 5, 6, 7, 12, 14, 19, 23, 26, 35, 37, 47, 52, 78, 86]:

unsorted array after 10 pass [1, 5, 6, 7, 12, 14, 19, 23, 26, 35, 37, 47, 52, 78, 86]:

unsorted array after 11 pass [1, 5, 6, 7, 12, 14, 19, 23, 26, 35, 37, 47, 52, 78, 86]:

unsorted array after 12 pass [1, 5, 6, 7, 12, 14, 19, 23, 26, 35, 37, 47, 52, 78, 86]:

unsorted array after 13 pass [1, 5, 6, 7, 12, 14, 19, 23, 26, 35, 37, 47, 52, 78, 86]:

unsorted array after 14 pass [1, 5, 6, 7, 12, 14, 19, 23, 26, 35, 37, 47, 52, 78, 86]:

unsorted array before sorting : [5, 3, 2, 1]

unsorted array after 1 pass [3, 2, 1, 5]:

unsorted array after 2 pass [2, 1, 3, 5]:

unsorted array after 3 pass [1, 2, 3, 5]:

**Question 9**

|  |
| --- |
| public class Nine { |
|  |  |
|  | public static void main(String[] args) { |
|  | int stu1[] = {41,50,60}; |
|  | int stu2[] = {54,80,65}; |
|  | int stu3[] = {48,55,83}; |
|  |  |
|  | int eachStudentTotal[] = new int[3]; |
|  | int subStudentAve[] = new int[3]; |
|  |  |
|  | int eachSubjectAvg[] = new int[3]; |
|  |  |
|  | eachStudentTotal[0] = stu1[0]+stu1[1]+stu1[2]; |
|  | eachStudentTotal[1] = stu2[0]+stu2[1]+stu2[2]; |
|  | eachStudentTotal[2] = stu3[0]+stu3[1]+stu3[2]; |
|  |  |
|  | subStudentAve[0]= eachStudentTotal[0]/3; |
|  | subStudentAve[1]= eachStudentTotal[1]/3; |
|  | subStudentAve[2]= eachStudentTotal[2]/3; |
|  |  |
|  | eachSubjectAvg[0] = (stu1[0]+stu2[0]+stu3[0])/3; |
|  | eachSubjectAvg[1] = (stu1[1]+stu2[1]+stu3[1])/3; |
|  | eachSubjectAvg[2] = (stu1[2]+stu2[2]+stu3[2])/3; |
|  |  |
|  | for (int i = 0; i < 3; i++) { |
|  |  |
|  | System.out.println(); |
|  | System.out.println("student "+(i+1)+" :"); |
|  | System.out.println("Total : "+eachStudentTotal[i]); |
|  | System.out.println("Average : "+ subStudentAve[i]); |
|  |  |
|  | for (int j = 0; j < 3; j++) { |
|  | System.out.println("subject "+ (j+1) +" mark : "+ stu1[j] + |
|  | " Subject "+ (i+1) +" Avg :"+eachSubjectAvg[i]); |
|  | } |
|  |  |
|  | } |
|  |  |
|  |  |
|  | } |
|  |  |
|  | } |