**ABHISHEK SHARMA**

**CS 2ND YEAR**

**SECTION : “I”**

**ROLL NO.: 01**

**ENROLLMENT NO.: 12019009001127**

**OBJECT ORIENTED PROGRAMMING USING JAVA**

**DAY 11**

**ASSIGNMENT : 4**

**DATE : 17.03.2021**

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**Platform used : Visual Studio Code and JDK 15**

University of Engineering & Management, Kolkata

Department of Computer Science and Engineering

**1. Create a “circle” class & a “point” class. The coordinates of the circle are given and used within the “circle” class as object of the “point” class. Display the area of circle.**

// Author : Abhishek Sharma

import java.util.\*;

class circle{

   double rad;

   circle(point p1,point p2){

      this.rad=Math.sqrt(Math.pow((p2.x-p1.x),2)+Math.pow((p2.y-p1.y),2));

   }

   double display\_area(){

      double area=(3.14\*rad\*rad); return area;

   }

}

class point{

   int x,y;

   point(int x, int y){

      this.x=x; this.y=y;

   }

}

public class q1{

   public static void main(String args[])

   {

      Scanner sc=new Scanner(System.in);

      System.out.println("Enter the x and y axis of two point");

      int a=sc.nextInt();

      int b=sc.nextInt();

      int c=sc.nextInt();

      int d=sc.nextInt();

      point p1=new point(a,b);

      point p2=new point(c,d);

      circle mycircle=new circle(p1,p2);

      double disp=mycircle.display\_area();

      System.out.println("Area of the circle is: "+disp);

   }

}

**Output :**

Enter the x and y axis of two point

4 5

6 7

Area of the circle is: 25.120000000000005

**2. Create a class called Time, which has three private instance variables – hour, min and sec. It contains a method called add( ) which takes one Time object as parameter and print the added value of the calling Time object and passes Time object. In the main method, declare two Time objects and assign values using constructor and call the add() method.**

// Author : Abhishek Sharma

import java.util.Scanner;

class time{

   int hour,min,sec;

   time(int hour,int min, int sec){

      this.hour=hour;

      this.min=min;

      this.sec=sec;

   }

   void add\_times(time mytime){

      int sec,hour,min;

      sec=this.sec+mytime.sec;

      if(sec>=60)

      {

         min=this.min+mytime.min+1;

         sec=sec-60;

      }

      else

         min=this.min+mytime.min;

         if(min>=60)

         {

            hour=this.hour+mytime.hour+1; min=min-60;

         }

         else

            hour=this.hour+mytime.hour;

      System.out.println("\nAdded Time is: "+hour+" hour "+min+" min "+sec+" sec ");

      }

   }

   public class q2{

      public static void main(String args[]){

         Scanner sc=new Scanner(System.in);

         System.out.println("Enter the first Time int hh/mm/ss format : ");

         int h1=sc.nextInt();

         int m1=sc.nextInt();

         int s1=sc.nextInt();

         System.out.println("Enter the second Time int hh/mm/ss format : ");

         int h2=sc.nextInt();

         int m2=sc.nextInt();

         int s2=sc.nextInt();

         time t1=new time(h1,m1,s1);

         time t2=new time(h2,m2,s2);

         System.out.println("\nTime t1 is : "+t1.hour+" hour "+t1.min+" min "+t1.sec+" sec");

         System.out.println("Time t2 is : "+t2.hour+" hour "+t2.min+" min " +t2.sec+" sec ");

         t1.add\_times(t2);

      }

   }

**Output :**

Enter the first Time int hh/mm/ss format :

1 20 56

Enter the second Time int hh/mm/ss format :

2 35 45

Time t1 is : 1 hour 20 min 56 sec

Time t2 is : 2 hour 35 min 45 sec

Added Time is: 3 hour 56 min 41 sec

**3. Create a class called Complex, which has three private instance variables –real and imaginary. It contains a method called add( ) which takes one Complex object as parameter and print the added value of the calling Complex object and passes Complex object. In the main method, declare two Complex objects and assign values using constructor and call the add() method.**

// Author : Abhishek Sharma

import java. util.\*;

class Complex {

   int real;

   int imaginary;

   Complex (int real, int imaginary)

   {

      this.real=real;; this.imaginary=imaginary;

   }

   void add(Complex op2){

      this.real=this.real+op2.real;

      this.imaginary=this.imaginary+op2.imaginary;

   }

   void display()

   {

      System.out.println(" The value: " + real +" + " + imaginary+"i");

   }

}

public class q3

{

   public static void main(String args[])

   {

      Scanner sc=new Scanner(System.in);

      System.out.println("Enter the Real part of two numbers : ");

      int r1=sc.nextInt();

      int r2=sc.nextInt();

      System.out.println("Enter the Imaginary part of two numbers : ");

      int i1=sc.nextInt();

      int i2=sc.nextInt();

      Complex op=new Complex(r1,i1);

      Complex op1=new Complex(r2,i2);

      System.out.println("Before add");

      op.display();

      op1.display();

      op.add(op1);

      System.out.println("After add");

      op.display();

   }

}

**Output :**

Enter the Real part of two numbers :

3 5

Enter the Imaginary part of two numbers :

9 8

Before add

The value: 3 + 9i

The value: 5 + 8i

After add

The value: 8 + 17i

**4. Write a program to define a class having one 3-digit number, num as data member. Initialize and display reverse of that number.**

// Author : Abhishek Sharma

import java.util.\*;

class Reverse{

   int num;

   Reverse(int n) {

      num=n;

   }

   int rev(int num){

      int rev=0;

      while(num>0){

         rev=rev\*10+(num%10);

         num=num/10;

      }

      return rev;

   }

}

public class q4 {

   public static void main(String args[]) {

      Scanner sc=new Scanner(System.in);

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

      int b=sc.nextInt();

      Reverse a=new Reverse(b);

      System.out.print("Reverse of "+b+" is : ");

      int re=a.rev(b);

      System.out.println(re);

   }

}

**Output :**

Enter a number :

568

Reverse of 568 is : 865

**5. Write a program to define a class Student with four data members such as name, roll no., sub1, and sub2. Define appropriate methods to initialize and display the values of data members. Also calculate total marks and percentage scored by student.**

// Author : Abhishek Sharma

import java.util.\*;

class Student{

   int roll,sub1,sub2;

   String name;

   int total;

   double per;

   void Initialize(int roll,String name,int sub1,int sub2){

      this.roll=roll;

      this.name=name;

      this.sub1=sub1;

      this.sub2=sub2;

   }

   void calculate(){

      total=sub1+sub2; per=total/2;

   }

   void display(){

      System.out.println("Name: "+ name);

      System.out.println("Roll number: "+roll);

      System.out.println("Marks of two subject: "+ sub1+" "+sub2);

      System.out.println("Total : "+total+"\nPercentage: "+per);

   }

}

public class q5 {

   public static void main(String args[]){

      Scanner sc=new Scanner(System.in);

      System.out.println("Enter your name:");

      String n=sc.nextLine();

      System.out.println("Enter your Roll number:");

      int r=sc.nextInt();

      System.out.println("Enter the marks of two subject:");

      int s1=sc.nextInt();

      int s2=sc.nextInt();

      Student a=new Student();

      a.Initialize(r,n,s1,s2);

      a.calculate();

      a.display();

   }

}

**Output :**

Enter your name:

Abhishek Sharma

Enter your Roll number:

01

Enter the marks of two subject:

98 94

Name: Abhishek Sharma

Roll number: 1

Marks of two subject: 98 94

Total : 192

Percentage: 96.0

**6. Write a program to define a class Employee to accept emp\_id, emp \_name, basic\_salary from the user and display the gross\_salary.**

// Author : Abhishek Sharma

import java.util.\*;

class Employee {

   int emp\_id;

   String emp\_name;

   float basic\_salary;

   Employee(int emp\_id, String emp\_name, float basic\_salary){

      this.emp\_id=emp\_id;

      this.emp\_name=emp\_name;

      this.basic\_salary=basic\_salary;

   }

   void display(){

      float da=basic\_salary\*15/100; float hra=basic\_salary\*10/100;

      float gross\_sal=basic\_salary+da+hra; System.out.println("\nYOUR DETAILS IS GIVEN BELOW : "); System.out.println ("Employee Id = "+emp\_id); System.out.println ("Emplyee Name = "+emp\_name); System.out.println ("Gross Salary = "+gross\_sal);

   }

}

public class q6{

   public static void main(String args[]){

      Scanner sc=new Scanner(System.in);

      System.out.println ("Enter Employee id");

      int id = sc.nextInt();

      System.out.println ("Enter Employee Name");

      String name = sc.nextLine();

      name = sc.nextLine();

      System.out.println ("Enter Basic Salary");

      float sal = sc.nextFloat();

      Employee e = new Employee(id, name, sal);

      e.display();

   }

}

**Output :**

Enter Employee id

451

Enter Employee Name

Abhishek Sharma

Enter Basic Salary

5000.00

YOUR DETAILS IS GIVEN BELOW :

Employee Id = 451

Emplyee Name = Abhishek Sharma

Gross Salary = 6250.0

**7.** **Write a program to define a class Fraction having data members numerator and denominator. Initialize three objects using different constructors and display its fractional value.**

// Author : Abhishek Sharma

import java.util.\*;

class Fraction{

   double numerator,denominator;

   Fraction (int a, double b){

      numerator=a;

      denominator=b;

   }

   Fraction (int x, int y){

      numerator=x;

      denominator=y;

   }

   Fraction(double m, double n){

      numerator=m; denominator=n;

   }

   void display(){

      double fraction=numerator/denominator;

      System.out.println ("Fraction = "+fraction);

   }

}

public class q7{

   public static void main(String[] args){

      Scanner sc=new Scanner(System.in);

      System.out.println("Enter the Numerator of three numbers:");

      int n1=sc.nextInt();

      int n2=sc.nextInt();

      double n3=sc.nextDouble();

      System.out.println("Enter the Denominator of three numbers:");

      double d1=sc.nextDouble();

      int d2=sc.nextInt();

      double d3=sc.nextDouble();

      Fraction f1 = new Fraction(n1,d1);

      f1.display();

      Fraction f2 = new Fraction(n2,d2);

      f2.display();

      Fraction f3 = new Fraction(n3,d3);

      f3.display();

   }

}

**Output :**

Enter the Numerator of three numbers:

1 2 3

Enter the Denominator of three numbers:

10 20 30

Fraction = 0.1

Fraction = 0.1

Fraction = 0.1

**8.** **Write a program to define a class Item containing code and price. Accept this data for five objects using array of objects. Display code, price in tabular form and also, display total price of all items.**

// Author : Abhishek Sharma

import java.util.\*;

class Item{

   int price; int code;

   Item(int m,int n){

      code=m; price=n;

   }

   void display(){

      System.out.print(code+" "+price);

      System.out.println();

   }

}

public class q8 {

   public static void main(String args[]) {

      Scanner sc= new Scanner(System.in);

      int a,c,sum=0;

      Item[] obj=new Item[5];

      for(int i=0;i<5;i++){

         System.out.println("Enter Code :");

         c=sc.nextInt();

         System.out.println("Enter Price :");

         a=sc.nextInt();

         obj[i]=new Item(c,a);

      }

      for(int i=0;i<5;i++){

         sum=sum+obj[i].price;

      }

      System.out.println("Code Price ");

      for(int i=0;i<5;i++){

         obj[i].display();

      }

      System.out.println("Total Cost : " + sum);

   }

}

**Output :**

Enter Code :

45

Enter Price :

566

Enter Code :

46

Enter Price :

899

Enter Code :

47

Enter Price :

547

Enter Code :

48

Enter Price :

235

Enter Code :

49

Enter Price :

599

Code Price

45 566

46 899

47 547

48 235

49 599

Total Cost : 2846

**9.** **Write a program to define a class Tender containing data members cost and company name. Accept data for five objects and display company name for which cost is minimum.**

// Author : Abhishek Sharma

import java.util.\*;

class Tender{

   int cost;

   String name;

   Tender(String a,int b){

      name=a;

      cost=b;

   }

   void display(){

      System.out.println(name+"\t"+cost);

   }

}

public class q9{

   public static void main(String args[]){

      int cost, k=-1;

      String name;

      Scanner sc=new Scanner(System.in);

      System.out.print("Enter the number of tenders : ");

      int n=sc.nextInt();

      Tender obj[]=new Tender[n];

      for(int i=0;i<n;i++){

         System.out.print("Enter the Name of Company : ");

          name=sc.nextLine();

         name=sc.nextLine();

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

         cost=sc.nextInt();

         obj[i]=new Tender(name,cost);

      }

      System.out.println("Company Name Cost");

      for(int i=0;i<n;i++){

         obj[i].display();

      }

      int min=obj[0].cost;

      for(int i=1;i<n;i++){

         if(obj[i].cost<min){

            k=i;

            min=obj[i].cost;

         }

      }

      System.out.println("Minimum = "+min);

   }

}

**Output :**

Enter the number of tenders : 3

Enter the Name of Company : NCB

Enter the Cost : 56000

Enter the Name of Company : BMC

Enter the Cost : 75000

Enter the Name of Company : CID

Enter the Cost : 15000

Company Name Cost

NCB 56000

BMC 75000

CID 15000

Minimum = 15000

**10. Write a program to define a class 'employee' with data members as empid, name and salary. Accept data for 5 objects using Array of objects and print it.**

// Author : Abhishek Sharma

import java.util.\*;

class Item1{

   int p,eid; String c;

   Item1(String m,int n,int e){

      c=m;

      p=n;

      eid=e;

   }

   void display(){

      System.out.print(eid+" "+c + " " + p);

      System.out.println();

   }

}

public class q10{

   public static void main(String args[]){

      Scanner sc= new Scanner(System.in);

      int b,c;

      String a;

      Item1[] obj=new Item1[5];

      for(int i=0;i<5;i++){

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

         c=sc.nextInt();

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

         a=sc.nextLine();

         a=sc.nextLine();

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

         b=sc.nextInt();

         obj[i]=new Item1(a,b,c);

      }

      System.out.println("Employee ID Name Salary ");

      for(int i=0;i<5;i++){

         obj[i].display();

      }

   }

}

**Output :**

Enter ID : 1

Enter name : Abhishek

Enter salary : 45000

Enter ID : 2

Enter name : Sayan

Enter salary : 45000

Enter ID : 3

Enter name : Nabarun

Enter salary : 50000

Enter ID : 4

Enter name : Subha

Enter salary : 46000

Enter ID : 5

Enter name : Mama

Enter salary : 56000

Employee ID Name Salary

1 Abhishek 45000

2 Sayan 45000

3 Nabarun 50000

4 Subha 46000

5 Mama 56000

**11.** **Define a class called circle that contains:**

**• Two private instance variables: radius (of type double) and color (of type String),**

**• Initialize the variables radius and color with default value of 1.0 and "red", respectively using default constructor.**

**• Include a second constructor that will use the default value for color and sets the**

**radius to the value passed as parameter.**

**• Two public methods: getRadius() and getArea() for returning the radius and area of**

**the circle**

**• Invoke the above methods and constructors in the main.**

// Author : Abhishek Sharma

import java.util.\*;

class AB{

   private double radius; private String color; AB(){

      radius=1.0;

      color="red";

   }

   AB(double a,String col){

      radius=a; color=col;

   }

   double getRadius(){

      return radius;

   }

   double getArea(){

      double area=3.14\*radius\*radius; return area;

   }

}

public class q11{

   public static void main(String args[]){

      Scanner sc=new Scanner(System.in);

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

      double rad=sc.nextDouble();

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

      String clr=sc.nextLine();

      clr=sc.nextLine();

      AB a=new AB();

      AB b=new AB(rad,clr);

      double q=a.getRadius();

      System.out.println("Value of radius when we call getRadius() with non parameterized constructor = "+q);

      double g=b.getRadius();

      System.out.println("Value of radius when we call getRadius() with parameterized constructor = "+g);

      double ar=b.getArea();

      System.out.println("Area = "+ar);

      System.out.println("Colour = "+clr);

   }

}

**Output :**

Enter the Radius:

4.5

Enter the color:

Red

Value of radius when we call getRadius() with non parameterized constructor = 1.0

Value of radius when we call getRadius() with parameterized constructor = 4.5

Area = 63.585

Colour = Red

**12.** **Write a program which will accept an integer from the user and pass the value to a method called PrintNumberInWord that will print "ONE", "TWO",... , "NINE", "ZERO" if the integer variable "number" is 1, 2,... , 9, or 0, respectively.**

// Author : Abhishek Sharma

import java.util.Scanner;

class number{

   public static void numberToWord(int num, String val) {

      String ones[] = {" ", " ONE", " TWO", " THREE", " FOUR", " FIVE", " SIX", " SEVEN", " EIGHT", " NINE"," TEN", " ELEVEN", " TWELVE", " THIRTEEN", " FOURTEEN", " FIFTEEN", " SIXTEEN", " SEVENTEEN", " EIGHTEEN", " NINETEEN" };

      String tens[] = {" ", " ", " TWENTY", " THIRTY", " FOURTY", " FIFTY", " SIXTY", " SEVENTY", " EIGHTY", " NINETY"};

      if (num > 19) {

         System.out.print(tens[num / 10] + " " + ones[num % 10]);

      }

      else {

         System.out.print(ones[num]);

      }

      if (num > 0) {

         System.out.print(val);

      }

   }

}

public class q12{

   public static void main(String[] args) {

      int number = 0;

      Scanner scanner = new Scanner(System.in);

      number n=new number();

      System.out.print("Please type a number between 0 and 999 OR type -1 to exit : ");

      number = scanner.nextInt();

      while(number!=-1){

      if(number>=0 && number<=999){ if(number==0){

         System.out.print("NUMBER AFTER CONVERSION:\tZERO");

      }

      else {

         System.out.print("NUMBER AFTER CONVERSION:\t");

         n.numberToWord(((number / 100) % 10), " HUNDRED");

         n.numberToWord((number % 100), " ");

      }

   }

   else{

      System.out.print("NUMBER OUT OF RANGE");

   }

      System.out.print("\nPlease type a number between 0 and 999 OR type -1 to exit: "); number = scanner.nextInt();

      }

   }

}

**Output :**

Please type a number between 0 and 999 OR type -1 to exit : 205

NUMBER AFTER CONVERSION: TWO HUNDRED FIVE

Please type a number between 0 and 999 OR type -1 to exit: 589

NUMBER AFTER CONVERSION: FIVE HUNDRED EIGHTY NINE

Please type a number between 0 and 999 OR type -1 to exit: 647

NUMBER AFTER CONVERSION: SIX HUNDRED FOURTY SEVEN

Please type a number between 0 and 999 OR type -1 to exit: -1

**13. Design a class named Account that contains:**

**I. A private int data field named id for the account (default 0).**

**II. A private double data field named balance for the account (default 0).**

**III. A private double data field named annualInterestRate that stores the cur-rent interest rate (default 0). Assume all accounts have the same interest rate.**

**IV. A private Date data field named dateCreated that stores the date when the account was created.**

**V. A no-arg constructor that creates a default account.**

**VI. A constructor that creates an account with the specified id and initial balance.**

**VII. The accessor and mutator methods for id,balance, and annualInterestRate.**

**VIII. The accessor method for dateCreated.**

**IX. A method named getMonthlyInterestRate() that returns the monthly interest rate.**

**X. A method named getMonthlyInterest() that returns the monthly interest.**

**XI. A method named withdraw that withdraws a specified amount from the account.**

**XII. A method named deposit that deposits a specified amount to the account.**

// Author : Abhishek Sharma

class Account {

   private int id = 0;

   private double balance = 0.0;

   private static double annualInterestRate = 0.0;

   private java.util.Date dateCreated;

   public Account() {

      dateCreated = new java.util.Date();

   }

   public Account(int id, double balace) {

      this();

      this.id = id;

      this.balance = balance;

   }

   public int getId() {

      return this.id;

   }

   public double getBalance() {

      return this.balance;

   }

   public double getAnnualInterestRate() {

      return annualInterestRate;

   }

   public String getDateCreated() {

      return this.dateCreated.toString();

   }

   public void setId(int id) {

      this.id = id;

   }

   public void setBalance(double balance) {

      this.balance = balance;

   }

   public void setAnnualInterestRate(double annualInterestRate) {

      this.annualInterestRate = annualInterestRate;

   }

   public double getMonthlyInterestRate() {

      return (annualInterestRate / 100) / 12 ;

   }

   public double getMonthlyInterest() {

      return balance \* getMonthlyInterestRate();

   }

   public void withdraw(double amount) {

      this.balance -= amount;

   }

   public void deposit(double amount) {

      this.balance += amount;

   }

}

public class q13 {

   public static void main(String[] args) {

      Account account = new Account(1122, 20000);

      account.setAnnualInterestRate(4.5);

      account.withdraw(2500.0);

      account.deposit(3000.0);

      System.out.println("Balance: $" + account.getBalance());

      System.out.println("Monthly Interest: " + account.getMonthlyInterest());

      System.out.println("Date Created: " + account.getDateCreated());

   }

}

**Output :**

Balance: $500.0

Monthly Interest: 1.875

Date Created: Wed Mar 17 20:07:53 IST 2021

**14. Write a test program that prompts the user to enter the investment amount (e.g., 1000) and the interest rate (e.g., 9%), and print a table that displays future value for the years from 1 to 30, as shown below:**

**The amount invested: 1000**

**Annual interest rate: 9%**

**Years Future Value**

**1 1093.8**

**2 1196.41**

**...**

**29 13467.25**

**30 14730.57**

// Author : Abhishek Sharma

import java.util.\*;

class Amt{

   Double x;

   Double sum=1000.0;

   Amt(Double x){

      this.x=x;

   }

   void interest(){

      System.out.println("Years ....... future\_value");

      for(int i=1;i<=30;i++){

         System.out.println(i+". ...... "+sum(x,0.09/12,i));

      }

   }

   Double sum(Double tot,double rate,int years){

      return x\*Math.pow(1+rate,years\*12);

   }

}

class q14{

   public static void main(String[] args) {

      Amt ob=new Amt(100.0);

ob.interest();

   }

}

**Output :**

Years ....... future\_value

1. ...... 109.38068976709839

2. ...... 119.64135293926222

3. ...... 130.86453709165366

4. ...... 143.1405333313711

5. ...... 156.56810269415706

6. ...... 171.25527068212796

7. ...... 187.32019633462298

8. ...... 204.89212282389357

9. ...... 224.1124172232252

10. ...... 245.13570781248114

11. ...... 268.1311280707507

12. ...... 293.28367736408916

13. ...... 320.7957092751521

14. ...... 350.888559548417

15. ...... 383.80432674789427

16. ...... 419.80781995281484

17. ...... 459.1886891606074

18. ...... 502.2637555363697

19. ...... 549.379560255814

20. ...... 600.9151524472612

21. ...... 657.2851386618252

22. ...... 718.9430184049334

23. ...... 786.3848325637133

24. ...... 860.1531540820313

25. ...... 940.8414529883785

26. ...... 1029.098870893479

27. ...... 1125.6354433687086

28. ...... 1231.2278122196296

29. ...... 1346.7254736101859

30. ...... 1473.057612304044

**15. Write method headers for the following methods:**

**a. Computing a sales commission, given the sales amount and the commission rate.**

**b. Printing the calendar for a month, given the month and year.**

**c. Computing a square root.**

**d. Testing whether a number is even, and returning true if it is.**

**e. Printing a message a specified number of times.**

**f. Computing the monthly payment, given the loan amount, number of years, and annual interest rate.**

(a) public static double getCommission(double salesAmount, double commissionRate)

(b) public static void printCalendar(int month, int year)

(c) public static double sqrt(double value)

(d) public static boolean isEven(int value)

(e) public static void printMessage(String message, int times)

(f) public static double monthlyPayment(double loan, int numberOfYears, double annualInterestRate)

**16. Write a program that reads ten numbers, computes their average, and finds out how many numbers are above the average. [Use this keyword]**

// Author : Abhishek Sharma

import java.util.\*;

class B{

   static int a[],n;

   B(int a[],int n){

      this.a=a;

      this.n=n;

   }

   void calc(){

      int avg=0; int c=0;

      for(int i=0;i<n;i++)

         avg=avg+a[i];

      avg=avg/n;

      System.out.println("Average is :"+avg);

      for(int i=0;i<n;i++){

         if(a[i]>avg) c++;

      }

      if(c>0)

         System.out.println("There are "+c+" numbers that are above the average ");

      else

         System.out.println("There are no numbers that are below the average ");

   }

}

class q16{

   public static void main(String[] args) {

      Scanner sc=new Scanner(System.in);

      System.out.println("Enter n :");

      int n=sc.nextInt();

      int a[]=new int[n];

      for(int i=0;i<n;i++){

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

         a[i]=sc.nextInt();

      }

      B obj=new B(a,n);

      obj.calc();

   }

}

**Output :**

Enter n :

3

Enter number :

56

Enter number :

45

Enter number :

69

Average is :56

There are 1 numbers that are above the average

**17. Write a program that reads ten integers and displays them in the reverse of the order in which they were read.**

// Author : Abhishek Sharma

class Num{

   void rev(int[] num){

      System.out.println ("in reverse order");

      for(int i=9;i>=0;i--){

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

      }

   }

}

public class q17 {

   public static void main(String[] args){

      Num ob=new Num();

      int[] num={0,1,2,3,4,5,6,7,8,9};

      ob.rev(num);

   }

}

**Output :**

in reverse order

9 8 7 6 5 4 3 2 1 0

**18. Write a program to demonstrate use of 'this' keyword.**

// Author : Abhishek Sharma

class Student1{

   int rollno;

   String name;

   float fee;

   Student1(int rollno,String name,float fee){

      this.rollno=rollno;

      this.name=name;

      this.fee=fee;

   }

   void display(){

      System.out.println(rollno+" "+name+" "+fee);

   }

}

public class q18{

   public static void main(String args[]){

      Student1 s1=new Student1(100,"Abhishek Sharma",3000f);

      Student1 s2=new Student1(101,"Sayan Mukherjee",2000f);

      s1.display();

      s2.display();

   }

}

**Output :**

100 Abhishek Sharma 3000.0

101 Sayan Mukherjee 2000.0

**19. Write a program to demonstrate use of 'static' keyword.**

// Author : Abhishek Sharma

class Demo{

   static void m1(){

      System.out.println("Demo of static");

   }

}

public class q19 {

   public static void main(String[] args) {

      Demo.m1();

   }

}

**Output :**

Demo of static

**20. Write a program to accept value of apple sales for each day of the week (using array of type float) and then, calculate the average sale of the week.**

// Author : Abhishek Sharma

class Sales{

   int x;

   Double sum=0.0,avg;

   void week(double[] sales){

      for(int i=1;i<=7;i++) {

         sum=sum+sales[i-1];

      }

      System.out.println ("Sum = "+sum); avg=sum/7.0;

      System.out.println ("Average sale of week = "+avg);

   }

}

public class q20{

   public static void main(String[] args) {

      Sales obj=new Sales();

      double[] sales={189.5,204.3,123.8,223.7,399.6,566.3,992.2};

      obj.week(sales);

   }

}

**Output :**

Sum = 2699.4

Average sale of week = 385.62857142857143

**21. Write program, which finds the sum of numbers formed by consecutive digits. Input : 2415 output : 24+41+15=80.**

// Author : Abhishek Sharma

import java.util.\*;

class Digit{

   int x;

   int y=0,z=0,sum=0,m=0;

   Digit(int x){

      this.x=x;

   }

   void num(){

      while (x>9){

         y=x%10;

         x=x/10;

         z=x%10;

         m=z\*10;

         sum=sum+y+m;

      }

      System.out.println("sum of numbers formed by consecutiv digits="+sum);

   }

}

public class q21{

   public static void main(String[] args) {

      Scanner sc=new Scanner(System.in);

      System.out.print("Enter a number:");

      int i=sc.nextInt();

      Digit obj=new Digit(i);

      obj.num();

   }

}

**Output :**

Enter a number : 2415

sum of numbers formed by consecutive digits = 80

**-- O --**