

Define class Account with : id , name , balance , date of birth (year) as string , id must contain number (increment auto by 1 when create new object) then random number contain 4 digit

When print id print the first 4 digit as stars then the remaining digits from id .

implement deposit and withdraw method

```
public class Account
{
    private String name , id , date ;
    private double balance ;
    private static int numOfPerson = 1;

    public Account(String n , String d )
    {
        name = n ;
        date = d ;
        balance = 5000 ;
        id = "" + numOfPerson + ( (int)(Math.random () * 9000 +1000 ) ) ;
        numOfPerson++ ;
    }

    public void diposit(int num)
    {
        balance = balance + num ;
    }

    public void withdraw(int num )
    {
        if(balance >= num )
            balance = balance - num ;
    }

    public void setName(String n)
    {
        name = n ;
    }

    public String getName()
    {
        return name ;
    }

    public void setId(String d)
    {
        id = d ;
    }

    public String getId()
    {
        return id ;
    }
}
```

```

}

public void setDate(String d)
{
    date = d ;
}

public String getDate()
{
    return date ;
}

public void setBalance(double b)
{
    balance = b;
}

public double getBalance()
{
    return balance ;
}

public void print()
{
    System.out.println("Name : " + name ) ;
    System.out.println("Id : ****" + id.substring(4 ) ) ;
    System.out.println("Date of birth : " + date ) ;
    System.out.println("age : " + ( 2019 - (Integer.parseInt( date) ) ) ) ;
    System.out.println("blaance : " + balance ) ;
}

}

}

```

=====

Write an application and create array of 3 Accounts , fill it , write to method one to print array ,second to deposit 10000 SR for each Account then print array after change

Deposit 500 SR to second account then return it again

```

import java.util.* ;

public class test
{
    static Scanner consol = new Scanner(System.in) ;

    public static void main(String args[])
    {
        Account[] list = new Account[3] ;

        // fill array form user
        for(int i = 0 ; i < 3 ; i++)
        {
            System.out.println("enter Name and date : " ) ;

```

```
String name = consol.next() ;
String date = consol.next() ;

list[i] = new Account(name , date) ;
}

printList ( list ) ;

changeBalance(list) ;

//after change
printList ( list ) ;
list[1].diposit(500);
list[1].withdraw(500);

} // end main

public static void printList(Account[] list)
{
    for(int i = 0 ; i < list.length ; i++)
    {
        list[i].print() ;
        System.out.println("*****");
    }
}

public static void changeBalance(Account[] list)
{
    for(int i = 0 ; i < list.length ; i++)
    list[i].diposit(10000) ;
}

} // end class
```

=====

Write a Java class named **CSCClass** to store information about students' names and their test scores. The UML representation of the class is shown below.

| CSCClass |
|--|
| - names: String [] - scores : double[] |
| + CSCClass() + readInfo(): void + classAverage(): double + belowAverage(): void + highestScore(): void |

The class contains:

- Two **private** attributes:
 - **names** (string array) : to store the names of the students in the class

- **scores** (double array): to store the scores of each student in the class, in the same order as their names.

- A default **constructor** (without parameters) that initializes all the **names** in the class to the string "Learning", and all the **scores** to 0.
- A method **readInfo()** that initializes **names**, and **scores** arrays to values entered by the user.
- A method **classAverage()** that calculates and returns the average score of the class.
- A method **belowAverage()** that displays the names of all the students whose test scores are below the class average, with an appropriate message.
- A method **highestScore()** that displays the highest test score and the names of all students having the highest score, with an appropriate message.

Write another Java class called **TestClass** with a **main()** method that will create a **CSCClass** object, named **CSC113**. Test all methods of the class **CSCClass** in the **main()** method.

=====

```
import java.util.* ;
class csclass
{
    Scanner consol = new Scanner(System.in) ;
    private String[] names ;
    private double[] scores ;

    public csclass()
    {
        names = new String[5] ;
        scores = new double[5] ;

        for(int i = 0 ; i < names.length ; i++)
        {
            names[i] = "noName" ;
            scores[i] = 0 ;    // it is already 0
        }
    }
    //-----
    public void readInfo()
    {
        for(int i = 0 ; i < names.length ; i++)
        {
            System.out.println("enter name and score for student : ") ;
            names[i] = consol.next() ;
            scores[i] = consol.nextDouble() ;
        }
    }
    //-----
    public double classAverage()
    {
        double sum = 0 ;
        for(int i = 0 ; i < names.length ; i++)
            sum = sum + scores[i] ;

        return sum / scores.length ;
    }
    //-----
    public void belowAverage()
    {
        System.out.println("the names of belowAverage : " ) ;
        double avr = classAverage() ;    // call method

        for(int i = 0 ; i < names.length ; i++)
            if(scores[i] < avr )
                System.out.println(names[i] ) ;
    }
}
```

```

}
//-----
public void highestScore()
{
    int max = 0 ;
    for(int i = 1 ; i < names.length ; i++)
        if(scores[i] > scores[max])
            max = i ;

    System.out.println("the name of highestScore : " + names[max] );

    System.out.println("the names of all highestScore : " );

    for(int i = 0 ; i < names.length ; i++)
        if(scores[i] == scores[max] )
            System.out.println(names[i] ) ;

}
//-----
}
public class testClass
{

    public static void main(String args[])
    {
        csc113 csc113 = new csclass() ;

        csc113.readInfo() ;
        System.out.println("the classAverage : " + csc113.classAverage() ) ;
        csc113.belowAverage() ;
        csc113.highestScore() ;

    }
}

```

Write a Java class named Sales to store information related to the amount of profit a salesman made for a company in each month of the year. The UML representation of the class is shown below.

| Sales |
|---|
| - name: string - monthlyProfit : double[] |
| + Sales(in name1: string) + readProfits(): void + displayInfo(): void + highestProfit(): double + TotalProfit(): double |

The class contains:

- Two private attributes:
 - name (string): the name of the salesman
 - monthlyProfit (double array): to store the monthly profit that the salesman made in 12 months.
- A constructor that initializes name to a given value (sent as a parameter) and creates the array monthlyProfit.
- A method named *readProfits()* that reads the salesman's profits for the 12 months and stores them in the array monthlyProfit.
- A method named *displayInfo()* that prints the salesman's name and all the profits he made for the company in each of the 12 months.
- A method named *highestProfit()* that returns the highest profit that the salesman made in the whole year.
- A method named *TotalProfit()* that returns the total profit that the salesman made in the whole year.

Write another Java class called TestSales with a main() method that will create a Sales object, called salesMan1, such that the name of the salesman is entered by the user. The main() method should do the following:

1. Read the profits for the 12 months of salesMan1.
2. Display the highest profit of salesMan1.
3. Display the total profit of salesMan1.
4. Display the name of salesMan1 and the profits that he made in each month of the year.



```
import java.util.* ;

public class sale
{
    Scanner consol = new Scanner(System.in) ;
    private String name;
    private double  monthlyProfit[];

    public sale(String n )
    {
        name = n ;
        monthlyProfit = new double [12] ;
    }

    public void readProfits()
    {
        System.out.println("enter 12 profets") ;

        for(int i = 0 ; i < 12 ; i++)
            monthlyProfit[i] = consol.nextDouble() ;

    }
    //-----

    public void dispaly()
    {
        System.out.println("name : " + name + " profits :\n " ) ;

        for(int i = 0 ; i < 12 ; i++)
            System.out.println(monthlyProfit[i]) ;

    }
    //-----
    public double highestProfit()
    {
        int max = 0 ;

        for(int i = 1 ; i < 12 ; i++)
            if(monthlyProfit[max] < monthlyProfit [i] )
                max = i ;

        return monthlyProfit[max] ;
    }

    public double TotalProfit()
    {
        double sum = 0;

        for(int i =0 ; i < 12 ; i++)
            sum += monthlyProfit[i] ;
    }
}
```

```
        return sum ;
    }

    }// end class
//=====
import java.util.* ;

public class test
{
    static Scanner consol = new Scanner(System.in) ;

    public static void main(String arg[])
    {
        String name ;
        System.out.print("Enter name of sale's person:  ");
        name = consol.next() ;

        sale salesMan1 = new sale(name) ;
        salesMan1.readProfits() ;

        System.out.println("the highst profits : " + salesMan1.highestProfit()  ) ;

        System.out.println("the total profits : " + salesMan1.TotalProfit()  ) ;

        salesMan1.disply() ;

    }// main
    }// end class
=====
```

How to use method copy and equals

```
public class Student {
    private int id ;
    private String name ;
    private double grade ;

    public Student(int d, String n, double g) {
        id = d;
        name = n;
        grade = g;
    }

    public void copy(Student s )
    {
        id = s.id ;
        name = s.name ;
        grade = s.grade ;
    }
    public boolean equals(Student s )
    {
        if(id == s.id  && name.equals(s.name))
            return true;
        else
            return false ;
    }

    public void display() {
        System.out.println("id=" + id + ", name=" + name + ", grade=" + grade);
    }

    public int getId() {
        return id;
    }

    public void setId(int id) {
        this.id = id;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public double getGrade() {
        return grade;
    }

    public void setGrade(double grade) {
        this.grade = grade;    } }

=====
```



```
import java.util.Scanner;
public class TestCopyStudent {
    Scanner read = new Scanner(System.in) ;
    public static void main(String[] args) {

        Student s1 = new Student(12345 , "Omar" , 88) ;
        Student s2 = new Student(12345 , "Ali" , 91.4) ;

        s1.display();
        s2.display();

        if(s1 == s2)
            System.out.println("equals");
        else
            System.out.println("not equals");

        s1.copy(s2);
        System.out.println("after copy");
        if(s1 == s2)
            System.out.println("equals");
        else
            System.out.println("not equals");

        if(s1.equals(s2))
            System.out.println("s1 equals s2");
        else
            System.out.println("s1 not equals s2");

        s2 = s1 ;
        if(s1 == s2)
            System.out.println("equals");
        else
            System.out.println("not equals");
    }
}
```

=====

Output

Student{id=12345, name=Omar, grade=88.0}

Student{id=12345, name=Ali, grade=91.4}

not equals

after copy

not equals

s1 equals s2

equals