Praktikum5 : Collection

1 Array

Main.java

```
no usages
public class Main {
    no usages
    public static void main(String[] args) {
        System.out.println("Array !");
        int FirstArray[] = new int[6];
        for(int i=0;i<FirstArray.length;i++){
            FirstArray[i]=i+1;
        }
        for(int i=0;i<FirstArray.length;i++){
            System.out.println(FirstArray[i]);
        }

    }
}
```

2. Array 2D

ArrayInit.java | new 1 | TestArray.java | TestArray2D.java | Array2D.java

```
import java.util.Scanner;
public class  Array2D{
    public static void main(String[] args){
        int[][] nums= new int[3][2];
        isiMatrix(nums);
        printMatrix(nums);
    }

    static void isiMatrix(int m[][]){
        Scanner in = new Scanner(System.in);
        for(int i = 0; i < m.length; i++){
            for(int j = 0; j < m[i].length; j++){
                System.out.println("masukkan nilai pada baris "+ i+ ", kolom "+ j);
                m[i][j] = in.nextInt();
            }
        }
    }
    static void printMatrix(int m[][] ){
        System.out.println("------------------------");
        for(int i = 0; i < m.length; i++){
            for(int j = 0; j < m[i].length; j++){
                System.out.print(m[i][j]+" ");
            }
            System.out.println("");
        }
    }
}
```

3. Array Object

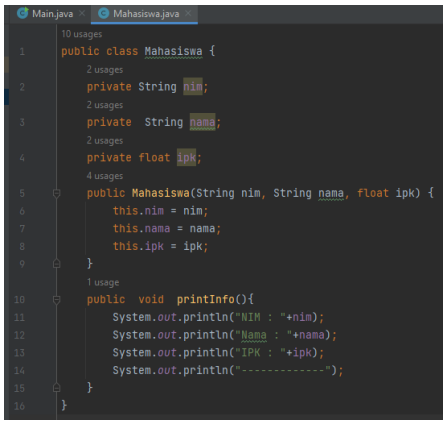
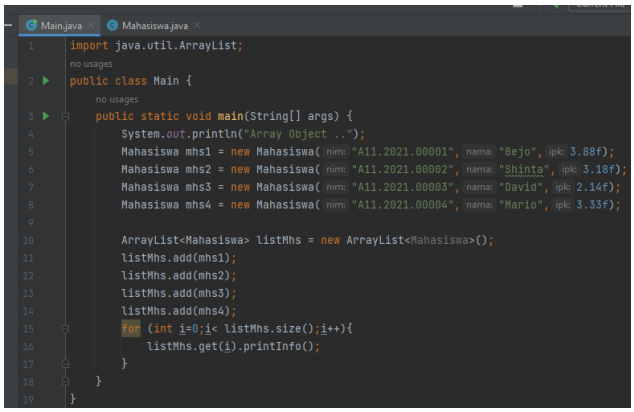
Mhs.java

```java
public class Mhs {
    String nim;
    String nama;
    float ipk;

    public Mhs(String nim, String nama, float ipk) {
        this.nim = nim;
        this.nama = nama;
        this.ipk = ipk;
    }
    public String getNim() {
        return nim;
    }

    public void setNim(String nim) {
        this.nim = nim;
    }

    public String getNama() {
        return nama;
    }

    public void setNama(String nama) {
        this.nama = nama;
    }

    public float getIpk() {
        return ipk;
    }

    public void setIpk(float ipk) {
        this.ipk = ipk;
    }
}
```

Main.java

```java
public class Main {
    public static void main(String[] args) {
        System.out.println("Array Object..");
        Mhs m1 = new Mhs( nim: "A11.2022.00111", nama: "Agus", ipk: 3.78f);
        Mhs m2 = new Mhs( nim: "A11.2022.00111", nama: "Fikri", ipk: 3.85f);
        Mhs m3 = new Mhs( nim: "A11.2022.00111", nama: "Rafi", ipk: 3.18f);
        Mhs m4 = new Mhs( nim: "A11.2022.00111", nama: "Mario", ipk: 2.81f);

        Mhs arrMhs[] = new Mhs[4];
        arrMhs[0]=m1;
        arrMhs[1]=m2;
        arrMhs[2]=m3;
        arrMhs[3]=m4;
        for (int i=0;i<arrMhs.length;i++){
            arrMhs[i].printInfo();
        }
    }
}
```

Array List:

Mhs.java	Main.java
	

Latihan buatlah program manajemen data mahasiswa menggunakan ArrayList, dengan menu sbb:

APLIKASI DATA MAHASISWA

1. Tambahkan Data MHS
2. Print Data MHS
3. Cari Data MHS (berdasarkan NIM)
4. Hapus Data MHS (berdasarkan NIM)
5. Hapus Seluruh Data MHS
6. Exit

[Pilihan Anda 1- 6] :

Contoh penggunaan method2 pada Array List

TestArrayList.java

D:\latihan\java\koleksi\TestArrayList.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugi

TestArrayList.java

```
1  import java.util.*;
2  public class TestArrayList {
3     public static void main(String args[]) {
4        ArrayList<String> obj = new ArrayList<String>();
5        /*add elemen*/
6        obj.add("Amir");
7        obj.add("Hari");
8        obj.add("Chintia");
9        obj.add("Slamet");
10       obj.add("Abu");
11       /* Displaying array list elements */
12       System.out.println("Elemen Array list:"+obj);
13       /*update elemen*/
14       obj.set(3, "Salamet");
15       //posisi index
16       int pos = obj.indexOf("Hari");
17       System.out.println("Hari di index ke:"+pos);
18       int pos2 = obj.indexOf("Heru");
19       System.out.println("Heru di index ke:"+pos2);
20       //get elemen
21       String str=obj.get(2);
22       System.out.println("elemen index ke2:"+str);
23       //size
24       int jmlElm = obj.size();
25       System.out.println("jml elemen :"+jmlElm);
26       //cari elemen
27       boolean ada=obj.contains("Abu");
28       System.out.println("ada elemen abu?:"+ada);
29       /*Add elemen */
30       obj.add(0, "Raihan");
31       obj.add(1, "Jujuk");
32       /*Remove elements*/
33       obj.remove("Chintia");
34       obj.remove("Hari");
35       System.out.println("Elemen array list:"+obj);
36       /*Remove element*/
37       obj.remove(1);
38       System.out.println("Elemen array list:"+obj);
39       /*clear */
40       obj.clear();
41       System.out.println("Elemen array list:"+obj);
42    }
43 }
```

Java source file

C:\Windows\system32\cmd.exe

```
D:\latihan\java\koleksi>java TestArrayList
Elemen Array list:[Amir, Hari, Chintia, Slamet, Abu]
Hari di index ke:1
Heru di index ke:-1
elemen index ke2:Chintia
jml elemen :5
ada elemen abu:true
Elemen array list:[Raihan, Jujuk, Amir, Salamet, Abu]
Elemen array list:[Raihan, Amir, Salamet, Abu]
Elemen array list:[]
```

Contoh penggunaan Loop untukmengakses ArrayList

ArrayList2.java

```
import java.util.*;
class ArrayList2 {
  public static void main(String args[]) {
    ArrayList<String> al1 = new ArrayList<>();
    al1.add("Semarang");
    al1.add("Bandung");
    al1.add("Jakarta");
    al1.add("Medan");
    //membaca setiap elemen dg forEach
     al1.forEach(e->System.out.print(e.toUpperCase() + " "));
    //membaca setiap elemen dg iterator
    ListIterator li = al1.listIterator();
    while (li.hasNext()){
          System.out.println(li.next());
      }
   }
}
```