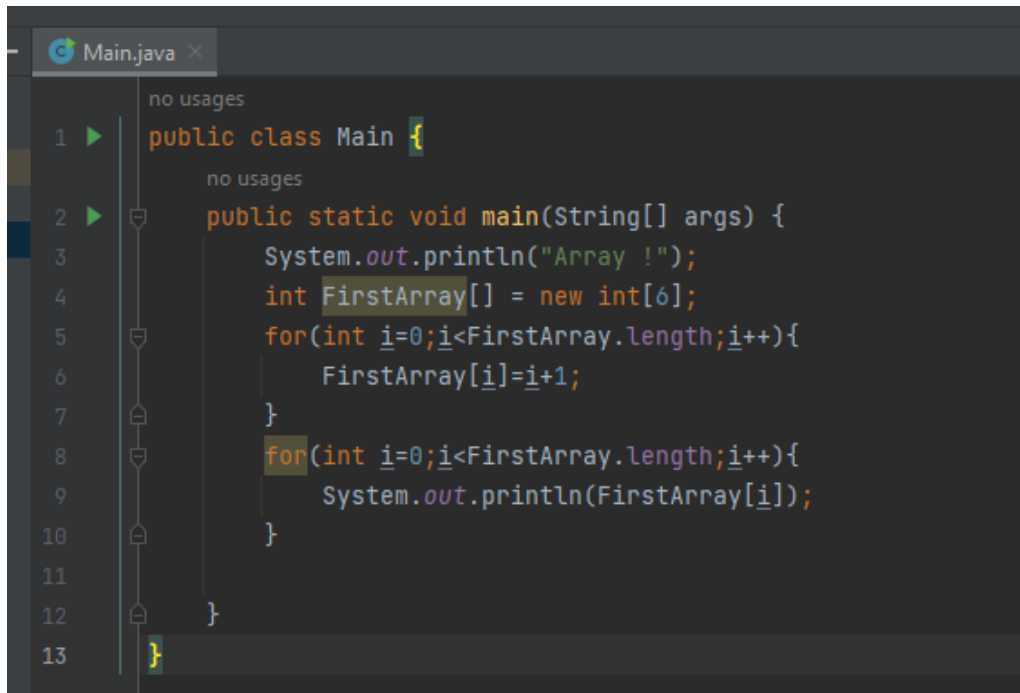


Praktikum5 : Collection

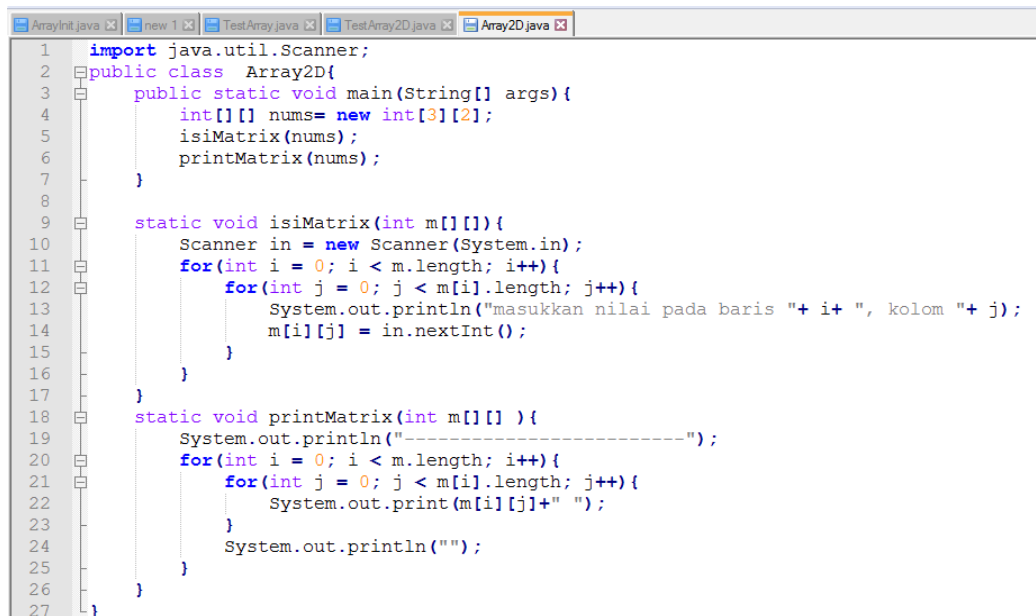
1 Array



```

no usages
1  public class Main {
    no usages
2  public static void main(String[] args) {
3      System.out.println("Array !");
4      int FirstArray[] = new int[6];
5      for(int i=0;i<FirstArray.length;i++){
6          FirstArray[i]=i+1;
7      }
8      for(int i=0;i<FirstArray.length;i++){
9          System.out.println(FirstArray[i]);
10     }
11
12 }
13 }
  
```

2. Array 2D



```

1  import java.util.Scanner;
2  public class Array2D{
3      public static void main(String[] args){
4          int[][] nums= new int[3][2];
5          isiMatrix(nums);
6          printMatrix(nums);
7      }
8
9      static void isiMatrix(int m[][]){
10         Scanner in = new Scanner(System.in);
11         for(int i = 0; i < m.length; i++){
12             for(int j = 0; j < m[i].length; j++){
13                 System.out.println("masukkan nilai pada baris "+ i+ " , kolom "+ j);
14                 m[i][j] = in.nextInt();
15             }
16         }
17     }
18     static void printMatrix(int m[][] ){
19         System.out.println("-----");
20         for(int i = 0; i < m.length; i++){
21             for(int j = 0; j < m[i].length; j++){
22                 System.out.print(m[i][j]+" ");
23             }
24             System.out.println("");
25         }
26     }
27 }
  
```

3. Array Object

Mhs.java	Main.java
<pre> 1 no usages public class Mhs { 2 String nim; 3 String nama; 4 float ipk; 5 6 public Mhs(String nim, String nama, float ipk) { 7 this.nim = nim; 8 this.nama = nama; 9 this.ipk = ipk; 10 } 11 public String getNim() { 12 return nim; 13 } 14 15 public void setNim(String nim) { 16 this.nim = nim; 17 } 18 19 public String getNama() { 20 return nama; 21 } 22 23 public void setNama(String nama) { 24 this.nama = nama; 25 } 26 27 public float getIpk() { 28 return ipk; 29 } 30 31 public void setIpk(float ipk) { 32 this.ipk = ipk; 33 } 34 } </pre>	<pre> 1 no usages public class Main { 2 public static void main(String[] args) { 3 System.out.println("Array Object.."); 4 Mhs m1 = new Mhs(nim: "A11.2022.00111", nama: "Agus", ipk: 3.78f); 5 Mhs m2 = new Mhs(nim: "A11.2022.00111", nama: "Fikri", ipk: 3.85f); 6 Mhs m3 = new Mhs(nim: "A11.2022.00111", nama: "Rafi", ipk: 3.18f); 7 Mhs m4 = new Mhs(nim: "A11.2022.00111", nama: "Mario", ipk: 2.81f); 8 9 Mhs arrMhs[] = new Mhs[4]; 10 arrMhs[0]=m1; 11 arrMhs[1]=m2; 12 arrMhs[2]=m3; 13 arrMhs[3]=m4; 14 for (int i=0;i<arrMhs.length;i++){ 15 arrMhs[i].printInfo(); 16 } 17 } 18 } </pre>

Array List:

Mhs.java	Main.java
<pre> 1 public class Mahasiswa { 2 private String nim; 3 private String nama; 4 private float ipk; 5 public Mahasiswa(String nim, String nama, float ipk) { 6 this.nim = nim; 7 this.nama = nama; 8 this.ipk = ipk; 9 } 10 public void printInfo(){ 11 System.out.println("NIM : "+nim); 12 System.out.println("Nama : "+nama); 13 System.out.println("IPK : "+ipk); 14 System.out.println("-----"); 15 } 16 }</pre>	<pre> 1 import java.util.ArrayList; 2 public class Main { 3 public static void main(String[] args) { 4 System.out.println("Array Object .."); 5 Mahasiswa mhs1 = new Mahasiswa("A11.2021.00001", "Bejo", ipk: 3.88f); 6 Mahasiswa mhs2 = new Mahasiswa("A11.2021.00002", "Shinta", ipk: 3.18f); 7 Mahasiswa mhs3 = new Mahasiswa("A11.2021.00003", "David", ipk: 2.14f); 8 Mahasiswa mhs4 = new Mahasiswa("A11.2021.00004", "Mario", ipk: 3.33f); 9 10 ArrayList<Mahasiswa> listMhs = new ArrayList<Mahasiswa>(); 11 listMhs.add(mhs1); 12 listMhs.add(mhs2); 13 listMhs.add(mhs3); 14 listMhs.add(mhs4); 15 for (int i=0;i< listMhs.size();i++){ 16 listMhs.get(i).printInfo(); 17 } 18 } 19 }</pre>

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 Plugin
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, "Salamat");
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
40         /*clear */
41         obj.clear();
42         System.out.println("Elemen array list:"+obj);
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 untuk mengakses 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());

        }

    }

}
```