

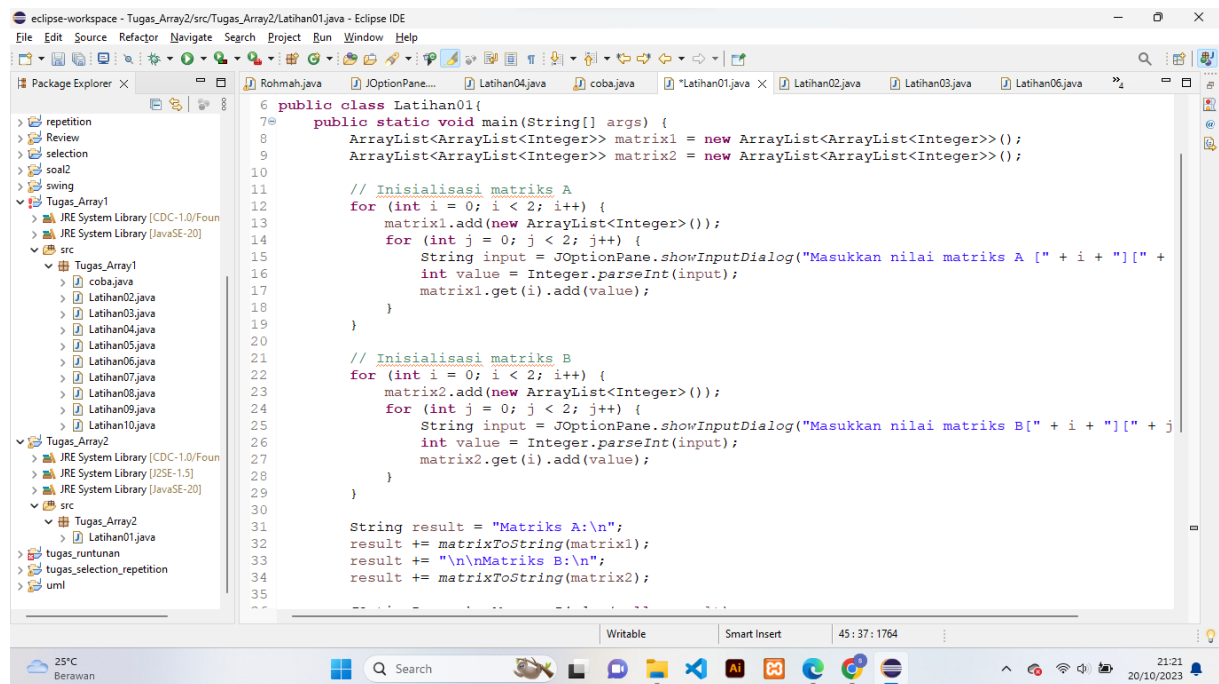
Nama: Siti Rohmah

NPM: 222310054

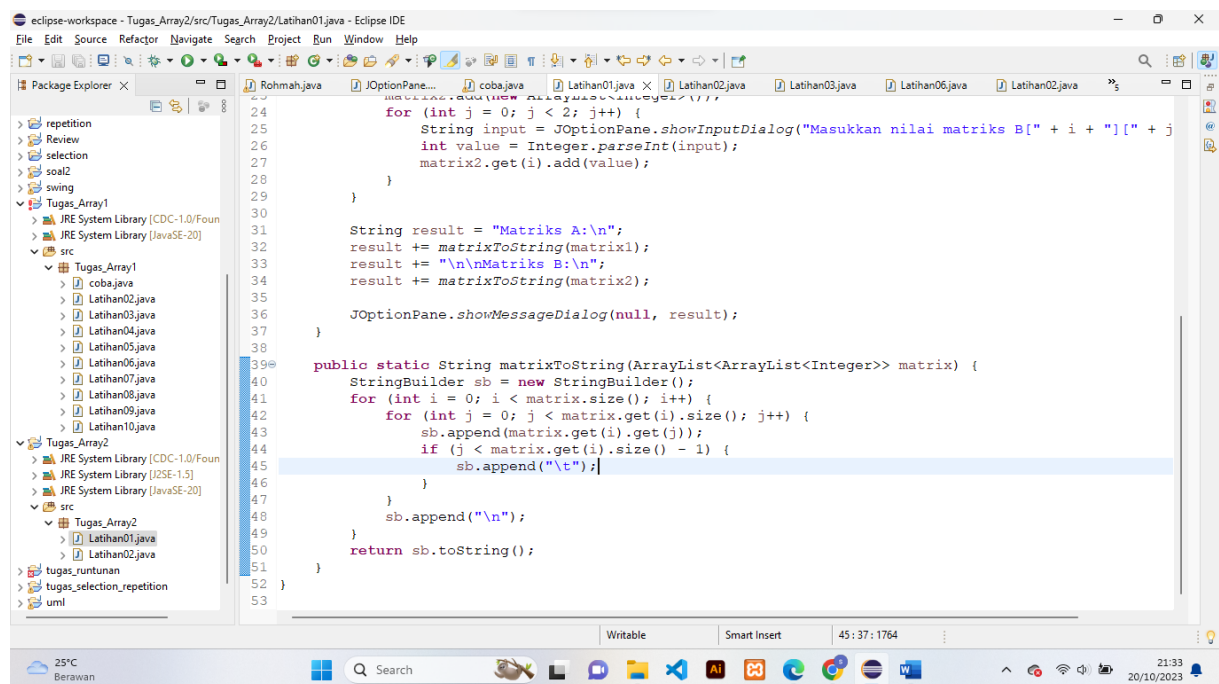
Kelas: TI-22-PB

Tugas: Array2

Latihan01



```
1 package latihan01;
2 import java.util.*;
3 import javax.swing.JOptionPane;
4
5 public class Latihan01{
6     public static void main(String[] args) {
7         ArrayList<ArrayList<Integer>> matrix1 = new ArrayList<ArrayList<Integer>>();
8         ArrayList<ArrayList<Integer>> matrix2 = new ArrayList<ArrayList<Integer>>();
9
10        // Inisialisasi matriks A
11        for (int i = 0; i < 2; i++) {
12            matrix1.add(new ArrayList<Integer>());
13            for (int j = 0; j < 2; j++) {
14                String input = JOptionPane.showInputDialog("Masukkan nilai matriks A [" + i + "]" +
15                int value = Integer.parseInt(input);
16                matrix1.get(i).add(value);
17            }
18        }
19
20        // Inisialisasi matriks B
21        for (int i = 0; i < 2; i++) {
22            matrix2.add(new ArrayList<Integer>());
23            for (int j = 0; j < 2; j++) {
24                String input = JOptionPane.showInputDialog("Masukkan nilai matriks B[" + i + "]" +
25                int value = Integer.parseInt(input);
26                matrix2.get(i).add(value);
27            }
28        }
29
30        String result = "Matriks A:\n";
31        result += matrixToString(matrix1);
32        result += "\n\nMatriks B:\n";
33        result += matrixToString(matrix2);
34
35        JOptionPane.showMessageDialog(null, result);
36    }
37
38    public static String matrixToString(ArrayList<ArrayList<Integer>> matrix) {
39        StringBuilder sb = new StringBuilder();
40        for (int i = 0; i < matrix.size(); i++) {
41            for (int j = 0; j < matrix.get(i).size(); j++) {
42                sb.append(matrix.get(i).get(j));
43                if (j < matrix.get(i).size() - 1) {
44                    sb.append("\t");
45                }
46            }
47            sb.append("\n");
48        }
49        return sb.toString();
50    }
51 }
52
53 }
```



```
24        for (int j = 0; j < 2; j++) {
25            String input = JOptionPane.showInputDialog("Masukkan nilai matriks B[" + i + "]" +
26            int value = Integer.parseInt(input);
27            matrix2.get(i).add(value);
28        }
29    }
30
31    String result = "Matriks A:\n";
32    result += matrixToString(matrix1);
33    result += "\n\nMatriks B:\n";
34    result += matrixToString(matrix2);
35
36    JOptionPane.showMessageDialog(null, result);
37 }
38
39 public static String matrixToString(ArrayList<ArrayList<Integer>> matrix) {
40     StringBuilder sb = new StringBuilder();
41     for (int i = 0; i < matrix.size(); i++) {
42         for (int j = 0; j < matrix.get(i).size(); j++) {
43             sb.append(matrix.get(i).get(j));
44             if (j < matrix.get(i).size() - 1) {
45                 sb.append("\t");
46             }
47         }
48         sb.append("\n");
49     }
50     return sb.toString();
51 }
52
53 }
```

Input

Masukkan nilai matriks A [0][0]:

1

OK Cancel

Input

Masukkan nilai matriks A [0][1]:

3

OK Cancel

Input

Masukkan nilai matriks A [1][0]:

9

OK Cancel

Input

Masukkan nilai matriks A [1][1]:

5

OK Cancel

Input

Masukkan nilai matriks B[0][0]:

4

OK Cancel

Input

Masukkan nilai matriks B[0][1]:

5

OK Cancel

Input

Masukkan nilai matriks B[1][0]:

3

OK Cancel

Input

Masukkan nilai matriks B[1][1]:

6

OK Cancel

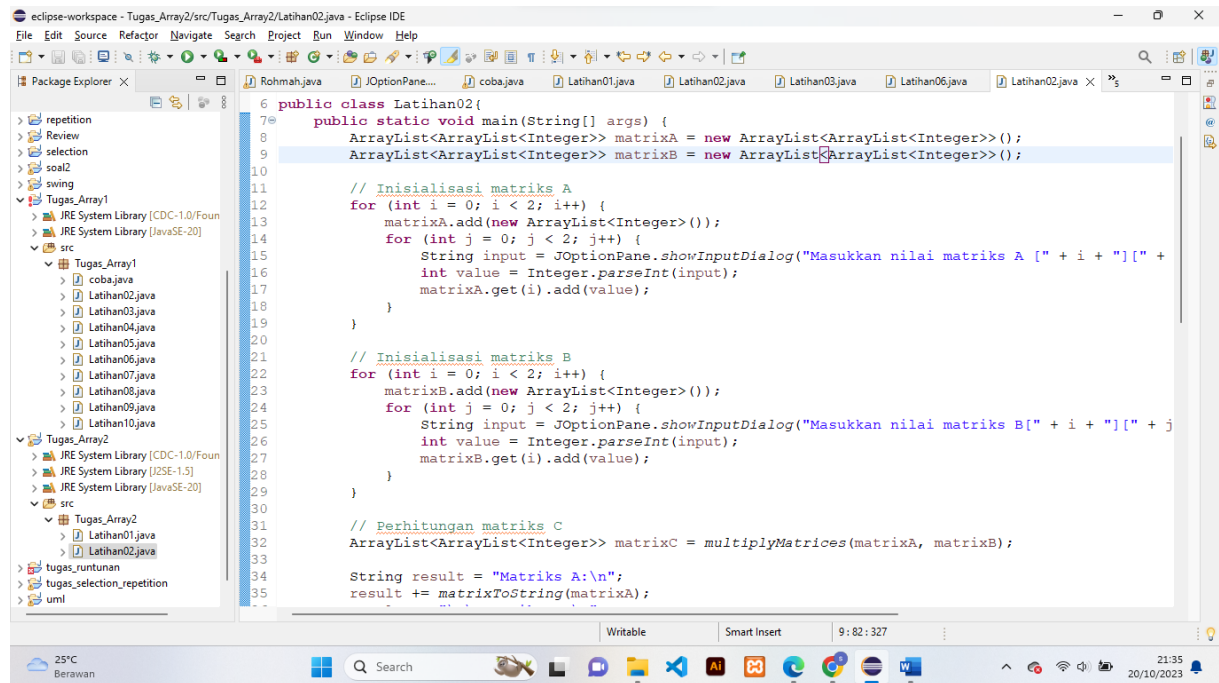
Message

**Matriks A:**  
13  
95

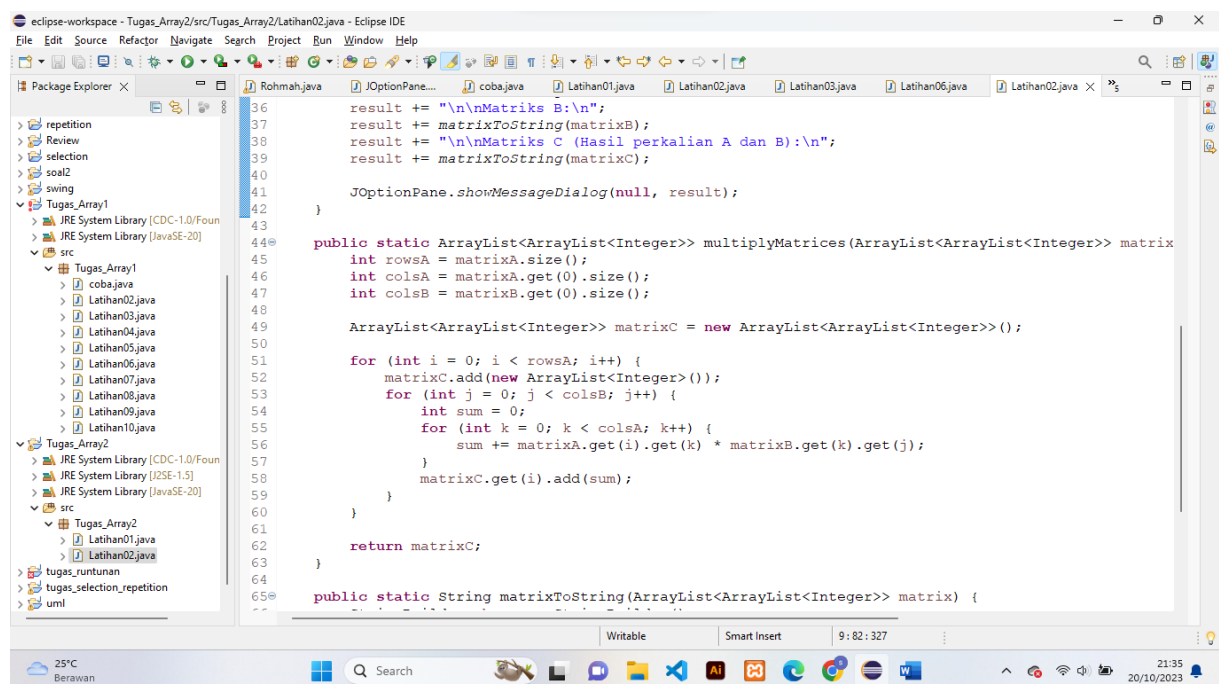
**Matriks B:**  
45  
66

OK

## Latihan2



```
7 public class Latihan2 {
8     public static void main(String[] args) {
9         ArrayList<ArrayList<Integer>> matrixA = new ArrayList<ArrayList<Integer>>();
10        ArrayList<ArrayList<Integer>> matrixB = new ArrayList<ArrayList<Integer>>();
11
12        // Inisialisasi matriks A
13        for (int i = 0; i < 2; i++) {
14            matrixA.add(new ArrayList<Integer>());
15            for (int j = 0; j < 2; j++) {
16                String input = JOptionPane.showInputDialog("Masukkan nilai matriks A [" + i + "][" + j + "]");
17                int value = Integer.parseInt(input);
18                matrixA.get(i).add(value);
19            }
20        }
21
22        // Inisialisasi matriks B
23        for (int i = 0; i < 2; i++) {
24            matrixB.add(new ArrayList<Integer>());
25            for (int j = 0; j < 2; j++) {
26                String input = JOptionPane.showInputDialog("Masukkan nilai matriks B [" + i + "][" + j + "]");
27                int value = Integer.parseInt(input);
28                matrixB.get(i).add(value);
29            }
30        }
31
32        // Perhitungan matriks C
33        ArrayList<ArrayList<Integer>> matrixC = multiplyMatrices(matrixA, matrixB);
34
35        String result = "Matriks A:\n";
36        result += matrixToString(matrixA);
37    }
38}
```



```
36 result += "\n\nMatriks B:\n";
37 result += matrixToString(matrixB);
38 result += "\n\nMatriks C (Hasil perkalian A dan B):\n";
39 result += matrixToString(matrixC);
40
41 JOptionPane.showMessageDialog(null, result);
42 }
43
44 public static ArrayList<ArrayList<Integer>> multiplyMatrices(ArrayList<ArrayList<Integer>> matrixA,
45     ArrayList<ArrayList<Integer>> matrixB) {
46     int rowsA = matrixA.size();
47     int colsA = matrixA.get(0).size();
48     int rowsB = matrixB.size();
49     int colsB = matrixB.get(0).size();
50
51     ArrayList<ArrayList<Integer>> matrixC = new ArrayList<ArrayList<Integer>>();
52
53     for (int i = 0; i < rowsA; i++) {
54         matrixC.add(new ArrayList<Integer>());
55         for (int j = 0; j < colsB; j++) {
56             int sum = 0;
57             for (int k = 0; k < colsA; k++) {
58                 sum += matrixA.get(i).get(k) * matrixB.get(k).get(j);
59             }
60             matrixC.get(i).add(sum);
61         }
62     }
63
64     return matrixC;
65 }
66
67 public static String matrixToString(ArrayList<ArrayList<Integer>> matrix) {
68     String result = "";
69     for (int i = 0; i < matrix.size(); i++) {
70         result += "Matriks A[" + i + "]:\n";
71         for (int j = 0; j < matrix.get(i).size(); j++) {
72             result += matrix.get(i).get(j) + " ";
73         }
74         result += "\n";
75     }
76     return result;
77 }
```

eclipse-workspace - Tugas\_Array2/src/Tugas\_Array2/Latihan02.java - Eclipse IDE

```
File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer
> repetition
> Review
> selection
> soal2
> swing
> Tugas_Array1
  > JRE System Library [CDC-1.0/Foundation 1.0]
  > JRE System Library [JavaSE-20]
  > src
    > Tugas_Array1
      > cobajava
      > Latihan02.java
      > Latihan03.java
      > Latihan04.java
      > Latihan05.java
      > Latihan06.java
      > Latihan07.java
      > Latihan08.java
      > Latihan09.java
      > Latihan10.java
    > Tugas_Array2
      > JRE System Library [CDC-1.0/Foundation 1.0]
      > JRE System Library [J2SE-1.5]
      > JRE System Library [JavaSE-20]
      > src
        > Tugas_Array2
          > Latihan01.java
          > Latihan02.java
        > tugas_runnunan
        > tugas_selection_repetition
        > umil

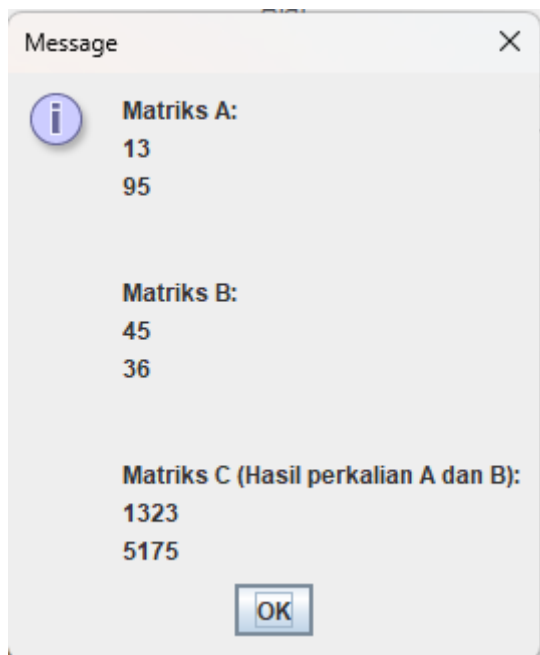
Rohmah.java
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for (int i = 0; i < rowsA; i++) {
    matrixC.add(new ArrayList<Integer>());
    for (int j = 0; j < colsB; j++) {
        int sum = 0;
        for (int k = 0; k < colsA; k++) {
            sum += matrixA.get(i).get(k) * matrixB.get(k).get(j);
        }
        matrixC.get(i).add(sum);
    }
}

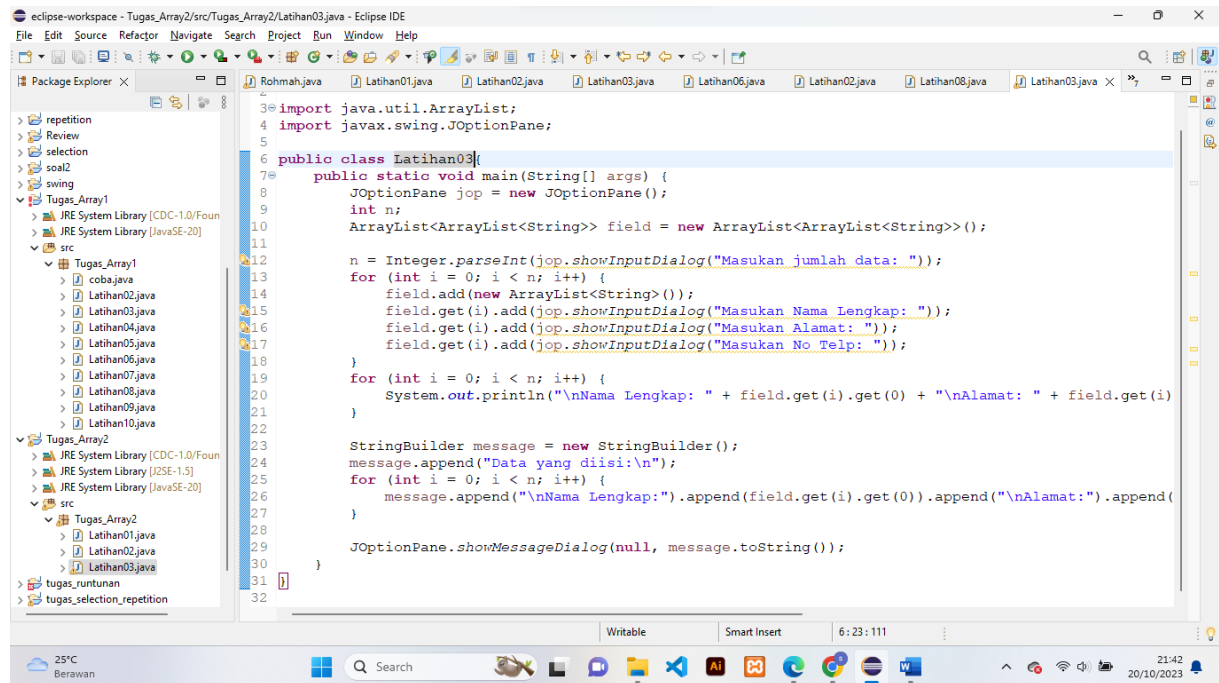
return matrixC;

public static String matrixToString(ArrayList<ArrayList<Integer>> matrix) {
    StringBuilder sb = new StringBuilder();
    for (int i = 0; i < matrix.size(); i++) {
        for (int j = 0; j < matrix.get(i).size(); j++) {
            sb.append(matrix.get(i).get(j));
            if (j < matrix.get(i).size() - 1) {
                sb.append("\t");
            }
        }
        sb.append("\n");
    }
    return sb.toString();
}
```

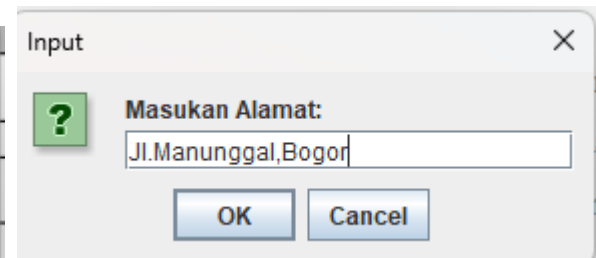
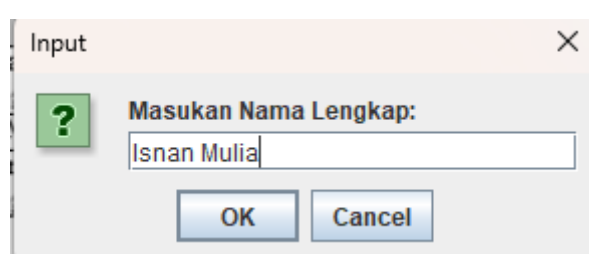
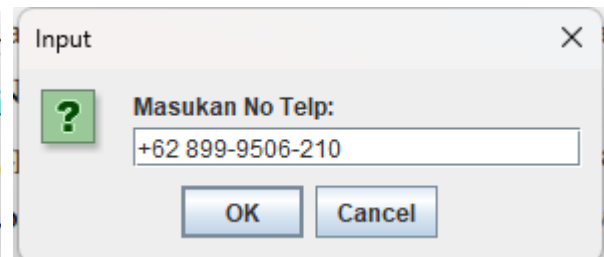
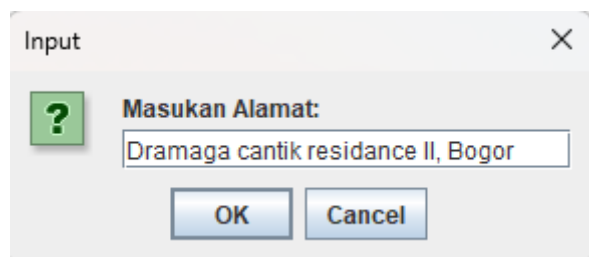
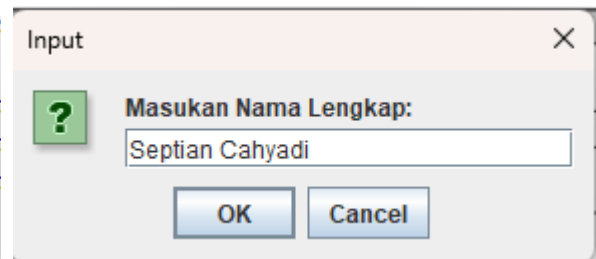
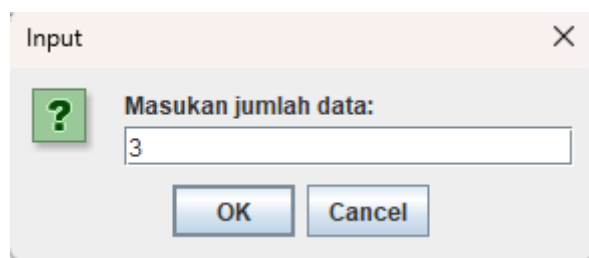
Chat  
Smart Insert  
9: 82 : 327  
21:35  
20/10/2023



## Latihan03



```
3 import java.util.ArrayList;
4 import javax.swing.JOptionPane;
5
6 public class Latihan03{
7     public static void main(String[] args) {
8         JOptionPane jop = new JOptionPane();
9         int n;
10        ArrayList<ArrayList<String>> field = new ArrayList<ArrayList<String>>();
11
12        n = Integer.parseInt(jop.showInputDialog("Masukan jumlah data: "));
13        for (int i = 0; i < n; i++) {
14            field.add(new ArrayList<String>());
15            field.get(i).add(jop.showInputDialog("Masukan Nama Lengkap: "));
16            field.get(i).add(jop.showInputDialog("Masukan Alamat: "));
17            field.get(i).add(jop.showInputDialog("Masukan No Telp: "));
18        }
19        for (int i = 0; i < n; i++) {
20            System.out.println("\nNama Lengkap: " + field.get(i).get(0) + "\nAlamat: " + field.get(i)
21        )
22        }
23
24        StringBuilder message = new StringBuilder();
25        message.append("Data yang diisi:\n");
26        for (int i = 0; i < n; i++) {
27            message.append("\nNama Lengkap:").append(field.get(i).get(0)).append("\nAlamat:").append(
28        )
29        }
30
31        JOptionPane.showMessageDialog(null, message.toString());
32    }
```



Input

Masukan No Telp:

+62 819-3208-087

OK Cancel

Input

Masukan Nama Lengkap:

Edi Nurachmand

OK Cancel

Input

Masukan Alamat:

Taman Cimanggu Permai,Bogor

OK Cancel

Input

Masukan No Telp:

+62 856-9380-0384

OK Cancel

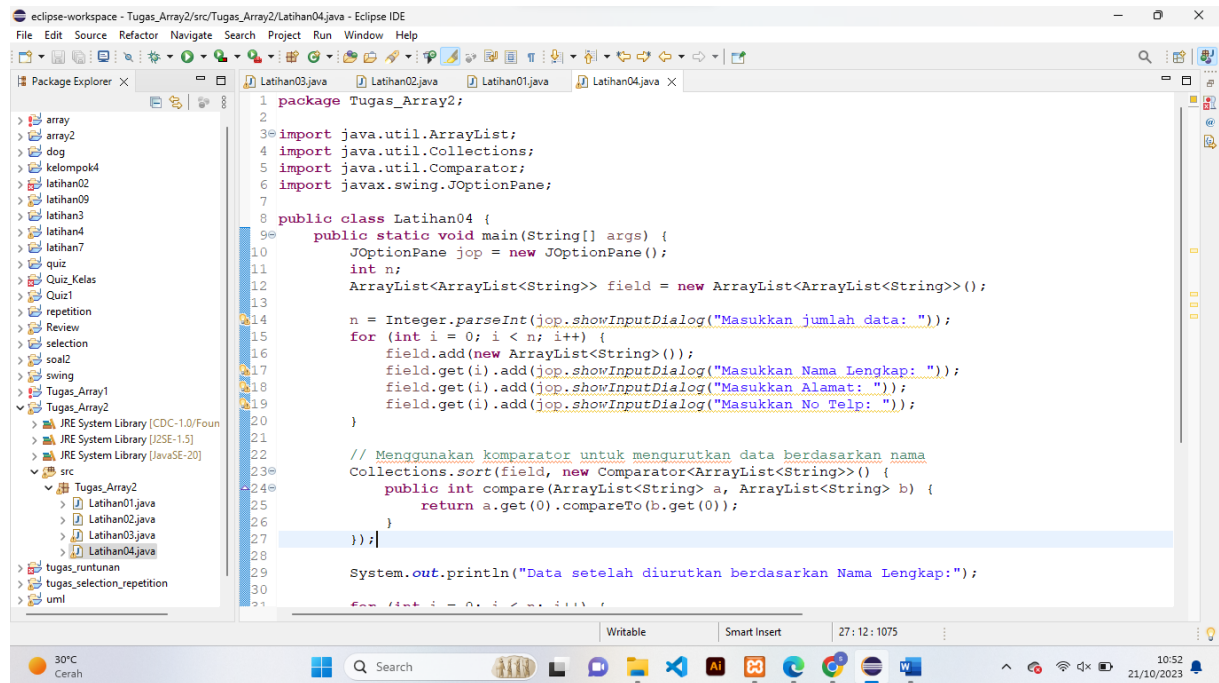
Message

Data yang diisi:

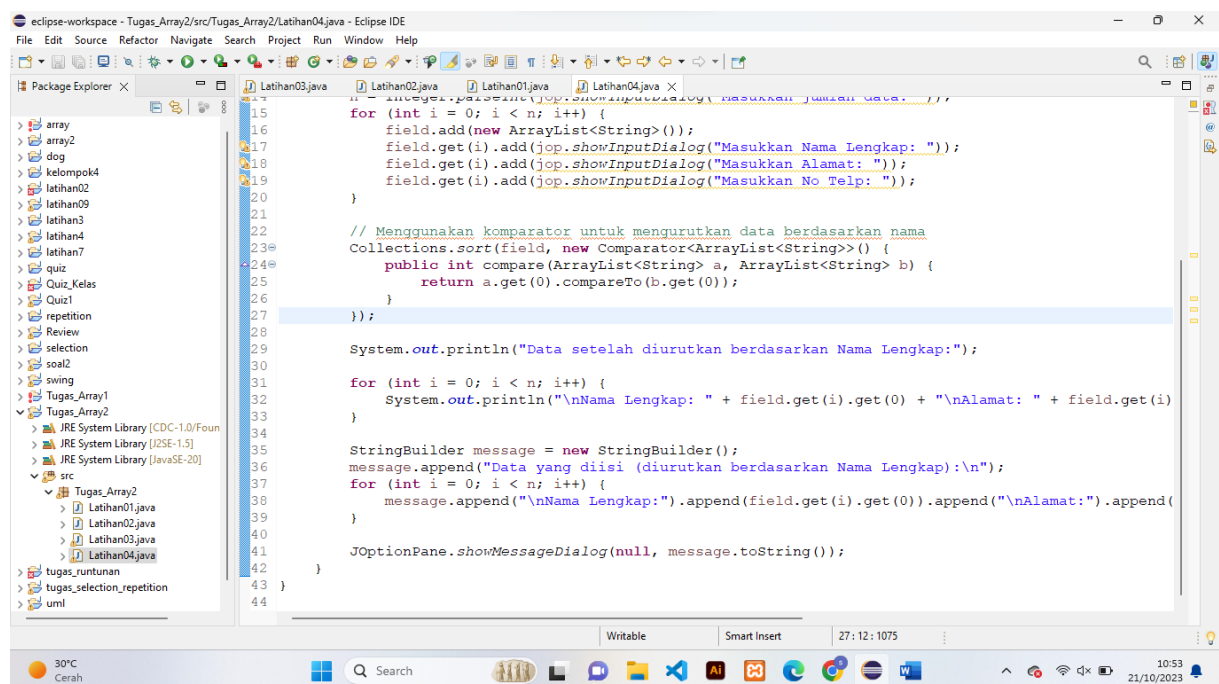
Nama Lengkap:Septian Cahyadi  
Alamat:Dramaga cantik residence II, Bogor  
No Telp:+62 899-9506-210  
Nama Lengkap:Isnan Mulia  
Alamat:Jl.Manunggal,Bogor  
No Telp:+62 819-3208-087  
Nama Lengkap:Edi Nurachmand  
Alamat:Taman Cimanggu Permai,Bogor  
No Telp:+62 856-9380-0384

OK

## Latihan04



```
1 package Tugas_Array2;
2
3 import java.util.ArrayList;
4 import java.util.Collections;
5 import java.util.Comparator;
6 import javax.swing.JOptionPane;
7
8 public class Latihan04 {
9     public static void main(String[] args) {
10         JOptionPane jop = new JOptionPane();
11         int n;
12         ArrayList<ArrayList<String>> field = new ArrayList<ArrayList<String>>();
13
14         n = Integer.parseInt(jop.showInputDialog("Masukkan jumlah data: "));
15         for (int i = 0; i < n; i++) {
16             field.add(new ArrayList<String>());
17             field.get(i).add(jop.showInputDialog("Masukkan Nama Lengkap: "));
18             field.get(i).add(jop.showInputDialog("Masukkan Alamat: "));
19             field.get(i).add(jop.showInputDialog("Masukkan No Telp: "));
20         }
21
22         // Menggunakan komparator untuk mengurutkan data berdasarkan nama
23         Collections.sort(field, new Comparator<ArrayList<String>>() {
24             public int compare(ArrayList<String> a, ArrayList<String> b) {
25                 return a.get(0).compareTo(b.get(0));
26             }
27         });
28
29         System.out.println("Data setelah diurutkan berdasarkan Nama Lengkap:");
30
31     }
32 }
```



```
15 Integer.parseInt(jop.showInputDialog("Masukkan jumlah data: "));
16 for (int i = 0; i < n; i++) {
17     field.add(new ArrayList<String>());
18     field.get(i).add(jop.showInputDialog("Masukkan Nama Lengkap: "));
19     field.get(i).add(jop.showInputDialog("Masukkan Alamat: "));
20     field.get(i).add(jop.showInputDialog("Masukkan No Telp: "));
21 }
22
23 // Menggunakan komparator untuk mengurutkan data berdasarkan nama
24 Collections.sort(field, new Comparator<ArrayList<String>>() {
25     public int compare(ArrayList<String> a, ArrayList<String> b) {
26         return a.get(0).compareTo(b.get(0));
27     }
28 });
29
30 System.out.println("Data setelah diurutkan berdasarkan Nama Lengkap:");
31
32 for (int i = 0; i < n; i++) {
33     System.out.println("\nNama Lengkap: " + field.get(i).get(0) + "\nAlamat: " + field.get(i).get(1) + "\nNo Telp: " + field.get(i).get(2));
34 }
35
36 StringBuilder message = new StringBuilder();
37 message.append("Data yang diisi (diurutkan berdasarkan Nama Lengkap):\n");
38 for (int i = 0; i < n; i++) {
39     message.append("\nNama Lengkap: ").append(field.get(i).get(0)).append("\nAlamat: ").append(field.get(i).get(1)).append("\nNo Telp: ").append(field.get(i).get(2)).append("\n");
40 }
41
42 JOptionPane.showMessageDialog(null, message.toString());
43
44 }
```

Message



Data yang diisi (diurutkan berdasarkan Nama Lengkap):

Nama Lengkap:Edi Nurachmad

Alamat:Taman Cimanggu Permai, Bogor

No Telp:+62 856-9308-0384

Nama Lengkap:Isnan Mulia

Alamat:Jl.Manunggal, Bogor

No Telp:+62 819-3208-0875

Nama Lengkap:Septian Cahyadi

Alamat:Dramaga cantik residence II, Bogor

No Telp:+62 899-9506-210

OK