

Laporan Praktikum Algoritma Dan Struktur Data



Oleh:

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1E Sistem Informasi Bisnis/ 01

**SISTEM INFORMASI BISNIS
POLITEKNIK NEGERI MALANG
2025**

JOBSHEET 3

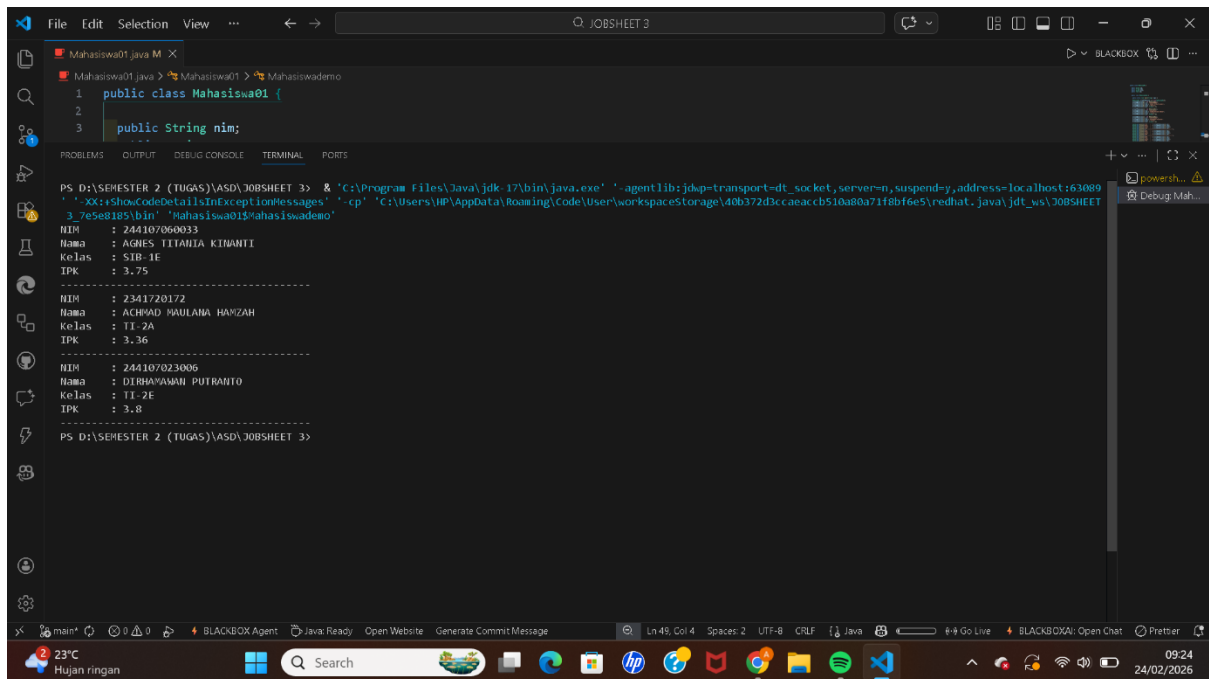
Praktikum 3.2

```
File Edit Selection View ... JOBSHEET 3
Mahasiswa01.java M X
Mahasiswa01.java > Mahasiswa01 > Mahasiswawadem0 > main(String[])
1 public class Mahasiswa01 {
3     public String nim;
4     public String nama;
5     public String kelas;
6     public float ipk;
7
8
9     public class Mahasiswawadem0 {
10
11         public static void main(String[] args) {
12
13             Mahasiswa01 arrayOfMahasiswa [] = new Mahasiswa01[3];
14             arrayOfMahasiswa[0] = new Mahasiswa01();
15             arrayOfMahasiswa[0].nim = "244107060033";
16             arrayOfMahasiswa[0].nama = "AGNES TITANIA KINANTI";
17             arrayOfMahasiswa[0].kelas = "SIB-1E";
18             arrayOfMahasiswa[0].ipk = (float) 3.75;
19
20             arrayOfMahasiswa[1] = new Mahasiswa01();
21             arrayOfMahasiswa[1].nim = "2341720172";
22             arrayOfMahasiswa[1].nama = "ACHMAD MAULANA HAMZAH";
23             arrayOfMahasiswa[1].kelas = "TI-2A";
24             arrayOfMahasiswa[1].ipk = (float) 3.36;
25
26             arrayOfMahasiswa[2] = new Mahasiswa01();
27             arrayOfMahasiswa[2].nim = "244107023006";
28             arrayOfMahasiswa[2].nama = "DIRHAMAWAN PUTRANTO";
29             arrayOfMahasiswa[2].kelas = "TI-2E";
30             arrayOfMahasiswa[2].ipk = (float) 3.80;
31
32             System.out.println("NIM : " + arrayOfMahasiswa[0].nim);

```

```
File Edit Selection View ... JOBSHEET 3
Mahasiswa01.java M X
Mahasiswa01.java > Mahasiswa01 > Mahasiswawadem0
1 public class Mahasiswa01 {
9     public class Mahasiswawadem0 {
11         public static void main(String[] args) {
26             arrayOfMahasiswa[2] = new Mahasiswa01();
27             arrayOfMahasiswa[2].nim = "244107023006";
28             arrayOfMahasiswa[2].nama = "DIRHAMAWAN PUTRANTO";
29             arrayOfMahasiswa[2].kelas = "TI-2E";
30             arrayOfMahasiswa[2].ipk = (float) 3.80;
31
32             System.out.println("NIM : " + arrayOfMahasiswa[0].nim);
33             System.out.println("Nama : " + arrayOfMahasiswa[0].nama);
34             System.out.println("Kelas : " + arrayOfMahasiswa[0].kelas);
35             System.out.println("IPK : " + arrayOfMahasiswa[0].ipk);
36             System.out.println(x: "-----");
37             System.out.println("NIM : " + arrayOfMahasiswa[1].nim);
38             System.out.println("Nama : " + arrayOfMahasiswa[1].nama);
39             System.out.println("Kelas : " + arrayOfMahasiswa[1].kelas);
40             System.out.println("IPK : " + arrayOfMahasiswa[1].ipk);
41             System.out.println(x: "-----");
42             System.out.println("NIM : " + arrayOfMahasiswa[2].nim);
43             System.out.println("Nama : " + arrayOfMahasiswa[2].nama);
44             System.out.println("Kelas : " + arrayOfMahasiswa[2].kelas);
45             System.out.println("IPK : " + arrayOfMahasiswa[2].ipk);
46             System.out.println(x: "-----");
47
48         }
49     }
50
51 }
```

HASIL OUTPUT



The screenshot shows an IDE window with a Java file named 'Mahasiswa01.java'. The code defines a class 'Mahasiswa01' with a 'nim' attribute. The terminal output shows the execution of a Java program that prints student information for three students: AGNES TITAHIA KIRAHATI, ACHMAD PAULANA HARIZAH, and DIRHANAWAN PUTRANTO. The output is formatted with dashed lines separating the student records.

```
public class Mahasiswa01 {  
    public String nim;  
}
```

```
PS D:\SEMESTER 2 (TUGAS)\ASD\JOBSHEET 3> & 'C:\Program Files\Java\jdk-17\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:63089' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\HP\AppData\Roaming\Code\User\workspaceStorage\40b372d3ccaacbb510a80a71f8bf6e5\redhat.java\jdt_ws\JOBSHEET 3_7e5e8185\bin' 'Mahasiswa01\MahasiswaDemo'  
NIM : 244107060033  
Nama : AGNES TITAHIA KIRAHATI  
Kelas : STB-1E  
IPK : 3,75  
-----  
NIM : 2341720172  
Nama : ACHMAD PAULANA HARIZAH  
Kelas : TI-2A  
IPK : 3,36  
-----  
NIM : 244107023006  
Nama : DIRHANAWAN PUTRANTO  
Kelas : TI-2E  
IPK : 3,8  
-----  
PS D:\SEMESTER 2 (TUGAS)\ASD\JOBSHEET 3>
```

JAWABAN PERTANYAAN

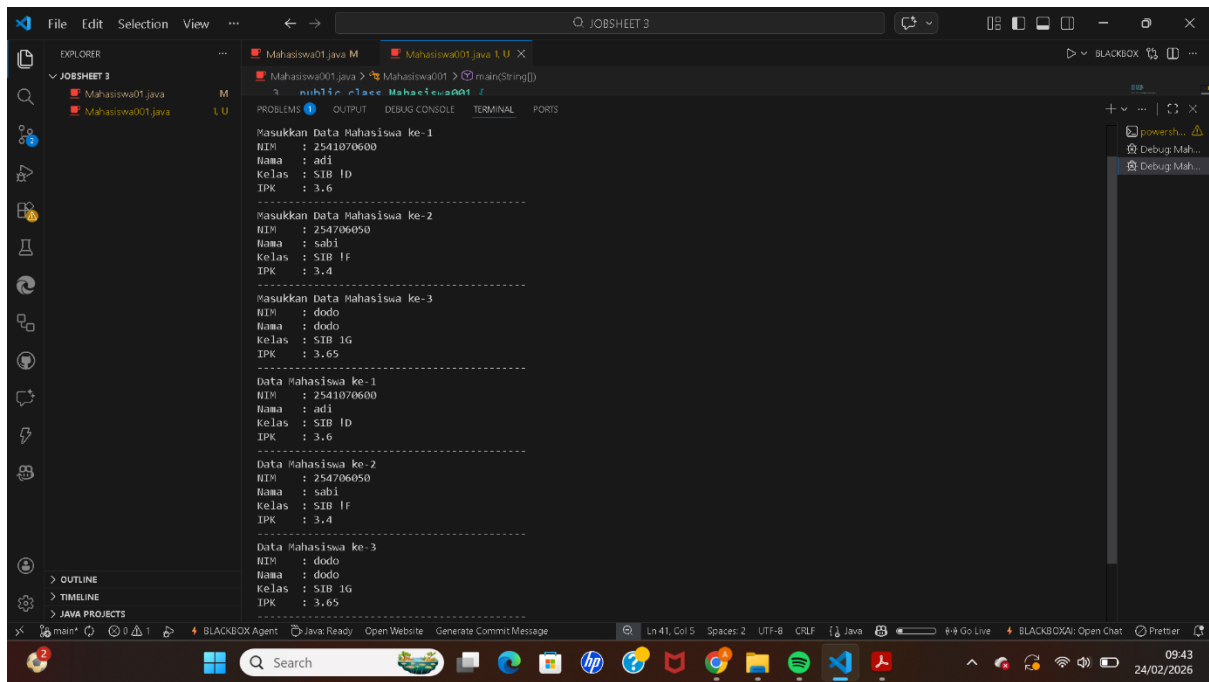
1. Tidak, class yang akan dibuat array of object tidak harus selalu memiliki atribut dan sekaligus method.
2. Membuat array, melakukan instansiasi, mengisi nilai atribut pada setiap object
3. Jika tidak bisa, bisa buat secara manual Java akan otomatis menyediakan defaultnya
4. Kode tersebut di gunakan untuk mengakses semua elemen dalam array
5. Karena class mahasiswa sebagai model, dan class mahasiswa demo untuk menjalankan program main

PRAKTIKUM 3.3

```
File Edit Selection View ... JOBSHEET 3
Mahasiswa01.java Mahasiswa001.java
Mahasiswa001.java > Mahasiswa001 > main(String[])
1 import java.util.Scanner;
2
3 public class Mahasiswa001 {
4
5     public String nim;
6     public String nama;
7     public String kelas;
8     public float ipk;
9
10
11     public static void main(String[] args) {
12
13         Mahasiswa001 arrayOfMahasiswa [] = new Mahasiswa001[3];
14         String dummy;
15
16         Scanner sc = new Scanner(System.in); Resource leak: 'sc' is never closed
17         for (int i = 0; i < 3; i++) {
18             arrayOfMahasiswa[i] = new Mahasiswa001();
19
20             System.out.println("Masukkan Data Mahasiswa ke-" + (i + 1));
21             System.out.print(s: "NIM : ");
22             arrayOfMahasiswa[i].nim = sc.nextline();
23             System.out.print(s: "Nama : ");
24             arrayOfMahasiswa[i].nama = sc.nextline();
25             System.out.print(s: "Kelas : ");
26             arrayOfMahasiswa[i].kelas = sc.nextline();
27             System.out.print(s: "IPK : ");
28             dummy = sc.nextline();
29             arrayOfMahasiswa[i].ipk = Float.parseFloat(dummy);
30             System.out.println(x: "-----");
31         }
32     }
33 }
```

```
File Edit Selection View ... JOBSHEET 3
Mahasiswa01.java Mahasiswa001.java
Mahasiswa001.java > Mahasiswa001 > main(String[])
3 public class Mahasiswa001 {
11     public static void main(String[] args) {
12
13         Mahasiswa001 arrayOfMahasiswa [] = new Mahasiswa001[3];
14         String dummy;
15
16         Scanner sc = new Scanner(System.in);
17         for (int i = 0; i < 3; i++) {
18             arrayOfMahasiswa[i] = new Mahasiswa001();
19
20             System.out.println("Masukkan Data Mahasiswa ke-" + (i + 1));
21             System.out.print(s: "NIM : ");
22             arrayOfMahasiswa[i].nim = sc.nextline();
23             System.out.print(s: "Nama : ");
24             arrayOfMahasiswa[i].nama = sc.nextline();
25             System.out.print(s: "Kelas : ");
26             arrayOfMahasiswa[i].kelas = sc.nextline();
27             System.out.print(s: "IPK : ");
28             dummy = sc.nextline();
29             arrayOfMahasiswa[i].ipk = Float.parseFloat(dummy);
30             System.out.println(x: "-----");
31         }
32     }
33
34     for (int i = 0; i < 3; i++) {
35         System.out.println("Data Mahasiswa ke-" + (i + 1));
36         System.out.println("NIM : " + arrayOfMahasiswa[i].nim);
37         System.out.println("Nama : " + arrayOfMahasiswa[i].nama);
38         System.out.println("Kelas : " + arrayOfMahasiswa[i].kelas);
39         System.out.println("IPK : " + arrayOfMahasiswa[i].ipk);
40         System.out.println(x: "-----");
41     }
42 }
43 }
```

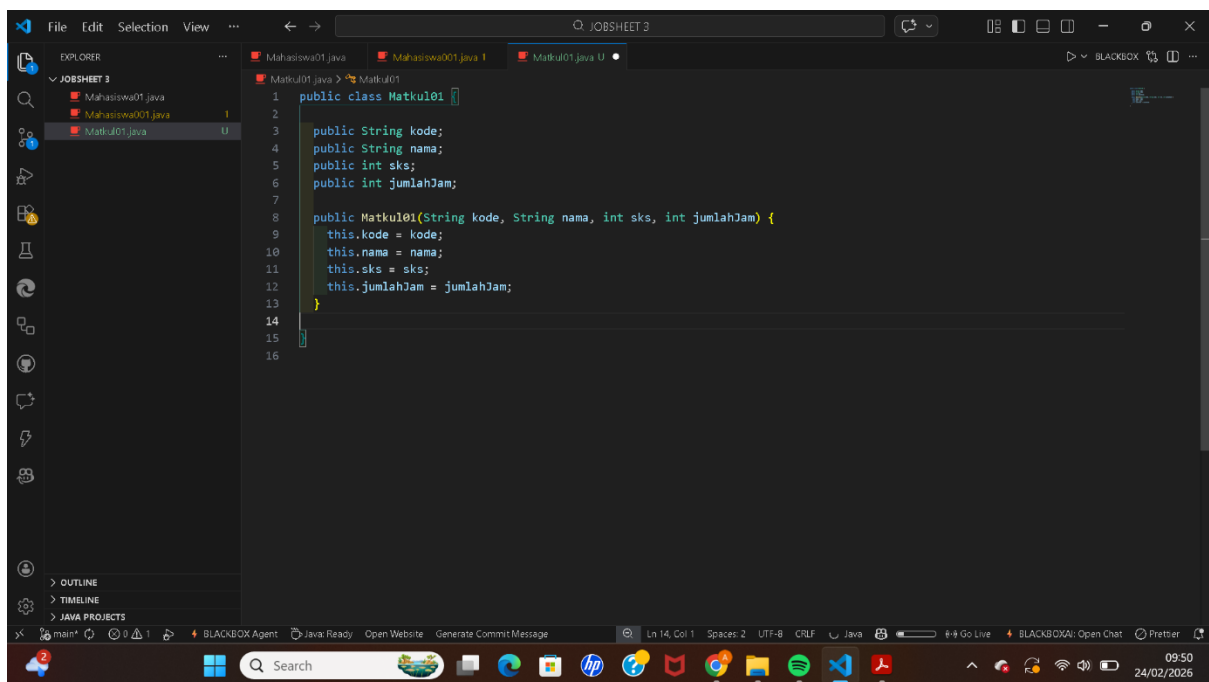
HASIL OUTPUT



JAWABAN PERTANYAAN

- 1.Sudah
2. Karena setiap elemen array belum diinstansiasi

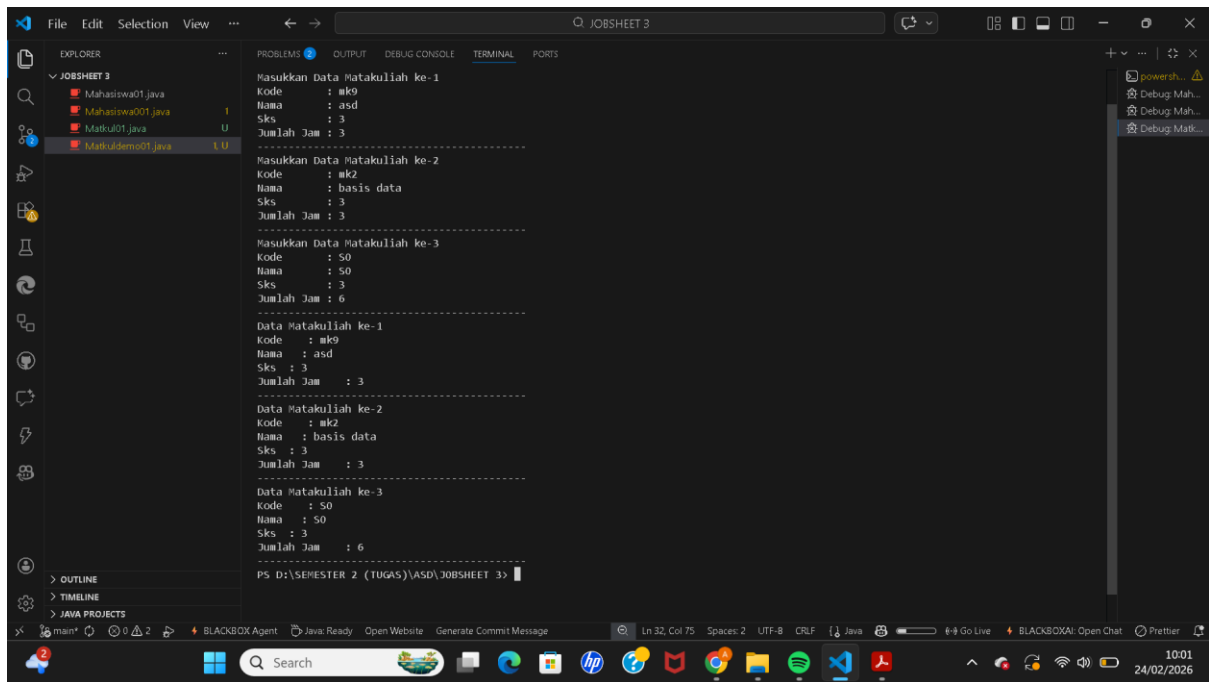
PRAKTIKUM 3.4



```
File Edit Selection View ... JOBSHEET 3
Matkuldemo01.java > Matkuldemo01 > main(String[])
1 import java.util.Scanner;
2
3 public class Matkuldemo01 {
4     Run | Debug
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in); Resource leak: 'sc' is never closed
7         Matkul01[] arrayOfMatakuliah = new Matkul01[3];
8         String kode, nama, dummy;
9         int sks, jumlahJam;
10
11         for (int i = 0; i < 3; i++) {
12             System.out.println("Masukkan Data Matakuliah ke-" + (i + 1));
13             System.out.print(s: "Kode      : ");
14             kode = sc.nextline();
15             System.out.print(s: "Nama      : ");
16             nama = sc.nextline();
17             System.out.print(s: "Sks       : ");
18             dummy = sc.nextline();
19             sks = Integer.parseInt(dummy);
20             System.out.print(s: "Jumlah Jam : ");
21             dummy = sc.nextline();
22             jumlahJam = Integer.parseInt(dummy);
23             System.out.println(x: "-----");
24
25             arrayOfMatakuliah[i] = new Matkul01(kode, nama, sks, jumlahJam);
26         }
27
28         for (int i = 0; i < 3; i++) {
29             System.out.println("Data Matakuliah ke-" + (i + 1));
30             System.out.println("Kode      : " + arrayOfMatakuliah[i].kode);
31             System.out.println("Nama      : " + arrayOfMatakuliah[i].nama);
32             System.out.println("Sks       : " + arrayOfMatakuliah[i].sks);
33             System.out.println("Jumlah Jam : " + arrayOfMatakuliah[i].jumlahJam);
34             System.out.println(x: "-----");
35         }
36     }
37 }
```

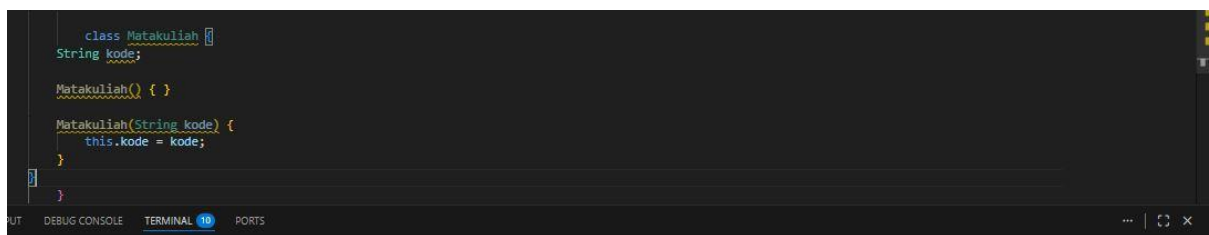
```
File Edit Selection View ... JOBSHEET 3
Matkuldemo01.java > Matkuldemo01 > main(String[])
1 import java.util.Scanner;
2
3 public class Matkuldemo01 {
4     Run | Debug
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in); Resource leak: 'sc' is never closed
7         Matkul01[] arrayOfMatakuliah = new Matkul01[3];
8         String kode, nama, dummy;
9         int sks, jumlahJam;
10
11         for (int i = 0; i < 3; i++) {
12             System.out.println("Masukkan Data Matakuliah ke-" + (i + 1));
13             System.out.print(s: "Kode      : ");
14             kode = sc.nextline();
15             System.out.print(s: "Nama      : ");
16             nama = sc.nextline();
17             System.out.print(s: "Sks       : ");
18             dummy = sc.nextline();
19             sks = Integer.parseInt(dummy);
20             System.out.print(s: "Jumlah Jam : ");
21             dummy = sc.nextline();
22             jumlahJam = Integer.parseInt(dummy);
23             System.out.println(x: "-----");
24
25             arrayOfMatakuliah[i] = new Matkul01(kode, nama, sks, jumlahJam);
26         }
27
28         for (int i = 0; i < 3; i++) {
29             System.out.println("Data Matakuliah ke-" + (i + 1));
30             System.out.println("Kode      : " + arrayOfMatakuliah[i].kode);
31             System.out.println("Nama      : " + arrayOfMatakuliah[i].nama);
32             System.out.println("Sks       : " + arrayOfMatakuliah[i].sks);
33             System.out.println("Jumlah Jam : " + arrayOfMatakuliah[i].jumlahJam);
34             System.out.println(x: "-----");
35         }
36     }
37 }
```

HASIL OUTPUT

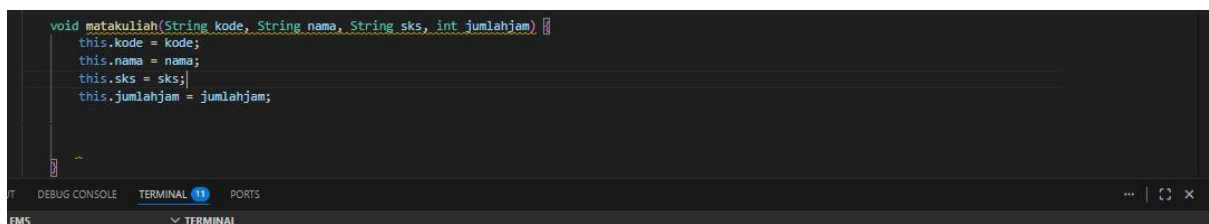


JAWABAN PERTANYAAN

1.sudah



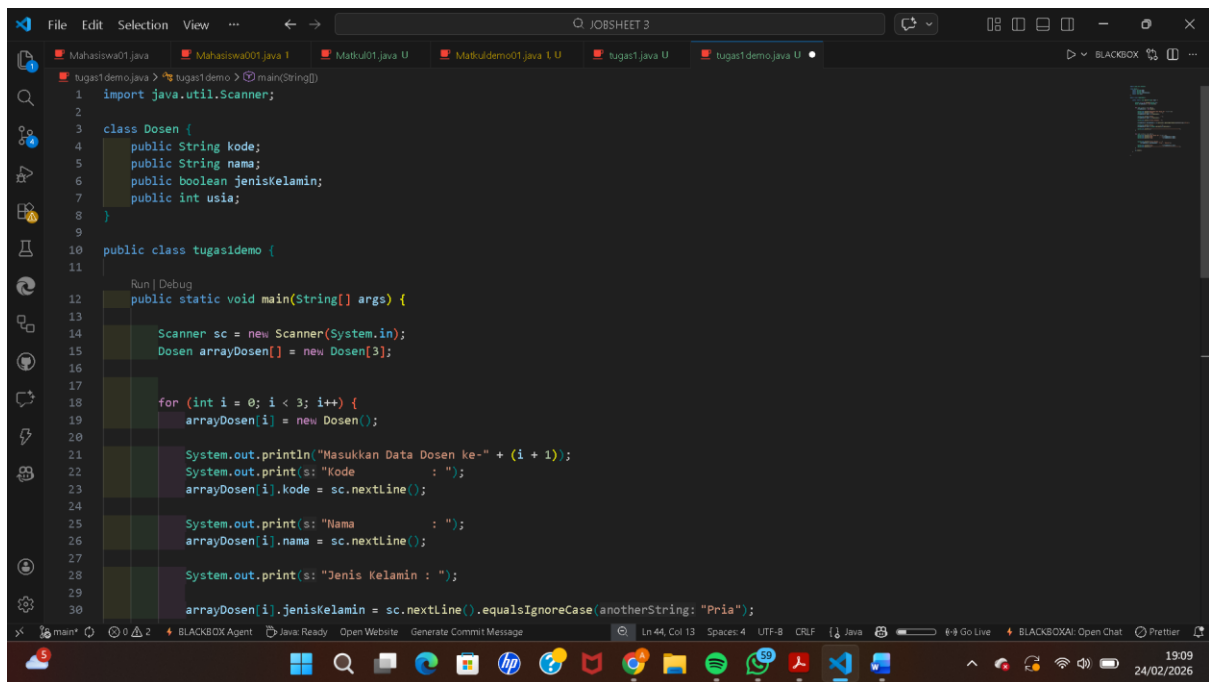
2.



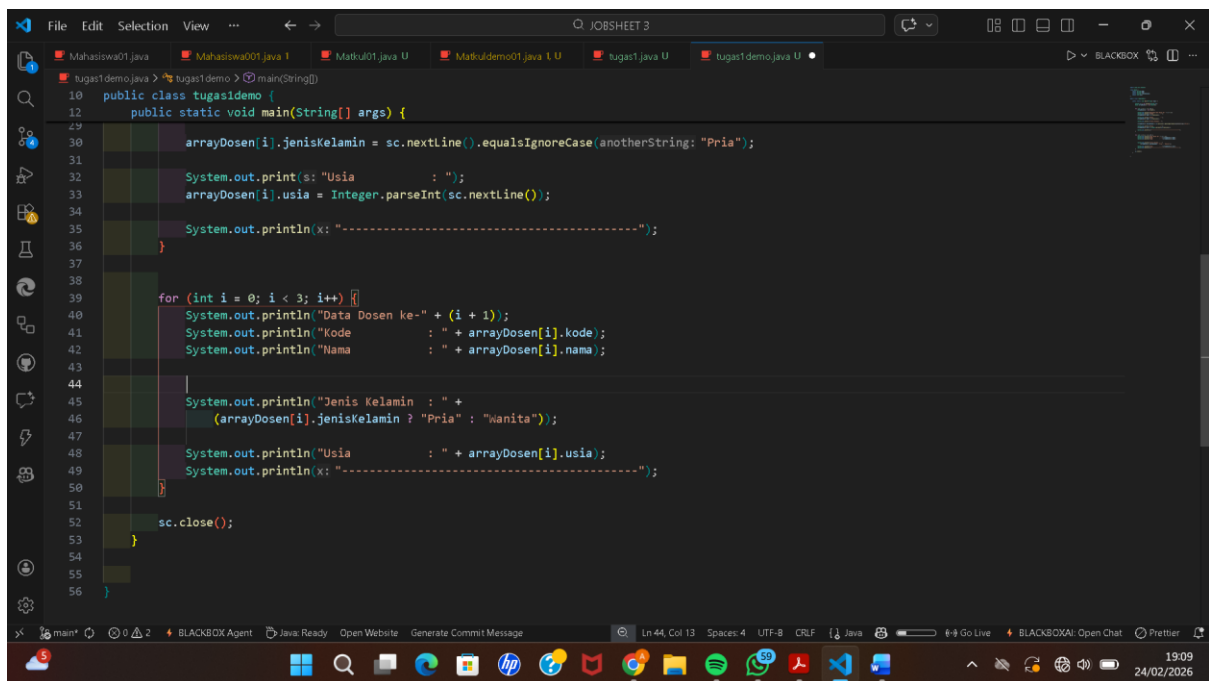
3.sudah

4.sudah

TUGAS 1

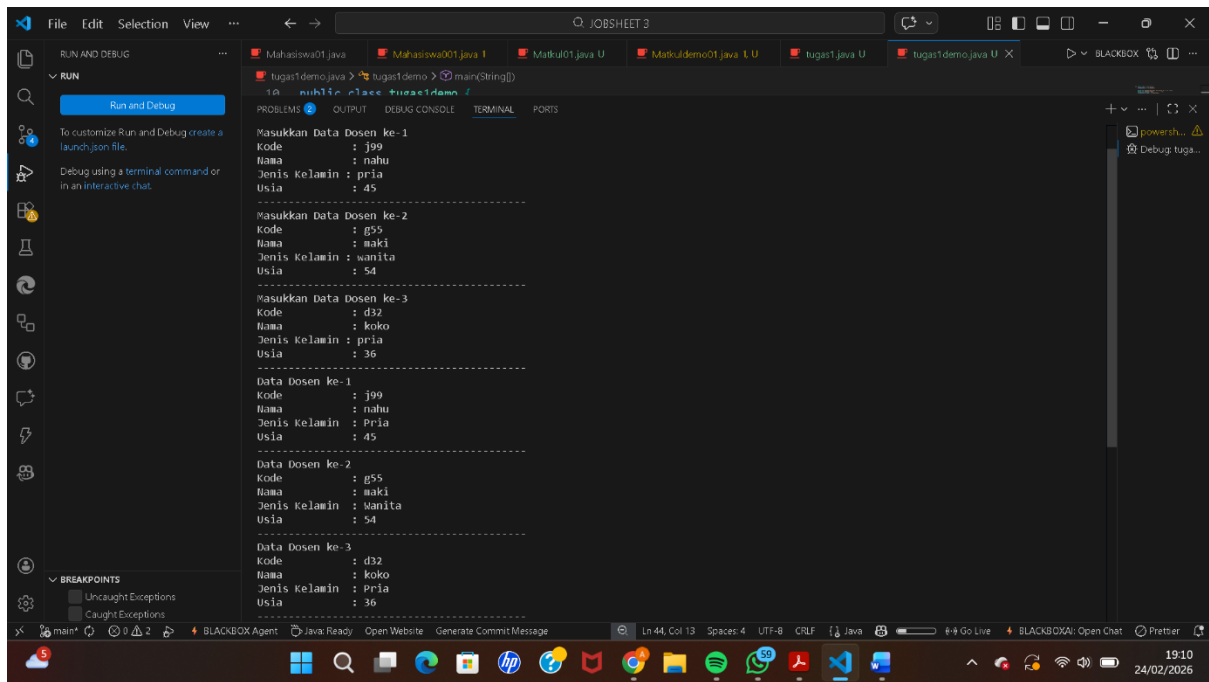


```
1 import java.util.Scanner;
2
3 class Dosen {
4     public String kode;
5     public String nama;
6     public boolean jenisKelamin;
7     public int usia;
8 }
9
10 public class tugasdemo {
11
12     Run | Debug
13     public static void main(String[] args) {
14
15         Scanner sc = new Scanner(System.in);
16         Dosen arrayDosen[] = new Dosen[3];
17
18         for (int i = 0; i < 3; i++) {
19             arrayDosen[i] = new Dosen();
20
21             System.out.println("Masukkan Data Dosen ke- " + (i + 1));
22             System.out.print("Kode      : ");
23             arrayDosen[i].kode = sc.nextLine();
24
25             System.out.print("Nama      : ");
26             arrayDosen[i].nama = sc.nextLine();
27
28             System.out.print("Jenis Kelamin : ");
29
30             arrayDosen[i].jenisKelamin = sc.nextLine().equalsIgnoreCase("Pria");
```

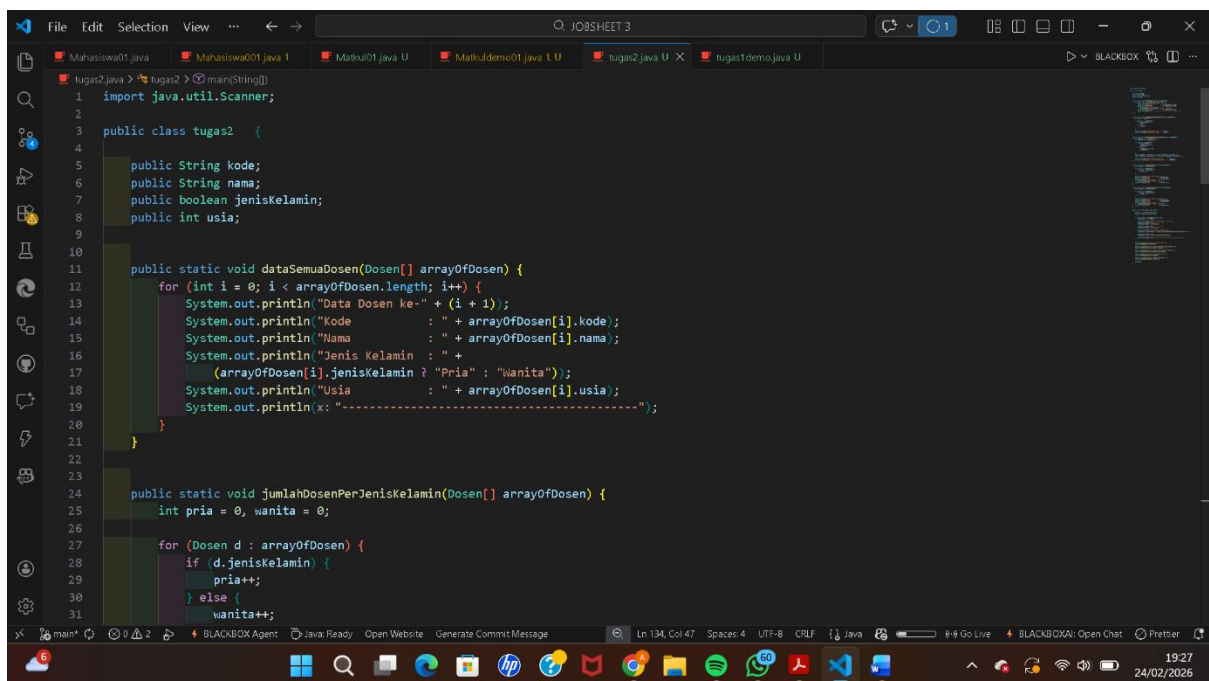


```
29             arrayDosen[i].jenisKelamin = sc.nextLine().equalsIgnoreCase("Pria");
30
31             System.out.print("Usia      : ");
32             arrayDosen[i].usia = Integer.parseInt(sc.nextLine());
33
34             System.out.println("-----");
35         }
36
37
38         for (int i = 0; i < 3; i++) {
39             System.out.println("Data Dosen ke- " + (i + 1));
40             System.out.println("Kode      : " + arrayDosen[i].kode);
41             System.out.println("Nama      : " + arrayDosen[i].nama);
42
43
44             System.out.println("Jenis Kelamin : " +
45                 (arrayDosen[i].jenisKelamin ? "Pria" : "Wanita"));
46
47             System.out.println("Usia      : " + arrayDosen[i].usia);
48             System.out.println("-----");
49
50         }
51
52         sc.close();
53     }
54
55
56 }
```

HASIL OUTPUT

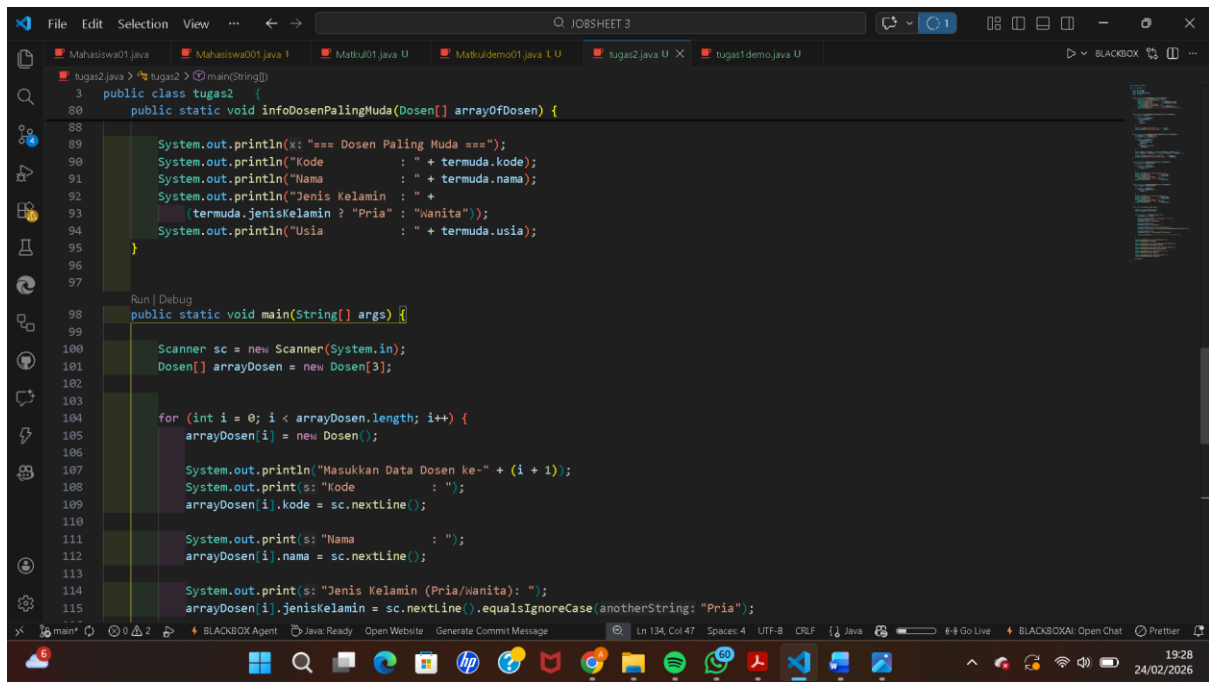


TUGAS 2



```
File Edit Selection View ... < -> JOBSHEET 3
Mahasiswa01.java Mahasiswa01.java 1 Matkul01.java U Matkuldemo01.java 1 U tugas2.java U tugas1demo.java U BLACKBOX
tugas2.java > tugas2 > main(String[])
3 public class tugas2 {
24 public static void jumlahDosenPerJenisKelamin(Dosen[] arrayOfDosen) {
32 }
33 }
34
35 System.out.println("Jumlah Dosen Pria : " + pria);
36 System.out.println("Jumlah Dosen Wanita : " + wanita);
37 }
38
39
40 public static void rerataUsiaDosenPerJenisKelamin(Dosen[] arrayOfDosen) {
41 int totalPria = 0, totalWanita = 0;
42 int countPria = 0, countWanita = 0;
43
44 for (Dosen d : arrayOfDosen) {
45 if (d.jenisKelamin) {
46 totalPria += d.usia;
47 countPria++;
48 } else {
49 totalWanita += d.usia;
50 countWanita++;
51 }
52 }
53
54 double rataPria = countPria > 0 ? (double) totalPria / countPria : 0;
55 double rataWanita = countWanita > 0 ? (double) totalWanita / countWanita : 0;
56
57 System.out.println("Rata-rata Usia Dosen Pria : " + rataPria);
58 System.out.println("Rata-rata Usia Dosen Wanita : " + rataWanita);
59 }
60
main* 0 2 BLACKBOX Agent Java Ready Open Website Generate Commit Message Ln 134, Col 47 Spaces: 4 UTF-8 CRLF Java 8 Go Live BLACKBOXAI: Open Chat Prettier
19:27 24/02/2026
```

```
File Edit Selection View ... < -> JOBSHEET 3
Mahasiswa01.java Mahasiswa01.java 1 Matkul01.java U Matkuldemo01.java 1 U tugas2.java U tugas1demo.java U BLACKBOX
tugas2.java > tugas2 > main(String[])
61 public class tugas2 {
62 public static void infoDosenPalingTua(Dosen[] arrayOfDosen) {
63 Dosen tertua = arrayOfDosen[0];
64
65 for (Dosen d : arrayOfDosen) {
66 if (d.usia > tertua.usia) {
67 tertua = d;
68 }
69 }
70
71 System.out.println("=== Dosen Paling Tua ===");
72 System.out.println("Kode : " + tertua.kode);
73 System.out.println("Nama : " + tertua.nama);
74 System.out.println("Jenis Kelamin : " +
75 (tertua.jenisKelamin ? "Pria" : "Wanita"));
76 System.out.println("Usia : " + tertua.usia);
77 }
78
79
80 public static void infoDosenPalingMuda(Dosen[] arrayOfDosen) {
81 Dosen termuda = arrayOfDosen[0];
82
83 for (Dosen d : arrayOfDosen) {
84 if (d.usia < termuda.usia) {
85 termuda = d;
86 }
87 }
88
89 System.out.println("=== Dosen Paling Muda ===");
90 System.out.println("Kode : " + termuda.kode);
91
main* 0 2 BLACKBOX Agent Java Ready Open Website Generate Commit Message Ln 134, Col 47 Spaces: 4 UTF-8 CRLF Java 8 Go Live BLACKBOXAI: Open Chat Prettier
19:27 24/02/2026
```



```
File Edit Selection View ... JOBSHEET 3
Mahasiswa01.java tugas2 > main(String[])
public class tugas2 {
    public static void infoDosenPalingMuda(Dosen[] arrayOfDosen) {
        System.out.println("=== Dosen Paling Muda ===");
        System.out.println("Kode      : " + termuda.kode);
        System.out.println("Nama      : " + termuda.nama);
        System.out.println("Jenis Kelamin : " +
            (termuda.jenisKelamin ? "Pria" : "Wanita"));
        System.out.println("Usia      : " + termuda.usia);
    }

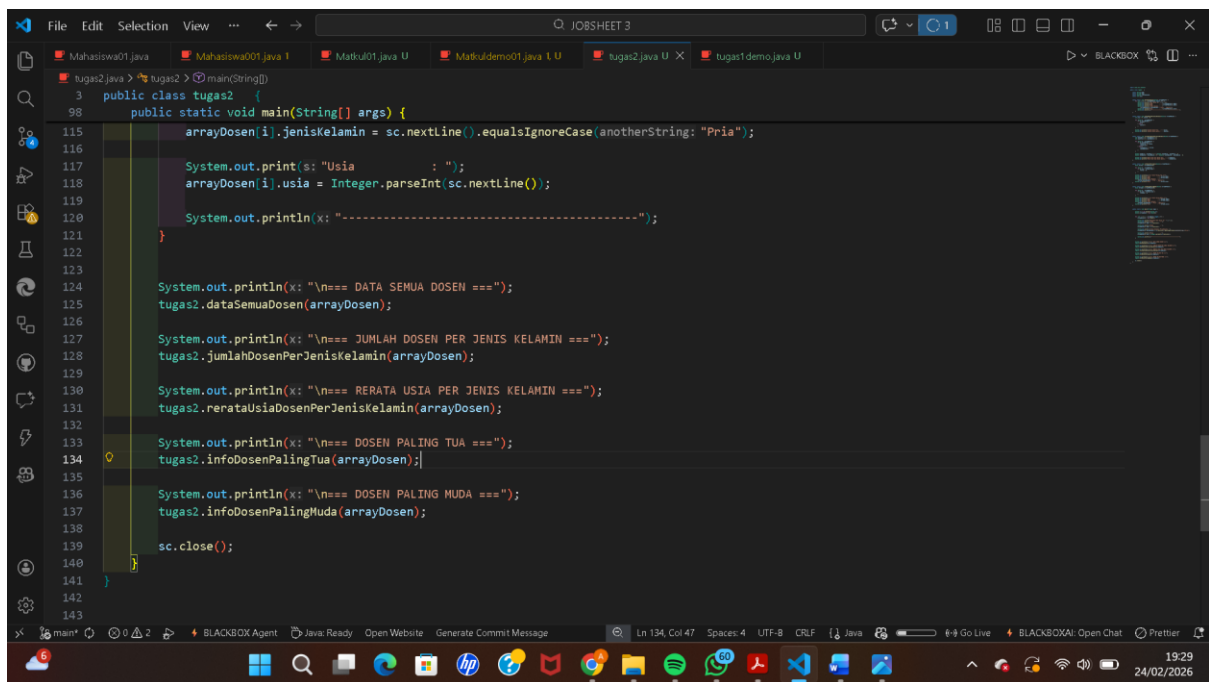
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        Dosen[] arrayDosen = new Dosen[3];

        for (int i = 0; i < arrayDosen.length; i++) {
            arrayDosen[i] = new Dosen();

            System.out.println("Masukkan Data Dosen ke-" + (i + 1));
            System.out.print("Kode      : ");
            arrayDosen[i].kode = sc.nextLine();

            System.out.print("Nama      : ");
            arrayDosen[i].nama = sc.nextLine();

            System.out.print("Jenis Kelamin (Pria/Wanita): ");
            arrayDosen[i].jenisKelamin = sc.nextLine().equalsIgnoreCase("Pria");
        }
    }
}
```



```
File Edit Selection View ... JOBSHEET 3
Mahasiswa01.java tugas2 > main(String[])
public class tugas2 {
    public static void main(String[] args) {
        arrayDosen[i].jenisKelamin = sc.nextLine().equalsIgnoreCase("Pria");

        System.out.print("Usia      : ");
        arrayDosen[i].usia = Integer.parseInt(sc.nextLine());

        System.out.println("-----");
    }

    System.out.println("\n=== DATA SEMUA DOSEN ===");
    tugas2.dataSemuaDosen(arrayDosen);

    System.out.println("\n=== JUMLAH DOSEN PER JENIS KELAMIN ===");
    tugas2.jumlahDosenPerJenisKelamin(arrayDosen);

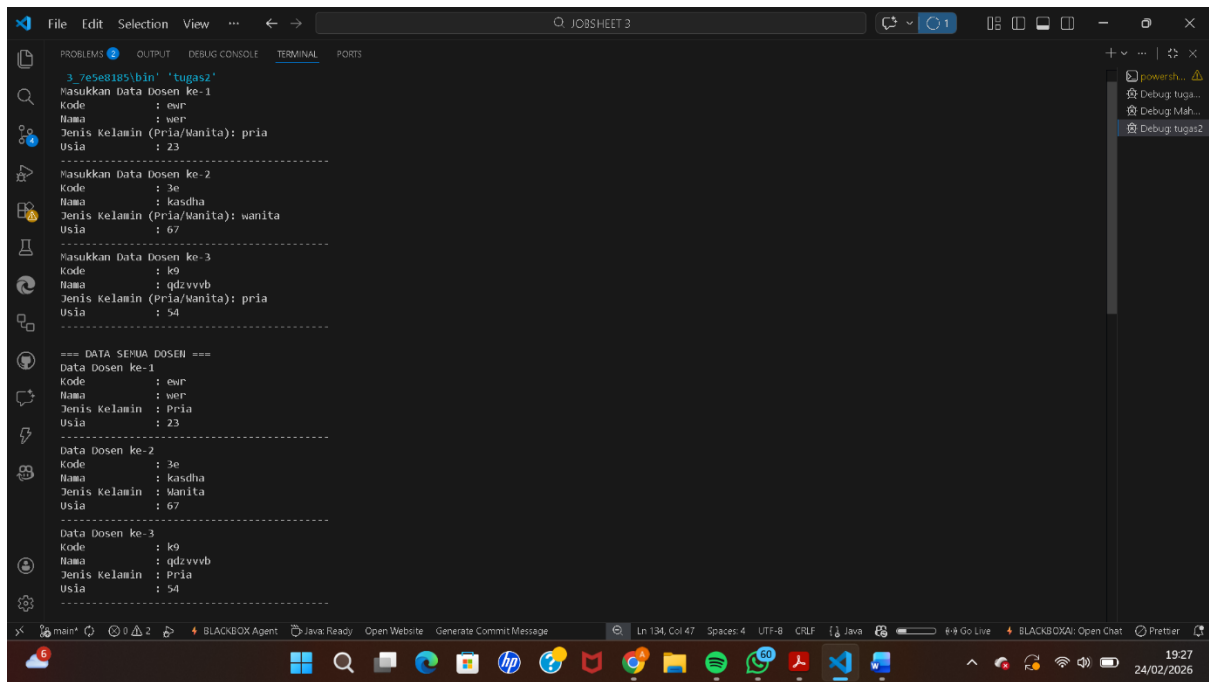
    System.out.println("\n=== RERATA USIA PER JENIS KELAMIN ===");
    tugas2.rerataUsiaDosenPerJenisKelamin(arrayDosen);

    System.out.println("\n=== DOSEN PALING TUA ===");
    tugas2.infoDosenPalingTua(arrayDosen);

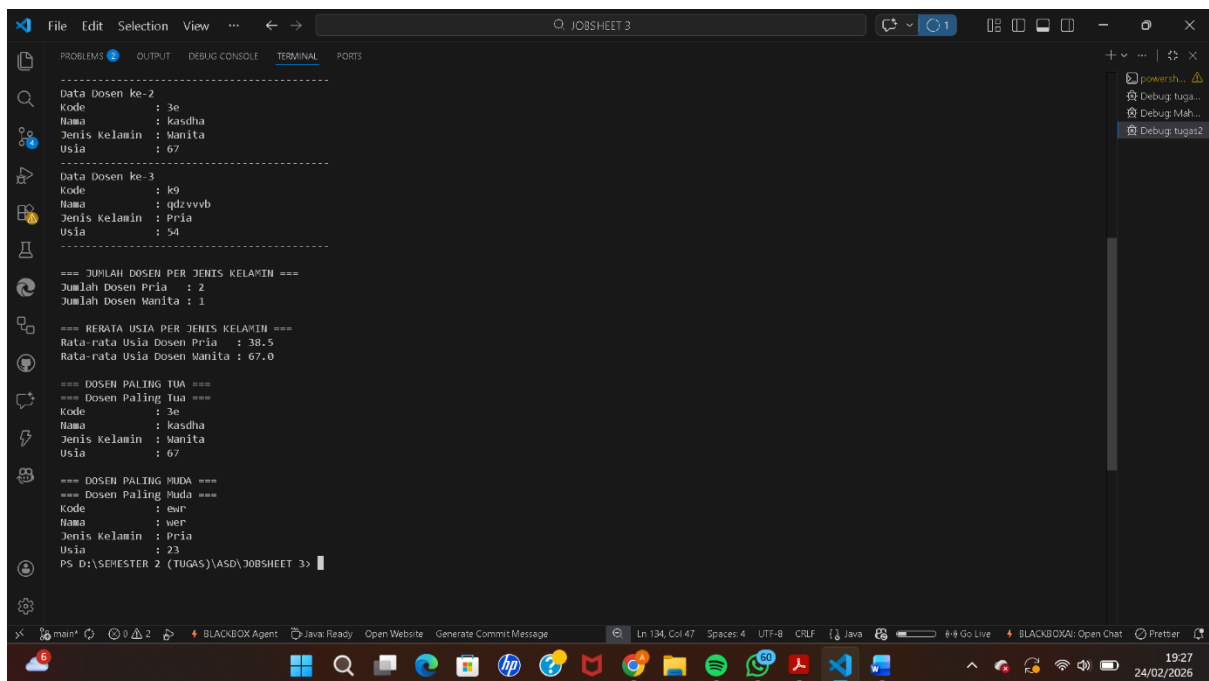
    System.out.println("\n=== DOSEN PALING MUDA ===");
    tugas2.infoDosenPalingMuda(arrayDosen);

    sc.close();
    }
}
```

Hasil output:



```
3_7e5e8185\bin' 'tugas2'  
Masukkan Data Dosen ke-1  
Kode      : ewr  
Nama      : wer  
Jenis Kelamin (Pria/Manita): pria  
Usia      : 23  
-----  
Masukkan Data Dosen ke-2  
Kode      : 3e  
Nama      : kasdha  
Jenis Kelamin (Pria/Manita): wanita  
Usia      : 67  
-----  
Masukkan Data Dosen ke-3  
Kode      : k9  
Nama      : qdzvvvb  
Jenis Kelamin (Pria/Manita): pria  
Usia      : 54  
-----  
=== DATA SEMUA DOSEN ===  
Data Dosen ke-1  
Kode      : ewr  
Nama      : wer  
Jenis Kelamin : Pria  
Usia      : 23  
-----  
Data Dosen ke-2  
Kode      : 3e  
Nama      : kasdha  
Jenis Kelamin : Manita  
Usia      : 67  
-----  
Data Dosen ke-3  
Kode      : k9  
Nama      : qdzvvvb  
Jenis Kelamin : Pria  
Usia      : 54  
-----
```



```
-----  
=== JUMLAH DOSEN PER JENIS KELAMIN ===  
Jumlah Dosen Pria   : 2  
Jumlah Dosen Manita : 1  
-----  
=== RERATA USIA PER JENIS KELAMIN ===  
Rata-rata Usia Dosen Pria   : 38.5  
Rata-rata Usia Dosen Manita : 67.0  
-----  
=== DOSEN PALING TUA ===  
=== Dosen Paling Tua ===  
Kode      : 3e  
Nama      : kasdha  
Jenis Kelamin : Manita  
Usia      : 67  
-----  
=== DOSEN PALING MUDA ===  
=== Dosen Paling Muda ===  
Kode      : ewr  
Nama      : wer  
Jenis Kelamin : Pria  
Usia      : 23  
PS D:\SEMESTER 2 (TUGAS)\ASD\JOBSHEET 3>
```

<https://github.com/adzriellag-rgb/SEMESTER-2--TUGAS-/tree/main/ASD/JOBSHEET%201>