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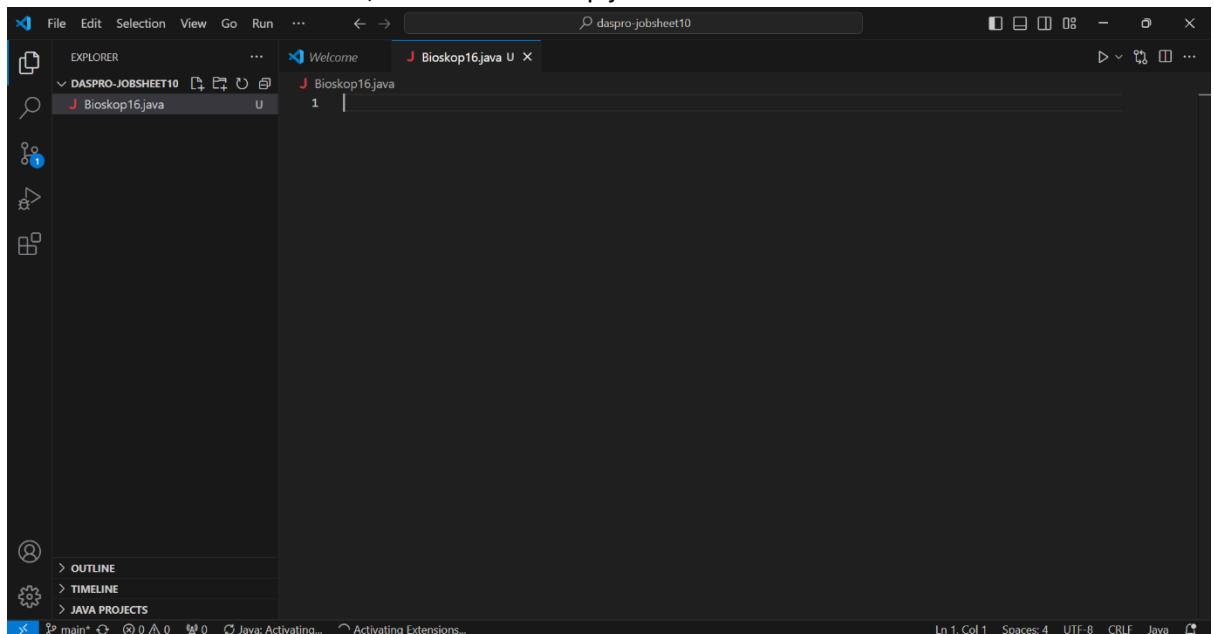
Prodi : D-IV Teknik Informatika

Kelas : 1B

Absen : 16

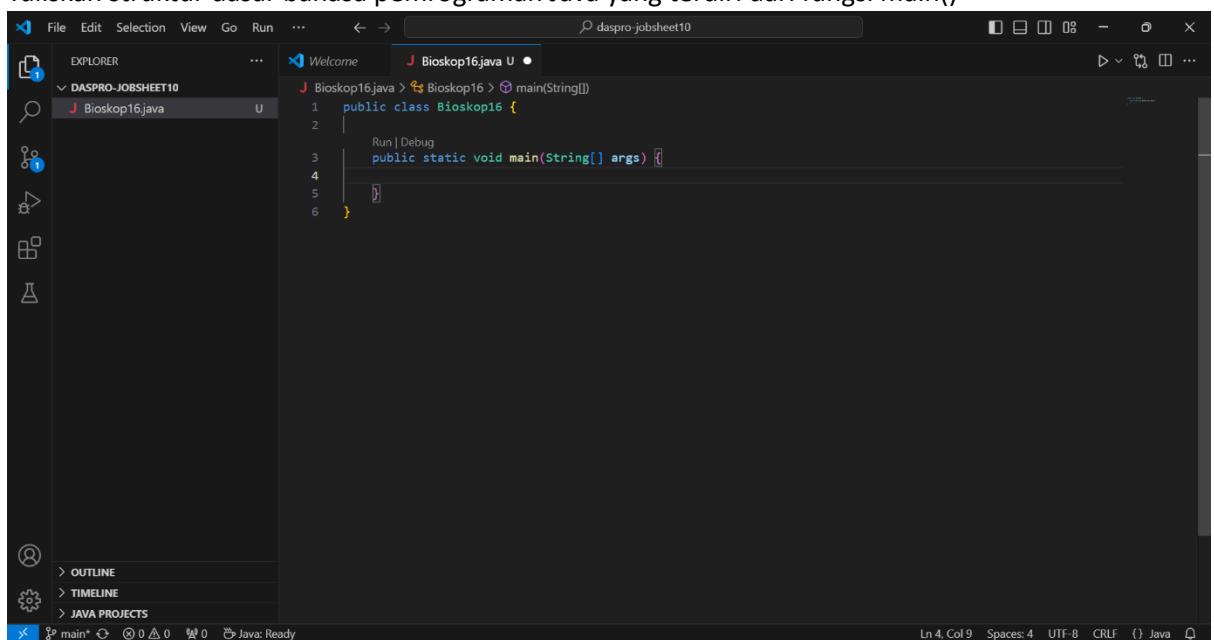
Percobaan 1 : Deklarasi, Inisialisasi, dan Menampilkan Array 2 Dimensi

1. Buka text editor. Buat file baru, beri nama Bioskop.java



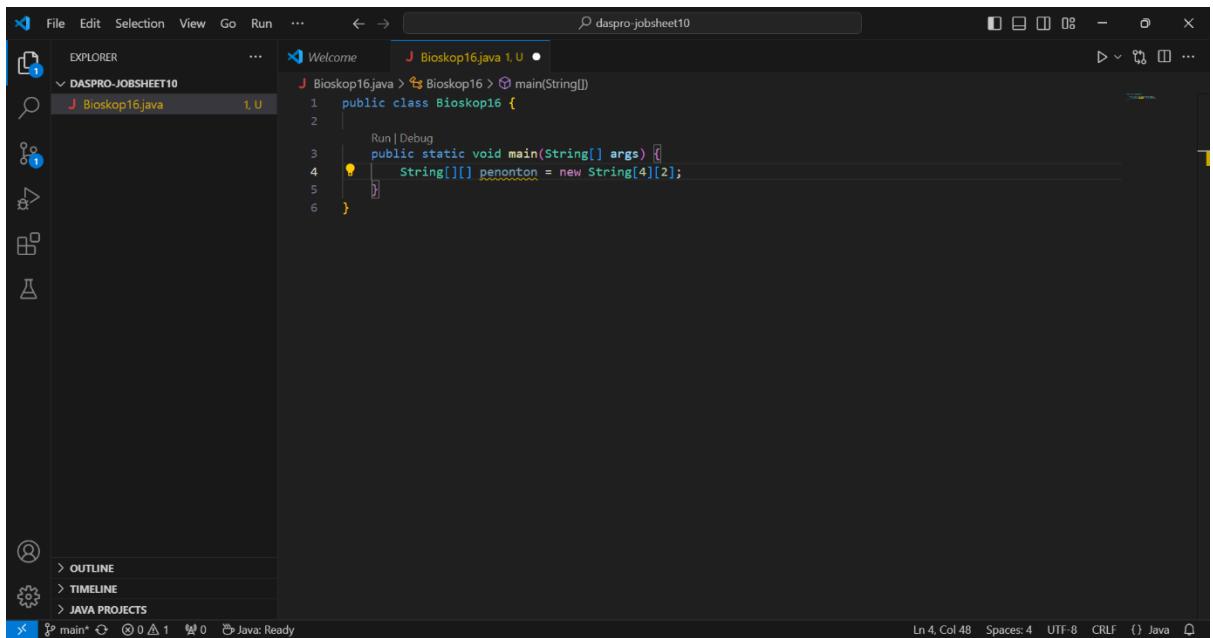
```
File Edit Selection View Go Run ... < - > daspro-jobsheet10
EXPLORER Welcome J Bioskop16.java U X
DASPRO-JOBSEET10 J Bioskop16.java U
... Bioskop16.java
1 |
```

2. Tuliskan struktur dasar bahasa pemrograman Java yang terdiri dari fungsi main()



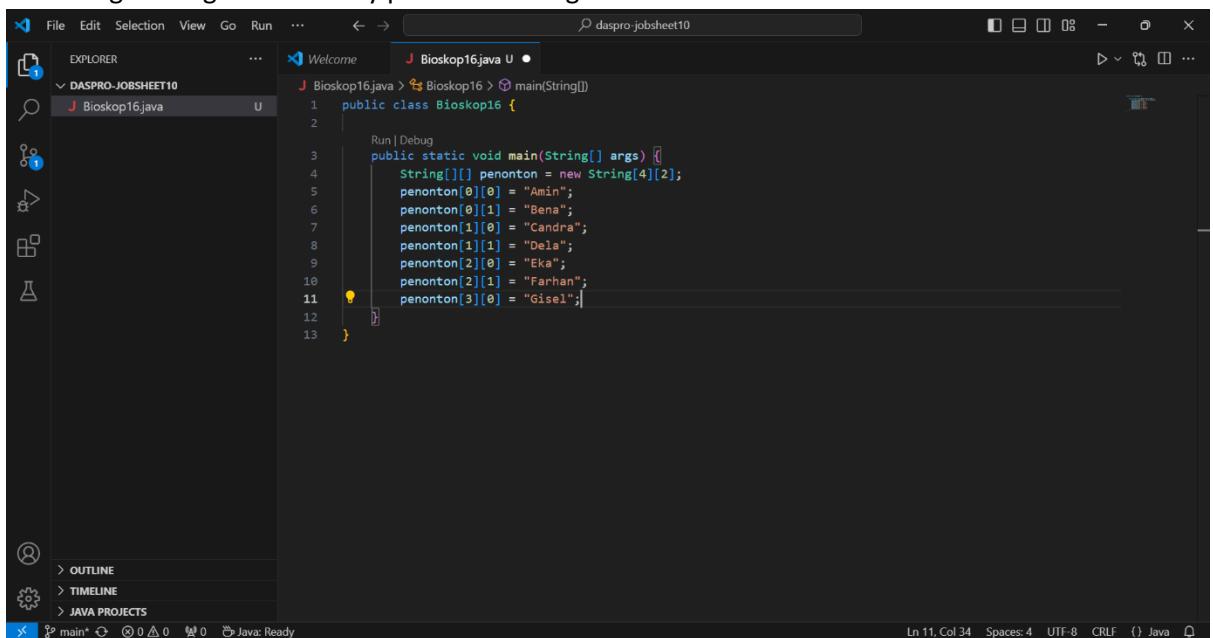
```
File Edit Selection View Go Run ... < - > daspro-jobsheet10
EXPLORER Welcome J Bioskop16.java U ●
DASPRO-JOBSEET10 J Bioskop16.java U
... Bioskop16.java > Bioskop16 > main(String[])
1 public class Bioskop16 {
2 |
3     public static void main(String[] args) {
4 |
5     }
6 }
```

3. Buat array of String dengan nama penonton dengan kapasitas baris 4 elemen dan kolom 2 elemen



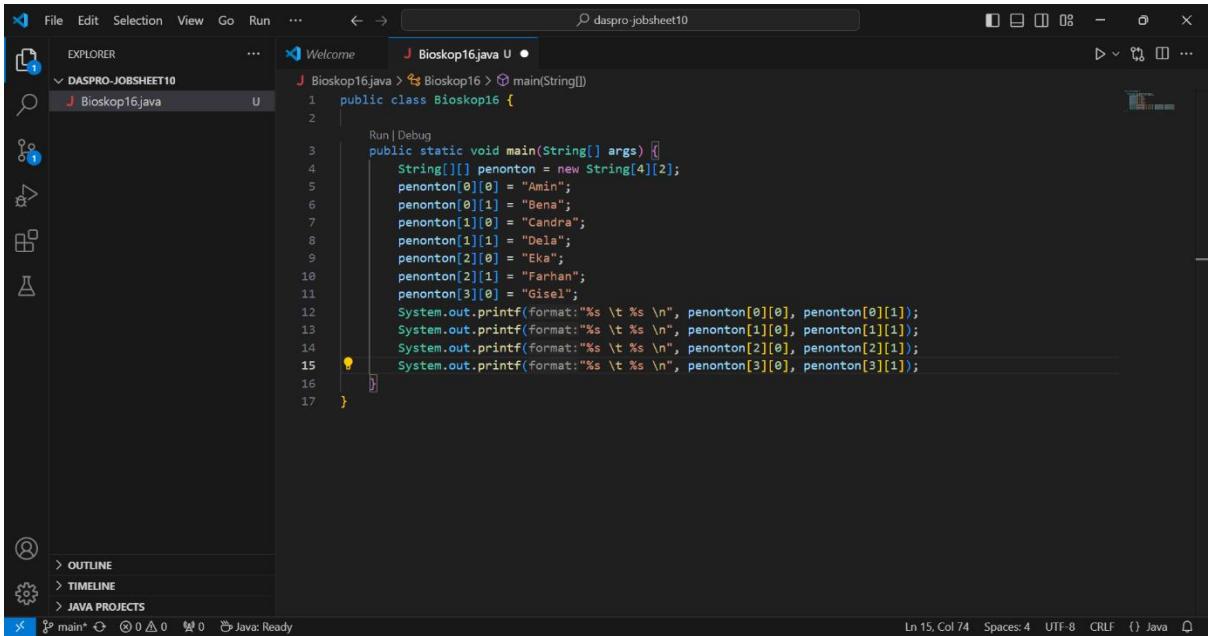
```
File Edit Selection View Go Run ... daspro-jobsheet10
EXPLORER DASPRO-JOBSSHEET10
Bioskop16.java 1. U
Welcome J Bioskop16.java 1. U
J Bioskop16.java > Bioskop16 > main(String[])
1 public class Bioskop16 {
2
3     Run | Debug
4     public static void main(String[] args) {
5         String[][] penonton = new String[4][2];
6     }
}
Ln 4, Col 48 Spaces: 4 UTF-8 CRLF {} Java
```

4. Isi masing-masing elemen array penonton sebagai berikut:



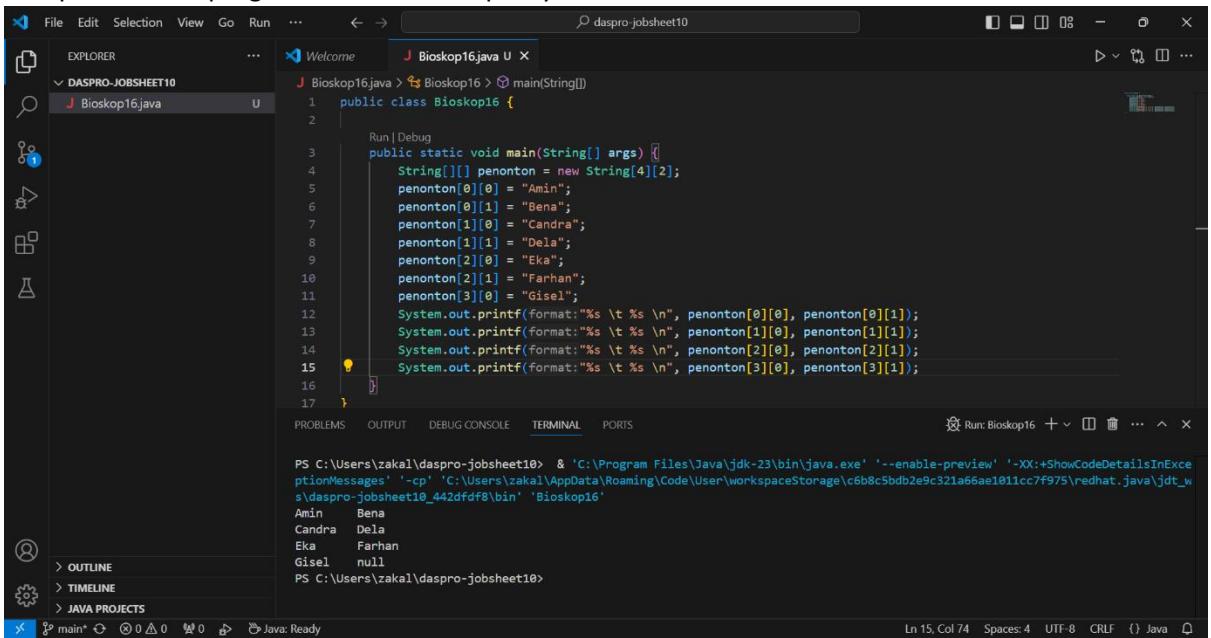
```
File Edit Selection View Go Run ... daspro-jobsheet10
EXPLORER DASPRO-JOBSSHEET10
Bioskop16.java U
Welcome J Bioskop16.java U
J Bioskop16.java > Bioskop16 > main(String[])
1 public class Bioskop16 {
2
3     Run | Debug
4     public static void main(String[] args) {
5         String[][] penonton = new String[4][2];
6         penonton[0][0] = "Amin";
7         penonton[0][1] = "Bena";
8         penonton[1][0] = "Candra";
9         penonton[1][1] = "Dela";
10        penonton[2][0] = "Eka";
11        penonton[2][1] = "Farhan";
12        penonton[3][0] = "Gisel";
13    }
}
Ln 11, Col 34 Spaces: 4 UTF-8 CRLF {} Java
```

5. Tampilkan semua isi elemennya ke layer



```
1 public class Bioskop16 {
2
3     public static void main(String[] args) {
4         String[][] penonton = new String[4][2];
5         penonton[0][0] = "Amin";
6         penonton[0][1] = "Bena";
7         penonton[1][0] = "Candra";
8         penonton[1][1] = "Dela";
9         penonton[2][0] = "Eka";
10        penonton[2][1] = "Farhan";
11        penonton[3][0] = "Gisel";
12        System.out.printf(format: "%s %s\n", penonton[0][0], penonton[0][1]);
13        System.out.printf(format: "%s %s\n", penonton[1][0], penonton[1][1]);
14        System.out.printf(format: "%s %s\n", penonton[2][0], penonton[2][1]);
15        System.out.printf(format: "%s %s\n", penonton[3][0], penonton[3][1]);
16    }
17 }
```

6. Compile dan run program. Cocokkan outputnya



```
PS C:\Users\zakal\dapro-jobsheet10> & 'C:\Program Files\Java\jdk-23\bin\java.exe' '--enable-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\zakal\AppData\Roaming\Code\User\workspaceStorage\c6b8c5bdb2e9c321a66ae1011cc7f975\redhat.java\jdt_w s\dapro-jobsheet10_442dfdf8\bin' 'Bioskop16'
Amin Bena
Candra Dela
Eka Farhan
Gisel null
PS C:\Users\zakal\dapro-jobsheet10>
```

Pertanyaan :

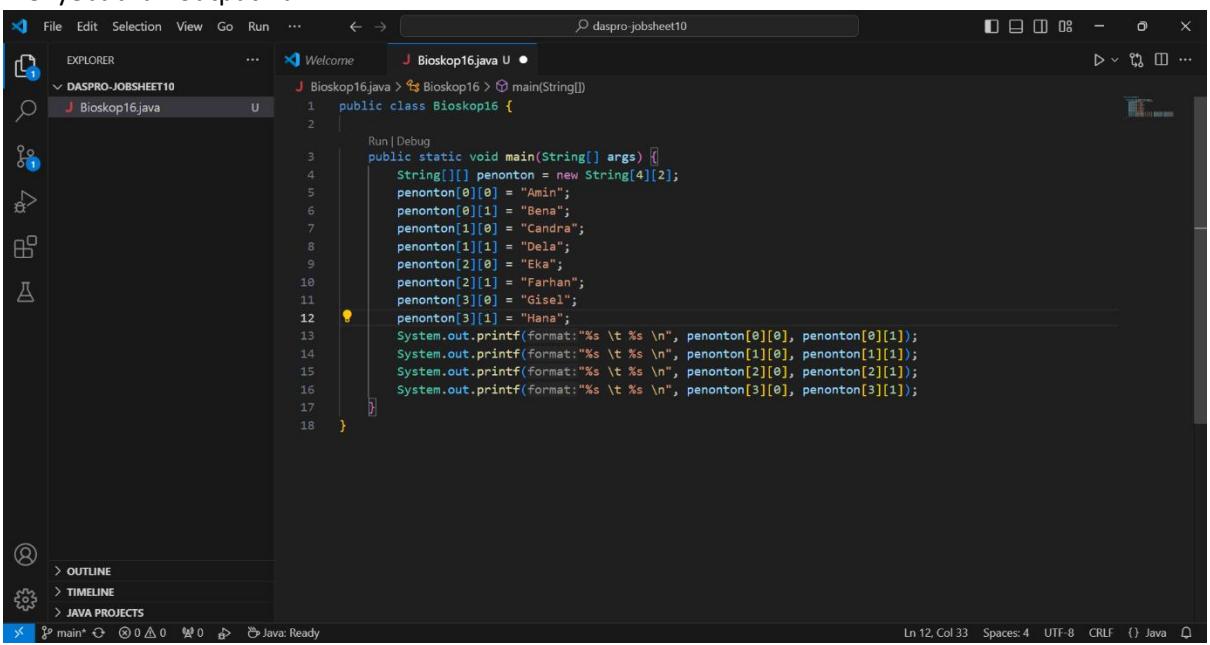
1. Apakah pengisian elemen array harus dilakukan secara berurutan mulai dari indeks ke-0?
Jelaskan!
2. Mengapa terdapat null pada daftar nama penonton?
3. Lengkapi daftar penonton pada langkah ke-4 sebagai berikut
4. Tambahkan kode program sebagai berikut:
Jelaskan fungsi dari penonton.length dan penonton[0].length! Apakah penonton[0].length, penonton[1].length, penonton[2].length, dan penonton[3].length memiliki nilai yang sama? Mengapa?
5. Modifikasi kode program pada pertanyaan 4 untuk menampilkan panjang setiap baris pada array menggunakan for loop. Compile, run, lalu amati hasilnya.

6. Modifikasi kode program pada pertanyaan 5 untuk menampilkan panjang setiap baris pada array menggunakan foreach loop. Compile, run, lalu amati hasilnya.
7. Tambahkan kode program untuk menampilkan nama penonton pada baris ke-3 menggunakan for loop. Compile, run, lalu amati hasilnya.
8. Modifikasi kode program pada pertanyaan 7 menjadi perulangan dengan foreach loop. Compile, run, lalu lakukan amati hasilnya.
9. Modifikasi kembali kode program pada langkah 11 untuk menampilkan nama penonton untuk setiap baris. Compile dan run program kemudian amati hasilnya.
10. Menurut Anda, apa kekurangan dan kelebihan foreach loop dibandingkan dengan for loop?
11. Berapa indeks baris maksimal untuk array penonton?
12. Berapa indeks kolom maksimal untuk array penonton?
13. Apa fungsi dari String.join()?
14. Commit dan push ke github

Jawaban :

1. Pengisian elemen Array tidak harus berurutan dari indeks ke-0, kita bisa mengisi elemen Array dari indeks manapun selama tidak melebihi batas yang telah ditentukan
2. Karena indeks [3][1] tidak diinisialisasi sehingga menyebabkan indeks tidak memiliki isi dan menyebabkan output null

3.



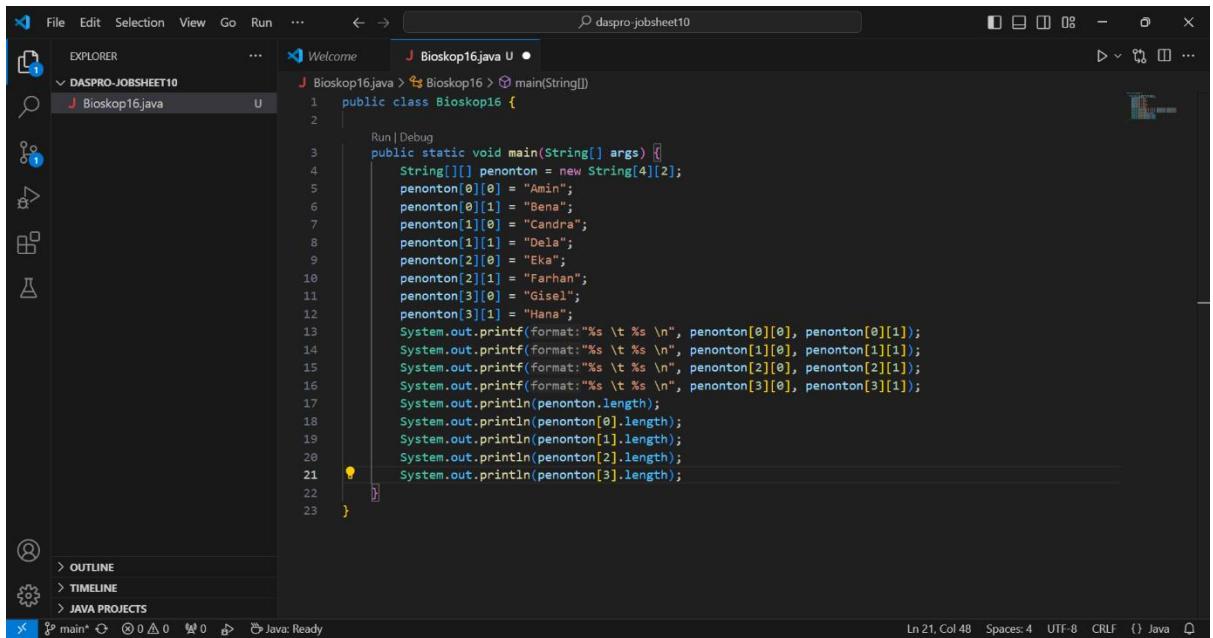
```

File Edit Selection View Go Run ...
... < > daspro-jobsheet10
EXPLORER DASPRO-JOBSCHEET10 ...
Welcome J Bioskop16.java U ●
J Bioskop16.java > Bioskop16 > main(String[])
1 public class Bioskop16 {
2
3     public static void main(String[] args) {
4         String[][] penonton = new String[4][2];
5         penonton[0][0] = "Amin";
6         penonton[0][1] = "Bena";
7         penonton[1][0] = "Candra";
8         penonton[1][1] = "Dela";
9         penonton[2][0] = "Eka";
10        penonton[2][1] = "Farhan";
11        penonton[3][0] = "Gisel";
12        penonton[3][1] = "Hana";
13        System.out.printf("%s %t %s \n", penonton[0][0], penonton[0][1]);
14        System.out.printf("%s %t %s \n", penonton[1][0], penonton[1][1]);
15        System.out.printf("%s %t %s \n", penonton[2][0], penonton[2][1]);
16        System.out.printf("%s %t %s \n", penonton[3][0], penonton[3][1]);
17    }
18 }

OUTLINE
TIMELINE
JAVA PROJECTS
main* 0 0 0 Java: Ready

```

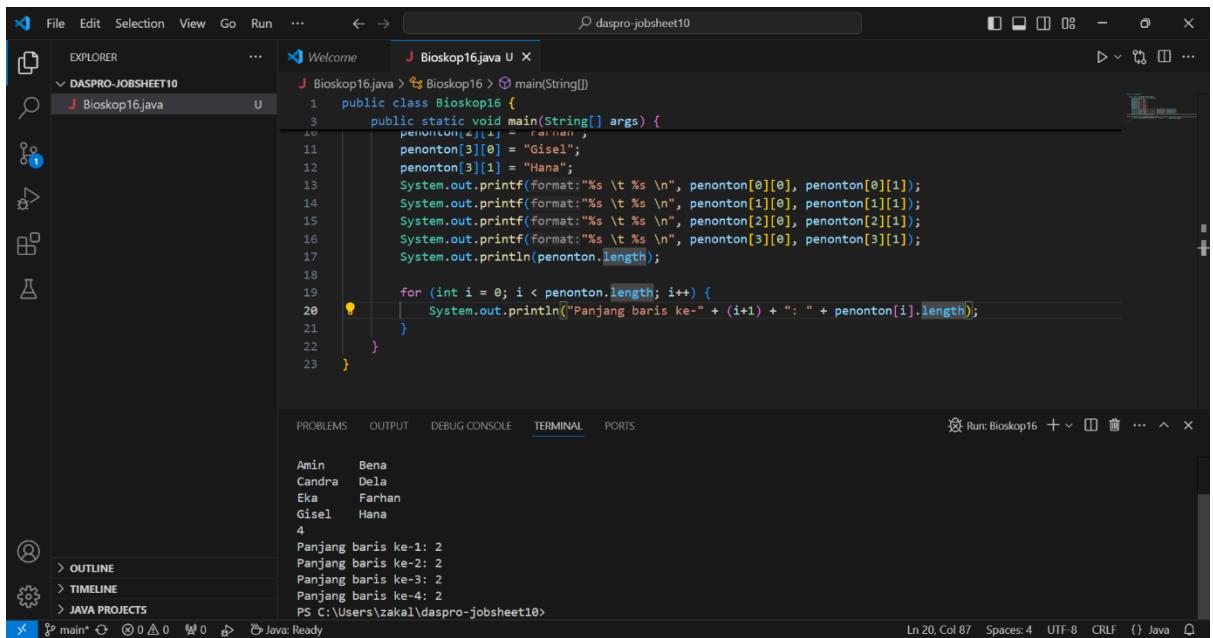
Ln 12, Col 33 Spaces: 4 UTF-8 CRLF {} Java



```
File Edit Selection View Go Run ...
DASPRO-JOSHEET10
Bioskop16.java
Welcome J Bioskop16.java U
1 public class Bioskop16 {
2
3     Run | Debug
4     public static void main(String[] args) {
5         String[][] penonton = new String[4][2];
6         penonton[0][0] = "Amin";
7         penonton[0][1] = "Bena";
8         penonton[1][0] = "Candra";
9         penonton[1][1] = "Dela";
10        penonton[2][0] = "Eka";
11        penonton[2][1] = "Farhan";
12        penonton[3][0] = "Gisel";
13        penonton[3][1] = "Hana";
14        System.out.printf("%s \t %s \n", penonton[0][0], penonton[0][1]);
15        System.out.printf("%s \t %s \n", penonton[1][0], penonton[1][1]);
16        System.out.printf("%s \t %s \n", penonton[2][0], penonton[2][1]);
17        System.out.printf("%s \t %s \n", penonton[3][0], penonton[3][1]);
18        System.out.println(penonton.length);
19        System.out.println(penonton[0].length);
20        System.out.println(penonton[1].length);
21        System.out.println(penonton[2].length);
22        System.out.println(penonton[3].length);
23    }
}
@ > OUTLINE
@ > TIMELINE
@ > JAVA PROJECTS
```

4.

Fungsi dari penonton.length adalah untuk print jumlah baris dari penonton dan fungsi dari penonton[0].length adalah untuk print jumlah kolom dari baris penonton yang pertama, ya semuanya memiliki nilai yang sama, karena jumlah baris tiap kolom memiliki jumlah yang sama



```
File Edit Selection View Go Run ...
DASPRO-JOSHEET10
Bioskop16.java
Welcome J Bioskop16.java U
1 public class Bioskop16 {
2
3     public static void main(String[] args) {
4         String[][] penonton = {"Amin", "Bena", "Candra", "Dela", "Eka", "Farhan", "Gisel", "Hana"};
5         System.out.printf("%s \t %s \n", penonton[0][0], penonton[0][1]);
6         System.out.printf("%s \t %s \n", penonton[1][0], penonton[1][1]);
7         System.out.printf("%s \t %s \n", penonton[2][0], penonton[2][1]);
8         System.out.printf("%s \t %s \n", penonton[3][0], penonton[3][1]);
9         System.out.println(penonton.length);
10
11        for (int i = 0; i < penonton.length; i++) {
12            System.out.println("Panjang baris ke-" + (i+1) + ": " + penonton[i].length);
13        }
14    }
}
@ > OUTLINE
@ > TIMELINE
@ > JAVA PROJECTS
```

Panjang baris ke-1: 2
Panjang baris ke-2: 2
Panjang baris ke-3: 2
Panjang baris ke-4: 2
PS C:\Users\zakal\dapro-josheet10>

5.

6.

```
File Edit Selection View Go Run ... ← → daspro-jobsheet10
EXPLORER DASPRO-JOBSEET10 Bioskop16.java ...
Welcome J Bioskop16.java U X
J Bioskop16.java > Bioskop16 > main(String[])
1 public class Bioskop16 {
2     public static void main(String[] args) {
3         String[] penonton = {"Ranina", "Gisel", "Hana"};
4         System.out.printf("%s %s\n", penonton[0][0], penonton[0][1]);
5         System.out.printf("%s %s\n", penonton[1][0], penonton[1][1]);
6         System.out.printf("%s %s\n", penonton[2][0], penonton[2][1]);
7         System.out.println(penonton.length);
8
9         for (String[] barispenonton : penonton) {
10             System.out.println("Panjang baris: " + barispenonton.length);
11         }
12     }
13 }
```

6.

7.

```
File Edit Selection View Go Run ... ← → daspro-jobsheet10
EXPLORER DASPRO-JOBSEET10 Bioskop16.java ...
Welcome J Bioskop16.java U X
J Bioskop16.java > Bioskop16 > main(String[])
1 public class Bioskop16 {
2     public static void main(String[] args) {
3         String[] penonton = {"Ranina", "Gisel", "Hana"};
4         System.out.println(penonton.length);
5
6         for (String[] barispenonton : penonton) {
7             System.out.println("Panjang baris: " + barispenonton.length);
8         }
9         System.out.println("Penonton pada baris ke-3: ");
10        for (int i = 0; i < penonton[2].length; i++) {
11            System.out.println(penonton[2][i]);
12        }
13    }
14 }
```

```

1 public class Bioskop16 {
2     public static void main(String[] args) {
3         String[] penonton = {"Gisel", "Hana", "Eka", "Farhan"};
4         System.out.println("Panjang baris: " + penonton.length);
5         for (String[] barispenonton : penonton) {
6             System.out.println("Panjang baris: " + barispenonton.length);
7         }
8         System.out.println("Penonton pada baris ke-3: ");
9         for (String i : penonton[2]) {
10            System.out.println(i);
11        }
12    }
13 }

```

8.

```

1 public class Bioskop16 {
2     public static void main(String[] args) {
3         String[] penonton = {"Gisel", "Hana", "Eka", "Farhan"};
4         System.out.println("Panjang baris: " + penonton.length);
5         for (String[] barispenonton : penonton) {
6             System.out.println("Panjang baris: " + barispenonton.length);
7         }
8         for (int i = 0; i < penonton.length; i++) {
9             System.out.println("Penonton pada baris ke-" + (i+1) + ": " + String.join(", ", penonton[i]));
10        }
11    }
12 }

```

9.

10. Kelebihan foreach loop jika dibandingkan dengan for loop adalah lebih sederhana dan ringkas, sedangkan untuk kekurangannya sendiri jika dibandingkan dengan for loop adalah tidak mendukung akses indeks
11. Untuk Array penonton indeks baris maksimalnya adalah 4
12. Untuk Array penonton indeks kolom maksimalnya adalah 2
13. Fungsi dari String.join() adalah untuk menggabungkan beberapa elemen menjadi satu string dengan menambahkan pemisah di antara elemen-elemen tersebut

14.

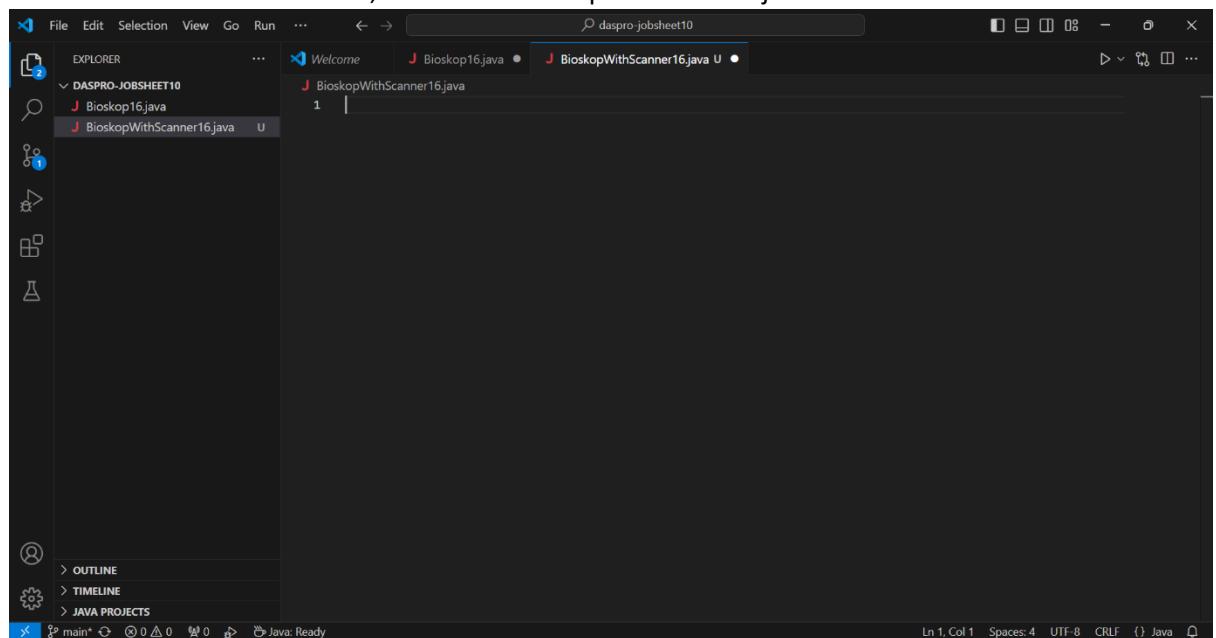
```

1  public class Bioskop16 {
2
3     public static void main(String[] args) {
4         String[][] penonton = new String[4][2];
5         penonton[0][0] = "Amin";
6         penonton[0][1] = "Bena";
7         penonton[1][0] = "Candra";
8         penonton[1][1] = "Dela";
9         penonton[2][0] = "Eka";
10        penonton[2][1] = "Farhan";
11        penonton[3][0] = "Gisel";
12        penonton[3][1] = "Hana";
13        System.out.printf("%s \t %s \n", penonton[0][0], penonton[0][1]);
14        System.out.printf("%s \t %s \n", penonton[1][0], penonton[1][1]);
15        System.out.printf("%s \t %s \n", penonton[2][0], penonton[2][1]);
16        System.out.printf("%s \t %s \n", penonton[3][0], penonton[3][1]);
17        System.out.println(penonton.length);
18
19        for (String[] barispenonton : penonton) {
20            System.out.println("Panjang baris: " + barispenonton.length);
21        }
22        for (int i = 0; i < penonton.length; i++) {
23            System.out.println("Penonton pada baris ke-" + (i+1) + ": " + String.join(" ", penonton[i]));
}

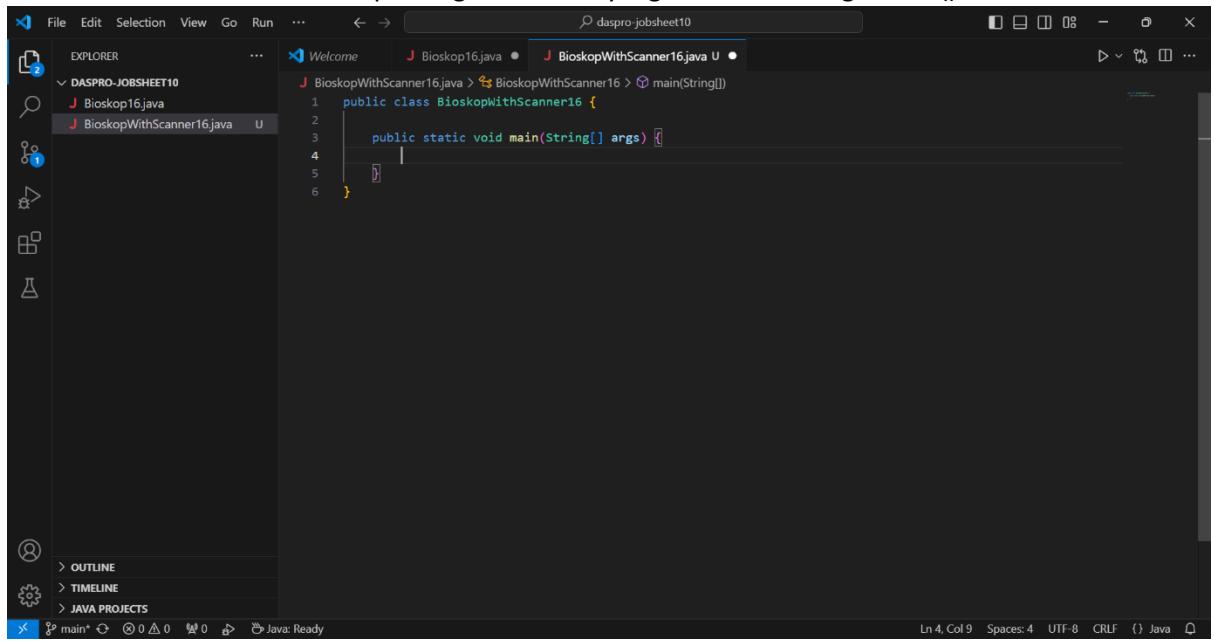
```

Percobaan 2 : Memanfaatkan Scanner dan Perulangan untuk Input dan Output pada Array 2 Dimensi

- Buka text editor. Buat file baru, beri nama BioskopWithScanner.java



2. Tuliskan struktur dasar bahasa pemrograman Java yang terdiri dari fungsi main()

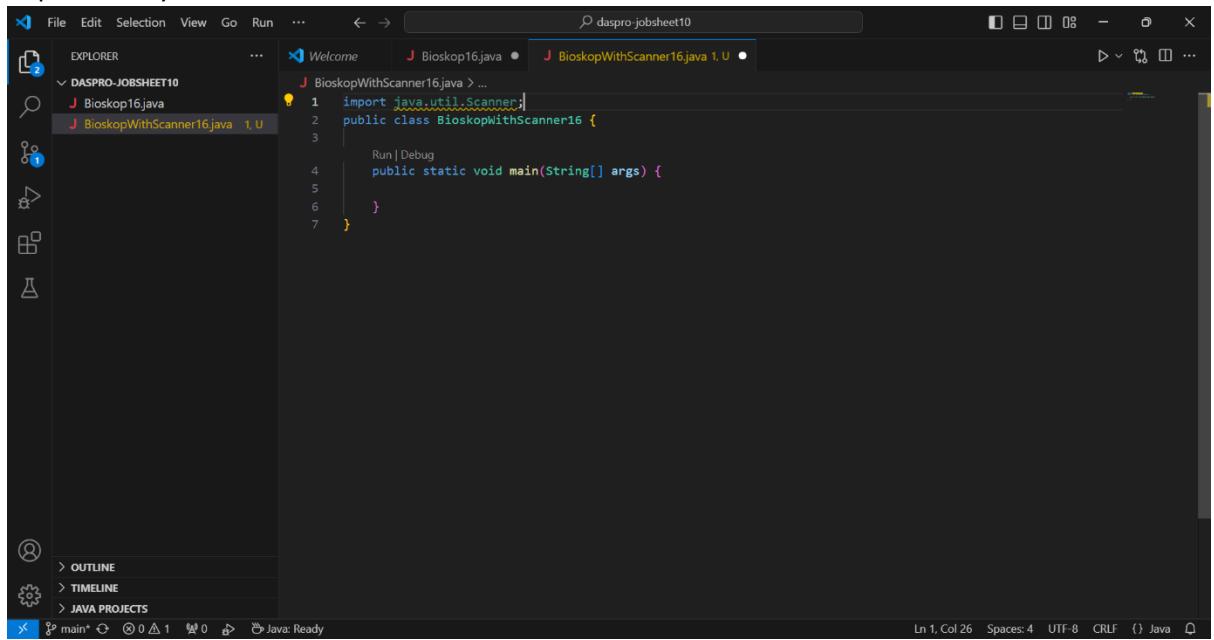


The screenshot shows a Java code editor interface with a dark theme. In the center, there are two tabs: "Bioskop16.java" and "BioskopWithScanner16.java". The "BioskopWithScanner16.java" tab is active, displaying the following code:

```
1 public class BioskopWithScanner16 {
2     public static void main(String[] args) {
3     }
4 }
```

The left sidebar contains an "EXPLORER" panel showing a project named "DASPRO-JOBSCHEET10" with files "Bioskop16.java" and "BioskopWithScanner16.java". Below the sidebar are buttons for "OUTLINE", "TIMELINE", and "JAVA PROJECTS". The bottom status bar shows "Ln 4, Col 9" and "Java: Ready".

3. Import library Scanner

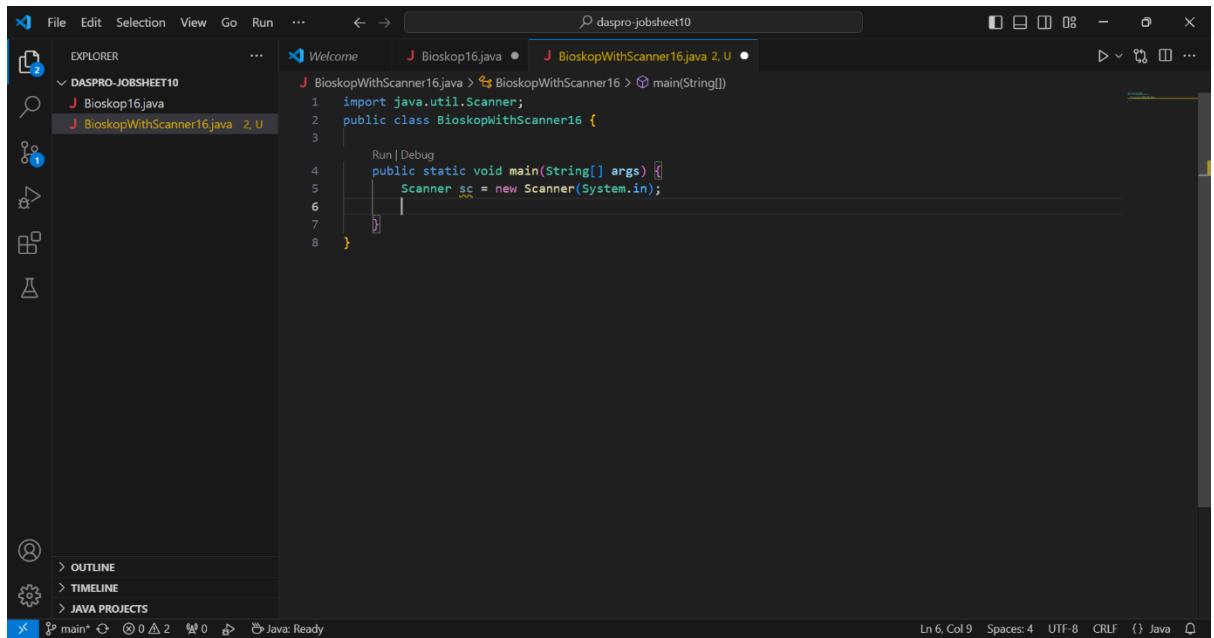


The screenshot shows a Java code editor interface with a dark theme. In the center, there are two tabs: "Bioskop16.java" and "BioskopWithScanner16.java". The "BioskopWithScanner16.java" tab is active, displaying the following code:

```
1 import java.util.Scanner;
2 public class BioskopWithScanner16 {
3     public static void main(String[] args) {
4     }
5 }
```

The "import java.util.Scanner;" line is highlighted with a yellow background. The left sidebar contains an "EXPLORER" panel showing a project named "DASPRO-JOBSCHEET10" with files "Bioskop16.java" and "BioskopWithScanner16.java". Below the sidebar are buttons for "OUTLINE", "TIMELINE", and "JAVA PROJECTS". The bottom status bar shows "Ln 1, Col 26" and "Java: Ready".

4. Deklarasikan variabel Scanner

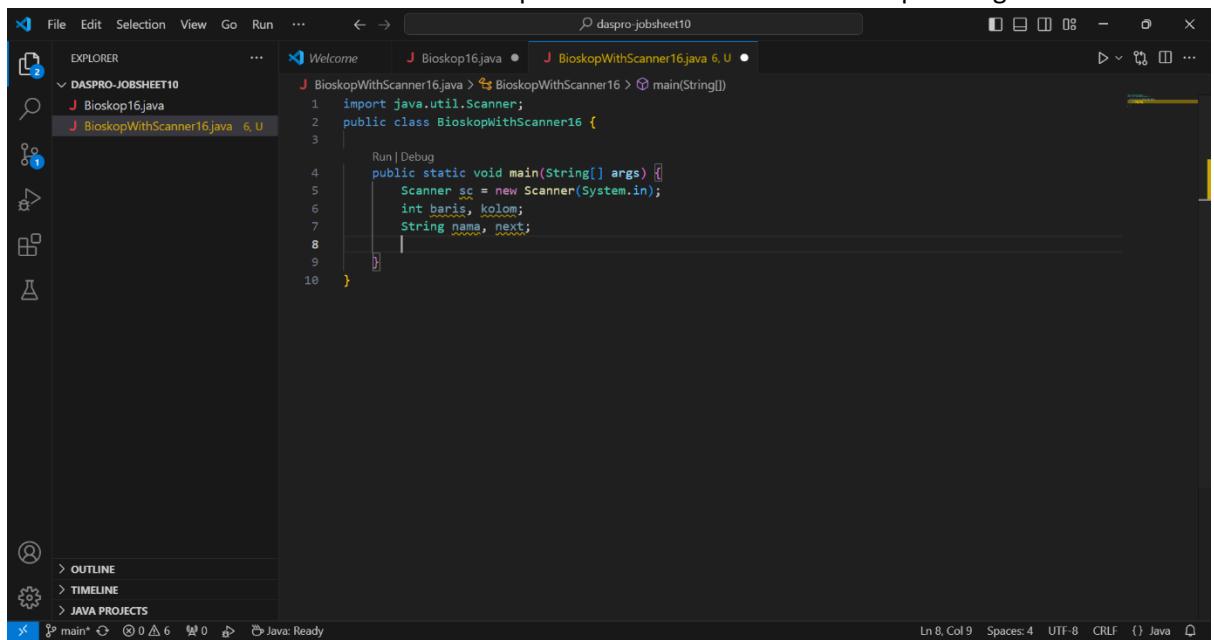


The screenshot shows the Visual Studio Code interface with a dark theme. The left sidebar has an 'EXPLORER' section showing a project named 'DASPRO-JOBSCHEET10' containing files 'Bioskop16.java' and 'BioskopWithScanner16.java'. The main editor window displays the following Java code:

```
1 import java.util.Scanner;
2 public class BioskopWithScanner16 {
3
4     Run|Debug
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in);
7     }
8 }
```

The status bar at the bottom indicates 'Ln 6, Col 9' and 'Java: Ready'.

5. Deklarasikan variable baris dan kolom bertipe int serta nama dan next bertipe String.

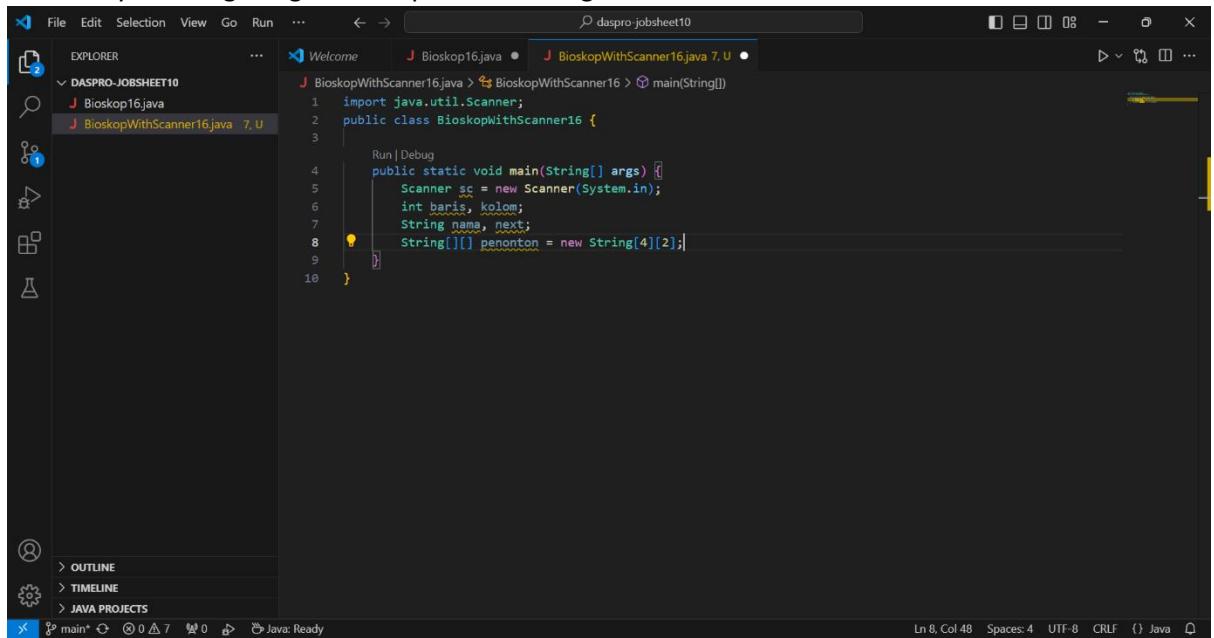


The screenshot shows the Visual Studio Code interface with a dark theme. The left sidebar has an 'EXPLORER' section showing a project named 'DASPRO-JOBSCHEET10' containing files 'Bioskop16.java' and 'BioskopWithScanner16.java'. The main editor window displays the following Java code:

```
1 import java.util.Scanner;
2 public class BioskopWithScanner16 {
3
4     Run|Debug
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in);
7         int baris, kolom;
8         String nama, next;
9     }
10 }
```

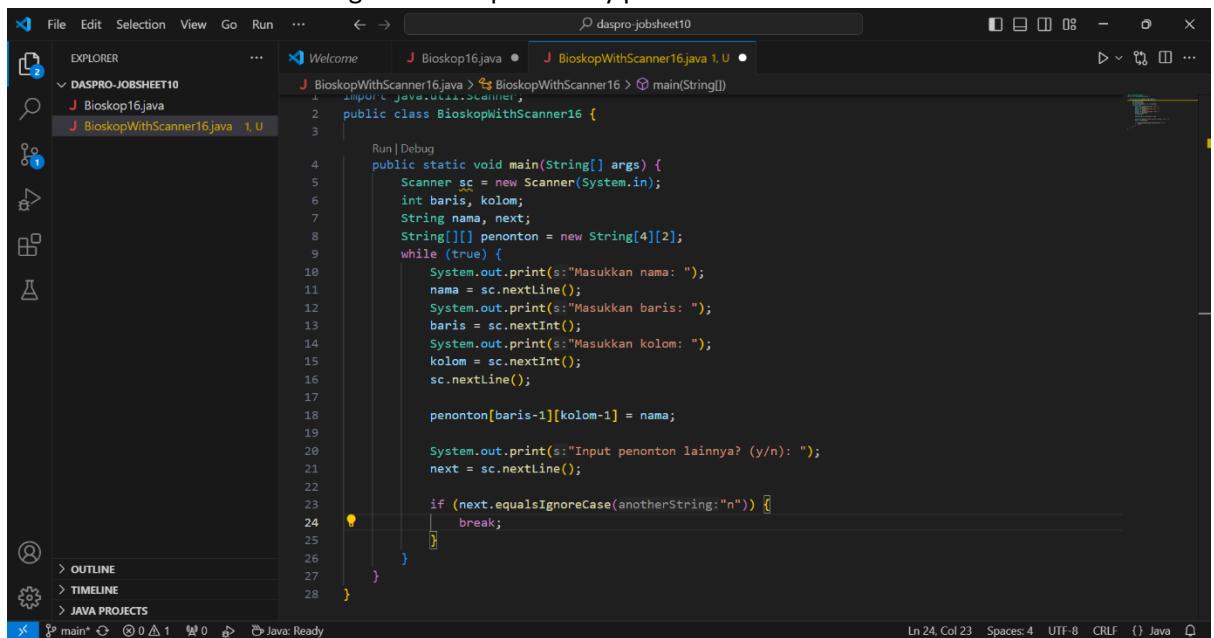
The status bar at the bottom indicates 'Ln 8, Col 9' and 'Java: Ready'.

6. Buat array of String dengan nama penonton dengan 4 baris dan 2 kolom



```
File Edit Selection View Go Run ... Welcome J Bioskop16.java J BioskopWithScanner16.java 7, U
J BioskopWithScanner16.java > BioskopWithScanner16 > main(String[])
1 import java.util.Scanner;
2 public class BioskopWithScanner16 {
3
4     Run | Debug
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in);
7         int baris, kolom;
8         String nama, next;
9         String[][] penonton = new String[4][2];
10    }
```

7. Gunakan scanner untuk mengisi elemen pada array penonton



```
File Edit Selection View Go Run ... Welcome J Bioskop16.java J BioskopWithScanner16.java 1, U
J BioskopWithScanner16.java > BioskopWithScanner16 > main(String[])
1 import java.util.Scanner;
2 public class BioskopWithScanner16 {
3
4     Run | Debug
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in);
7         int baris, kolom;
8         String nama, next;
9         String[][] penonton = new String[4][2];
10        while (true) {
11            System.out.print("Masukkan nama: ");
12            nama = sc.nextLine();
13            System.out.print("Masukkan baris: ");
14            baris = sc.nextInt();
15            System.out.print("Masukkan kolom: ");
16            kolom = sc.nextInt();
17            sc.nextLine();
18
19            penonton[baris-1][kolom-1] = nama;
20
21            System.out.print("Input penonton lainnya? (y/n): ");
22            next = sc.nextLine();
23
24            if (next.equalsIgnoreCase("n")) {
25                break;
26            }
27        }
28    }
```

8. Compile dan run program kemudian cobalah menginputkan beberapa data penonton.

The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer:** Shows a project named "DASPRO-JOBSCHEET10" containing files "Bioskop16.java" and "BioskopWithScanner16.java".
- Code Editor:** Displays the "BioskopWithScanner16.java" file with the following code:

```
import java.util.Scanner;
public class BioskopWithScanner16 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int baris, kolom;
        String nama, next;
        String[][] penonton = new String[4][2];
        while (true) {
            System.out.print("Masukkan nama: ");
            nama = sc.nextLine();
            System.out.print("Masukkan baris: ");
            baris = sc.nextInt();
            System.out.print("Masukkan kolom: ");
            kolom = sc.nextInt();
            sc.nextLine();
            penonton[baris-1][kolom-1] = nama;
            System.out.print("Input penonton lainnya? (y/n): ");
            next = sc.nextLine();
            if (next.equalsIgnoreCase("n")) {
                break;
            }
        }
    }
}
```
- Terminal:** Shows the command "Run: BioskopWithScanner16" and the output of the program running in the terminal.
- Status Bar:** Shows the current line (Ln 24), column (Col 23), spaces (Spaces: 4), encoding (UTF-8), and file type (CRLF).

9. Commit kode program

The screenshot shows the GitHub Copilot interface with the following details:

- Code Editor:** Displays the same "BioskopWithScanner16.java" code as in the previous screenshot.
- Symbols Panel:** Shows symbols for the class "BioskopWithScanner16" and its main method.
- GitHub Tab:** Shows the URL "github.com/zakariahiani/daspro-jobsheet10/blob/main/BioskopWithScanner16.java".

Pertanyaan :

1. Apakah pengisian elemen array dari scanner harus dilakukan secara berurutan mulai dari indeks ke-0? Jelaskan!
2. Modifikasi kode program untuk memberikan opsi menu sebagai berikut:
 - Menu 1: Input data penonton
 - Menu 2: Tampilkan daftar penonton
 - Menu 3: Exit
3. Modifikasi kode program untuk menghandle apabila nomor baris/kolom kursi yang tidak tersedia
4. Pada menu 1, modifikasi kode program untuk memberikan warning apabila kursi yang dipilih sudah terisi oleh penonton lainnya lalu munculkan perintah untuk memasukkan baris dan kolom Kembali

5. Pada menu 2, jika kursi kosong, ganti null dengan ***
6. Commit dan push kode program ke github.

Jawaban :

1. Tidak, pengisian elemen Array dari scanner tidak harus berurutan asal tidak melebihi batas indeks yang telah ditentukan

```

File Edit Selection View Go Run ... ← → daspro-jobsheet10
EXPLORER DASPRO-JOBSCHEET10 BioskopWithScanner16.java BioskopWithScanner16.java 2, M
Welcome J Bi ...
2 public class BioskopWithScanner16 {
4 public static void main(String[] args) {
21     System.out.print("Masukkan baris: ");
22     baris = sc.nextInt();
23     System.out.print("Masukkan kolom: ");
24     kolom = sc.nextInt();
25     penonton[baris-1][kolom-1] = nama;
26 } else if (menu == 2) {
27     System.out.println("Daftar Penonton:");
28     for (int i = 0; i < penonton.length; i++) {
29         System.out.println("Baris ke-" + (i+1) + ": " + String.join(delimiter:", ", penonton[i]));
30     }
31 }else if (menu == 3) {
32     System.out.println("Anda telah keluar");
33     break;
34 }
35

```

Masukkan kolom: 1
Masukkan menu (nomor menu): 2
Daftar Penonton:
Baris ke-1: komang, null
Baris ke-2: null, null
Baris ke-3: null, null
Baris ke-4: null, null
Masukkan menu (nomor menu): 3
Anda telah keluar
PS C:\Users\zakal\dapro-jobsheet10>

2.

```

File Edit Selection View Go Run ... ← → daspro-jobsheet10
EXPLORER DASPRO-JOBSCHEET10 BioskopWithScanner16.java BioskopWithScanner16.java 2, M
Welcome J Bi ...
2 public class BioskopWithScanner16 {
4 public static void main(String[] args) {
18     menu = sc.nextInt();
19     if (menu == 1) {
20         System.out.print("Masukkan nama: ");
21         nama = sc.next();
22         System.out.print("Masukkan baris: ");
23         baris = sc.nextInt();
24         System.out.print("Masukkan kolom: ");
25         kolom = sc.nextInt();
26         if (baris > 4 || kolom > 2) {
27             System.out.println("Baris atau kolom tidak tersedia");
28             continue;
29         }
30         penonton[baris-1][kolom-1] = nama;
31     } else if (menu == 2) {
32         System.out.println("Daftar Penonton:");
33         for (int i = 0; i < penonton.length; i++) {
34

```

Masukkan nama: komang
Masukkan baris: 1
Masukkan kolom: 1
Masukkan menu (nomor menu): 2
Daftar Penonton:
Baris ke-1: komang, null
Baris ke-2: null, null
Baris ke-3: null, null
Baris ke-4: null, null
Masukkan menu (nomor menu):

3.

```

File Edit Selection View Go Run ... ← → daspro-jobsheet10
EXPLORER DASPRO-JOBSCHEET10 BioskopWithScanner16.java BioskopWithScanner16.java 2, M
Welcome J Bi ...
2 public class BioskopWithScanner16 {
4 public static void main(String[] args) {
18     menu = sc.nextInt();
19     if (menu == 1) {
20         System.out.print("Masukkan nama: ");
21         nama = sc.next();
22         System.out.print("Masukkan baris: ");
23         baris = sc.nextInt();
24         System.out.print("Masukkan kolom: ");
25         kolom = sc.nextInt();
26         if (baris > 4 || kolom > 2) {
27             System.out.println("Baris atau kolom tidak tersedia");
28             continue;
29         }
30         penonton[baris-1][kolom-1] = nama;
31     } else if (menu == 2) {
32         System.out.println("Daftar Penonton:");
33         for (int i = 0; i < penonton.length; i++) {
34

```

Masukkan nama: komang
Masukkan baris: 1
Masukkan kolom: 1
Masukkan menu (nomor menu): 2
Daftar Penonton:
Baris ke-1: komang, null
Baris ke-2: null, null
Baris ke-3: null, null
Baris ke-4: null, null
Masukkan menu (nomor menu):

4.

```
File Edit Selection View Go Run ... daspro-jobsheet10
EXPLORER DASPRO-JOSHEET10 Bioskop16.java BioskopWithScanner16.java 2. M ...
Welcome J BioskopWithScanner16 > BioskopWithScanner16 > main(String[])
1 BioskopWithScanner16.java > BioskopWithScanner16 > main(String[])
2 public class BioskopWithScanner16 {
3     public static void main(String[] args) {
4         Scanner sc = new Scanner(System.in);
5         int menu;
6         String nama;
7         int baris, kolom;
8         int[][] penonton;
9         menu = sc.nextInt();
10        nama = sc.nextLine();
11        System.out.print("Masukkan baris: ");
12        baris = sc.nextInt();
13        System.out.print("Masukkan kolom: ");
14        kolom = sc.nextInt();
15        if (penonton[baris-1][kolom-1] != null) {
16            System.out.println("Baris atau kolom yang anda pilih telah terisi");
17            System.out.println("Silahkan cek Daftar penonton untuk melihat yang kosong");
18            continue;
19        }
20        if (baris > 4 || kolom > 2) {
21            System.out.println("Baris atau kolom tidak tersedia");
22            continue;
23        }
24    }
25}
26}
27}
28}
29}
30}
31}
32}
33}
```

Masukkan nama: komang
Masukkan baris: 1
Masukkan kolom: 1
Masukkan menu (nomor menu): 1
Masukkan nama: batok
Masukkan baris: 1
Masukkan kolom: 1
Baris atau kolom yang anda pilih telah terisi
Silahkan cek Daftar penonton untuk melihat yang kosong
Masukkan menu (nomor menu): 2

4.

5.

```
File Edit Selection View Go Run ... daspro-jobsheet10
EXPLORER DASPRO-JOSHEET10 Bioskop16.java BioskopWithScanner16.java 2. M ...
Welcome J BioskopWithScanner16 > BioskopWithScanner16 > main(String[])
1 BioskopWithScanner16.java > BioskopWithScanner16 > main(String[])
2 class BioskopWithScanner16 {
3     public static void main(String[] args) {
4         Scanner sc = new Scanner(System.in);
5         int menu;
6         String nama;
7         int baris, kolom;
8         int[][] penonton;
9         menu = sc.nextInt();
10        nama = sc.nextLine();
11        penonton[baris-1][kolom-1] = nama;
12        if (menu == 2) {
13            System.out.println("Daftar Penonton:");
14            for (int i = 0; i < penonton.length; i++) {
15                for (int j = 0; j < penonton[i].length; j++) {
16                    System.out.print((penonton[i][j] != null ? penonton[i][j] : "***") + " ");
17                }
18                System.out.println();
19            }
20        } else if (menu == 3) {
21            System.out.println("Anda telah keluar");
22            break;
23        }
24    }
25}
26}
27}
28}
29}
30}
31}
32}
33}
34}
35}
36}
37}
38}
39}
40}
41}
42}
43}
44}
45}
46}
47}
```

2. Daftar Penonton
3. Exit

Masukkan menu (nomor menu): 2
Daftar Penonton:
Baris ke-1: *** ***
Baris ke-2: *** ***
Baris ke-3: *** ***
Baris ke-4: *** ***
Masukkan menu (nomor menu):

6.

```

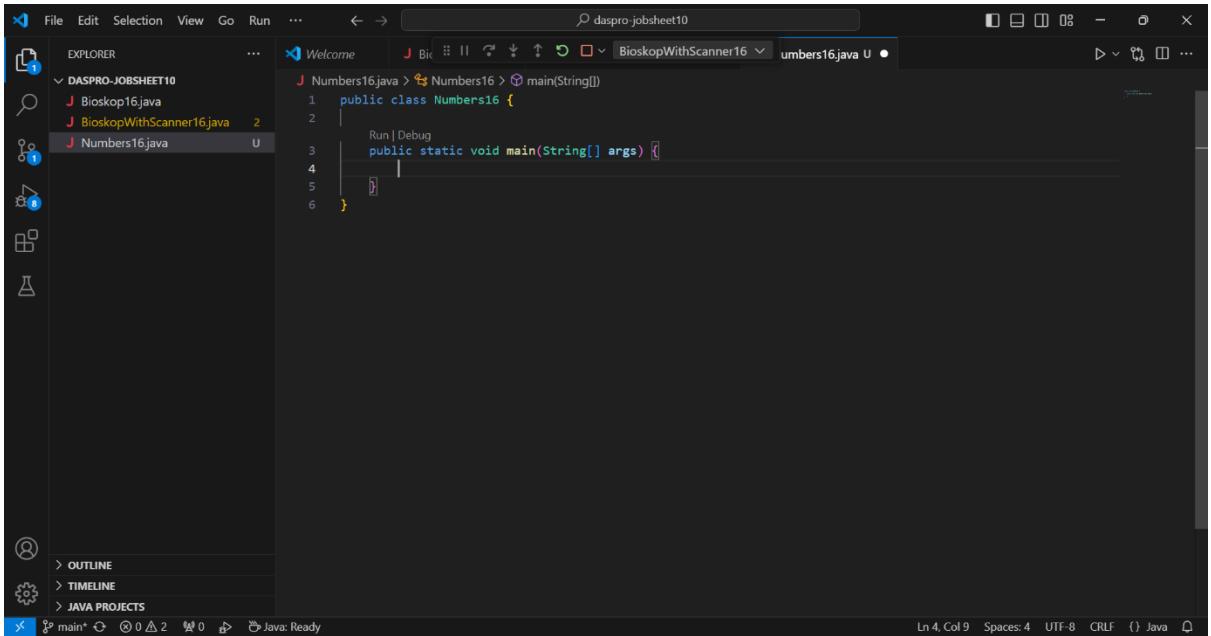
16     System.out.print("Masukkan menu (nomor menu): ");
17     menu = sc.nextInt();
18     if (menu == 1) {
19         System.out.print("Masukkan nama: ");
20         nama = sc.next();
21         System.out.print("Masukkan baris: ");
22         baris = sc.nextInt();
23         System.out.print("Masukkan kolom: ");
24         kolom = sc.nextInt();
25         if (penonton[baris-1][kolom-1] != null) {
26             System.out.println("Baris atau kolom yang anda pilih telah terisi");
27             System.out.println("silahkan cek Daftar penonton untuk melihat yang kosong");
28             continue;
29         }
30         if (baris > 4 || kolom > 2) {
31             System.out.println("Baris atau kolom tidak tersedia");
32             continue;
33         }
34         penonton[baris-1][kolom-1] = nama;
35     } else if (menu == 2) {
36         System.out.println("Daftar Penonton:");
37         for (int i = 0; i < penonton.length; i++) {
38             for (int j = 0; j < penonton[i].length; j++) {
39                 if (penonton[i][j] != null)
40                     System.out.print(penonton[i][j] + " ");
41             }
42             System.out.println();
43         }
44     }

```

Percobaan 3 : Array 2 Dimensi dengan Length Baris Berbeda

- Buka text editor. Buat file baru, beri nama Numbers.java

2. Tuliskan struktur dasar bahasa pemrograman Java yang terdiri dari fungsi main()



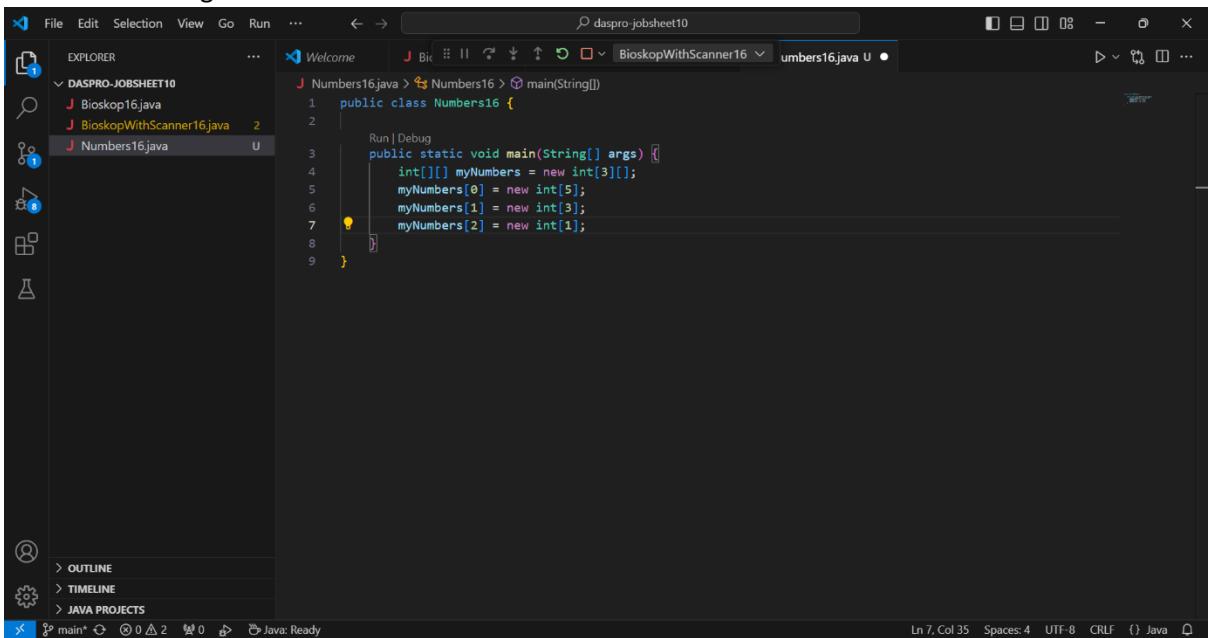
The screenshot shows a Java development environment with the following details:

- File Explorer:** Shows a project named "DASPRO-JOBSCHEET10" containing three files: "Bioskop16.java", "BioskopWithScanner16.java", and "Numbers16.java".
- Code Editor:** Displays the "Numbers16.java" file with the following code:

```
1 public class Numbers16 {  
2     public static void main(String[] args) {  
3     }  
4 }
```
- Status Bar:** Shows "Ln 4, Col 9" and "Java: Ready".

3. Deklarasi dan instansiasi array 2 dimensi bernama myNumbers dengan elemen bertipe int.

Array tersebut memiliki 3 baris. Baris pertama terdiri dari 5 kolom. Baris kedua terdiri dari 3 kolom. Baris ketiga terdiri dari 1 kolom.



The screenshot shows a Java development environment with the following details:

- File Explorer:** Shows a project named "DASPRO-JOBSCHEET10" containing three files: "Bioskop16.java", "BioskopWithScanner16.java", and "Numbers16.java".
- Code Editor:** Displays the "Numbers16.java" file with the following code:

```
1 public class Numbers16 {  
2     public static void main(String[] args) {  
3         int[][] myNumbers = new int[3][];  
4         myNumbers[0] = new int[5];  
5         myNumbers[1] = new int[3];  
6         myNumbers[2] = new int[1];  
7     }  
8 }
```
- Status Bar:** Shows "Ln 7, Col 35" and "Java: Ready".

Pertanyaan :

1. Tambahkan kode program sebagai berikut
2. Apa fungsi dari Arrays.toString()?
3. Apa nilai default untuk elemen pada array dengan tipe data int?
4. Tambahkan kode program berikut
5. Array myNumbers memiliki length berbeda untuk setiap barisnya. Apakah panjang array dapat dimodifikasi setelah diinstansiasi?

Jawaban :

The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer:** Shows a project named "DASPRO-JOSHEET10" containing files: "Bioskop16.java", "BioskopWithScanner16.java", and "Numbers16.java".
- Editor:** Displays the Java code for "Numbers16.java". The code creates a 3x3 int matrix and prints its elements.
- Status Bar:** Shows "Java: Ready".

```
import java.util.Arrays;
public class Numbers16 {
    public static void main(String[] args) {
        int[][] myNumbers = new int[3][];
        myNumbers[0] = new int[5];
        myNumbers[1] = new int[3];
        myNumbers[2] = new int[1];
        for (int i = 0; i < myNumbers.length; i++) {
            System.out.println(Arrays.toString(myNumbers[i]));
        }
    }
}
```

1. main* 0 0 Java: Ready

Ln 11, Col 63 Spaces: 4 UTF-8 CRL

 2. Fungsi dari `Arrays.toString()` adalah untuk mengubah array menjadi string yang dapat dibaca, yang menampilkan semua elemen dalam array
 3. Nilai default untuk elemen Array tipe data int adalah 0

The screenshot shows the Java code for 'Numbers16.java' in the 'DASPRO-JOSHEET10' project. The code creates a 3D array 'myNumbers' and prints its dimensions. A yellow lightbulb icon is shown at line 14, indicating a potential issue or suggestion.

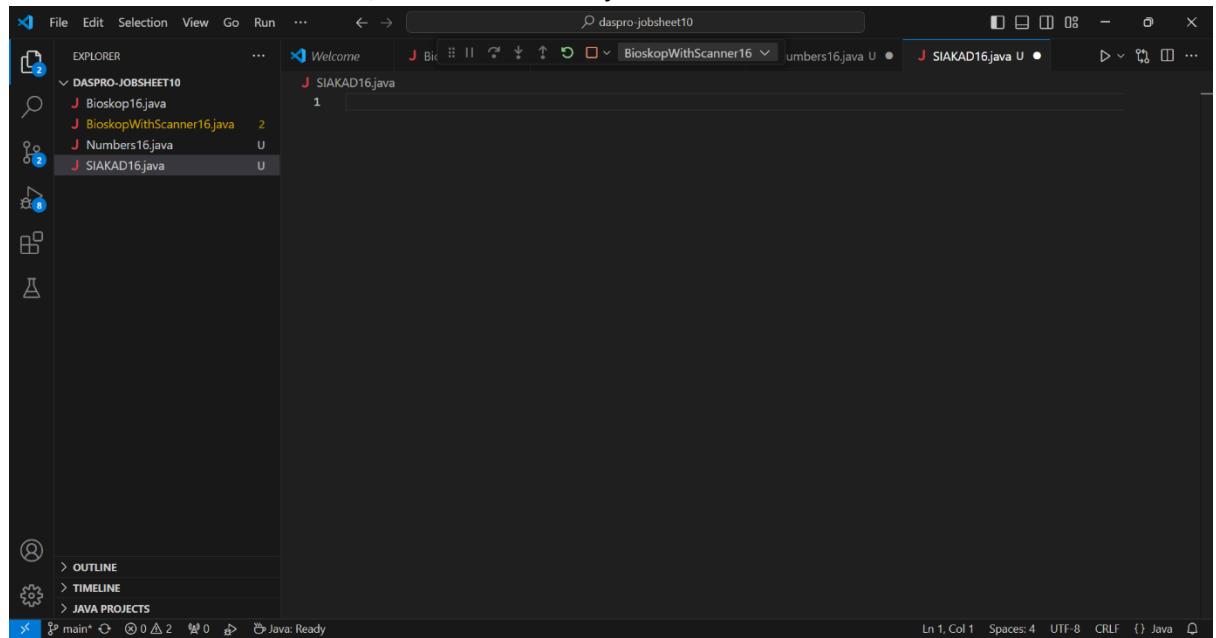
```
import java.util.Arrays;
public class Numbers16 {
    public static void main(String[] args) {
        int[][][] myNumbers = new int[3][];
        myNumbers[0] = new int[5];
        myNumbers[1] = new int[3];
        myNumbers[2] = new int[1];
        for (int i = 0; i < myNumbers.length; i++) {
            System.out.println(Arrays.toString(myNumbers[i]));
        }
        for (int i = 0; i < myNumbers.length; i++) {
            System.out.println("Panjang baris ke-" + (i+1) + " : " + myNumbers[i].length);
        }
    }
}
```

- ## 4. main.java ① 0 △ 2 📁 0 🔍 Java: Ready

5. Panjang Array tidak dapat diubah setelah instansiasi

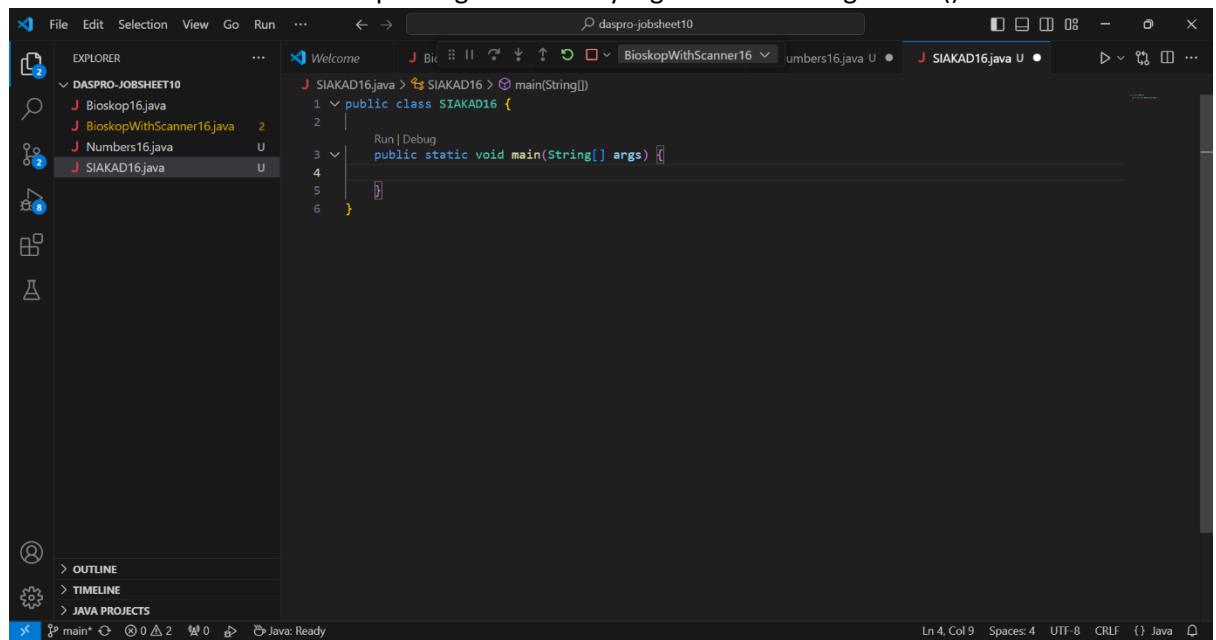
Percobaan 4 : Studi Kasus SIAKAD

1. Buka text editor. Buat file baru, beri nama SIAKAD.java



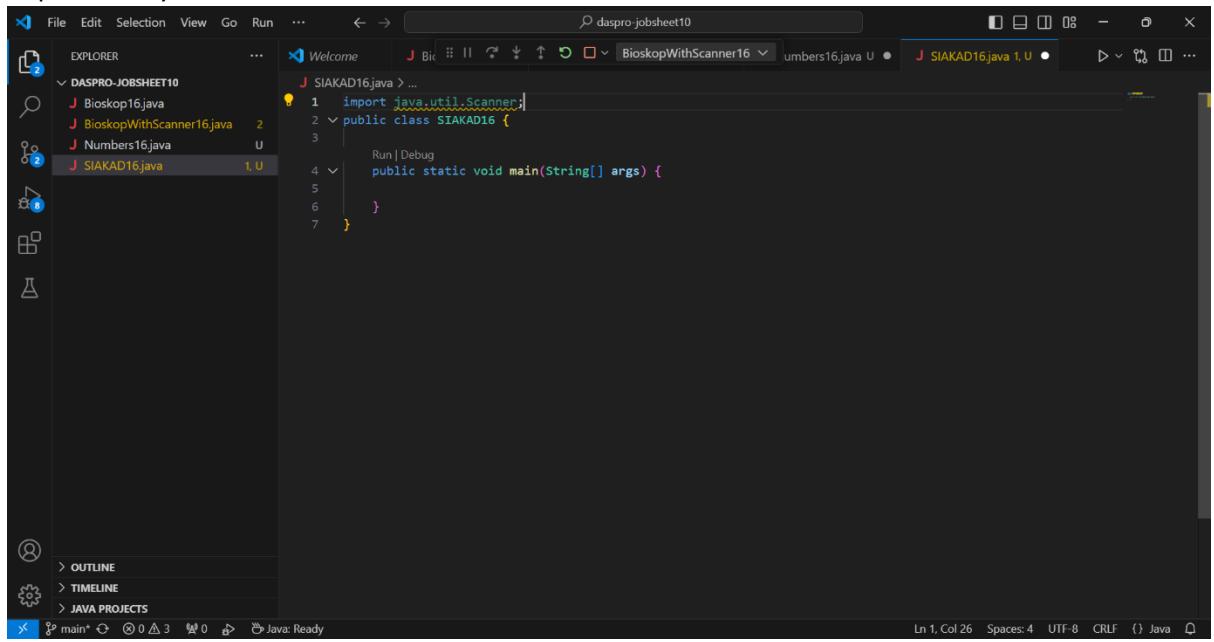
```
daspro-jobsheet10
SIAKAD16.java
```

2. Tuliskan struktur dasar bahasa pemrograman Java yang terdiri dari fungsi main()



```
SIAKAD16.java
public class SIAKAD16 {
    public static void main(String[] args) {
    }
}
```

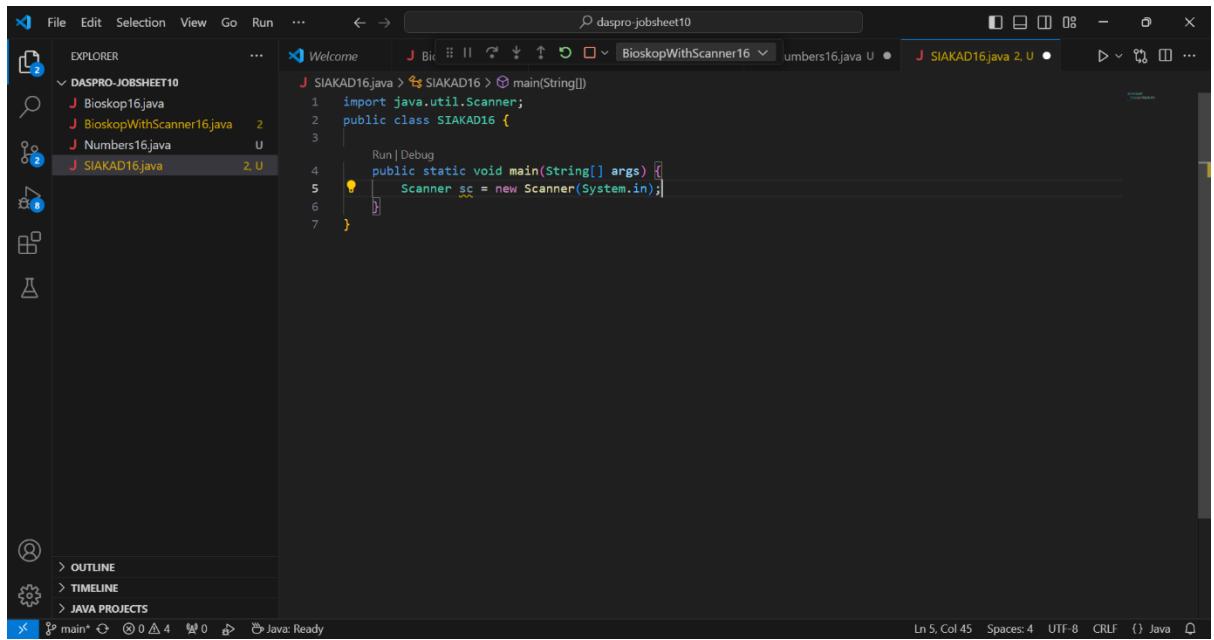
3. Import library Scanner



```
File Edit Selection View Go Run ... daspro-jobsheet10
EXPLORER DASPRO-JOBSCHEET10
SIAKAD16.java > ...
1 import java.util.Scanner;
2 public class SIAKAD16 {
3
4     Run|Debug
5     public static void main(String[] args) {
6
7 }
```

The screenshot shows the Eclipse IDE interface. The left sidebar displays a project named 'DASPRO-JOBSCHEET10' containing four files: Bioskop16.java, BioskopWithScanner16.java, Numbers16.java, and SIAKAD16.java. The right pane shows the code for SIAKAD16.java. The code starts with an import statement for 'java.util.Scanner'. It then defines a public class 'SIAKAD16' with a main method that takes no arguments and does not return anything.

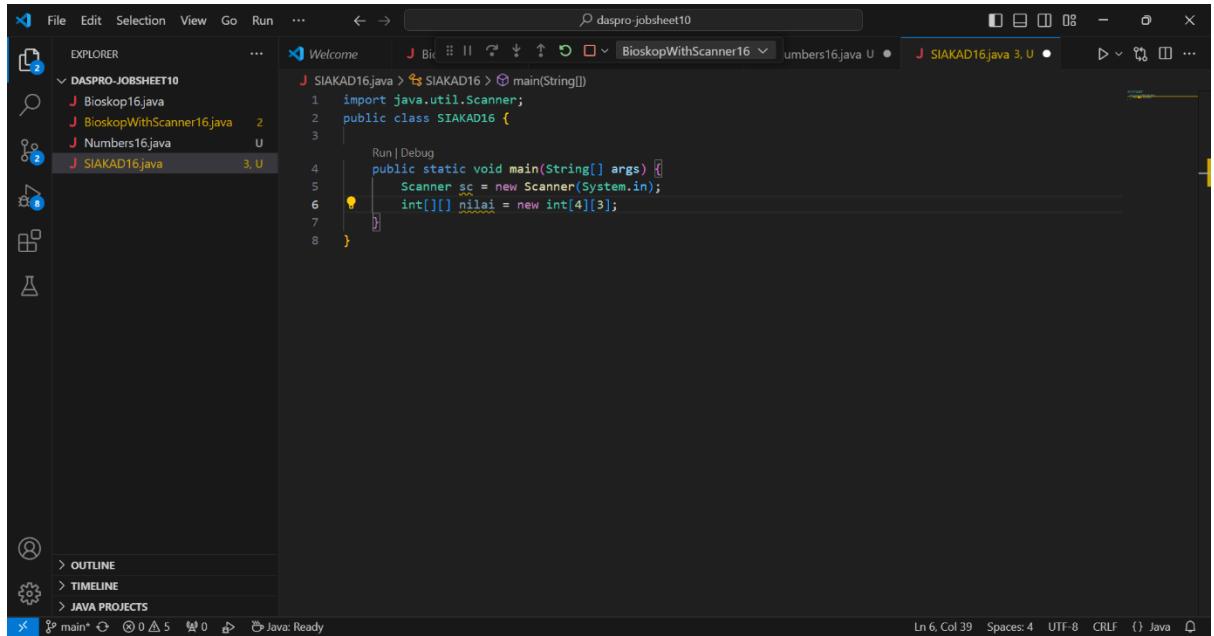
4. Deklarasikan variabel Scanner



```
File Edit Selection View Go Run ... daspro-jobsheet10
EXPLORER DASPRO-JOBSCHEET10
SIAKAD16.java > SIAKAD16 > main(String[])
1 import java.util.Scanner;
2 public class SIAKAD16 {
3
4     Run|Debug
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in);
7     }
}
```

The screenshot shows the Eclipse IDE interface. The left sidebar displays a project named 'DASPRO-JOBSCHEET10' containing four files: Bioskop16.java, BioskopWithScanner16.java, Numbers16.java, and SIAKAD16.java. The right pane shows the code for SIAKAD16.java. The code now includes a declaration for a 'Scanner' variable named 'sc' that is initialized to 'new Scanner(System.in)'.

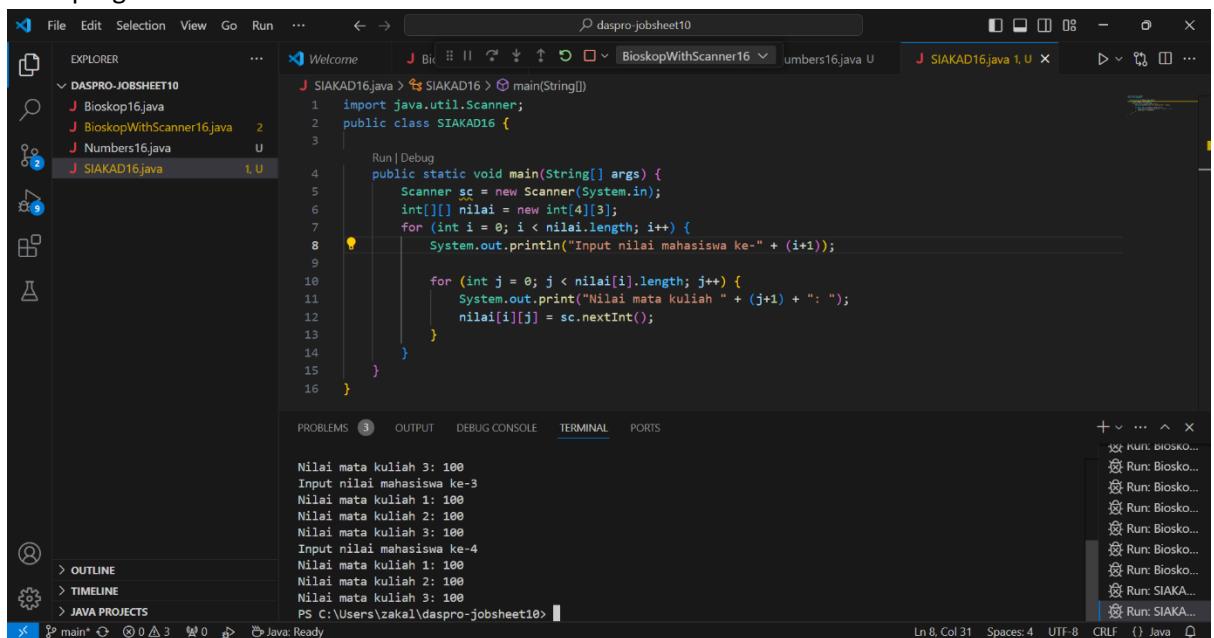
5. Buat array of int bernama nilai dengan 4 baris dan 3 kolom



```
File Edit Selection View Go Run ... Welcome daspro-jobsheet10
J SIAKAD16.java > SIAKAD16 > main(String[])
1 import java.util.Scanner;
2 public class SIAKAD16 {
3
4     Run | Debug
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in);
7         int[][] nilai = new int[4][3];
8     }
}
Ln 6, Col 39 Spaces: 4 UTF-8 CRLF {} Java
```

The screenshot shows the Visual Studio Code interface with the Java extension installed. The Explorer sidebar shows a project named 'DASPRO-JOBSCHEET10' containing four files: Bioskop16.java, BioskopWithScanner16.java, Numbers16.java, and SIAKAD16.java. The SIAKAD16.java file is open in the editor, displaying Java code to create a 4x3 integer array named 'nilai'. A yellow dot indicates a breakpoint on line 6. The status bar at the bottom right shows 'Ln 6, Col 39 Spaces: 4 UTF-8 CRLF {} Java'.

6. Gunakan scanner dan nested loop untuk mengisi elemen pada array nilai. Compile dan run kode program.



```
File Edit Selection View Go Run ... Welcome daspro-jobsheet10
J SIAKAD16.java > SIAKAD16 > main(String[])
1 import java.util.Scanner;
2 public class SIAKAD16 {
3
4     Run | Debug
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in);
7         int[][] nilai = new int[4][3];
8         for (int i = 0; i < nilai.length; i++) {
9             System.out.println("Input nilai mahasiswa ke-" + (i+1));
10            for (int j = 0; j < nilai[i].length; j++) {
11                System.out.print("Nilai mata kuliah " + (j+1) + ": ");
12                nilai[i][j] = sc.nextInt();
13            }
14        }
15    }
}
PROBLEMS ③ OUTPUT DEBUG CONSOLE TERMINAL PORTS
Nilai mata kuliah 3: 100
Input nilai mahasiswa ke-3
Nilai mata kuliah 1: 100
Nilai mata kuliah 2: 100
Nilai mata kuliah 3: 100
Input nilai mahasiswa ke-4
Nilai mata kuliah 1: 100
Nilai mata kuliah 2: 100
Nilai mata kuliah 3: 100
PS C:\Users\zakal\dapro-jobsheet10>
Ln 8, Col 31 Spaces: 4 UTF-8 CRLF {} Java
```

The screenshot shows the Visual Studio Code interface with the Java extension installed. The Explorer sidebar shows a project named 'DASPRO-JOBSCHEET10' containing four files: Bioskop16.java, BioskopWithScanner16.java, Numbers16.java, and SIAKAD16.java. The SIAKAD16.java file is open in the editor, displaying Java code to create a 4x3 integer array named 'nilai' and use a nested loop with Scanner to input values. The terminal below shows the execution of the program and the user's inputs. The status bar at the bottom right shows 'Ln 8, Col 31 Spaces: 4 UTF-8 CRLF {} Java'.

7. Modifikasi kode program pada langkah 6 untuk menghitung dan menampilkan nilai rata-rata setiap siswa

8. Tambahkan kode program untuk menghitung nilai rata-rata setiap mata kuliah

The screenshot shows the Visual Studio Code (VS Code) interface with the following details:

- File Explorer (Left):** Shows a project named "DASPRO-JOSHEET10" containing four files: "Bioskop16.java", "BioskopWithScanner16.java", "Numbers16.java", and "SIAKAD16.java". The "SIAKAD16.java" file is currently open.
- Code Editor (Center):** Displays the Java code for "SIAKAD16.java". The code reads student scores from a scanner and calculates the average score per student and per subject.
- Status Bar (Bottom):** Shows the status "Java: Ready".

```
1 public class SIAKAD16 {
2     public static void main(String[] args) {
3         System.out.print("Input nilai mahasiswa ke- " + (i+1));
4         double totalPerSiswa = 0;
5
6         for (int j = 0; j < nilai[i].length; j++) {
7             System.out.print("Nilai mata kuliah " + (j+1) + ": ");
8             nilai[i][j] = sc.nextInt();
9             totalPerSiswa += nilai[i][j];
10        }
11
12        System.out.println("Nilai rata-rata: " + totalPerSiswa/3);
13    }
14    System.out.println("=====");
15    System.out.println("Rata-rata nilai setiap Mata Kuliah");
16
17    for (int j = 0; j < 3; j++) {
18        double totalPerMatkul = 0;
19
20        for (int i = 0; i < 4; i++) {
21            totalPerMatkul += nilai[i][j];
22        }
23
24        System.out.println("Mata Kuliah " + (j+1) + ": " + totalPerMatkul/4);
25    }
26}
27
28
29
30
31
32}
```

Pertanyaan :

1. Bagaimana jika terdapat perubahan jumlah siswa dan jumlah mata kuliah? Modifikasi kode program SIAKAD untuk mengakomodasi jumlah siswa dan jumlah mata kuliah yang dinamis.
 2. Commit dan push ke github

Jawaban :

The screenshot shows the Eclipse IDE interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, ...
- Title Bar:** daspro-jobsheet10
- Left Sidebar (EXPLORER):** Shows the project structure under DASPRO-JOBSSHEET10, including files like Bioskop16.java, BioskopWithScanner16.java, Numbers16.java, and SIAKAD16.java.
- Central Area (EDITOR):** The code editor displays the SIAKAD16.java file. The code reads student counts and marks from the console, stores them in a 2D array, calculates the average score for each subject, and prints the results.
- Right Sidebar (PROBLEMS):** Shows 1 error and 1 warning for the SIAKAD16.java file.

```
1 import java.util.Scanner;
2 public class SIAKAD16 {
3
4     Run | Debug
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in);
7         System.out.print("Masukkan Jumlah Mahasiswa: ");
8         int jumlah = sc.nextInt();
9         System.out.print("Masukkan Jumlah Mata Kuliah: ");
10        int matkul = sc.nextInt();
11        int[][] nilai = new int[jumlah][matkul];
12        for (int i = 0; i < nilai.length; i++) {
13            System.out.println("Input nilai mahasiswa ke-" + (i+1));
14            double totalPerSiswa = 0;
15
16            for (int j = 0; j < nilai[i].length; j++) {
17                System.out.print("Nilai mata kuliah " + (j+1) + ": ");
18                nilai[i][j] = sc.nextInt();
19                totalPerSiswa += nilai[i][j];
20            }
21
22            System.out.println("Nilai rata-rata: " + totalPerSiswa/3);
23        }
24        System.out.println("\n=====");
25        System.out.println("Rata-rata nilai setiap Mata Kuliah");
26
27        for (int j = 0; j < 3; j++) {
28            double totalPerMatkul = 0;
29
30            for (int i = 0; i < nilai.length; i++)
31                totalPerMatkul += nilai[i][j];
32
33            System.out.println("Rata-rata nilai " + (j+1) + " Mata Kuliah: " + totalPerMatkul / nilai.length);
34        }
35    }
36 }
```

1.

The screenshot shows a browser window with several tabs open. The active tab is titled "daspro-jobsheet10 / SIAKAD16.java". The code editor displays Java code for calculating average marks. The code uses nested loops to iterate through student and subject data, calculate averages, and print results. A sidebar on the right is titled "Symbols" and lists "class SIAKAD16" and "func main".

```
main public class SIAKAD16 {
    public static void main(String[] args) {
        int totalPerSiswa = 0;
        double averagePerStudent = 0;
        double averagePerSubject = 0;

        for (int i = 0; i < nilai.length; i++) {
            System.out.println("Input nilai mahasiswa ke-" + (i+1));
            double totalPerSiswa = 0;

            for (int j = 0; j < nilai[i].length; j++) {
                System.out.print("Nilai mata kuliah " + (j+1) + ": ");
                nilai[i][j] = sc.nextInt();
                totalPerSiswa += nilai[i][j];
            }

            System.out.println("Nilai rata-rata: " + totalPerSiswa/nilai.length);
        }
        System.out.println("\n=====");
        System.out.println("Rata-rata nilai setiap Mata Kuliah");

        for (int j = 0; j < nilai[0].length; j++) {
            double totalPerMatkul = 0;

            for (int i = 0; i < nilai.length; i++) {
                totalPerMatkul += nilai[i][j];
            }

            System.out.println("Mata Kuliah " + (j+1) + ": " + totalPerMatkul/nilai[0].length);
        }
    }
}
```

2.