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**2.1 Pemilihan**

- Kode program:

```java
package jobsheet1;

import java.util.Scanner;

public class PraktikumPemilihan {

    public static void main(String[] args) {
        double nTugas, nKuis, nUts, nUas, nilaiAkhir;
        String grade = "", statusLulus = "";
        Scanner sc = new Scanner(System.in);
        System.out.println("Program Menghitung Nilai Akhir ");
        while (true) {
            System.out.println("==============================");
            System.out.print("Masukan Nilai Tugas\t: ");
            nTugas = sc.nextDouble();
            System.out.print("Masukan Nilai kuis\t: ");
            nKuis = sc.nextDouble();
            System.out.print("Masukan Nilai UTS\t: ");
            nUts = sc.nextDouble();
            System.out.print("Masukan Nilai UAs\t: ");
            nUas = sc.nextDouble();
            System.out.println("==============================");
```

```java
        if (nTugas < 0 || nTugas > 100 || nKuis < 0 || nKuis > 100 || nUts < 0 || nUts >
100 || nUas < 0
            || nUas > 100) {
        System.out.println("==============================");
        System.out.println("Nilai Tidak Valid");
        System.out.println("==============================");
    } else {
        break;
    }
}
nilaiAkhir = nTugas * 0.2 + nKuis * 0.2 + nUts * 0.3 + nUas * 0.3;
if (nilaiAkhir <= 100 && nilaiAkhir > 80) {
    grade = "A";
    statusLulus = "Lulus";
} else if (nilaiAkhir <= 80 && nilaiAkhir > 73) {
    statusLulus = "Lulus";
    grade = "B+";
} else if (nilaiAkhir <= 73 && nilaiAkhir > 65) {
    statusLulus = "Lulus";
    grade = "B";
} else if (nilaiAkhir <= 65 && nilaiAkhir > 60) {
    statusLulus = "Lulus";
    grade = "C+";
} else if (nilaiAkhir <= 60 && nilaiAkhir > 50) {
    statusLulus = "Lulus";
    grade = "C";
} else if (nilaiAkhir <= 50 && nilaiAkhir > 39) {
    grade = "D";
    statusLulus = "Tidak Lulus";
```

```java
        } else if (nilaiAkhir <= 39 && nilaiAkhir > 0) {

            grade = "E";

            statusLulus = "Tidak Lulus";

        }

        System.out.println("Nilai Akhir\t: " + nilaiAkhir);

        System.out.println("Nilai Huruf\t: " + grade);

        System.out.println("=============================");

        System.out.println("=============================");

        if (nilaiAkhir <= 50) {

            System.out.println("ANDA " + statusLulus);

        } else {

            System.out.println("SELAMAT ANDA " + statusLulus);

        }


    }
}
```

- Screenshoot Hasil

```
Program Menghitung Nilai Akhir
===========================
Masukan Nilai Tugas    : 100
Masukan Nilai kuis     : 90
Masukan Nilai UTS      : 80
Masukan Nilai UAs      : 120
===========================

===========================
Nilai Tidak Valid
===========================

===========================
Masukan Nilai Tugas    : 100
Masukan Nilai kuis     : 90
Masukan Nilai UTS      : 80
Masukan Nilai UAs      : 70
===========================
Nilai Akhir      : 83.0
Nilai Huruf      : A
===========================

===========================
SELAMAT ANDA Lulus
PS E:\JavaGit\PraktikumAlgoritmaStrukturData>
```

## 2.2 Perulangan

- Kode Program

```java
package jobsheet1;

import java.util.Scanner;

public class PraktikumPerulangan {

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        double n;
        System.out.print("Masukan NIM : ");
        n = sc.nextDouble();
        n = n % 100;
        if (n < 10) {
            n = n + 10;
        }
```

```java
        for (int i = 1; i <= n; i++) {

            if (i == 10 || i == 15) {

                System.out.print("");

            } else if (i % 3 == 0) {

                System.out.print("#");

            } else if (i % 2 == 1) {

                System.out.print("*");

            } else {

                System.out.print(i);

            }

            System.out.print(" ");

        }


    }
}
```
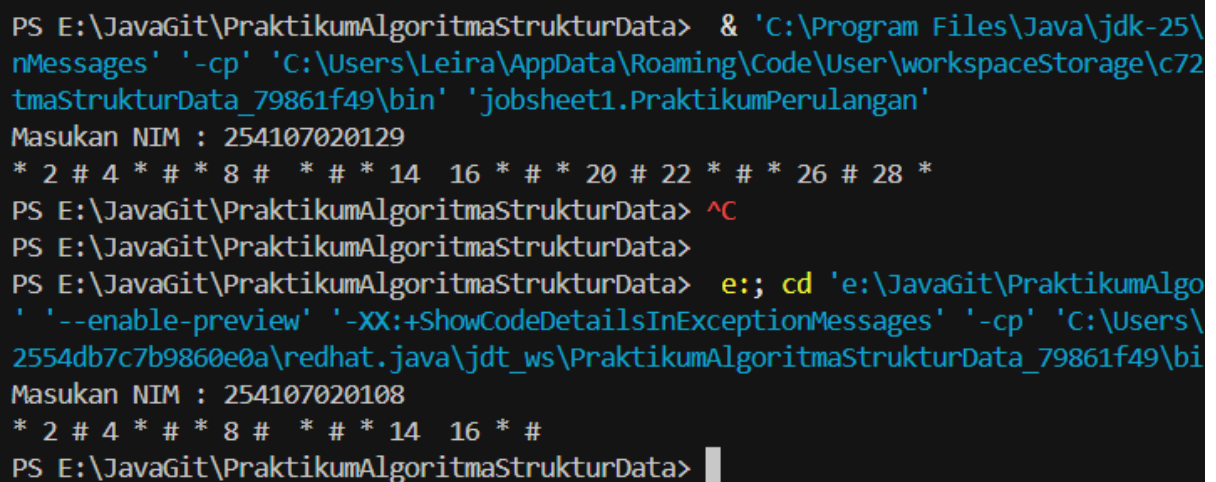
- Screenshoot Hasil



## 2.3 Array

- Kode program

```java
package jobsheet1;

import java.util.Scanner;

public class PraktikumArray {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        double[][] nilai = new double[3][8];
        String[] grade = new String[8];
        String mk[] = new String[8];

        for (int i = 0; i < mk.length; i++) {
            System.out.print("Masukan Matkul " + (i + 1) + " : ");
            mk[i] = sc.nextLine();
        }
        System.out.println("==================");
        System.out.println("Program Menghitung IP Semester");
        System.out.println("==================");
        for (int i = 0; i < mk.length; i++) {
            while (true) {

                System.out.print("masukan nilai Angka untuk MK " + mk[i] + " : ");
                nilai[0][i] = sc.nextDouble();
                if (nilai[0][i] <= 100 && nilai[0][i] >= 0) {
                    break;
                } else {
                    System.out.println("Input salah");
                }
            }
        }
```

```java
            if (nilai[0][i] <= 100 && nilai[0][i] > 80) {
                grade[i] = "A";
                nilai[1][i] = 4;


            } else if (nilai[0][i] <= 80 && nilai[0][i] > 73) {
                nilai[1][i] = 3.5;
                grade[i] = "B+";
            } else if (nilai[0][i] <= 73 && nilai[0][i] > 65) {
                nilai[1][i] = 3;
                grade[i] = "B";
            } else if (nilai[0][i] <= 65 && nilai[0][i] > 60) {
                nilai[1][i] = 2.5;
                grade[i] = "C+";
            } else if (nilai[0][i] <= 60 && nilai[0][i] > 50) {
                nilai[1][i] = 2;
                grade[i] = "C";
            } else if (nilai[0][i] <= 50 && nilai[0][i] > 39) {
                nilai[1][i] = 1;
                grade[i] = "D";
            } else if (nilai[0][i] <= 39 && nilai[0][i] > 0) {
                nilai[1][i] = 0;
                grade[i] = "E";
            }
            System.out.print("Masukan bobot SKS dari matkul " + mk[i] + " : ");
            nilai[2][i] = sc.nextDouble();
        }
        double totalsks = 0, totalnilai = 0, ip;
        for (int i = 0; i < nilai[0].length; i++) {
            totalnilai += nilai[1][i] * nilai[2][i];
```

```java
            totalsks += nilai[2][i];
        }
        ip = totalnilai / totalsks;
        System.out.println("=====================");
        System.out.println("Hasil Konversi Nilai");
        System.out.println("=====================");
        System.out.printf("%-60s %-12s %-12s %-12s%n",
                "Mata Kuliah", "Nilai Angka", "Nilai Huruf", "Bobot Nilai");

        for (int i = 0; i < mk.length; i++) {
            double bobotNilai = nilai[1][i] * nilai[2][i];
            System.out.printf("%-60s %-12.2f %-12s %-12.2f%n",
                    mk[i], nilai[0][i], grade[i], bobotNilai);
        }


        System.out.println("================");


        System.out.println("IP : " + ip);


    }
}
```
- Screenshoot Hasil

```
Masukan Matkul 1 : CTPS
Masukan Matkul 2 : Agama
Masukan Matkul 3 : CTPS
Masukan Matkul 4 : KTI
Masukan Matkul 5 : Daspro
Masukan Matkul 6 : Praktikum Daspro
Masukan Matkul 7 : K3
Masukan Matkul 8 : Matdas
==================
Program Menghitung IP Semester
==================
masukan nilai Angka untuk MK CTPS : 110
Input salah
masukan nilai Angka untuk MK CTPS : 100
Masukan bobot SKS dari matkul CTPS : 3
masukan nilai Angka untuk MK Agama : -1
Input salah
masukan nilai Angka untuk MK Agama : 90
Masukan bobot SKS dari matkul Agama : 2
masukan nilai Angka untuk MK CTPS : 80
Masukan bobot SKS dari matkul CTPS : 2
masukan nilai Angka untuk MK KTI : 70
Masukan bobot SKS dari matkul KTI : 4
masukan nilai Angka untuk MK Daspro : 80
Masukan bobot SKS dari matkul Daspro : 4
masukan nilai Angka untuk MK Praktikum Daspro : 90
Masukan bobot SKS dari matkul Praktikum Daspro : 4
masukan nilai Angka untuk MK K3 : 60
Masukan bobot SKS dari matkul K3 : 2
masukan nilai Angka untuk MK Matdas : 40
Masukan bobot SKS dari matkul Matdas : 3
==================
Hasil Konversi Nilai
==================
Mata Kuliah                  Nilai Angka  Nilai Huruf  Bobot Nilai
CTPS                         100,00       A            12,00
Agama                        90,00        A            8,00
CTPS                         80,00        B+           7,00
KTI                          70,00        B            12,00
Daspro                       80,00        B+           14,00
Praktikum Daspro             90,00        A            16,00
K3                           60,00        C            4,00
Matdas                       40,00        D            3,00
```

```
==================
IP : 3.1666666666666665
```

**2.4 Fungsi**

- Kode Program

package jobsheet1;

import java.util.Scanner;

public class PraktikumFungsi {

```java
static Scanner sc=new Scanner(System.in);
public static void main(String[] args) {
    double stock[][] = { { 10, 5, 15, 7 }, { 6, 11, 9, 12 }, { 2, 10, 10, 5 }, { 5, 7, 12, 9 } };
    String namaBunga[]={"Aglonema ","Keladi ","Alocasia ="," Mawar"};
    double hargaBunga[]= {75000,50000,60000,10000};
    double totalPendapatan[]= new double[4];
     for (int i=0;i<stock.length;i++){
        for (int j = 0; j < stock[i].length; j++) {
            totalPendapatan[i]+=stock[i][j]*hargaBunga[i];
        }
    }
    while (true) {
        System.out.println("================");
        System.out.println("Menu program");
        System.out.println("1. Menampilkan pendapatan\n2.Tampilkan status dari setiap cabang");
        System.out.print("Pilih : ");
        int menu = sc.nextInt();

        switch (menu) {
            case 1:
                TampilkanPendapatan(totalPendapatan);
                break;
            case 2:
                StatusCabang(totalPendapatan);
                break;
            default:
                break;
        }
```

```java
        }
    }



    public static void TampilkanPendapatan(double arr1[]){
        System.out.print("Cabang berapa : ");
        int key = sc.nextInt();
        switch (key) {
            case 1:
                System.out.println("Pendapatan Royal Garden " + key+" : "+ arr1[(key-1)]);
                break;
            case 2:
                System.out.println("Pendapatan Royal Garden " + key+" : "+ arr1[(key-1)]);
                break;
            case 3:
                System.out.println("Pendapatan Royal Garden " + key+" : "+ arr1[(key-1)]);
                break;
            case 4:
                System.out.println("Pendapatan Royal Garden " + key+" : "+ arr1[(key-1)]);
                break;
            default:
                break;
        }
    }
    public static void StatusCabang(double arr1[]){
        String status[]=new String[4];
        for(int i=0;i<status.length;i++){
            if (arr1[i] > 1500000){
                status[i]= "Sangat Baik";
```

```java
            }else{
                status[i]= "Perlu Evaluasi";
            }

        }


    System.out.print("pilih cabang : ");
    int key = sc.nextInt();
    switch (key) {
        case 1:
            System.out.println("status Royal Garden " + key+" : "+ status[(key-1)]);
            break;
        case 2:
            System.out.println("status Royal Garden " + key+" : "+ status[(key-1)]);
            break;
        case 3:
            System.out.println("status Royal Garden " + key+" : "+ status[(key-1)]);
            break;
        case 4:
            System.out.println("status Royal Garden " + key+" : "+ status[(key-1)]);
            break;
        default:
            break;
    }


    }

}
```

- Screenshoot Hasil

```
==================
Menu program
1. Menampilkan pendapatan
2.Tampilkan status dari setiap cabang
Pilih : 1
Cabang berapa : 1
Pendapatan Royal Garden 1 : 2775000.0
==================
Menu program
1. Menampilkan pendapatan
2.Tampilkan status dari setiap cabang
Pilih : 2
pilih cabang : 1
status Royal Garden 1 : Sangat Baik
==================
Menu program
1. Menampilkan pendapatan
2.Tampilkan status dari setiap cabang
Pilih :
```

**TUGAS**

**Tugas 1**

- Kode Program

```java
package jobsheet1;

import java.util.Scanner;

public class Tugas1 {
    static Scanner sc = new Scanner(System.in);
    public static void main(String[] args) {
        char[][] kota = { { 'B', 'A', 'N', 'T', 'E', 'N' },
                { 'J', 'A', 'K', 'A', 'R', 'T', 'A' },
                { 'B', 'A', 'N', 'D', 'U', 'N', 'G' },
                { 'C', 'I', 'R', 'E', 'B', 'O', 'N' },
```

```java
            { 'B', 'O', 'G', 'O', 'R' },
            { 'P', 'E', 'K', 'A', 'L', 'O', 'N', 'G', 'A', 'N' },
            { 'S', 'E', 'M', 'A', 'R', 'A', 'N', 'G' },
            { 'S', 'U', 'R', 'A', 'B', 'A', 'Y', 'A' },
            { 'M', 'A', 'L', 'A', 'N', 'G' },
            { 'T', 'E', 'G', 'A', 'L' } };
        char[] kode= {'A', 'B', 'D', 'E', 'F', 'G', 'H', 'L', 'N', 'T'};
        System.out.print("Masukan kode ");
        char key = sc.next().charAt(0);
        int a = Search(key,kode);
        for(int i=0;i<kota[a].length;i++){
            System.out.print(kota[a][i]);
            System.out.print(" ");
        }
    }
public static int Search (char a,char c[]){
    int index = 0;
    for (int i=0;1<c.length;i++){
        if (a!=c[i]){
            index++;
        } else if (a==c[i]) {
        break  ;
        }
    }
 return index;
}
}
```

- Screenshot Hasil

```
Masukan kode A
B A N T E N
PS E:\JavaGit\PraktikumAlgoritmaStrukturData> ^C
PS E:\JavaGit\PraktikumAlgoritmaStrukturData>
PS E:\JavaGit\PraktikumAlgoritmaStrukturData>  e:; cd 'e:\JavaGit\PraktikumAlgoritmaStr     va\jd
k-25\bin\java.exe' '--enable-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\Leira\AppData\Roaming\Code\Use
r\workspaceStorage\c72a98525040a542554db7c7b9860e0a\redhat.java\jdt_ws\PraktikumAlgoritmaStrukturData_79861f49\bin' 'jobsheet1
.Tugas1'
Masukan kode T
T E G A L
PS E:\JavaGit\PraktikumAlgoritmaStrukturData>
```

**Tugas 2**

- Kode Program

package jobsheet1;


import java.util.Scanner;


public class Tugas2 {


    public static void main(String[] args) {

        System.out.print("Masukkan jumlah jadwal kuliah: ");

        int n = Integer.parseInt(sc.nextLine());


        String[][] jadwal = new String[n][4];

        int pilihan;

        while (true) {


            System.out.println("\n===== MENU JADWAL KULIAH =====");

            System.out.println("1. Input Jadwal Kuliah");

            System.out.println("2. Tampilkan Semua Jadwal");

            System.out.println("3. Tampilkan Jadwal Berdasarkan Hari");

            System.out.println("4. Tampilkan Jadwal Berdasarkan Mata Kuliah");

            System.out.println("0. Keluar");

            System.out.print("Pilih menu: ");

            pilihan = Integer.parseInt(sc.nextLine());

```java
        switch (pilihan) {
            case 1:
                inputJadwal(jadwal, n);
                break;
            case 2:
                tampilSemua(jadwal, n);
                break;
            case 3:
                tampilHari(jadwal, n);
                break;
            case 4:
                tampilMatkul(jadwal, n);
                break;
            case 0:
                System.out.println("Program selesai.");
                break;
            default:
                System.out.println("Menu tidak valid!");
        }

    }
static Scanner sc = new Scanner(System.in);

static void inputJadwal(String[][] jadwal, int n) {
    for (int i = 0; i < n; i++) {
        System.out.println("\nJadwal ke-" + (i + 1));
        System.out.print("Nama Mata Kuliah : ");
```

```java
            jadwal[i][0] = sc.nextLine();


            System.out.print("Ruang           : ");
            jadwal[i][1] = sc.nextLine();


            System.out.print("Hari Kuliah     : ");
            jadwal[i][2] = sc.nextLine();


            System.out.print("Jam Kuliah      : ");
            jadwal[i][3] = sc.nextLine();
        }
    }


    public static void tampilSemua(String[][] jadwal, int n) {

System.out.println("\n================================================
======================");
        System.out.printf("%-25s %-20s %-15s %-15s%n",
                "Mata Kuliah", "Ruang", "Hari", "Jam");

System.out.println("================================================
====================");


        for (int i = 0; i < n; i++) {
            System.out.printf("%-25s %-20s %-15s %-15s%n",
                    jadwal[i][0],
                    jadwal[i][1],
                    jadwal[i][2],
                    jadwal[i][3]);
        }
```

```java
    }

    public static void tampilHari(String[][] jadwal, int n) {
        System.out.print("Masukkan hari: ");
        String hari = sc.nextLine();
        boolean ketemu = false;

        for (int i = 0; i < n; i++) {
            if (jadwal[i][2].equalsIgnoreCase(hari)) {
                System.out.println("\nDetail Jadwal");
                System.out.println("--------------------------------");
                System.out.printf("%-15s : %s%n", "Mata Kuliah", jadwal[i][0]);
                System.out.printf("%-15s : %s%n", "Ruang", jadwal[i][1]);
                System.out.printf("%-15s : %s%n", "Hari", jadwal[i][2]);
                System.out.printf("%-15s : %s%n", "Jam", jadwal[i][3]);
                ketemu = true;
            }
        }

        if (!ketemu) {
            System.out.println("Tidak ada jadwal pada hari tersebut.");
        }
    }

    public static void tampilMatkul(String[][] jadwal, int n) {
        System.out.print("Masukkan nama mata kuliah: ");
        String matkul = sc.nextLine();
        boolean ketemu = false;
```

```java
        for (int i = 0; i < n; i++) {

            if (jadwal[i][0].equalsIgnoreCase(matkul)) {

                System.out.println("\nDetail Jadwal Mata Kuliah");

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

                System.out.printf("%-15s : %s%n", "Mata Kuliah", jadwal[i][0]);

                System.out.printf("%-15s : %s%n", "Ruang", jadwal[i][1]);

                System.out.printf("%-15s : %s%n", "Hari", jadwal[i][2]);

                System.out.printf("%-15s : %s%n", "Jam", jadwal[i][3]);

                ketemu = true;

                break;

            }

        }


        if (!ketemu) {

            System.out.println("Mata kuliah tidak ditemukan.");

        }

    }

}
```
- Screenshoot hasil

```
Masukkan jumlah jadwal kuliah: 2

===== MENU JADWAL KULIAH =====
1. Input Jadwal Kuliah
2. Tampilkan Semua Jadwal
3. Tampilkan Jadwal Berdasarkan Hari
4. Tampilkan Jadwal Berdasarkan Mata Kuliah
0. Keluar
Pilih menu: 1


Jadwal ke-1
Nama Mata Kuliah : CTPS
Ruang            : RT 01
Hari Kuliah      : Senin
Jam Kuliah       : 9


Jadwal ke-2
Nama Mata Kuliah : Daspro
Ruang            : LPR 1
Hari Kuliah      : Selasa
Jam Kuliah       : 7
```

```
===== MENU JADWAL KULIAH =====
1. Input Jadwal Kuliah
2. Tampilkan Semua Jadwal
3. Tampilkan Jadwal Berdasarkan Hari
4. Tampilkan Jadwal Berdasarkan Mata Kuliah
0. Keluar
Pilih menu: 2


=================================================================
Mata Kuliah             Ruang            Hari         Jam
=================================================================
CTPS                    RT 01            Senin        9
Daspro                  LPR 1            Selasa       7
```

```
===== MENU JADWAL KULIAH =====
1. Input Jadwal Kuliah
2. Tampilkan Semua Jadwal
3. Tampilkan Jadwal Berdasarkan Hari
4. Tampilkan Jadwal Berdasarkan Mata Kuliah
0. Keluar
Pilih menu: 3
Masukkan hari: Senin


Detail Jadwal
----------------------------------
Mata Kuliah      : CTPS
Ruang            : RT 01
Hari             : Senin
Jam              : 9


===== MENU JADWAL KULIAH =====
1. Input Jadwal Kuliah
2. Tampilkan Semua Jadwal
3. Tampilkan Jadwal Berdasarkan Hari
4. Tampilkan Jadwal Berdasarkan Mata Kuliah
0. Keluar
Pilih menu: 4
Masukkan nama mata kuliah: Daspro


Detail Jadwal Mata Kuliah
----------------------------------
Mata Kuliah      : Daspro
Ruang            : LPR 1
Hari             : Selasa
Jam              : 7
```

```
===== MENU JADWAL KULIAH =====
1. Input Jadwal Kuliah
2. Tampilkan Semua Jadwal
3. Tampilkan Jadwal Berdasarkan Hari
4. Tampilkan Jadwal Berdasarkan Mata Kuliah
0. Keluar
Pilih menu: 0
Program selesai.
```