JOBSHEET 1
Konsep Dasar Pemrograman

Disusun oleh:

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POLITEKNIK NEGERI MALANG

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1. Tujuan Praktikum

Setelah melakukan materi praktikum ini, mahasiswa mampu:

1. Mengimplementasikan pemilihan, perulangan, array, dan fungsi dalam kode program Java

2. Praktikum

2.1. Pemilihan

```java
package Jobsheet1.Code;
import java.util.Scanner;
public class PenghitungNilaiMhs {
    Run | Debug
    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        float nilTugas, nilKuis, nilUTS, nilUAS;

        System.out.println("=== PROGRAM MENGHITUNG NILAI AKHIR ===");
        while (true) {
            System.out.print("Masukkan nilai tugas: ");
            nilTugas = sc.nextFloat();
            if (nilTugas < 0 || nilTugas > 100) {
                System.out.println("Nilai tidak valid, Ulangi!");
                continue;
            }
            break;
        }

        while (true) {
            System.out.print("Masukkan nilai kuis: ");
            nilKuis = sc.nextFloat();
            if (nilKuis < 0 || nilKuis > 100) {
                System.out.println("Nilai tidak valid, Ulangi!");
                continue;
            }
            break;
        }

        while (true) {
            System.out.print("Masukkan nilai UTS: ");
            nilUTS = sc.nextFloat();
            if (nilUTS < 0 || nilUTS > 100) {
                System.out.println("Nilai tidak valid, Ulangi!");
                continue;
            }
            break;
        }

        while (true) {
            System.out.print("Masukkan nilai UAS: ");
            nilUAS = sc.nextFloat();
            if (nilUAS < 0 || nilUAS > 100) {
                System.out.println("Nilai tidak valid, Ulangi!");
                continue;
            }
            break;
        }

        double nilAkhir = (0.2 * nilTugas) + (0.2 * nilKuis) + (0.3 * nilUTS) + (0.3 * nilUAS);

        String nilHuruf;
            nilHuruf = (nilAkhir > 80 && nilAkhir <= 100) ? "A" :
                       (nilAkhir > 73 && nilAkhir <= 80) ? "B+" :
                       (nilAkhir > 65 && nilAkhir <= 73) ? "B" :
                       (nilAkhir > 60 && nilAkhir <= 65) ? "C+" :
                       (nilAkhir > 50 && nilAkhir <= 60) ? "C" :
                       (nilAkhir > 39 && nilAkhir <= 50) ? "D" :
                       (nilAkhir >= 0 && nilAkhir <= 39) ? "E" : "Nilai tidak valid";

        String status;
        status = (nilHuruf.equals("A") || nilHuruf.equals("B+") || nilHuruf.equals("B") || nilHuruf.equals("C+") || nilHuruf.equals("C")) ? "SELAMAT ANDA LULUS" : "MOHON MAAF ANDA TIDAK LULUS";

        System.out.println("\n===== HASIL STUDI =====");
        System.out.println("- Nilai akhir: " + nilAkhir);
        System.out.println("- Nilai huruf: " + nilHuruf);
        System.out.println("=======================");
        System.out.println(status);
        System.out.println("=======================");

        sc.close();
    }
}
```

Output:

```
=== PROGRAM MENGHITUNG NILAI AKHIR ===
Masukkan nilai tugas: 90
Masukkan nilai kuis: 40
Masukkan nilai UTS: 75
Masukkan nilai UAS: 85

===== HASIL STUDI =====
- Nilai akhir: 74.0
- Nilai angka: B+
=======================
SELAMAT ANDA LULUS
=======================
PS D:\Kuliah\Sem 2\Praktikum ASD> ^B
```

2.2. Perulangan

```java
package Jobsheet1;
import java.util.Scanner;
public class DeretBilangan {
    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        System.out.println("===== DERET ANGKA =====");
        System.out.print("Masukkan NIM: ");
        long nim = sc.nextLong();

        long nimTerakhir = nim % 100;

        if (nimTerakhir < 10) {
            nimTerakhir += 10;
        }
        System.out.println("n = " + nimTerakhir);
        System.out.println("====================");
        for (int i = 1; i <= nimTerakhir; i++) {
            if (i == 10 || i == 15) {
                continue;
            }
            else if (i % 3 == 0) {
                System.out.print("# ");
            } else if (i % 2 == 0) {
                System.out.print(i + " ");
            } else if (i % 2 == 1) {
                System.out.print("* ");
            }
        }
        System.out.println("\n====================");
        sc.close();
```

Output:

```
===== DERET ANGKA =====
Masukkan NIM: 254172010212
n = 12
====================
* 2 # 4 * # * 8 # * #
PS D:\Kuliah\Sem 2\Praktikum ASD>  d:;
582f571c7f5faa2a232e8153a6901ff\redhat.
===== DERET ANGKA =====
Masukkan NIM: 2541720120
n = 20
====================
* 2 # 4 * # * 8 # * # * 14 16 * # * 20
====================
PS D:\Kuliah\Sem 2\Praktikum ASD>
```

2.3. Array

```java
package Jobsheet1;
import java.util.Scanner;
public class MenghitungIPS {
    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        System.out.println("============================");
        System.out.println("Program Menghitung IP Semester");
        System.out.println("============================");

        System.out.print("Masukkan berapa banyak mata kuliah: ");
        int jmlMatkul = sc.nextInt();
        sc.nextLine();
        String[] namaMatkul = new String[jmlMatkul];
        for (int i = 0; i < namaMatkul.length; i++) {
            System.out.print("- Nama matkul ke " + (i + 1) + ": ");
            namaMatkul[i] = sc.nextLine();
        }

        System.out.println("Masukkan nilai mata kuliah: ");
        float[] nilaiMatkul = new float[jmlMatkul];
        for (int i = 0; i < nilaiMatkul.length; i++) {
            System.out.print("- Nilai angka untuk MK " + namaMatkul[i] + ": ");
            nilaiMatkul[i] = sc.nextInt();
        }

        System.out.println("Masukkan SKS mata kuliah: ");
        int[] sksMatkul = new int[jmlMatkul];
        for (int i = 0; i < sksMatkul.length; i++) {
            System.out.print("- SKS untuk MK " + namaMatkul[i] + ": ");
            sksMatkul[i] = sc.nextInt();
        }
```

```java
        String[] nilHuruf = new String[jmlMatkul];
        for (int i = 0; i < nilaiMatkul.length; i++) {
            nilHuruf[i] = (nilaiMatkul[i] > 80 && nilaiMatkul[i] <= 100) ? "A" :
                          (nilaiMatkul[i] > 73 && nilaiMatkul[i] <= 80) ? "B+" :
                          (nilaiMatkul[i] > 65 && nilaiMatkul[i] <= 73) ? "B" :
                          (nilaiMatkul[i] > 60 && nilaiMatkul[i] <= 65) ? "C+" :
                          (nilaiMatkul[i] > 50 && nilaiMatkul[i] <= 60) ? "C" :
                          (nilaiMatkul[i] > 39 && nilaiMatkul[i] <= 50) ? "D" :
                          (nilaiMatkul[i] >= 0 && nilaiMatkul[i] <= 39) ? "E" : "Nilai tidak valid";
        }

        double[] bobotNilai = new double[jmlMatkul];
        for (int i = 0; i < nilHuruf.length; i++) {
            bobotNilai[i] = (nilHuruf[i].equals(anObject: "A")) ? 4 :
                            (nilHuruf[i].equals(anObject: "B+")) ? 3.5 :
                            (nilHuruf[i].equals(anObject: "B")) ? 3 :
                            (nilHuruf[i].equals(anObject: "C+")) ? 2.5 :
                            (nilHuruf[i].equals(anObject: "C")) ? 2 :
                            (nilHuruf[i].equals(anObject: "D")) ? 1 : 0;
        }

        System.out.println(x: "==================");
        System.out.println(x: "Hasil Konversi Nilai");
        System.out.println(x: "==================");

        String format = "%-20s | %-11.2f | %-11s | %-10d | %-11.2f%n";
        float totalBobotNil = 0, totalSKS = 0;

        System.out.printf(format: "%-20s | %-10s | %-10s | %-10s%n", ...args: "Mata kuliah", "Nilai Angka", "Nilai Huruf", "SKS", "Bobot Nilai");
        for (int i = 0; i < namaMatkul.length; i++) {
            System.out.printf(format, namaMatkul[i], nilaiMatkul[i], nilHuruf[i], sksMatkul[i], bobotNilai[i]);
            totalBobotNil += bobotNilai[i] * sksMatkul[i];
            totalSKS += sksMatkul[i];
        }

        float ip = totalBobotNil / totalSKS;
        System.out.println(x: "==================");
        System.out.println("IP : " + ip);
        sc.close();
```

Output:

```
============================
Program Menghitung IP Semester
============================
Masukkan berapa banyak mata kuliah: 2
- Nama matkul ke 1: Pancasila
- Nama matkul ke 2: K3
Masukkan nilai mata kuliah:
- Nilai angka untuk MK Pancasila: 90
- Nilai angka untuk MK K3: 80
Masukkan SKS mata kuliah:
- SKS untuk MK Pancasila: 2
- SKS untuk MK K3: 3
==================
Hasil Konversi Nilai
==================
Mata kuliah          | Nilai Angka | Nilai Huruf | SKS         | Bobot Nilai
Pancasila            | 90,00       | A           | 2           | 4,00
K3                   | 80,00       | B+          | 3           | 3,50
==================
IP : 3.7
PS D:\Kuliah\Sem 2\Praktikum ASD>
```

2.4. Fungsi

```java
package Jobsheet1.Code;

public class TokoBunga {
    static int[][] stokToko = {{10, 5, 15, 7},
                               {6, 11, 9, 12},
                               {2, 10, 10, 5},
                               {5, 7, 12, 9}
                              };
    static String[] namaToko = {"RoyalGarden1", "RoyalGarden2", "RoyalGarden3", "RoyalGarden4"};
    static int[] hargaBunga = {75000, 50000, 60000, 10000};
    static int[] totalPendapatanTiapToko = new int[4];

    public static void totalPendapatan() {
        for (int i = 0; i < stokToko.length; i++) {
            int total = 0;
            for (int j = 0; j < stokToko[i].length; j++) {
                total += stokToko[i][j] * hargaBunga[j];
            }
            totalPendapatanTiapToko[i] = total;
        }
    }

    Run | Debug
    public static void main(String[] args) {
        System.out.println(x: "============== TOKO BUNGA ==============");
        System.out.printf(format: "%-15s %-10s %-10s %-10s %-10s%n", ...args: "", "Aglonema", "Keladi", "Alocasia", "Mawar");
        for (int i= 0; i < stokToko.length; i++) {
            System.out.printf(format: "%-15s %-10d %-10d %-10d %-10d%n", namaToko[i], stokToko[0][i], stokToko[1][i], stokToko[2][i], stokToko[3][i]);
        }
        System.out.println(x: "\n=======");
        System.out.println(x: "Status");
        System.out.println(x: "=======");

        String status;
        for (int i = 0; i < stokToko.length; i++) {
            totalPendapatan();
            if (totalPendapatanTiapToko[i] > 1500000) {
                status = "Sangat Baik";
            } else {
                status = "Perlu Evaluasi";
            }
            System.out.println("Total pendapatan dari toko " + namaToko[i] + ": Rp. " + totalPendapatanTiapToko[i]);
            System.out.println("Status " + namaToko[i] + ": " + status);
        }
        System.out.println(x: "====================================");
    }
}
```

Output:

```
============== TOKO BUNGA ==============
               Aglonema   Keladi     Alocasia   Mawar
RoyalGarden1   10         6          2          5
RoyalGarden2   5          11         10         7
RoyalGarden3   15         9          10         12
RoyalGarden4   7          12         5          9

=======
Status
=======
Total pendapatan dari toko RoyalGarden1: Rp. 1970000
Status RoyalGarden1: Sangat Baik
Total pendapatan dari toko RoyalGarden2: Rp. 1660000
Status RoyalGarden2: Sangat Baik
Total pendapatan dari toko RoyalGarden3: Rp. 1300000
Status RoyalGarden3: Perlu Evaluasi
Total pendapatan dari toko RoyalGarden4: Rp. 1535000
Status RoyalGarden4: Sangat Baik
====================================
PS D:\Kuliah\Sem 2\Praktikum ASD>
```

3. Tugas

3.1. Tugas 1:

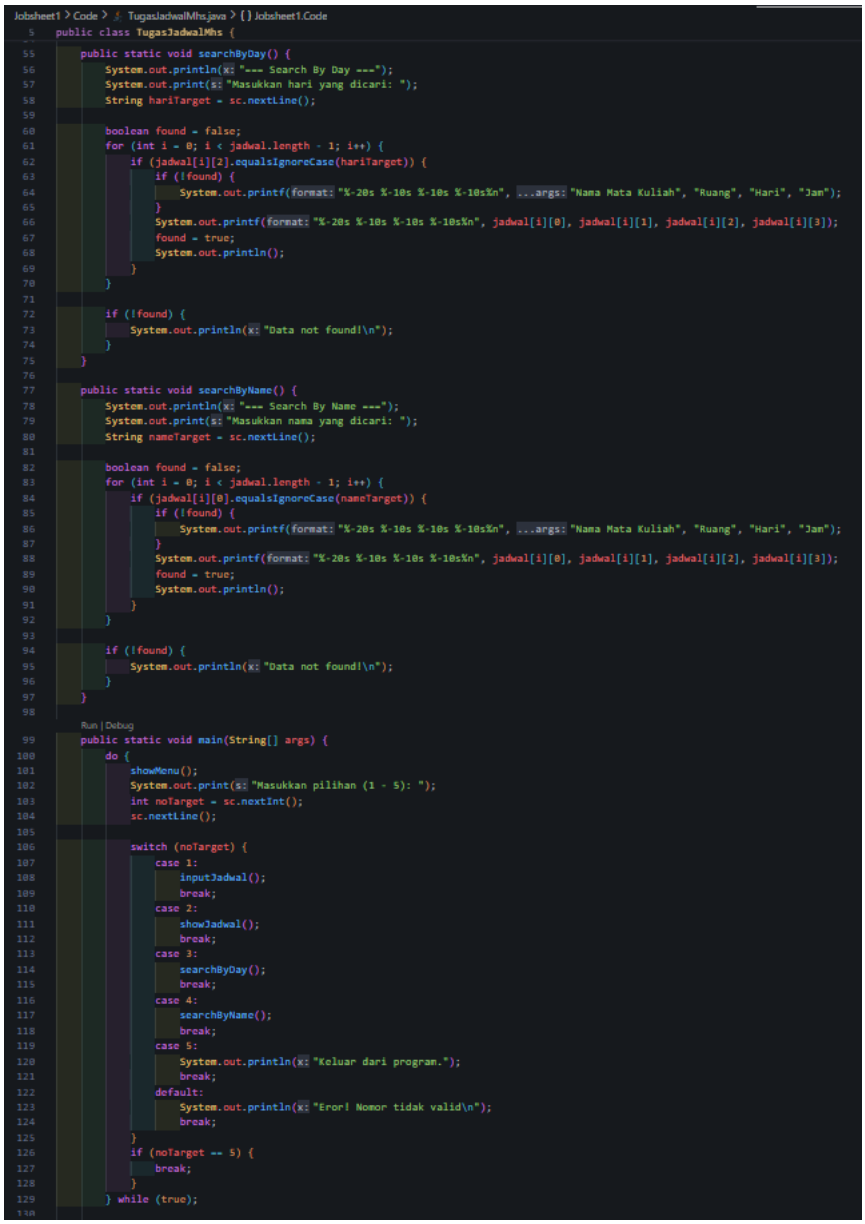
```java
package Jobsheet1;
import java.util.Scanner;
public class TugasPlatNomor {
    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        char[] KODE = { 'A', 'B', 'D', 'E', 'F', 'G', 'H', 'L', 'N', 'T' };
        char[][] KOTA = {
                { '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' },
                { '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' }
        };

        System.out.println(x: "===== SISTEM PENCARI KOTA BERDASARKAN PLAT NOMOR =====");
        System.out.print(s: "Masukkan plat nomor: ");
        char platTarget = sc.next().charAt(index: 0);
        char platTargetUpper = Character.toUpperCase(platTarget);

        int index = 0;
        for (int i = 0; i < KODE.length; i++) {
            if (platTargetUpper == KODE[i]) {
                index = i;
            }
        }

        System.out.print(s: "Kota dari plat tersebut: ");
        System.out.println(KOTA[index]);

        sc.close();
    }
}
```

Output:

```
===== SISTEM PENCARI KOTA BERDASARKAN PLAT NOMOR =====
Masukkan plat nomor: B
Kota dari plat tersebut: JAKARTA
PS D:\Kuliah\Sem 2\Praktikum ASD>
```

3.2. Tugas 2:

```java
package Jobsheet1.Code;

import java.util.Scanner;

public class TugasJadwalMhs {
    static Scanner sc = new Scanner(System.in);
    static String[][] jadwal = new String[1][4];

    public static void showMenu() {
        System.out.println(x: "===== MANAJEMEN JADWAL MHS =====");
        System.out.println(x: "1. Input data jadwal kuliah");
        System.out.println(x: "2. Tampilkan jadwal kuliah");
        System.out.println(x: "3. Search jadwal berdasarkan hari");
        System.out.println(x: "4. Search jadwal berdasarkan nama");
        System.out.println(x: "5. Keluar");
        System.out.println(x: "==============================");
    }

    public static void inputJadwal() {
        String[][] tempJadwal = new String[1][4];
        jadwal = new String[1 + 1][4];

        System.out.println(x: "=== Input Jadwal ===");
        System.out.print(s: "Masukkan nama mata kuliah:  ");
        tempJadwal[0][0] = sc.nextLine();
        System.out.print(s: "Masukkan nama ruang: ");
        tempJadwal[0][1] = sc.nextLine();
        System.out.print(s: "Masukkan hari: ");
        tempJadwal[0][2] = sc.nextLine();
        System.out.print(s: "Masukkan jam: ");
        tempJadwal[0][3] = sc.nextLine();

        for (int i = 0; i < tempJadwal.length; i++) {
            for (int j = 0; j < 4; j++) {
                jadwal[i][j] = tempJadwal[i][j];
            }
        }

        System.out.println(x: "Input Success\n");
    }

    public static void showJadwal() {
        if (jadwal[0][0] != null) {
            System.out.println(x: "=== Show Jadwal ===");
            System.out.printf(format: "%-20s %-10s %-10s %-10s%n", ...args: "Nama Mata Kuliah", "Ruang", "Hari", "Jam");
            for (int i = 0; i < jadwal.length - 1; i++) {
                System.out.printf(format: "%-20s %-10s %-10s %-10s%n", jadwal[i][0], jadwal[i][1], jadwal[i][2], jadwal[i][3]);
            }
            System.out.println();
        } else {
            System.out.println(x: "Data Not Available!\n");
        }
    }
```


Jobsheet1 > Code > TugasJadwalMhs.java > { } Jobsheet1.Code
public class TugasJadwalMhs {
public static void searchByDay() {
System.out.println(x: "=== Search By Day ===");
System.out.print(s: "Masukkan hari yang dicari: ");
String hariTarget = sc.nextLine();
boolean found = false;
for (int i = 0; i < jadwal.length - 1; i++) {
if (jadwal[i][2].equalsIgnoreCase(hariTarget)) {
if (!found) {
System.out.printf(format: "%-20s %-10s %-10s %-10s%n", ...args: "Nama Mata Kuliah", "Ruang", "Hari", "Jam");
}
System.out.printf(format: "%-20s %-10s %-10s %-10s%n", jadwal[i][0], jadwal[i][1], jadwal[i][2], jadwal[i][3]);
found = true;
System.out.println();
}
}
if (!found) {
System.out.println(x: "Data not found!\n");
}
}
public static void searchByName() {
System.out.println(x: "=== Search By Name ===");
System.out.print(s: "Masukkan nama yang dicari: ");
String nameTarget = sc.nextLine();
boolean found = false;
for (int i = 0; i < jadwal.length - 1; i++) {
if (jadwal[i][0].equalsIgnoreCase(nameTarget)) {
if (!found) {
System.out.printf(format: "%-20s %-10s %-10s %-10s%n", ...args: "Nama Mata Kuliah", "Ruang", "Hari", "Jam");
}
System.out.printf(format: "%-20s %-10s %-10s %-10s%n", jadwal[i][0], jadwal[i][1], jadwal[i][2], jadwal[i][3]);
found = true;
System.out.println();
}
}
if (!found) {
System.out.println(x: "Data not found!\n");
}
}
Run | Debug
public static void main(String[] args) {
do {
showMenu();
System.out.print(s: "Masukkan pilihan (1 - 5): ");
int noTarget = sc.nextInt();
sc.nextLine();
switch (noTarget) {
case 1:
inputJadwal();
break;
case 2:
showJadwal();
break;
case 3:
searchByDay();
break;
case 4:
searchByName();
break;
case 5:
System.out.println(x: "Keluar dari program.");
break;
default:
System.out.println(x: "Eror! Nomor tidak valid\n");
break;
}
if (noTarget == 5) {
break;
}
} while (true);

Output:

```
===== MANAJEMEN JADWAL MHS =====
1. Input data jadwal kuliah
2. Tampilkan jadwal kuliah
3. Search jadwal berdasarkan hari
4. Search jadwal berdasarkan nama
5. Keluar
==============================
Masukkan pilihan (1 - 5): 1
=== Input Jadwal ===
Masukkan nama mata kuliah:  K3
Masukkan nama ruang: LPR 2
Masukkan hari: Senin
Masukkan jam: 12.00 - 14.00
Input Success

===== MANAJEMEN JADWAL MHS =====
1. Input data jadwal kuliah
2. Tampilkan jadwal kuliah
3. Search jadwal berdasarkan hari
4. Search jadwal berdasarkan nama
5. Keluar
==============================
Masukkan pilihan (1 - 5): 2
=== Show Jadwal ===
Nama Mata Kuliah     Ruang      Hari       Jam
K3                   LPR 2      Senin      12.00 - 14.00

===== MANAJEMEN JADWAL MHS =====
1. Input data jadwal kuliah
2. Tampilkan jadwal kuliah
3. Search jadwal berdasarkan hari
4. Search jadwal berdasarkan nama
5. Keluar
==============================
Masukkan pilihan (1 - 5): 3
=== Search By Day ===
Masukkan hari yang dicari: senin
Nama Mata Kuliah     Ruang      Hari       Jam
K3                   LPR 2      Senin      12.00 - 14.00

===== MANAJEMEN JADWAL MHS =====
1. Input data jadwal kuliah
2. Tampilkan jadwal kuliah
3. Search jadwal berdasarkan hari
4. Search jadwal berdasarkan nama
5. Keluar
==============================
Masukkan pilihan (1 - 5): 4
=== Search By Name ===
Masukkan nama yang dicari: k3
Nama Mata Kuliah     Ruang      Hari       Jam
K3                   LPR 2      Senin      12.00 - 14.00

===== MANAJEMEN JADWAL MHS =====
1. Input data jadwal kuliah
2. Tampilkan jadwal kuliah
3. Search jadwal berdasarkan hari
4. Search jadwal berdasarkan nama
5. Keluar
==============================
Masukkan pilihan (1 - 5): 3
=== Search By Day ===
Masukkan hari yang dicari: k2
Data not found!
```