LAPORAN TUGAS PRAKTIKUM ALGORITMA STRUKTUR DATA WEEK 1

`

NAMA : RADITYA RIEFKI

NIM : 244107020204

KELAS : T1 1E

JOBSHEET 1

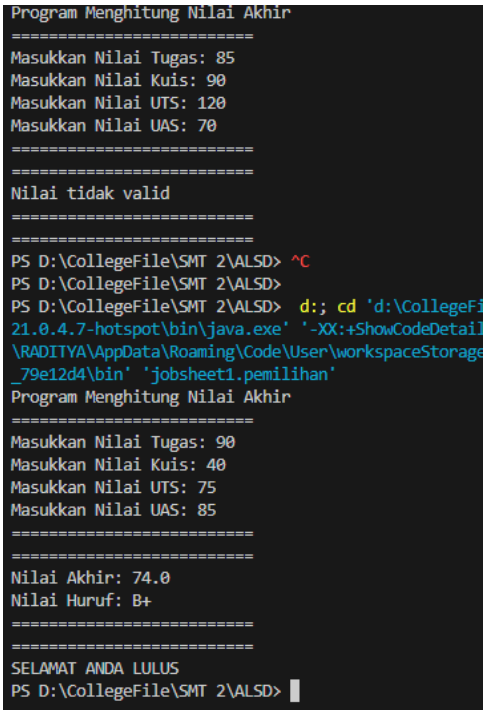
1. Pemilihan

Kode Program

```
package jobsheet1;
import java.util.Scanner;

public class pemilihan {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.println("Program Menghitung Nilai Akhir");
        System.out.println("==========================");
        System.out.print("Masukkan Nilai Tugas: ");
        double tugas = scanner.nextDouble();
        System.out.print("Masukkan Nilai Kuis: ");
        double kuis = scanner.nextDouble();
        System.out.print("Masukkan Nilai UTS: ");
        double uts = scanner.nextDouble();
        System.out.print("Masukkan Nilai UAS: ");
        double uas = scanner.nextDouble();


        if (!isValid(tugas) || !isValid(kuis) || !isValid(uts) ||
!isValid(uas)) {
            System.out.println("Nilai tidak valid");
        } else {

            double nilaiAkhir = (0.2 * tugas) + (0.2 * kuis) + (0.3 * uts) +
(0.3 * uas);


            String nilaiHuruf = getNilaiHuruf(nilaiAkhir);


            String status = (nilaiHuruf.equals("D") ||
nilaiHuruf.equals("E")) ? "TIDAK LULUS" : "LULUS";

            System.out.println("==========================");
            System.out.println("==========================");
            System.out.println("Nilai Akhir: " + nilaiAkhir);
            System.out.println("Nilai Huruf: " + nilaiHuruf);
            System.out.println("==========================");
            System.out.println("==========================");
            System.out.println("SELAMAT ANDA " + status);
        }

    }
```

```
    private static boolean isValid(double nilai) {
        return nilai >= 0 && nilai <= 100;
    }

    private static String getNilaiHuruf(double nilai) {
        if (nilai > 80) return "A";
        else if (nilai > 73) return "B+";
        else if (nilai > 65) return "B";
        else if (nilai > 60) return "C+";
        else if (nilai > 50) return "C";
        else if (nilai > 39) return "D";
        else return "E";
    }
}
```

OUTPUT



2. Perulangan

```
package jobsheet1;
import java.util.Scanner;
public class perulangan {
     public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Masukkan NIM: ");
        String nim = input.nextLine();
        String duaDigitTerakhir = nim.substring(nim.length() - 2);
        int n = Integer.parseInt(duaDigitTerakhir);

        if (n < 10) {
            n = n + 10;
        }

        System.out.println("n : " + n);
        for (int i = 1; i <= n; i++) {
            if (i == 6 || i == 10) {
                continue;
            }
            if (i % 2 == 0) {
                System.out.print(i + " ");
            } else {
                System.out.print("* ");
            }
        }
    }
}
```

OUTPUT

```
Masukkan NIM: 244107020204
n : 14
* 2 * 4 * * 8 * * 12 * 14
PS D:\CollegeFile\SMT 2\ALSD>
```

3. Array

Kode Program

```
package jobsheet1;

import java.util.Scanner;
public class Array {
    static Scanner sc = new Scanner(System.in);
    public static void main(String[] args) {
        String[] mk = {"Pancasila", "Konsep Teknologi Informasi","Critical
Thinking Problem Solving", "Matematika Dasar", "Bahasa Inggris", "Dasar
Pemrograman", "Praktikum Dasar Pemrograman", "Keselamatan dan Kesehatan
Kerja"};
        System.out.println("================================");
        System.out.println("Program Menghitung  IP Semester");
        System.out.println("================================");
        double[] nilai = new double[mk.length];
        double[] bobotNilai = new double[mk.length];
        for (int i = 0; i < mk.length; i++) {
            System.out.print("Masukkan nilai Angka untuk MK " + mk[i] + " :
");
            nilai[i] = sc.nextDouble();
        }
        System.out.println("====================");
        System.out.println("Hasil Konversi Nilai");
        System.out.println("====================");
        System.out.printf("%-40s %-12s %-12s %-12s\n", "MK", "Nilai Angka",
"Nilai Huruf", "Bobot Nilai");
        double totalBobot = 0;
        int totalSKS = mk.length;
        for (int i = 0; i < mk.length; i++) {
            String nilaiHuruf = "";
            if (nilai[i] > 80 && nilai[i] <= 100) {
                nilaiHuruf = "A";
                bobotNilai[i] = 4.0;
            } else if (nilai[i] > 73 && nilai[i] <= 80) {
                nilaiHuruf = "B+";
                bobotNilai[i] = 3.5;
            } else if (nilai[i] > 65 && nilai[i] <= 73) {
                nilaiHuruf = "B";
                bobotNilai[i] = 3.0;
            } else if (nilai[i] > 60 && nilai[i] <= 65) {
                nilaiHuruf = "C+";
                bobotNilai[i] = 2.5;
            } else if (nilai[i] > 50 && nilai[i] <=60) {
                nilaiHuruf = "C";
                bobotNilai[i] = 2.0;
            } else if (nilai[i] > 39 && nilai[i] <=50){
                nilaiHuruf = "D";
                bobotNilai[i] = 1.0;
            }else {
                nilaiHuruf = "E";
                bobotNilai[i] = 0.0;
```

```
            }
            totalBobot += bobotNilai[i];

            System.out.printf("%-40s %-12.2f %-12s %-12.2f\n", mk[i],
nilai[i], nilaiHuruf, bobotNilai[i]);
        }
        System.out.println("===========");
        System.out.println("IP SEMESTER");
        System.out.println("===========");
        double ipSemester = totalBobot / 8;
        System.out.printf("IP Semester : %.2f\n", ipSemester);

    }
}
```

OUTPUT

```
============================
Program Menghitung  IP Semester
============================
Masukkan nilai Angka untuk MK Pancasila : 75
Masukkan nilai Angka untuk MK Konsep Teknologi Informasi : 85
Masukkan nilai Angka untuk MK Critical Thinking Problem Solving : 70
Masukkan nilai Angka untuk MK Matematika Dasar : 85
Masukkan nilai Angka untuk MK Bahasa Inggris : 85
Masukkan nilai Angka untuk MK Dasar Pemrograman : 62
Masukkan nilai Angka untuk MK Praktikum Dasar Pemrograman : 62
Masukkan nilai Angka untuk MK Keselamatan dan Kesehatan Kerja : 85
==================
Hasil Konversi Nilai
==================
         4.00
Bahasa Inggris                          85.00       A           4.00
Dasar Pemrograman                       62.00       C+          2.50
Praktikum Dasar Pemrograman             62.00       C+          2.50
Keselamatan dan Kesehatan Kerja         85.00       A           4.00
===========
IP SEMESTER
===========
IP Semester : 3.44
PS D:\CollegeFile\SMT 2\ALSD>
```

4. Fungsi

Kode Program

```
package jobsheet1;
import java.util.Scanner;
public class fungsi {
    static int[][] stockBunga = {
        {10, 5, 15, 7},
        {6, 11, 9, 12},
        {2, 10, 10, 5},
        {5, 7, 12, 9}
    };

    static int[] hargaBunga = {75000, 50000, 60000, 10000};

    public static void hitungPendapatan() {
        System.out.println("=== Pendapatan Tiap Cabang ===");
        for (int i = 0; i < stockBunga.length; i++) {
            int pendapatan = 0;
            for (int j = 0; j < stockBunga[i].length; j++) {
                pendapatan += stockBunga[i][j] * hargaBunga[j];
            }
            System.out.println("RoyalGarden " + (i + 1) + ": Rp " +
pendapatan);
        }
    }

    public static void tampilkanStok() {
        String[] namaBunga = {"Aglonema", "Keladi", "Alocasia", "Mawar"};
        System.out.println("=== Stok Bunga Tiap Jenis ===");
        for (int i = 0; i < namaBunga.length; i++) {
            int totalStok = 0;
            for (int j = 0; j < stockBunga.length; j++) {
                totalStok += stockBunga[j][i];
            }
            System.out.println(namaBunga[i] + ": " + totalStok);
        }
    }

    public static void kurangiStok() {
        int[] bungaMati = {-1, -2, 0, -5};
        for (int i = 0; i < stockBunga.length; i++) {
            for (int j = 0; j < stockBunga[i].length; j++) {
                stockBunga[i][j] += bungaMati[j];
            }
        }
    }

    public static void main(String[] args) {
        hitungPendapatan();
        tampilkanStok();
        System.out.println("=== Mengurangi stok karena bunga mati ===");
        kurangiStok();
```

```
            tampilkanStok();
        }
    }
```

OUTPUT

```
=== Pendapatan Tiap Cabang ===
RoyalGarden 1: Rp 1970000
RoyalGarden 2: Rp 1660000
RoyalGarden 3: Rp 1300000
RoyalGarden 4: Rp 1535000
=== Stok Bunga Tiap Jenis ===
Aglonema: 23
Keladi: 33
Alocasia: 46
Mawar: 33
=== Mengurangi stok karena bunga mati ===
=== Stok Bunga Tiap Jenis ===
Aglonema: 19
Keladi: 25
Alocasia: 46
Mawar: 13
PS D:\CollegeFile\SMT 2\ALSD>
```

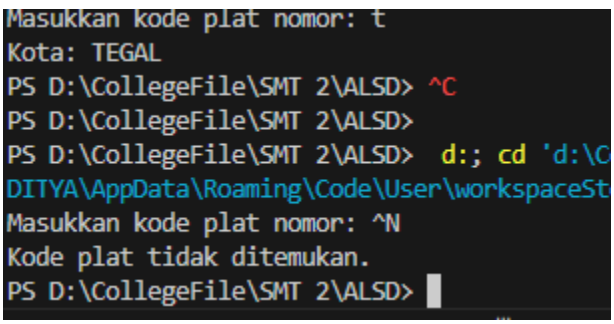
TUGAS

1. PLAT NOMOR

Kode Program

```
package jobsheet1;
import java.util.Scanner;
public class platnomer {

    public static void main(String[] args) {

        char[] KODE = {'A', 'B', 'D', 'E', 'F', 'G', 'H', 'L', 'N', 'T'};

        String[] KOTA = {
            "BANTEN", "JAKARTA", "BANDUNG", "CIREBON", "BOGOR",
            "PEKALONGAN", "SEMARANG", "SURABAYA", "MALANG", "TEGAL"
        };

        Scanner scanner = new Scanner(System.in);
        System.out.print("Masukkan kode plat nomor: ");
        char inputKode = scanner.next().toUpperCase().charAt(0);

        boolean ditemukan = false;
        for (int i = 0; i < KODE.length; i++) {
            if (KODE[i] == inputKode) {
                System.out.println("Kota: " + KOTA[i]);
                ditemukan = true;
                break;
            }
        }

        if (!ditemukan) {
            System.out.println("Kode plat tidak ditemukan.");
        }

    }
}
```

OUTPUT



2. Volume Kubus

Kode Program

```
package jobsheet1;
import java.util.Scanner;

public class kubus {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int pilihan;

        do {
            System.out.println("\n=== MENU PERHITUNGAN KUBUS ===");
            System.out.println("1. Hitung Volume Kubus");
            System.out.println("2. Hitung Luas Permukaan Kubus");
            System.out.println("3. Hitung Keliling Kubus");
            System.out.println("4. Keluar");
            System.out.print("Pilih menu (1-4): ");
            pilihan = scanner.nextInt();

            if (pilihan >= 1 && pilihan <= 3) {
                System.out.print("Masukkan panjang sisi kubus: ");
                double sisi = scanner.nextDouble();

                switch (pilihan) {
                    case 1:
                        System.out.println("Volume Kubus: " +
hitungVolume(sisi));
                        break;
                    case 2:
                        System.out.println("Luas Permukaan Kubus: " +
hitungLuasPermukaan(sisi));
                        break;
                    case 3:
                        System.out.println("Keliling Kubus: " +
hitungKeliling(sisi));
                        break;
                }
            } else if (pilihan != 4) {
                System.out.println("Pilihan tidak valid. Silakan coba
lagi.");
            }

        } while (pilihan != 4);

        System.out.println("Program selesai.");
    }

    public static double hitungVolume(double sisi) {
        return sisi * sisi * sisi;
    }

    public static double hitungLuasPermukaan(double sisi) {
```

```
        return 6 * sisi * sisi;
    }

    public static double hitungKeliling(double sisi) {
        return 12 * sisi;
    }
}
```

OUTPUT

```
=== MENU PERHITUNGAN KUBUS ===
1. Hitung Volume Kubus
2. Hitung Luas Permukaan Kubus
3. Hitung Keliling Kubus
4. Keluar
Pilih menu (1-4): 1
Masukkan panjang sisi kubus: 4
Volume Kubus: 64.0

=== MENU PERHITUNGAN KUBUS ===
1. Hitung Volume Kubus
2. Hitung Luas Permukaan Kubus
3. Hitung Keliling Kubus
4. Keluar
Pilih menu (1-4): 2
Masukkan panjang sisi kubus: 5
Luas Permukaan Kubus: 150.0

=== MENU PERHITUNGAN KUBUS ===
1. Hitung Volume Kubus
2. Hitung Luas Permukaan Kubus
3. Hitung Keliling Kubus
4. Keluar
Pilih menu (1-4): 3
Masukkan panjang sisi kubus: 6
Keliling Kubus: 72.0

=== MENU PERHITUNGAN KUBUS ===
1. Hitung Volume Kubus
2. Hitung Luas Permukaan Kubus
3. Hitung Keliling Kubus
4. Keluar
Pilih menu (1-4): 4
Program selesai.
PS D:\CollegeFile\SMT 2\ALSD>
```

3. JADWAL KULIAH

Kode Program

```
package jobsheet1;
import java.util.Scanner;

public class mataKuliah {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Masukkan jumlah mata kuliah: ");
        int n = scanner.nextInt();
        scanner.nextLine();


        String[] namaMataKuliah = new String[n];
        int[] sks = new int[n];
        int[] semester = new int[n];
        String[] hariKuliah = new String[n];


        for (int i = 0; i < n; i++) {
            System.out.println("\nMasukkan data untuk mata kuliah ke-" + (i
+ 1));
            System.out.print("Nama Mata Kuliah: ");
            namaMataKuliah[i] = scanner.nextLine();
            System.out.print("SKS: ");
            sks[i] = scanner.nextInt();
            System.out.print("Semester: ");
            semester[i] = scanner.nextInt();
            scanner.nextLine();
            System.out.print("Hari Kuliah: ");
            hariKuliah[i] = scanner.nextLine();
        }

        int pilihan;
        do {

            System.out.println("\n=== MENU JADWAL KULIAH ===");
            System.out.println("1. Tampilkan Seluruh Jadwal Kuliah");
            System.out.println("2. Tampilkan Jadwal Berdasarkan Hari");
            System.out.println("3. Tampilkan Jadwal Berdasarkan Semester");
            System.out.println("4. Cari Mata Kuliah");
            System.out.println("5. Keluar");
            System.out.print("Pilih menu (1-5): ");
            pilihan = scanner.nextInt();
            scanner.nextLine();

            switch (pilihan) {
                case 1:
```

```
                    tampilkanSeluruhJadwal(namaMataKuliah, sks, semester,
hariKuliah);
                    break;
                case 2:
                    System.out.print("Masukkan hari kuliah yang dicari: ");
                    String hari = scanner.nextLine();
                    tampilkanJadwalBerdasarkanHari(namaMataKuliah, sks,
semester, hariKuliah, hari);
                    break;
                case 3:
                    System.out.print("Masukkan semester yang dicari: ");
                    int sem = scanner.nextInt();
                    tampilkanJadwalBerdasarkanSemester(namaMataKuliah, sks,
semester, hariKuliah, sem);
                    break;
                case 4:
                    System.out.print("Masukkan nama mata kuliah yang dicari:
");
                    String mataKuliah = scanner.nextLine();
                    cariMataKuliah(namaMataKuliah, sks, semester,
hariKuliah, mataKuliah);
                    break;
                case 5:
                    System.out.println("Program selesai.");
                    break;
                default:
                    System.out.println("Pilihan tidak valid, silakan coba
lagi.");
            }
        } while (pilihan != 5);

    }


    public static void tampilkanSeluruhJadwal(String[] nama, int[] sks,
int[] semester, String[] hari) {
        System.out.println("\n=== SELURUH JADWAL KULIAH ===");
        for (int i = 0; i < nama.length; i++) {
            System.out.println(nama[i] + " | SKS: " + sks[i] + " | Semester:
" + semester[i] + " | Hari: " + hari[i]);
        }
    }


    public static void tampilkanJadwalBerdasarkanHari(String[] nama, int[]
sks, int[] semester, String[] hari, String cariHari) {
        System.out.println("\n=== JADWAL KULIAH HARI " +
cariHari.toUpperCase() + " ===");
        boolean found = false;
        for (int i = 0; i < nama.length; i++) {
            if (hari[i].equalsIgnoreCase(cariHari)) {
                System.out.println(nama[i] + " | SKS: " + sks[i] + " |
Semester: " + semester[i]);
                found = true;
```

```
            }
        }
        if (!found) {
            System.out.println("Tidak ada mata kuliah di hari " + cariHari);
        }
    }


    public static void tampilkanJadwalBerdasarkanSemester(String[] nama,
int[] sks, int[] semester, String[] hari, int cariSemester) {
        System.out.println("\n=== JADWAL KULIAH SEMESTER " + cariSemester +
" ===");
        boolean found = false;
        for (int i = 0; i < nama.length; i++) {
            if (semester[i] == cariSemester) {
                System.out.println(nama[i] + " | SKS: " + sks[i] + " | Hari:
" + hari[i]);
                found = true;
            }
        }
        if (!found) {
            System.out.println("Tidak ada mata kuliah di semester " +
cariSemester);
        }
    }


    public static void cariMataKuliah(String[] nama, int[] sks, int[]
semester, String[] hari, String cariNama) {
        System.out.println("\n=== PENCARIAN MATA KULIAH: " +
cariNama.toUpperCase() + " ===");
        boolean found = false;
        for (int i = 0; i < nama.length; i++) {
            if (nama[i].equalsIgnoreCase(cariNama)) {
                System.out.println(nama[i] + " | SKS: " + sks[i] + " |
Semester: " + semester[i] + " | Hari: " + hari[i]);
                found = true;
            }
        }
        if (!found) {
            System.out.println("Mata kuliah " + cariNama + " tidak
ditemukan.");
        }
    }
}
```

OUTPUT

```
=== MENU JADWAL KULIAH ===
1. Tampilkan Seluruh Jadwal Kuliah
2. Tampilkan Jadwal Berdasarkan Hari
3. Tampilkan Jadwal Berdasarkan Semester
4. Cari Mata Kuliah
5. Keluar
Pilih menu (1-5): 2
Masukkan hari kuliah yang dicari: senin

=== JADWAL KULIAH HARI SENIN ===
rpl | SKS: 2 | Semester: 1

=== MENU JADWAL KULIAH ===
1. Tampilkan Seluruh Jadwal Kuliah
2. Tampilkan Jadwal Berdasarkan Hari
3. Tampilkan Jadwal Berdasarkan Semester
4. Cari Mata Kuliah
5. Keluar
Pilih menu (1-5): 3
Masukkan semester yang dicari: 2

=== JADWAL KULIAH SEMESTER 2 ===
pkn | SKS: 2 | Hari: selasa

=== MENU JADWAL KULIAH ===
1. Tampilkan Seluruh Jadwal Kuliah
2. Tampilkan Jadwal Berdasarkan Hari
3. Tampilkan Jadwal Berdasarkan Semester
4. Cari Mata Kuliah
5. Keluar
Pilih menu (1-5): 4
Masukkan nama mata kuliah yang dicari: pkn

=== PENCARIAN MATA KULIAH: PKN ===
pkn | SKS: 2 | Semester: 2 | Hari: selasa

=== MENU JADWAL KULIAH ===
1. Tampilkan Seluruh Jadwal Kuliah
2. Tampilkan Jadwal Berdasarkan Hari
3. Tampilkan Jadwal Berdasarkan Semester
4. Cari Mata Kuliah
5. Keluar
Pilih menu (1-5): 5
Program selesai.
PS D:\CollegeFile\SMT 2\ALSD>
```