LAPORAN HASIL PRATIKUM

ALGORITMA DAN STRUKTUR DATA

JOBSHEET 1

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Kelas: TI-1E

D-IV TEKNIK INFORMATIKA

JURUSAN TEKNOLOGI INFORMASI

PRAKTIKUM 24

1. **Pemilihan**
    - **Code program**

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

public class pemilihanRaihan {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        double tugas, kuis, uts, uas, nilaiAkhir;
        String nilaiHuruf, status;

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

        System.out.println("================================");
        if (tugas < 0 || tugas > 100 || kuis < 0 || kuis > 100 || uts < 0 ||
uts > 100 || uas < 0 || uas > 100) {
            System.out.println("\nNilai tidak valid\n");
        } else {
            nilaiAkhir = (0.2 * tugas) + (0.2 * kuis) + (0.3 * uts) + (0.3 *
uas);

            if (nilaiAkhir >= 80) {
                nilaiHuruf = "A";
                status = "LULUS";
            } else if (nilaiAkhir >= 73) {
                nilaiHuruf = "B+";
                status = "LULUS";
            } else if (nilaiAkhir >= 65) {
                nilaiHuruf = "B";
                status = "LULUS";
            } else if (nilaiAkhir >= 60) {
                nilaiHuruf = "C+";
                status = "LULUS";
            } else if (nilaiAkhir >= 50) {
                nilaiHuruf = "C";
                status = "LULUS";
            } else if (nilaiAkhir >= 39) {
                nilaiHuruf = "D";
                status = "TIDAK LULUS";
            } else {
                nilaiHuruf = "E";
                status = "TIDAK LULUS";
            }
            System.out.printf("\nNilai Akhir : %.1f\n", nilaiAkhir);
            System.out.println("Nilai Huruf : " + nilaiHuruf);

            System.out.println("================================");
            if (status.equals("LULUS")) {
                System.out.println("SELAMAT ANDA LULUS\n");
            } else {
                System.out.println("ANDA TIDAK LULUS\n");
            }
        }
    }
```

- **Hasil program**

```
Program Menghitung Nilai Akhir
==============================
Masukkan nilai Tugas: 100
Masukkan nilai Kuis: 130
Masukkan nilai UTS: 99
Masukkan nilai UAS: 10
==============================

Nilai tidak valid

PS D:\kuliah\PRAKTIKUM-ASD>
```

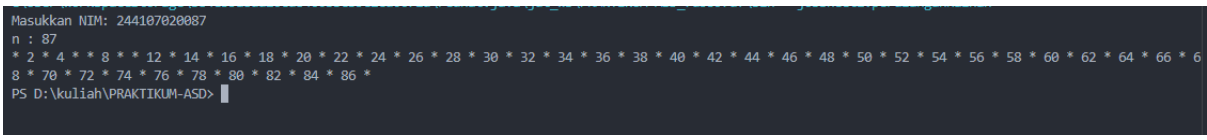
```
Program Menghitung Nilai Akhir
==============================
Masukkan nilai Tugas: 99
Masukkan nilai Kuis: 88
Masukkan nilai UTS: 77
Masukkan nilai UAS: 100
==============================

Nilai Akhir : 90,5
Nilai Huruf : A
==============================
SELAMAT ANDA LULUS

PS D:\kuliah\PRAKTIKUM-ASD>
```

2. Perulangan

- **Code program**

```
package jobsheet1;
import java.util.Scanner;
public class perulanganRaihan {
     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("* ");
            }
        }
    }
}
```

- **Hasil**



3. Array

- **Code program**

```
package jobsheet1;
import java.util.Scanner;
public class arrayRaihan {
     public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.println("Program Menghitung IP Semester");
        System.out.println("================================");
        System.out.print("Masukkan jumlah mata kuliah: ");
        int jumlahMatkul = input.nextInt();
        String[] namaMatkul = new String[jumlahMatkul];
        int[] sks = new int[jumlahMatkul];
        double[] nilaiAngka = new double[jumlahMatkul];
        String[] nilaiHuruf = new String[jumlahMatkul];
        double[] nilaiSetara = new double[jumlahMatkul];
        double totalBobot = 0, totalSKS = 0;

        for (int i = 0; i < jumlahMatkul; i++) {
            input.nextLine();
            System.out.print("Masukkan nama mata kuliah ke-" + (i + 1) + ": ");
            namaMatkul[i] = input.nextLine();

            System.out.print("Masukkan bobot SKS: ");
            sks[i] = input.nextInt();

            System.out.print("Masukkan nilai angka: ");
            nilaiAngka[i] = input.nextDouble();

            if (nilaiAngka[i] > 80 && nilaiAngka[i] <= 100) {
                nilaiHuruf[i] = "A";
                nilaiSetara[i] = 4.0;
            } else if (nilaiAngka[i] > 73 && nilaiAngka[i] <= 80) {
                nilaiHuruf[i] = "B+";
                nilaiSetara[i] = 3.5;
            } else if (nilaiAngka[i] > 65 && nilaiAngka[i] <= 73) {
                nilaiHuruf[i] = "B";
                nilaiSetara[i] = 3.0;
            } else if (nilaiAngka[i] > 60 && nilaiAngka[i] <= 65) {
                nilaiHuruf[i] = "C+";
                nilaiSetara[i] = 2.5;
            } else if (nilaiAngka[i] > 50 && nilaiAngka[i] <= 60) {
                nilaiHuruf[i] = "C";
                nilaiSetara[i] = 2.0;
            } else if (nilaiAngka[i] > 39 && nilaiAngka[i] <= 50) {
                nilaiHuruf[i] = "D";
                nilaiSetara[i] = 1.0;
            } else {
                nilaiHuruf[i] = "E";
                nilaiSetara[i] = 0.0;
            }
            totalBobot += nilaiSetara[i] * sks[i];
            totalSKS += sks[i];
        }
        System.out.println("\n================================");
        System.out.println("Hasil Konversi Nilai");
        System.out.println("================================");
        System.out.printf("%-30s %-10s %-10s %-10s\n", "MK", "Nilai Angka",
"Nilai Huruf", "Bobot Nilai");
```

```
        for (int i = 0; i < jumlahMatkul; i++) {
            System.out.printf("%-30s %-10.2f %-10s %-10.2f\n",
namaMatkul[i], nilaiAngka[i], nilaiHuruf[i], nilaiSetara[i]);
        }
        double ipSemester = totalBobot / totalSKS;
        System.out.println("================================");
        System.out.printf("IP Semester Anda: %.2f\n", ipSemester);
    }
}
```

- **Hasil**

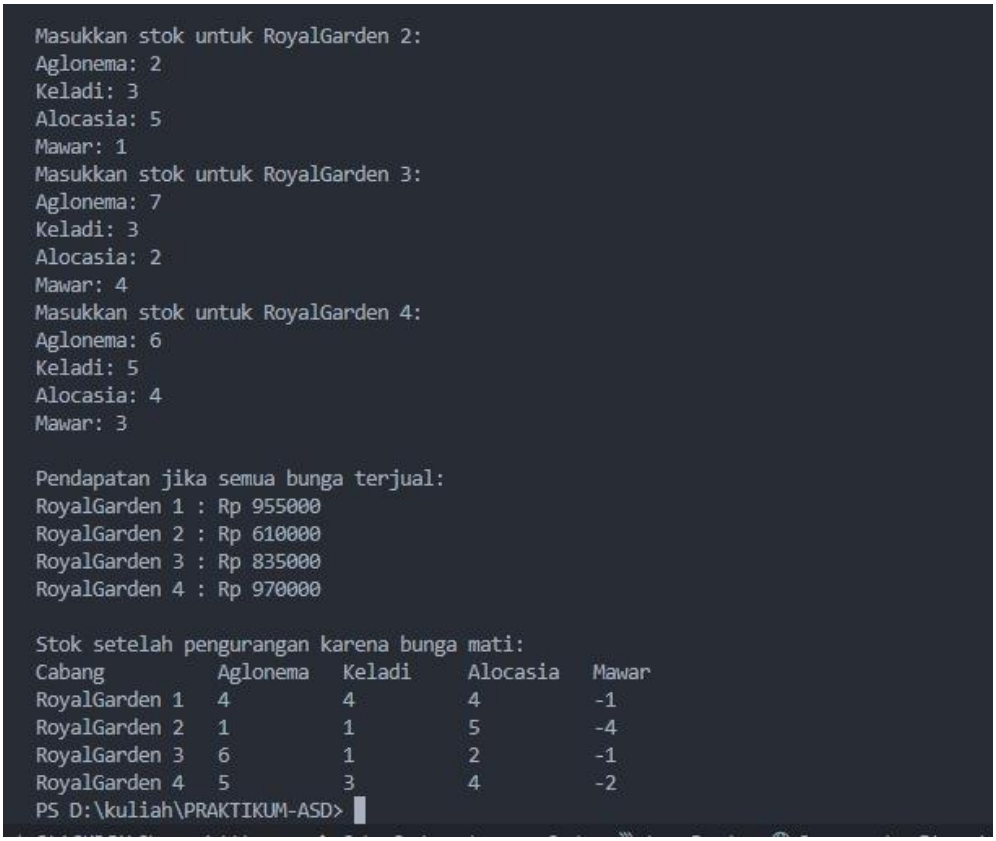
```
Program Menghitung IP Semester
==============================
Masukkan jumlah mata kuliah: 3
Masukkan nama mata kuliah ke-1: daspro
Masukkan bobot SKS: 3
Masukkan nilai angka: 98
Masukkan nama mata kuliah ke-2: matdas
Masukkan bobot SKS: 3
Masukkan nilai angka: 88
Masukkan nama mata kuliah ke-3: k3
Masukkan bobot SKS: 2
Masukkan nilai angka: 100

==============================
Hasil Konversi Nilai
==============================
MK                             Nilai Angka Nilai Huruf Bobot Nilai
daspro                         98,00       A           4,00
matdas                         88,00       A           4,00
k3                             100,00      A           4,00
==============================
IP Semester Anda: 4,00
PS D:\kuliah\PRAKTIKUM-ASD>
```

4. **Fungsi**
    - **Code program**

```
package jobsheet1;
import java.util.Scanner;
public class fungsiRaihan {
    static final int HARGA_AGLONEMA = 75000;
    static final int HARGA_KELADI = 50000;
    static final int HARGA_ALOCASIA = 60000;
    static final int HARGA_MAWAR = 10000;

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

        int[][] stok = new int[4][4];
        String[] cabang = {"RoyalGarden 1", "RoyalGarden 2", "RoyalGarden 3",
"RoyalGarden 4"};

        for (int i = 0; i < 4; i++) {
            System.out.println("Masukkan stok untuk " + cabang[i] + ":");
            System.out.print("Aglonema: ");
            stok[i][0] = input.nextInt();
            System.out.print("Keladi: ");
            stok[i][1] = input.nextInt();
            System.out.print("Alocasia: ");
            stok[i][2] = input.nextInt();
            System.out.print("Mawar: ");
            stok[i][3] = input.nextInt();
        }

        System.out.println("\nPendapatan jika semua bunga terjual:");
        hitungPendapatan(stok, cabang);

        kurangiStok(stok);

        System.out.println("\nStok setelah pengurangan karena bunga mati:");
        tampilkanStok(stok, cabang);

        input.close();
    }

    public static void hitungPendapatan(int[][] stok, String[] cabang) {
        for (int i = 0; i < 4; i++) {
            int pendapatan = (stok[i][0] * HARGA_AGLONEMA) + (stok[i][1] *
HARGA_KELADI) +
                             (stok[i][2] * HARGA_ALOCASIA) + (stok[i][3] *
HARGA_MAWAR);
            System.out.println(cabang[i] + " : Rp " + pendapatan);
        }
    }

    public static void kurangiStok(int[][] stok) {
        for (int i = 0; i < 4; i++) {
            stok[i][0] -= 1;
            stok[i][1] -= 2;
            stok[i][3] -= 5;
        }
    }
```

```
    public static void tampilkanStok(int[][] stok, String[] cabang) {
        System.out.printf("%-15s %-10s %-10s %-10s %-10s\n", "Cabang",
"Aglonema", "Keladi", "Alocasia", "Mawar");
        for (int i = 0; i < 4; i++) {
            System.out.printf("%-15s %-10d %-10d %-10d %-10d\n",
cabang[i], stok[i][0], stok[i][1], stok[i][2], stok[i][3]);
        }
    }
}
```

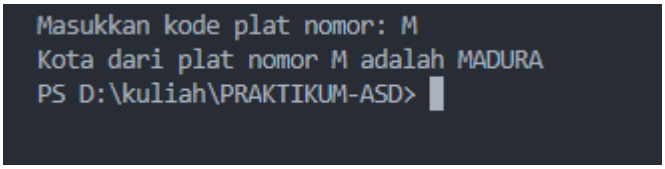
- **Hasil**



5. **Tugas 1**
    - **Code program**

```
package jobsheet1;
import java.util.Scanner;
public class tugas1raihan {
      public static void main(String[] args) {
        String[] KODE = {"A", "B", "D", "E", "G", "H", "L", "N", "M",
"T"};
        String[] KOTA = {"BANTEN", "JAKARTA", "BANDUNG", "CIREBON",
"PEKALONGAN", "SEMARANG", "SURABAYA", "MALANG", "MADURA", "TEGAL"};
        Scanner scanner = new Scanner(System.in);
        System.out.print("Masukkan kode plat nomor: ");
        String inputKode = scanner.next().toUpperCase();
        scanner.close();

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

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

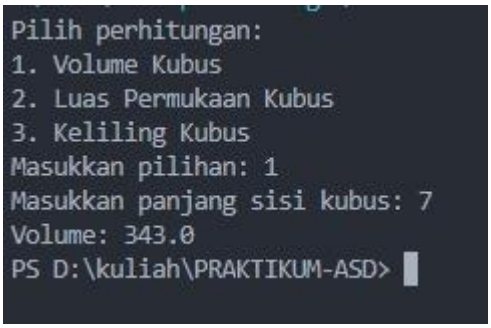
- **Hasil**



6. **Tugas 2**
    - **Code program**

```
package jobsheet1;
import java.util.Scanner;
public class tugas2Raihan {
     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;
    }
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.println("Pilih perhitungan:");
        System.out.println("1. Volume Kubus");
        System.out.println("2. Luas Permukaan Kubus");
        System.out.println("3. Keliling Kubus");
        System.out.print("Masukkan pilihan: ");
        int pilihan = scanner.nextInt();

        System.out.print("Masukkan panjang sisi kubus: ");
        double sisi = scanner.nextDouble();

        switch (pilihan) {
            case 1:
                System.out.println("Volume: " + hitungVolume(sisi));
                break;
            case 2:
                System.out.println("Luas Permukaan: " +
hitungLuasPermukaan(sisi));
                break;
            case 3:
                System.out.println("Keliling: " + hitungKeliling(sisi));
                break;
            default:
                System.out.println("Pilihan tidak valid.");
        }
    }
}
```

- **Hasil**



7. **Tugas 3**
    - **Code program**

```
package jobsheet1;
import java.util.Scanner;
public class tugas3Raihan {
      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[] namaMatkul = new String[n];
        int[] sks = new int[n];
        int[] semester = new int[n];
        String[] hari = new String[n];

        for (int i = 0; i < n; i++) {
            System.out.println("Masukkan data untuk mata kuliah ke-" + (i +
1) + ":");
            System.out.print("Nama Mata Kuliah: ");
            namaMatkul[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: ");
            hari[i] = scanner.nextLine();
        }

        while (true) {
            System.out.println("\nPilih opsi:");
            System.out.println("1. Tampilkan seluruh jadwal");
            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("Pilihan: ");
            int pilihan = scanner.nextInt();
            scanner.nextLine();

            if (pilihan == 5) break;
switch (pilihan) {
                case 1:
                    for (int i = 0; i < n; i++) {
                        System.out.println(namaMatkul[i] + " | SKS: " +
sks[i] + " | Semester: " + semester[i] + " | Hari: " + hari[i]);
                    }
                    break;
                case 2:
                    System.out.print("Masukkan hari: ");
                    String hariCari = scanner.nextLine();
                    for (int i = 0; i < n; i++) {
                        if (hari[i].equalsIgnoreCase(hariCari)) {
                            System.out.println(namaMatkul[i] + " | SKS: " +
sks[i] + " | Semester: " + semester[i] + " | Hari: " + hari[i]);
                        }
                    }
                    break;
```

```
case 3:
                    System.out.print("Masukkan semester: ");
                    int semesterCari = scanner.nextInt();
                    for (int i = 0; i < n; i++) {
                        if (semester[i] == semesterCari) {
                            System.out.println(namaMatkul[i] + " | SKS: " +
sks[i] + " | Semester: " + semester[i] + " | Hari: " + hari[i]);
                        }
                    }
                    break;
                case 4:
                    System.out.print("Masukkan nama mata kuliah: ");
                    String matkulCari = scanner.nextLine();
                    for (int i = 0; i < n; i++) {
                        if (namaMatkul[i].equalsIgnoreCase(matkulCari)) {
                            System.out.println(namaMatkul[i] + " | SKS: " +
sks[i] + " | Semester: " + semester[i] + " | Hari: " + hari[i]);
                        }
                    }
                    break;
                default:
                    System.out.println("Pilihan tidak valid.");
            }
        }
    }
}
```

- **Hasil**

```
Masukkan jumlah mata kuliah: 2
Masukkan data untuk mata kuliah ke-1:
Nama Mata Kuliah: k3
SKS: 3
Semester: 1
Hari: senin
Masukkan data untuk mata kuliah ke-2:
Nama Mata Kuliah: daspro
SKS: 3
Semester: 1
Hari: jumat

Pilih opsi:
1. Tampilkan seluruh jadwal
2. Tampilkan jadwal berdasarkan hari
3. Tampilkan jadwal berdasarkan semester
4. Cari mata kuliah
5. Keluar
Pilihan: 1
k3 | SKS: 3 | Semester: 1 | Hari: senin
daspro | SKS: 3 | Semester: 1 | Hari: jumat

Pilih opsi:
1. Tampilkan seluruh jadwal
2. Tampilkan jadwal berdasarkan hari
3. Tampilkan jadwal berdasarkan semester
4. Cari mata kuliah
5. Keluar
Pilihan: 2
Masukkan hari: senin
k3 | SKS: 3 | Semester: 1 | Hari: senin
```

```
Pilih opsi:
1. Tampilkan seluruh jadwal
2. Tampilkan jadwal berdasarkan hari
3. Tampilkan jadwal berdasarkan semester
4. Cari mata kuliah
5. Keluar
Pilihan: 3
Masukkan semester: 1
k3 | SKS: 3 | Semester: 1 | Hari: senin
daspro | SKS: 3 | Semester: 1 | Hari: jumat

Pilih opsi:
1. Tampilkan seluruh jadwal
2. Tampilkan jadwal berdasarkan hari
3. Tampilkan jadwal berdasarkan semester
4. Cari mata kuliah
5. Keluar
Pilihan: 4
Masukkan nama mata kuliah: daspro
daspro | SKS: 3 | Semester: 1 | Hari: jumat

Pilih opsi:
1. Tampilkan seluruh jadwal
2. Tampilkan jadwal berdasarkan hari
3. Tampilkan jadwal berdasarkan semester
4. Cari mata kuliah
5. Keluar
Pilihan: 5
PS D:\kuliah\PRAKTIKUM-ASD>
```