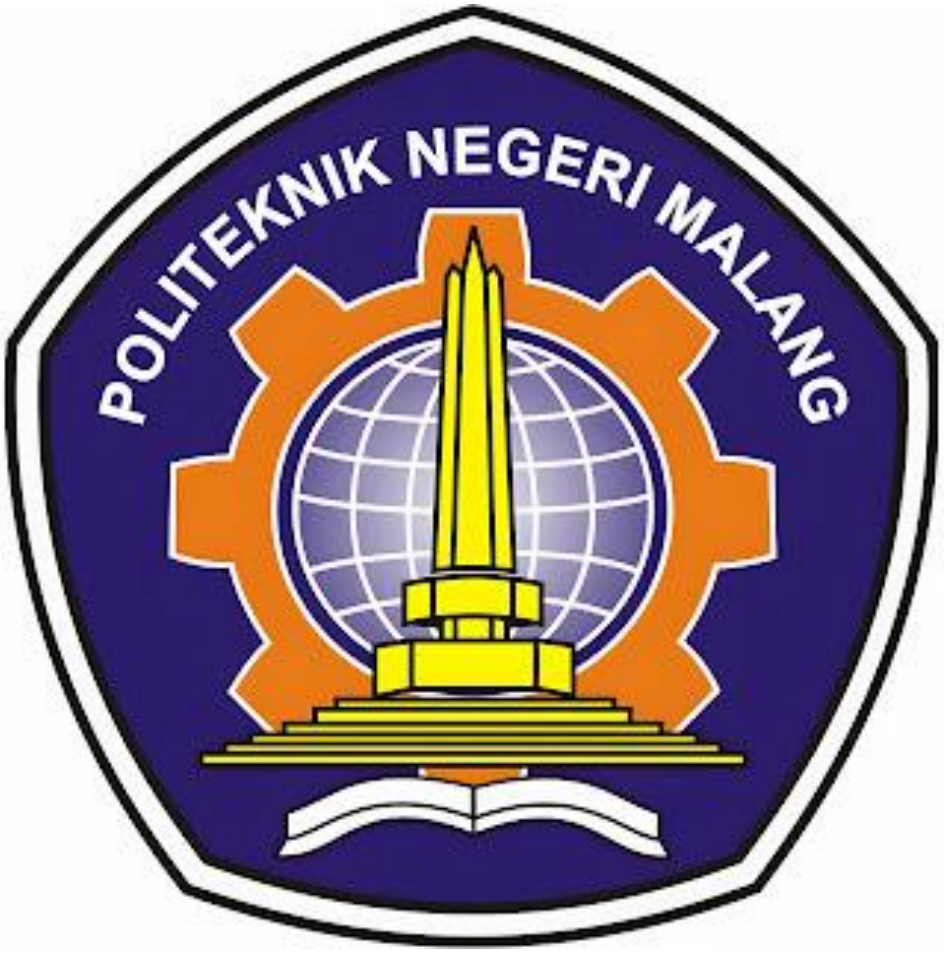
LAPORAN HASIL PRAKTIKUM

ALGORITMA DAN STRUKTUR DATA

JOBSHEET 1



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PROGRAM STUDI TEKNIK INFORMATIKA

JURUSAN TEKNOLOGI INFORMASI

POLITEKNIK NEGERI MALANG

2024

2. Praktikum

2.1 Pemilihan

Kode Program

```
package Jobsheet1;

import java.util.Scanner;

public class Pemilihan {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        double nilaiTugas, nilaiKuis, nilaiUTS, nilaiUAS,
totalNilai;

        double nilaiAkhir;


        System.out.println("Program Menghitung Nilai Akhir");

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


        System.out.print("Masukkan Nilai Tugas : ");

        nilaiTugas = sc.nextInt();

        System.out.print("Masukkan Nilai Kuis : ");

        nilaiKuis = sc.nextInt();

        System.out.print("Masukkan Nilai UTS : ");

        nilaiUTS = sc.nextInt();

        System.out.print("Masukkan Nilai UAS : ");

        nilaiUAS = sc.nextInt();


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

        if (nilaiTugas <= 100 && nilaiKuis <= 100 && nilaiUTS <= 100
&& nilaiUAS <= 100) {

            nilaiTugas = 0.2 * nilaiTugas;

            nilaiKuis = 0.2 * nilaiKuis;

            nilaiUTS = 0.3 * nilaiUTS;

            nilaiUAS = 0.3 * nilaiUAS;


            nilaiAkhir = (nilaiTugas + nilaiKuis + nilaiUTS +
nilaiUAS);

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

```
            if (nilaiAkhir > 80 && nilaiAkhir <= 100) {
                System.out.println("Nilai Huruf : A");
            } else if (nilaiAkhir > 73 && nilaiAkhir <= 80) {
                System.out.println("Nilai Huruf : B+");
            } else if (nilaiAkhir > 65 && nilaiAkhir <= 73) {
                System.out.println("Nilai Huruf : B");
            } else if (nilaiAkhir > 60 && nilaiAkhir <= 65) {
                System.out.println("Nilai Huruf : C+");
            } else if (nilaiAkhir > 50 && nilaiAkhir <= 60) {
                System.out.println("Nilai Huruf : C");
            } else if (nilaiAkhir > 39 && nilaiAkhir <= 50) {
                System.out.println("Nilai Huruf : D");
            } else if (nilaiAkhir <= 39) {
                System.out.println("Nilai Huruf : E");
            }

            if (nilaiAkhir < 50) {
                System.out.println("==============================")
;
                System.out.println("MAAF, ANDA TIDAK LULUS!");
            } else {
                System.out.println("==============================")
;
                System.out.println("SELAMAT ANDA LULUS");
            }
        } else {
            System.out.println("==============================");
            System.out.println("nilai tidak valid");
            System.out.println("==============================");
        }
        System.out.println("==============================");
    }
}
```

Hasil Program

```
Program Menghitung Nilai Akhir
==============================
Masukkan Nilai Tugas : 85
Masukkan Nilai Kuis : 90
Masukkan Nilai UTS : 120
Masukkan Nilai UAS : 70
==============================
==============================
nilai tidak valid
==============================
==============================
```

```
Program Menghitung Nilai Akhir
==============================
Masukkan Nilai Tugas : 90
Masukkan Nilai Kuis : 40
Masukkan Nilai UTS : 75
Masukkan Nilai UAS : 85
==============================
Nilai Akhir : 74.0
Nilai Huruf : B+
==============================
SELAMAT ANDA LULUS
==============================
```

2.2 Perulangan

Kode Program

```
package Jobsheet1;
import java.util.Scanner;
public class Perulangan {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Masukkan NIM: ");
        String nim = scanner.nextLine();

        int n = Integer.parseInt(nim.substring(nim.length() - 2));

        if (n < 10) {
            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("* ");
```

```
            } else {
                System.out.print(i + " ");
            }
        }
    }
}
```

Hasil Program

```
Masukkan NIM: 2341720102
n: 12
* 2 * 4 * * 8 * * 12
```

2.3 Array

Kode Program

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

        double ip = 0;
        double sum = 0;
        double bobot = 0;

        String[][] konvNilai = new String[9][4];
        konvNilai[0][0] = "MK";
        konvNilai[0][1] = "Nilai Angka";
        konvNilai[0][2] = "Nilai Huruf";
        konvNilai[0][3] = "Bobot Nilai";
```

```
        String[] matkul = new String[] {"Pancasila",
                                        "Konsep Teknologi
Informasi",
                                        "Critical Thinking dan
Problem Solving",
                                        "Matematika Dasar",
                                        "Bahasa Inggris",
                                        "Dasar Pemrograman",
                                        "Praktikan Dasar
Pemrograman",
                                        "Keselamatan dan Kesehatan
Kerja"};
        double[] nilai = new double[8];

        for (int a = 1; a <= matkul.length; a++){
            konvNilai[a][0] = matkul[a-1];
        }

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

        for (int a = 1; a <= matkul.length; a++){
            System.out.print("Masukkan Nilai Angka Untuk MK " +
matkul[a-1] + " : ");
            nilai[a-1] = sc.nextDouble();
            konvNilai[a][1] = String.valueOf(nilai[a-1]);
        }

        for (int a = 1; a <= matkul.length; a++){
            if (nilai[a-1] > 80 && nilai[a-1] <= 100) {
                konvNilai[a][2] = "A";
                konvNilai[a][3] = "4.00";
            } else if (nilai[a-1] > 73 && nilai[a-1] <= 80) {
                konvNilai[a][2] = "B+";
                konvNilai[a][3] = "3.50";
            } else if (nilai[a-1] > 65 && nilai[a-1] <= 73) {
```

```
                konvNilai[a][2] = "B";
                konvNilai[a][3] = "3.00";
            } else if (nilai[a-1] > 60 && nilai[a-1] <= 65) {
                konvNilai[a][2] = "C+";
                konvNilai[a][3] = "2.50";
            } else if (nilai[a-1] > 50 && nilai[a-1] <= 60) {
                konvNilai[a][2] = "C";
                konvNilai[a][3] = "2.00";
            } else if (nilai[a-1] > 39 && nilai[a-1] <= 50) {
                konvNilai[a][2] = "D";
                konvNilai[a][3] = "1.00";
            } else if (nilai[a-1] <= 39) {
                konvNilai[a][2] = "E";
                konvNilai[a][3] = "0.00";
            }
        }

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

        System.out.printf("%-40s %-15s %-15s %-15s%n",
konvNilai[0][0],
                          konvNilai[0][1], konvNilai[0][2],
konvNilai[0][3]);
        for (int a = 1; a <= matkul.length; a++){
            System.out.printf("%-40s %-15s %-15s %-15s%n",
konvNilai[a][0],
                          konvNilai[a][1], konvNilai[a][2],
konvNilai[a][3]);
        }

        System.out.println("==============================");
        for (int a = 1; a <= matkul.length; a++){
            bobot = Double.parseDouble(konvNilai[a][3]);
            sum += bobot;;
```

```
        }
        ip = sum / 8;
        System.out.println("IP : " + ip);
        System.out.println("==============================");
    }
}
```

Hasil Program

```
============================
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 dan 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 Praktikan Dasar Pemrograman : 62
Masukkan Nilai Angka Untuk MK Keselamatan dan Kesehatan Kerja : 85
============================
Hasil Konversi Nilai
============================
MK                                  Nilai Angka     Nilai Huruf     Bobot Nilai
Pancasila                           75.0            B+              3.50
Konsep Teknologi Informasi          85.0            A               4.00
Critical Thinking dan Problem Solving   70.0            B               3.00
Matematika Dasar                    85.0            A               4.00
Bahasa Inggris                      85.0            A               4.00
Dasar Pemrograman                   62.0            C+              2.50
Praktikan Dasar Pemrograman         62.0            C+              2.50
Keselamatan dan Kesehatan Kerja     85.0            A               4.00
============================
IP : 3.4375
============================
```

2.4 Fungsi

Kode Program

```
package Jobsheet1;
public class Fungsi {
    static int[][] RoyalGarden = {
        {10, 5, 15, 7},
        {6, 11, 9, 12},
        {2, 10, 10, 5},
        {5, 7, 12, 9}
    };
```

```
    static int[] totalHargaTiapBunga = new int[4];

    static int[] pendapatan = new int[4];

    static String[] jenisBunga = {"Aglonema", "Keladi", "Alocasia",
"Mawar"};


    public static void PendapatanTiapCabang(){


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

        System.out.println("            PENDAPATAN TOKO BUNGA
ROYALGARDEN            ");

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

        for (int a = 0; a < RoyalGarden.length; a++){

            for (int b = 0; b < RoyalGarden[a].length; b++){

                if (b == 0){

                    totalHargaTiapBunga[a] = RoyalGarden[a][b] *
75000;

                } else if (b == 1){

                    totalHargaTiapBunga[a] = RoyalGarden[a][b] *
50000;

                } else if (b == 2){

                    totalHargaTiapBunga[a] = RoyalGarden[a][b] *
60000;

                } else if (b == 3){

                    totalHargaTiapBunga[a] = RoyalGarden[a][b] *
10000;

                }

                pendapatan[a] += totalHargaTiapBunga[a];

            }

        }

        for (int a = 0; a < pendapatan.length; a++){

            System.out.println("Pendapatan Toko Bunga RoyalGarden" +
(a+1) + " adalah Rp. " + pendapatan[a]);

        }

    }


    public static void StockRoyalGarden4(){

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

```
        System.out.println("                Stok Bunga Pada Toko
RoyalGarden4          ");

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

        for (int a = 0; a < 4; a++){

            System.out.println("Stok " + jenisBunga[a] + " : " +
RoyalGarden[3][a]);

        }

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

        System.out.println("Dikarenakan Ada Bunga Yang Mati Maka
Stok Menjadi : ");

        for (int a = 0; a < 4; a++){

            if (a == 0) {

                RoyalGarden[3][a] -= 1;

            } else if (a == 1) {

                RoyalGarden[3][a] -= 2;

            } else if (a == 2) {

                RoyalGarden[3][a] -= 0;

            } else if (a == 3) {

                RoyalGarden[3][a] -= 5;

            }

            System.out.println("Stok " + jenisBunga[a] + " : " +
RoyalGarden[3][a]);

        }

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

    }


    public static void main(String[] args) {

        PendapatanTiapCabang();

        StockRoyalGarden4();

    }

}
```

Hasil Program

```
=========================================================
           PENDAPATAN TOKO BUNGA ROYALGARDEN
=========================================================
Pendapatan Toko Bunga RoyalGarden1 adalah Rp. 1970000
Pendapatan Toko Bunga RoyalGarden2 adalah Rp. 1660000
Pendapatan Toko Bunga RoyalGarden3 adalah Rp. 1300000
Pendapatan Toko Bunga RoyalGarden4 adalah Rp. 1535000
=========================================================
              Stok Bunga Pada Toko RoyalGarden4
=========================================================
Stok Aglonema : 5
Stok Keladi : 7
Stok Alocasia : 12
Stok Mawar : 9
=========================================================
Dikarenakan Ada Bunga Yang Mati Maka Stok Menjadi :
Stok Aglonema : 4
Stok Keladi : 5
Stok Alocasia : 12
Stok Mawar : 4
=========================================================
```

3. Tugas

1. Kode Program

```
package Jobsheet1;
import java.util.Scanner;
public class PlatMobil {
    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'},
```

```
    };

    char inputanUser;
    int indexCari = 0;

    System.out.print("Inputkan Kode Plat Nomor : ");
    inputanUser = sc.next().charAt(0);

    for (int a = 0; a < kode.length; a++){
        if (Character.toUpperCase(inputanUser) == kode[a]) {
            indexCari = a;
            break;
        }
    }
    for (int a = 0; a < kota[indexCari].length; a++){
        System.out.print(kota[indexCari][a]);
    }
    }
}
```

Hasil Program

```
Inputkan Kode Plat Nomor : N
MALANG
```

2. Kode Program

```
package Jobsheet1;

import java.util.Scanner;
public class Kubus {
    static Scanner sc = new Scanner(System.in);
    static int pilihanMenu;
    static int sisi;
    static char check;
```

```
    public static void Menu(){
        System.out.println("1. Volume Kubus");
        System.out.println("2. Permukaan Kubus");
        System.out.println("3. Keliling Kubus");

        System.out.print("Apa yang ingin kamu hitung? : ");
        pilihanMenu = sc.nextInt();

        switch (pilihanMenu) {
            case 1:
                HitungVolume();
                break;

            case 2:
                HitungPermukaan();
                break;

            case 3:
                HitungKeliling();
                break;

            default:
                break;
        }
    }

    public static void HitungVolume(){
        System.out.println("==========================================
================");
        System.out.println("                      VOLUME
KUBUS                        ");
        System.out.println("==========================================
================");

        System.out.print("Panjang sisi : ");
        sisi = sc.nextInt();
```

```
        int volume = sisi * sisi * sisi;

        System.out.println("Volume kubus dengan sisi " + sisi + " :
" + volume + "\n");


        Check();

    }


    public static void HitungPermukaan(){

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

        System.out.println("                  LUAS PERMUKAAN
KUBUS                  ");

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


        System.out.print("Panjang sisi : ");

        sisi = sc.nextInt();


        int luasPermukaan = 6 * (sisi * sisi);

        System.out.println("Luas Permukaan kubus dengan sisi " +
sisi + " : " + luasPermukaan + "\n");


        Check();

    }


    public static void HitungKeliling(){

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

        System.out.println("                    KELILING
KUBUS                        ");

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


        System.out.print("Panjang sisi : ");

        sisi = sc.nextInt();


        int keliling = 4 * sisi;
```

```
        System.out.println("Keliling kubus dengan sisi " + sisi + "
: " + keliling + "\n");


        Check();
    }


    public static void Check(){


            System.out.print("Mau menghitung lagi (y/n) ? ");
            check = sc.next().charAt(0);
            sc.nextLine();


            switch (check) {
                case 'Y':
                    Menu();
                    break;


                case 'y':
                    Menu();
                    break;
                case 'n':
                    System.out.println("Terima kasih, program
selesai.");
                    break;
                case 'N':
                    System.out.println("Terima kasih, program
selesai.");
                    break;


                default:
                    break;
        }


    }


    public static void main(String[] args) {
```

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

        System.out.println("PROGRAM MENGHITUNG VOLUME, PERMUKAAN,
DAN KELILING KUBUS");

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


        Menu();

    }

}
```

Hasil Program

```
=====================================================
PROGRAM MENGHITUNG VOLUME, PERMUKAAN, DAN KELILING KUBUS
=====================================================
1. Volume Kubus
2. Permukaan Kubus
3. Keliling Kubus
Apa yang ingin kamu hitung? : 1
=====================================================
                    VOLUME KUBUS
=====================================================
Panjang sisi : 12
Volume kubus dengan sisi 12 : 1728

Mau menghitung lagi (y/n) ? y
1. Volume Kubus
2. Permukaan Kubus
3. Keliling Kubus
Apa yang ingin kamu hitung? : 2
=====================================================
                LUAS PERMUKAAN KUBUS
=====================================================
Panjang sisi : 7
Luas Permukaan kubus dengan sisi 7 : 294

Mau menghitung lagi (y/n) ? n
Terima kasih, program selesai.
```

3. Kode Program

```
package Jobsheet1;

import java.util.Scanner;


public class JadwalKuliah {

    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(namaMataKulia
h, 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);


        scanner.close();
    }
```

```
    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.");
        }
    }
}
```

Hasil Program