TP MOD 4
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Main.java

```
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        MataKuliah pbo = new MataKuliah("CII3B4", "Pemrograman Berorientasi Objek",
4);
        MataKuliah kalkulus = new MataKuliah("CII2A3", "Kalkulus", 3);
        MataKuliah dka = new MataKuliah("CII1F4", "Dasar Kecerdasan Artifisial", 4);
        MataKuliah kwu = new MataKuliah("UKI2A2", "Kewirausahaan", 2);

        Mahasiswa mhs1 = new Mahasiswa("103012330004", "Tanjiro", 1);
        Mahasiswa mhs2 = new Mahasiswa("103012310024", "Spongebob", 12);
        Mahasiswa mhs3 = new Mahasiswa("103012320012", "Naruto", 5);

        mhs1.setKelas("47", 1);
        mhs2.setKelas("47", 12);
        mhs3.setKelas("47", 5);

        // Tanjiro
        mhs1.tambahMK(new AmbilMK(pbo, "A", "21/22"));
        mhs1.tambahMK(new AmbilMK(dka, "A", "21/22"));
        mhs1.tambahMK(new AmbilMK(kwu, "A", "21/22"));

        // Spongebob
        mhs2.tambahMK(new AmbilMK(kalkulus, "A", "19/20"));
        mhs2.tambahMK(new AmbilMK(dka, "BC", "19/20"));
        mhs2.tambahMK(new AmbilMK(pbo, "A", "21/22")); // hanya 1 MK di 21/22

        // Naruto
        mhs3.tambahMK(new AmbilMK(kalkulus, "D", "21/22"));
        mhs3.tambahMK(new AmbilMK(dka, "B", "21/22"));

        Mahasiswa[] daftar = new Mahasiswa[] { mhs1, mhs2, mhs3 };

        Scanner sc = new Scanner(System.in);
        while (true) {
            System.out.print("Masukkan Tahun Ajaran (ketik q untuk exit program): ");
            String input = sc.nextLine().trim();
            if (input.equalsIgnoreCase("q")) break;
            boolean any = false;
            for (Mahasiswa m : daftar) {
                double ipk = m.hitungIPK(input);
```

```
                if (ipk >= 0.0) {
                    any = true;
                    System.out.printf("IPK %s (%s): %.2f%n", m.getNama(), m.getKelas(), ipk);
                }
            }
            if (!any) {
                System.out.println("Tidak ada histori nilai pada Tahun Ajaran ini");
            }
            System.out.println();
        }
    }
}
```

Mahasiswa.java

```
import java.util.ArrayList;

public class Mahasiswa {
    private String nim;
    private String nama;
    private int noUrut;
    private String kelas;
    private ArrayList<AmbilMK> ambilMK = new ArrayList<>();

    public Mahasiswa(String nim, String nama, int noUrut) {
        this.nim = nim;
        this.nama = nama;
        this.noUrut = noUrut;
    }

    public void setKelas(String kodeKelas, int noUrut) {
        this.kelas = "IF-" + kodeKelas + "-" + String.format("%02d", noUrut);
    }

    public String getKelas() {
        return kelas;
    }

    public String getNama() {
        return nama;
    }

    public void tambahMK(AmbilMK mk) {
        ambilMK.add(mk);
    }

    public double hitungIPK(String thnAjar) {
        double totalNilai = 0.0;
        int totalSKS = 0;

        for (AmbilMK ambil : ambilMK) {
            if (ambil.getThnAjar().equals(thnAjar)) {
                totalNilai += ambil.getMK().getSks() * ambil.nilaiAngka();
                totalSKS += ambil.getMK().getSks();
            }
        }

        if (totalSKS == 0) return -1.0;
        return totalNilai / totalSKS;
    }
}
```

MataKuliah.java

```
public class MataKuliah {
    private String kode;
    private String nama;
    private int sks;

    public MataKuliah(String kode, String nama, int sks) {
        this.kode = kode;
        this.nama = nama;
        this.sks = sks;
    }

    public String getKode() { return kode; }
    public void setKode(String kode) { this.kode = kode; }

    public String getNama() { return nama; }
    public void setNama(String nama) { this.nama = nama; }

    public int getSks() { return sks; }
    public void setSks(int sks) { this.sks = sks; }
}
```

AmbilMK.java

```
public class AmbilMK {
    private MataKuliah mk;
    private String nilaiHuruf;
    private String thnAjar;

    public AmbilMK(MataKuliah mk, String nilaiHuruf, String thnAjar) {
        this.mk = mk;
        this.nilaiHuruf = nilaiHuruf;
        this.thnAjar = thnAjar;
    }

    public MataKuliah getMK() {
        return mk;
    }

    public String getThnAjar() {
        return thnAjar;
    }

    public double nilaiAngka() {
        switch (nilaiHuruf) {
            case "A":  return 4.0;
            case "AB": return 3.5;
            case "B":  return 3.0;
            case "BC": return 2.5;
            case "C":  return 2.0;
            case "D":  return 1.0;
            default:   return 0.0;
        }
    }
}
```