Quiz 2

Subject	Object Oriented Programming
Lecturer	Vipkas Al Hadid Firdaus S.T. M.T.
Type	Assignment
Semester	Semester 3
Time	@December 27, 2023

Mahasiswa class

```
import java.util.List;

public class Mahasiswa {
    private String name;
    private int nim;
    private List<Double> nilai;

    // Constructor
    public Mahasiswa(String name, int nim, List<Double> nilai){
        this.name = name;
        this.nim = nim;
        this.nilai = nilai;
    }

    // Getter and Setter
    void setName(String name){
        this.name = name;
    }

    public String getName() {
        return name;
```

```
    }

    void setNim(int nim){
        this.nim = nim;
    }

    public int getNim(){
        return nim;
    }

    void setNilai(List<Double> nilai){
        this.nilai = nilai;
    }

    public List<Double> getNilai(){
        return nilai;
    }


    // Method to calculate IPK
    public double calculateNilai(){
        double sum = 0;
        for (double nilai : getNilai()) {
            sum += nilai;
        }
        return sum / getNilai().size();
    }


    // Method to calculate IPK by overloading with new parameter
    public double calculateNilai(List<Double> nilaiSks){
        double sum = 0;
        for (int i = 0; i < getNilai().size(); i++) {
            sum += getNilai().get(i) * nilaiSks.get(i);
        }
        return sum / getNilai().size();
```

```
    }
}
```

MataKuliah class

```
import java.util.List;

public class MataKuliah {
    private String mataKuliah;
    private double sks;
    private List<Double> nilaiMahasiswa;

    // Constructor
    public MataKuliah(String mataKuliah, double sks, List<Double
        this.mataKuliah = mataKuliah;
        this.sks = sks;
        this.nilaiMahasiswa = nilaiMahasiswa;
    }

    // Getter and Setter
    public void setMataKuliah(String mataKuliah){
        this.mataKuliah = mataKuliah;
    }

    public String getMataKuliah(){
        return mataKuliah;
    }

    public void setSks(double sks){
        this.sks = sks;
    }

    public double getSks(){
        return sks;
    }
```

```
    public void setNilaiMahasiswa(List<Double> nilaiMahasiswa){
        this.nilaiMahasiswa = nilaiMahasiswa;
    }

    public List<Double> getNilaiMahasiswa(){
        return nilaiMahasiswa;
    }

    // Method to calculate weight
    public double calculateBobot(){
        double sum = 0;
        for (int i = 0; i < getNilaiMahasiswa().size(); i++) {
            sum += nilaiMahasiswa.get(i);
        }
        return sum / nilaiMahasiswa.size();
    }

    // Method to calculate weight by overloading with new parame
    public double calculateBobot(List<Double> studentWeight){
        double sum = 0;
        for (int i = 0; i < getNilaiMahasiswa().size(); i++) {
            sum += nilaiMahasiswa.get(i) * studentWeight.get(i)
        }
        return sum / nilaiMahasiswa.size();
    }
}
```

Perwakilan class

```
import java.util.List;

public class Perwalian {
    private List<Mahasiswa> mahasiswa;
    private List<MataKuliah> mataKuliah;

    // Getter and Setter
```

```
    void setMahasiswa(List<Mahasiswa> mahasiswa){
        this.mahasiswa = mahasiswa;
    }

    public List<Mahasiswa> getMahasiswa(){
        return mahasiswa;
    }

    void setMataKuliah(List<MataKuliah> mataKuliah){
        this.mataKuliah = mataKuliah;
    }

    public List<MataKuliah> getMataKuliah(){
        return mataKuliah;
    }

    // Method to print student list
    void displayStudentList(){
        System.out.println("Students and Taken Subjects list");
        for (int i = 0; i < getMahasiswa().size(); i++) {
            String name = getMahasiswa().get(i).getName();
            double nim = getMahasiswa().get(i).getNim();
            double nilai = getMahasiswa().get(i).calculateNilai(
            String matkul = getMataKuliah().get(i).getMataKuliah
            double sks = getMataKuliah().get(i).getSks();
            double bobot = getMataKuliah().get(i).calculateBobot

            System.out.println("Student Name    = " + name);
            System.out.println("Student NIM     = " + nim);
            System.out.println("Student Nilai   = " + nilai);
            System.out.println("Subject Name    = " + matkul);
            System.out.println("Subject SKS     = " + sks);
            System.out.println("Subject Bobot   = " + bobot);
        }
```

```
    }
}
```

Main

```
import java.sql.Array;
import java.util.ArrayList;
import java.util.List;

public class Main {
    public static void main(String[] args) {
        List<Double> grade1 = new ArrayList<Double>();
        grade1.add(80.0);
        grade1.add(90.0);
        grade1.add(100.0);
        List<Double> grade2 = new ArrayList<Double>();
        grade2.add(85.0);
        grade2.add(77.0);
        grade2.add(95.0);
        List<Double> grade3 = new ArrayList<Double>();
        grade3.add(89.0);
        grade3.add(98.0);
        grade3.add(88.0);

        Mahasiswa m1 = new Mahasiswa("Aldi", 20210001, grade1);
        Mahasiswa m2 = new Mahasiswa("Budi", 20210002, grade2);
        Mahasiswa m3 = new Mahasiswa("Caca", 20210003, grade3);

        List<Mahasiswa> studentList = new ArrayList<Mahasiswa>(
        studentList.add(m1);
        studentList.add(m2);
        studentList.add(m3);

        MataKuliah mk1 = new MataKuliah("PBO", 3, grade1);
        MataKuliah mk2 = new MataKuliah("Kalkulus", 3, grade2);
        MataKuliah mk3 = new MataKuliah("Matematika", 3, grade3
```

```
        List<MataKuliah> subjectGrade = new ArrayList<MataKuliah
        subjectGrade.add(mk1);
        subjectGrade.add(mk2);
        subjectGrade.add(mk3);

        Perwalian perwalian = new Perwalian();
        perwalian.setMahasiswa(studentList);
        perwalian.setMataKuliah(subjectGrade);

        perwalian.displayStudentList();
    }
}
```

result