Jobsheet 02 Class dan Object

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Link github: https://github.com/Majid5654/Semester-3/tree/Main/JAVA%20OOP/Week2

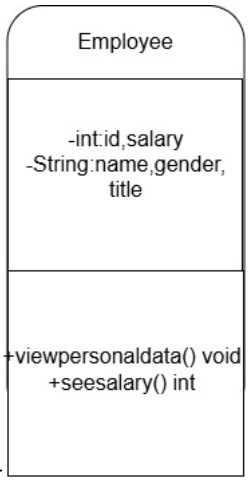
4. Experiment

4.1 Experimental 1: Creating Class Diagram

Case study 1:

In a company, one of the data that is processed is employee data. Each employee has an id, name, gender, title, title and salary. Each employee can also view personal data and see his salary.

1. Describe the class diagram design from case study 1 !,



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2. Mention what classes can be made from case study 1 !,

-Employee

3. Mention the attributes and data types that can be identified from each class from case study 1!

- id: int – Unique identifier for each employee.

name: String – Employee's full name.

gender: String – Gender of the employee

title: String – Job title of the employee.

salary: int – Employee's salary.

4. Mention the methods that you created from each class in case study 1!

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```
public int viewSalary() {
    return (int) salary;
}


public void viewPersonalData() {
    System.out.println("ID: " + id);
    System.out.println("Name: " + name);
    System.out.println("Gender: " + gender);
    System.out.println("Title: " + title);
}
```

4.2 Experimental 2: Create and accessing the member of a class

Case Study 2:

Class Mahasiswa:

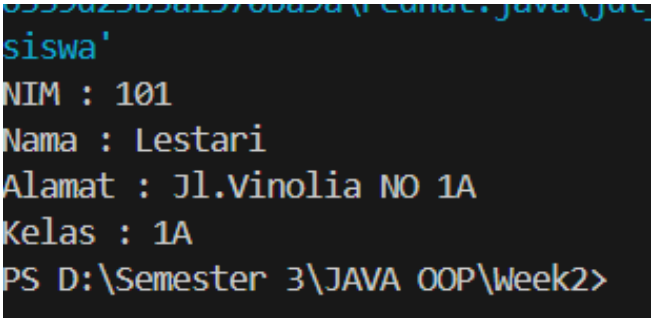
Mahasiswa.java > ...

```java
public class Mahasiswa {
    public int nim;
    public String nama;
    public String alamat;
    public String kelas;

    public void tampilBiodata(){
        System.out.println("NIM : "+nim);
        System.out.println("Nama : " +nama);
        System.out.println("Alamat : " +alamat);
        System.out.println("Kelas : " +kelas);
    }
}
```

Class TestMahasiswa:

6. Run the TestMahasiswa class



7. Based on the code, please explain in which line the attribute declaration was?
- in the Mahasiswa class

Lines 2 until 5

public int nim;

public String nama;

public String alamat;

public String kelas;

8. Based on the code, please explain in which line the method declaration was?

- in the Mahasiswa class on line 7

public void tampilBiodata()

9. How many objects instantiate from the code?

-only one object which is Mhs1

Mahasiswa mhs1 = new Mahasiswa();

10. What does this line “mhs1.nim=101” mean?

-this mean the attribute nim of the object mhs1 is being assigned the value 101

11. What does this line “mhs1.tampilBiodata()” do?
- calls the tampilBiodata() method of the mhs1 object. This method prints the values of the attributes nim, nama, alamat, and kelas for the mhs1 object.

12. Please instantiate 2 more object, by adding more code

```
public class TestMahasiswa {
    Run | Debug
    public static void main(String[] args) {
        Mahasiswa mhs1 = new Mahasiswa();
        Mahasiswa mhs2 = new Mahasiswa();
        Mahasiswa mhs3 = new Mahasiswa();


        mhs1.nim=101;
        mhs1.nama="Lestari";
        mhs1.alamat="Jl.Vinolia NO 1A";
        mhs1.kelas="1A";
        mhs1.tampilBiodata();

        mhs2.nim=998;
        mhs2.nama="majid";
        mhs2.alamat="Jl.Letjen sutoyo";
        mhs2.kelas="1B";
        mhs2.tampilBiodata();

        mhs3.nim=123;
        mhs3.nama="piu";
        mhs3.alamat="Jl tatasurya";
        mhs3.kelas="1C";
        mhs3.tampilBiodata();
```

```
NIM : 101
Nama : Lestari
Alamat : Jl.Vinolia NO 1A
Kelas : 1A
NIM : 998
Nama : majid
Alamat : Jl.Letjen sutoyo
Kelas : 1B
NIM : 123
Nama : piu
Alamat : Jl tatasurya
Kelas : 1C
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```

- **Experimental 3: Writing method that has a return value**

-Class barang:

Barang.java > Barang

```java
public class Barang {
    public String namaBrg;
    public String jenisBrg;
    public int stok;

    public void tampilBarang() {
        System.out.println("Nama Barang     : " + namaBrg);
        System.out.println("Jenis Barang    : " + jenisBrg);
        System.out.println("Stok            : " + stok);
    }

    public int tambahStok(int brgMasuk) {
        int stokBaru = brgMasuk+stok;
        return stokBaru;
    }
}
```

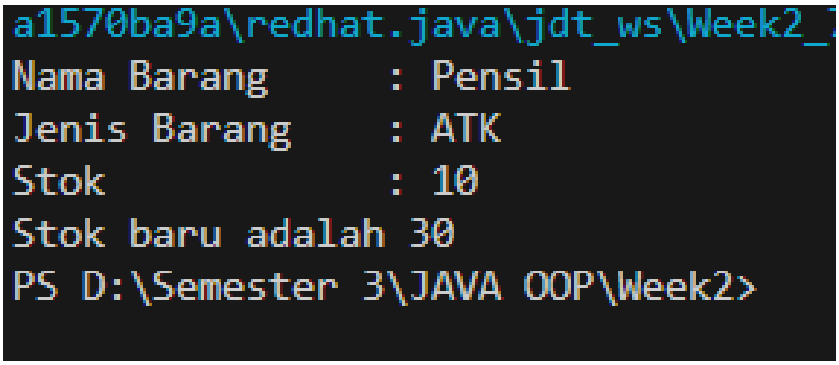
-class testbarang:

Testbarang.java > ...

```java
public class Testbarang {
    Run | Debug
    public static void main(String[] args) {
        Barang brg1 = new Barang();
        brg1.namaBrg = "Pensil";
        brg1.jenisBrg = "ATK";
        brg1.stok = 10;
        brg1.tampilBarang();

        System.out.println("Stok baru adalah " + brg1.tambahStok(brgMasuk:20));
    }
}
```

3. Run the code!



4. What is the function of an argument in a method?

- the function of the argument is to allow the method to receive input data from the outside, which can then be used in the method's calculations or operations

In the code :

```
public int tambahStok(int brgMasuk) {
    int stokBaru = brgMasuk + stok;
    return stokBaru;
}
```

The argument brgMasuk is passed to the method when it is called

```
brg1.tambahStok(20);
```

5. Makes conclusion on “return” keyword, when should we used it?

- For non-void methods:

Return a value: When a method has a return type (e.g., int, String), it must use return to return a value that matches the method's return type.

- for void methods:

Exit the method early: Use return to stop method execution prematurely when no value is returned.

4.2 Assignments

1. One of the video game rental shops process is borrowing, The stored data when someone renting the game are the id, member name, game name, and the amount to pay. Each rent can display the data and the amount to pay. Make a class diagram based on the case study!

explanation:

• The price amount will be coming from price per day times renting duration!

• Assume that 1 transaction will only consist of 1 game.

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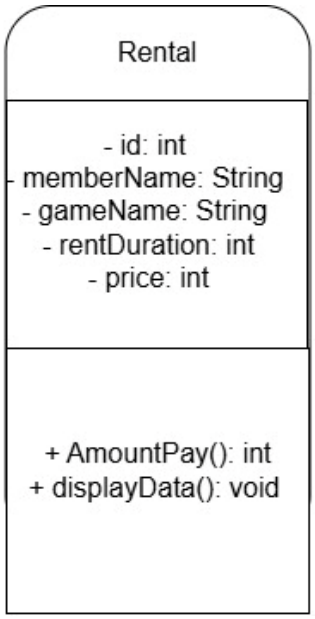
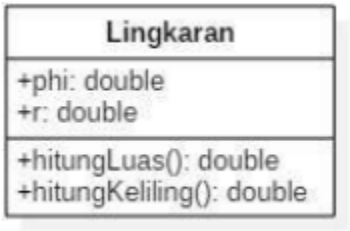


2. Create the code based on the case study no 1!

Rental.java > ...

```java
public class Rental {
    private int id;
    private String memberName;
    private String gameName;
    private int price;

    public void displayData() {
        System.out.println("transaction id : " + id);
        System.out.println("Member name : " + memberName);
        System.out.println("Game name   : " + gameName);
        System.out.println("Price  : " + price);
    }

    public int AmountPay(int rentDuration) {
        return rentDuration * price;
    }
}
```

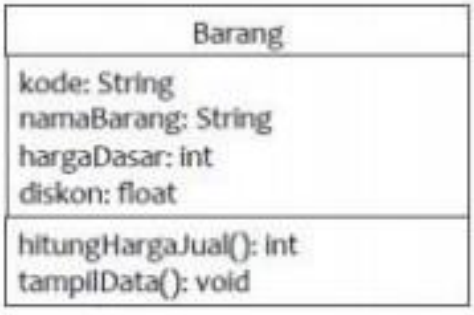
3. More exercise, please create the code from the following class diagram



Lingkaran.java > Lingkaran > hitungKeliling()

```java
public class Lingkaran {

    public double phi = 3.14;
    public double r;


    public Lingkaran(double r) {
        this.r = r;
    }


    public double hitungLuas() {
        return phi * r * r;
    }


    public double hitungKeliling() {
        return 2 * phi * r;
    }
}
```

4. More exercise, please create the code from the following class diagram:



AssignmentBarang.java > AssignmentBarang > main(String[])

```java
public class AssignmentBarang {
    public String kode;
    public String namaBarang;
    public int hargaDasar;
    public float diskon;

    public int hitungHargaJual() {
        return hargaDasar - ((int) (diskon/100 * hargaDasar));
    }

    public void tampilData() {
        System.out.println("Kode Barang : " + kode);
        System.out.println("Nama Barang : " + namaBarang);
        System.out.println("Harga Barang: Rp" + hargaDasar);
        System.out.println("Diskon      : " + diskon + "%");
        System.out.println("Harga Jual  : Rp" + hitungHargaJual());


    }
```

Run | Debug

```java
public static void main(String[] args) {
    AssignmentBarang barang1 = new AssignmentBarang();
    barang1.kode = "B001";
    barang1.namaBarang = "Mouse";
    barang1.hargaDasar = 100000;
    barang1.diskon = 10;

    barang1.tampilData();
}
```

```
Kode Barang : B001
Nama Barang : Mouse
Harga Barang: Rp100000
Diskon      : 10.0%
Harga Jual  : Rp90000
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```