Jobsheet 3

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Class: 2I

Major: Information Technology

Study Program: D-IV Informatics Engineering

Question 3.3

1. In the TestMobil class, when we increase the speed for the first time, why does the warning "Speed cannot be increased because the Engine is Off!" appear?
    a. Because in the tambahKecepatan() method when the kontakOn value is false, we can't increase the speed.
2. Why are the speed and contactOn attributes set private?
    a. It is so that the value is kept accurate by not allowing the value to be changed by another class or method.
3. Change the Motor class so that the maximum speed is 100!
    a. Code

```
public void tambahKecepatan(){
   if(kontakOn == true){
       kecepatan += 5;
       if (kecepatan > 100){
           kecepatan = 100;
           System.out.println("Kecepatan tidak bisa melebihi
100!");
       }
   }
   else{
       System.out.println("Kecepatan tidak bisa bertambah karena
Mesin Off! \n");
   }
}
```

Question 3.6

1. What are getters and setters?
    a. Getters are used to return the value of a private variable to another class.
    b. Setters are used to change the value of a private variable.
2. What is the use of the getStorage() method?
    a. To return the value of simpanan, which is a private integer.
3. What method is used to increase the balance?
    a. setor(float uang)
4. What is a constructor?
    a. A constructor is a method or function within a class that gets called automatically when an object is created. The main function is to initialize the attributes or properties of the object itself.
5. Name the rules for creating a constructor?
    a. The constructor has the same name as the class.
    b. Constructor often don't have a return type.
    c. Constructors can have parameters to allow for custom initialization.
    d. You can have multiple constructors in a class with different parameter lists.
6. Can a constructor be of private type?
    a. Yes, a constructor can be private. There are different uses of this. One such use is for the singleton design anti-pattern.
7. When to use parameters with parameter passing?
    a. When you want to initialize the object with specific values.

8. What is the difference between class attributes and attribute instantiation?
    a. Class attributes are attributes or properties that belong to the class itself, not to instances (objects) of the class.
    b. Attribute instantiation refers to instance attributes, which are specific to each object created from the class.
9. What is the difference between class method and method instantiation?
    a. A class method is a method that is associated with the class itself, rather than with the instances of the class.
    b. Method instantiation, on the other hand, refers to instance methods.

Task

1. Output:

```
"C:\Program Files\Java\jdk1.8.0_121\bin\java.exe" ...
Name : James
Age : 30

Process finished with exit code 0
```

2. In the program above, in class EncapTest we set the value of age to 35, but in the output the value is 30, explain why.
    a. Because in the method setAge() if the value is over 30 then it will set the age to 30.

3. Change the program above so that the attribute age can be given the max value of 30 and min value of 18.
    a. Code:

```
public void setAge(int newAge){
    if (newAge > 30){
        age = 30;
    }
    else if(newAge < 18){
        age = 18;
    }
    else {
        age = newAge;
    }
}
```

4. In a savings and loan cooperative information system, there is a Member class that has attributes include ID card number, name, loan limit, and loan amount. Member can borrow money with a specified loan limit. Members can also repay the loan. When the member makes a loan instalment, the loan amount will be reduced according to the amount of the instalment. will be reduced according to the amount of

the instalment. Create the Member class class, provide attributes, methods and constructors as needed. Test with TestKoperasi below to check whether the Member class you created is as expected. as expected.

a. Anggota.java

```
package koperasi;

public class Anggota {
   private String KTP, nama;
   private int jumlahPinjaman, limitPinjaman;

   public Anggota (String newKTP, String newNama, int
newLimitPinjaman){
       KTP = newKTP;
       nama = newNama;
       limitPinjaman = newLimitPinjaman;
   }

   public String getNama(){
       return nama;
   }

   public int getLimitPinjaman(){
       return limitPinjaman;
   }

   public int getJumlahPinjaman(){
       return jumlahPinjaman;
   }

   public void pinjam(int pinjamDulu){
       if (jumlahPinjaman + pinjamDulu > limitPinjaman){
           System.out.println("Jumlah melebihi limit pinjaman!");
       }
       else {
           jumlahPinjaman += pinjamDulu;
       }
   }

   public void angsur(int angsurDulu){
       if (jumlahPinjaman - angsurDulu < 0){
           System.out.println("Jumlah melebihi pinjaman!");
       }
       else {
           jumlahPinjaman -= angsurDulu;
       }
```

```
    }
}
```

b. Output

```
"C:\Program Files\Java\jdk1.8.0_121\bin\java.exe" ...
Nama Anggota: Donny
Limit Pinjaman: 5000000

Meminjam uang 10.000.000...
Jumlah melebihi limit pinjaman!
Jumlah pinjaman saat ini: 0

Meminjam uang 4.000.000...
Jumlah pinjaman saat ini: 4000000

Membayar angsuran 1.000.000
Jumlah pinjaman saat ini: 3000000

Membayar angsuran 3.000.000
Jumlah pinjaman saat ini: 0

Process finished with exit code 0
```

5. Modify question no. 4 so that the amount that can be paid in instalments is at least 10% of the current loan amount. of the current loan amount. If the instalment is less than that, then a warning appears "Sorry, instalments must be 10% of the loan amount"
    a. Code

```
public void angsur(int angsurDulu){
   if (jumlahPinjaman - angsurDulu < 0){
       System.out.println("Jumlah melebihi pinjaman!");
   } else if (angsurDulu < (jumlahPinjaman / 10)) {
       System.out.println("Maaf, angsuran harus 10% dari jumlah
pinjaman");
   } else {
       jumlahPinjaman -= angsurDulu;
   }
}
```

    b. Output

```
"C:\Program Files\Java\jdk1.8.0_121\bin\java.exe" ...
Nama Anggota: Donny
Limit Pinjaman: 5000000

Meminjam uang 10.000.000...
Jumlah melebihi limit pinjaman!
Jumlah pinjaman saat ini: 0

Meminjam uang 4.000.000...
Jumlah pinjaman saat ini: 4000000

Membayar angsuran 1.000.000
Jumlah pinjaman saat ini: 3000000

Membayar angsuran 3.000.000
Jumlah pinjaman saat ini: 0

Meminjam uang 4.000.000...
Jumlah pinjaman saat ini: 4000000

Membayar angsuran 300.000
Maaf, angsuran harus 10% dari jumlah pinjaman
Jumlah pinjaman saat ini: 4000000

Process finished with exit code 0
```

6. Modify the TestKoperasi class, so that the loan amount and instalments can receive input from the console. from the console.
    a. Code

```
package koperasi;

import java.util.Scanner;

public class TestKoperasi {

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

        Anggota donny = new Anggota("111333444", "Donny", 5000000);
        System.out.println("Nama Anggota: " + donny.getNama());
        System.out.println("Limit Pinjaman: " +
donny.getLimitPinjaman());

        int menu;
        do {
            System.out.println("========Menu Pinjaman=======");
            System.out.println("1. Pinjam  \n2. Angsur \n3. Jumlah
Pinjaman \n4. Keluar");
            System.out.print("Masukkan Pilihan: ");
            menu = sc.nextInt();
            switch (menu){
                case 1:
                    System.out.println("Masukkan jumlah pinjaman:
");
                    donny.pinjam(sc.nextInt());
                    System.out.println("Jumlah pinjaman saat ini: "
+ donny.getJumlahPinjaman());
                    break;

                case 2:
                    System.out.println("Masukkan jumlah angsuran:
");
                    donny.angsur(sc.nextInt());
                    System.out.println("Jumlah pinjaman saat ini: "
+ donny.getJumlahPinjaman());
                    break;

                case 3:
                    System.out.println("Jumlah pinjaman saat ini: "
+ donny.getJumlahPinjaman());
                    break;
            }
```

```
        } while(menu > 0 && menu < 4);

    }
}
```

b. Output

```
"C:\Program Files\Java\jdk1.8.0_121\bin\java.exe" ...
Nama Anggota: Donny
Limit Pinjaman: 5000000
========Menu Pinjaman=======
1. Pinjam
2. Angsur
3. Jumlah Pinjaman
4. Keluar
Masukkan Pilihan: 1
Masukkan jumlah pinjaman:
4000000
Jumlah pinjaman saat ini: 4000000
========Menu Pinjaman=======
1. Pinjam
2. Angsur
3. Jumlah Pinjaman
4. Keluar
Masukkan Pilihan: 2
Masukkan jumlah angsuran:
400000
Jumlah pinjaman saat ini: 3600000
========Menu Pinjaman=======
1. Pinjam
2. Angsur
3. Jumlah Pinjaman
4. Keluar
Masukkan Pilihan: 3
Jumlah pinjaman saat ini: 3600000
========Menu Pinjaman=======
1. Pinjam
2. Angsur
3. Jumlah Pinjaman
4. Keluar
Masukkan Pilihan: 4

Process finished with exit code 0
```