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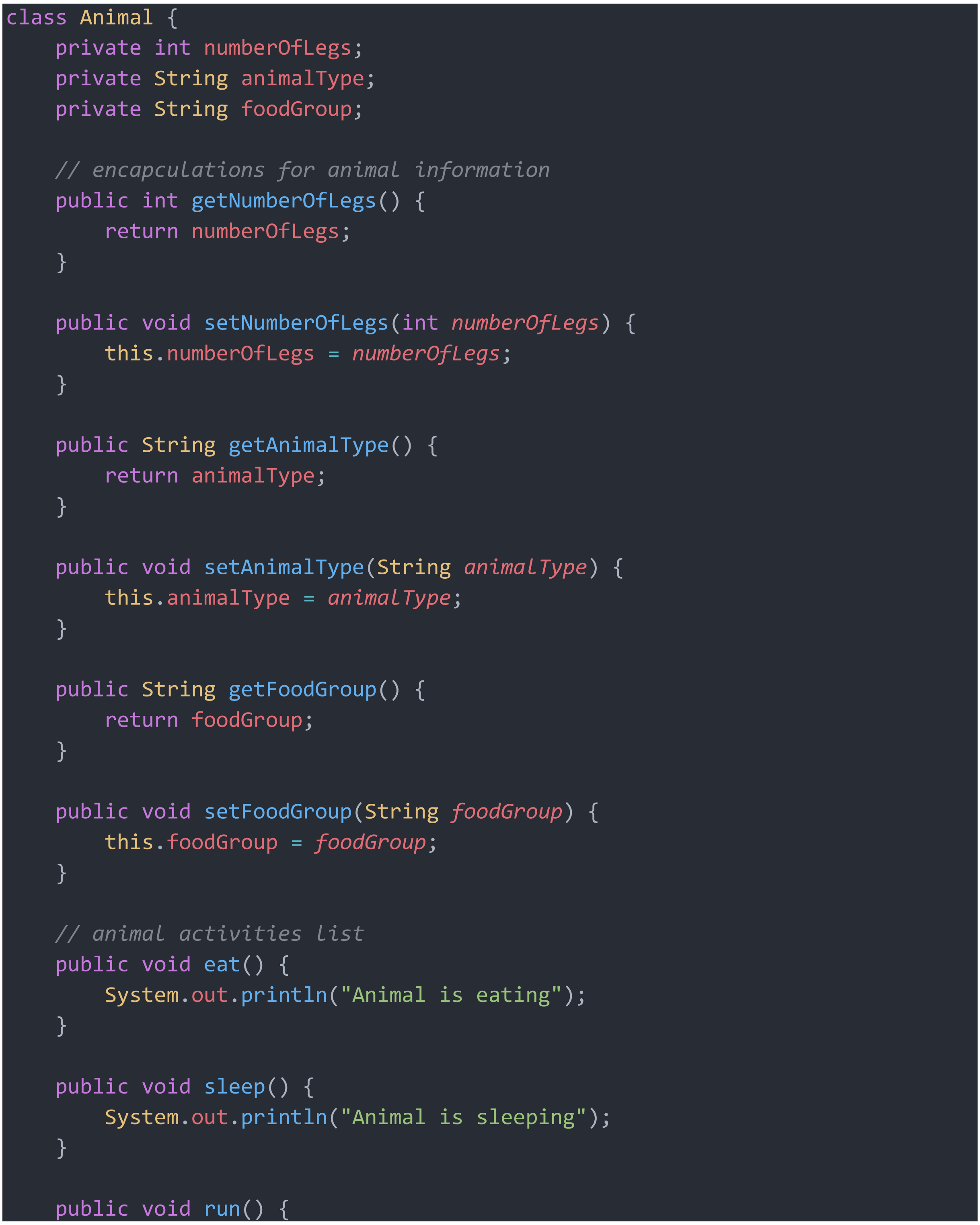
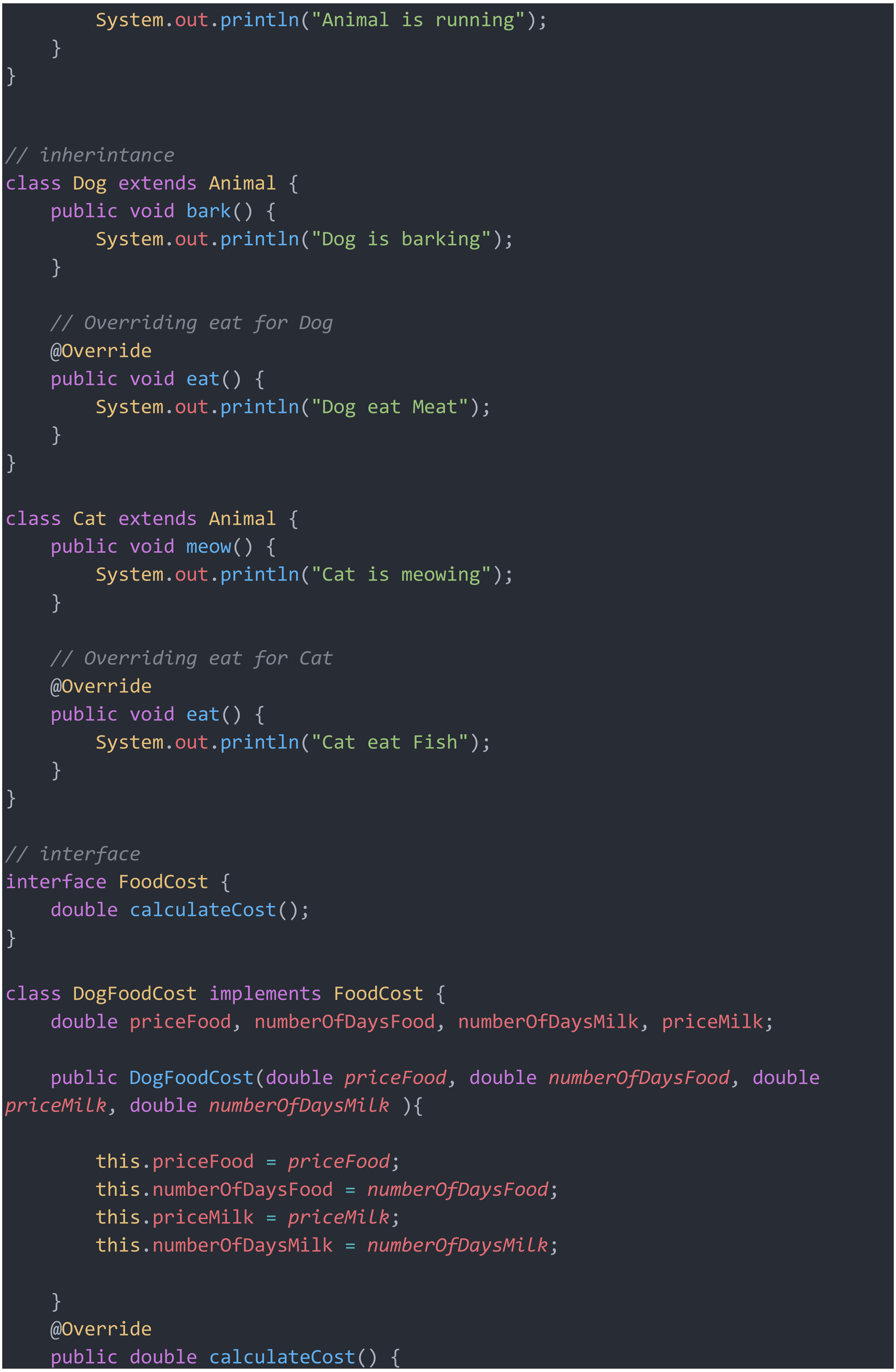
UTS PRAKTIKUM PBO (kelas C)

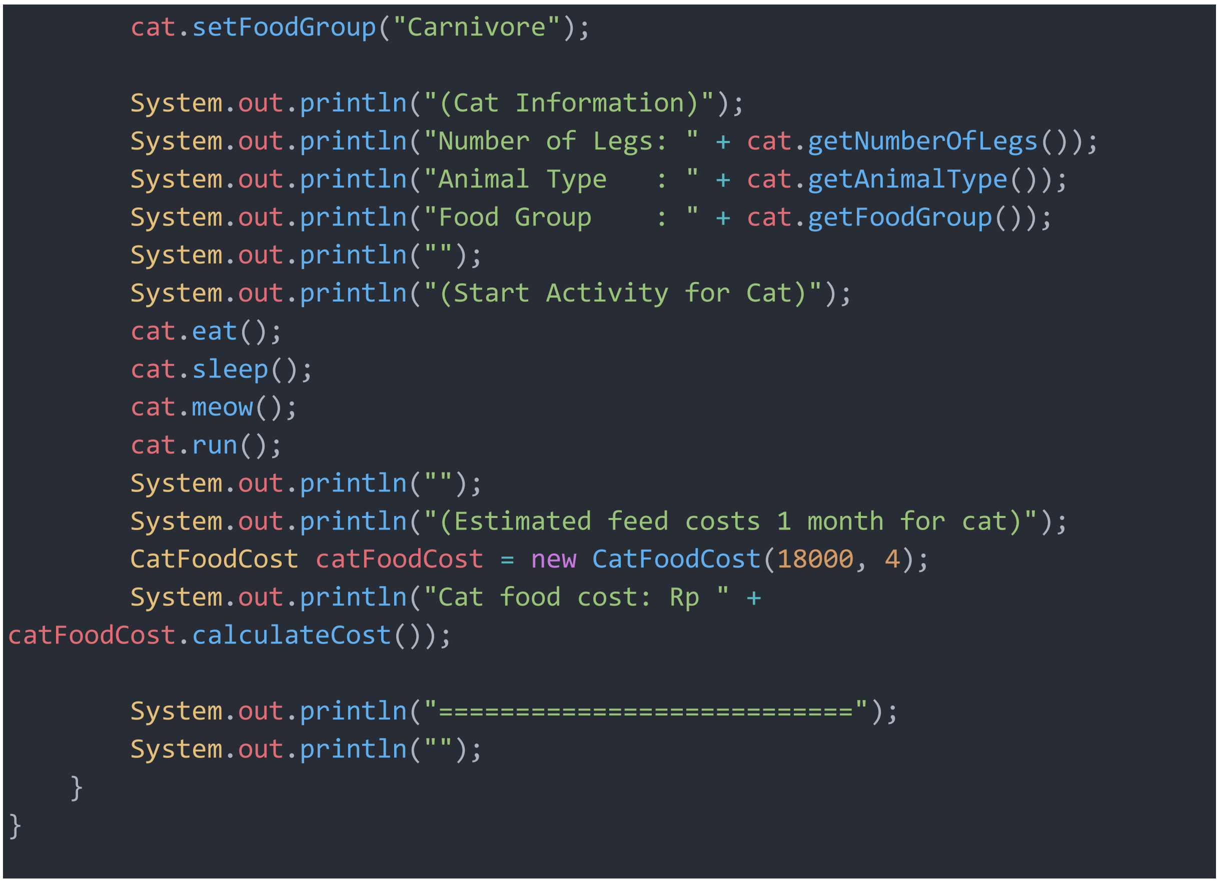
informationAnimal.java



```java
class Animal {
    private int numberOfLegs;
    private String animalType;
    private String foodGroup;

    // encapculations for animal information
    public int getNumberOfLegs() {
        return numberOfLegs;
    }

    public void setNumberOfLegs(int numberOfLegs) {
        this.numberOfLegs = numberOfLegs;
    }

    public String getAnimalType() {
        return animalType;
    }

    public void setAnimalType(String animalType) {
        this.animalType = animalType;
    }

    public String getFoodGroup() {
        return foodGroup;
    }

    public void setFoodGroup(String foodGroup) {
        this.foodGroup = foodGroup;
    }

    // animal activities list
    public void eat() {
        System.out.println("Animal is eating");
    }

    public void sleep() {
        System.out.println("Animal is sleeping");
    }

    public void run() {
```

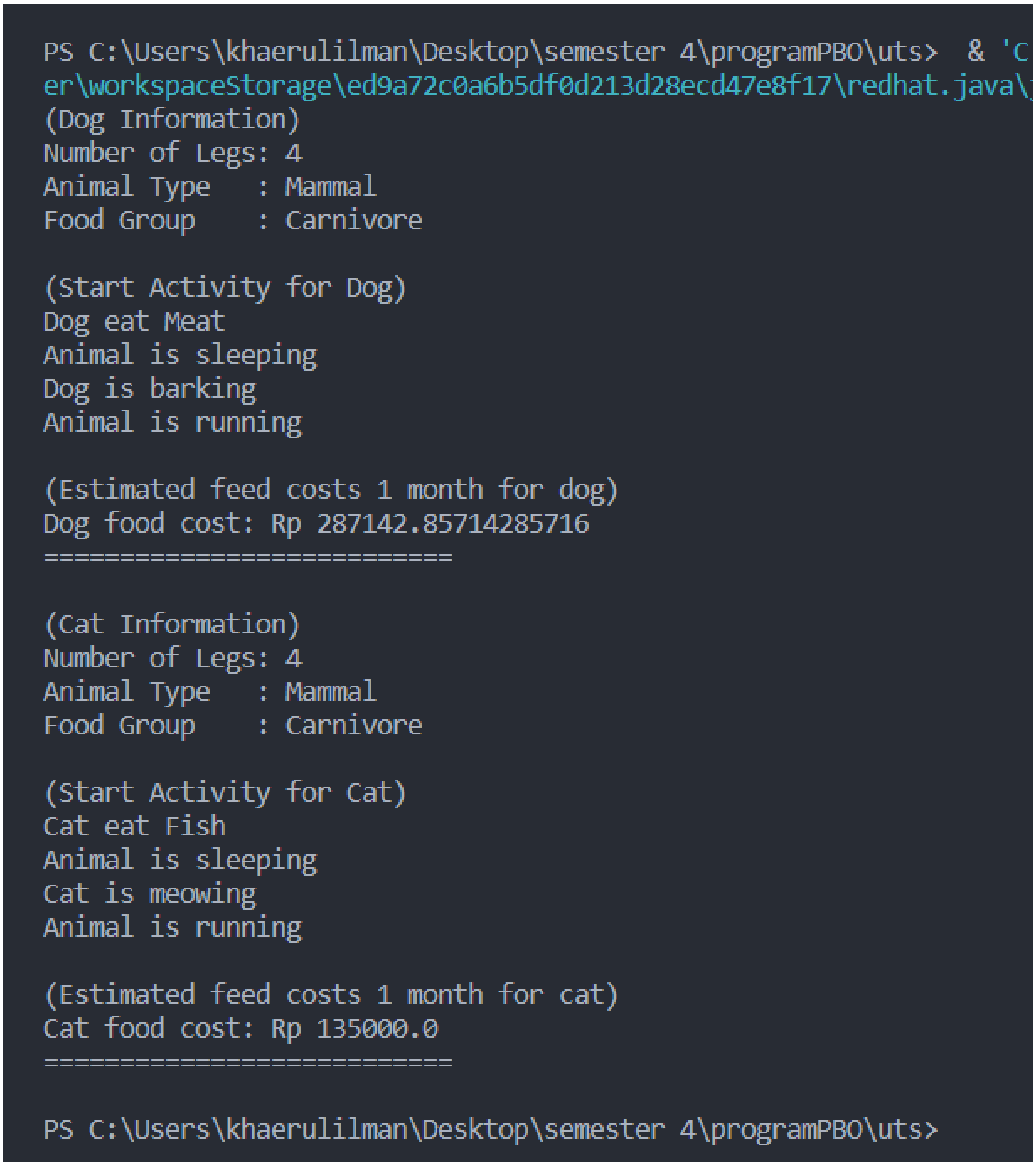


```
        System.out.println("Animal is running");
    }
}


// inherintance
class Dog extends Animal {
    public void bark() {
        System.out.println("Dog is barking");
    }

    // Overriding eat for Dog
    @Override
    public void eat() {
        System.out.println("Dog eat Meat");
    }
}

class Cat extends Animal {
    public void meow() {
        System.out.println("Cat is meowing");
    }

    // Overriding eat for Cat
    @Override
    public void eat() {
        System.out.println("Cat eat Fish");
    }
}

// interface
interface FoodCost {
    double calculateCost();
}

class DogFoodCost implements FoodCost {
    double priceFood, numberOfDaysFood, numberOfDaysMilk, priceMilk;

    public DogFoodCost(double priceFood, double numberOfDaysFood, double
priceMilk, double numberOfDaysMilk ){

        this.priceFood = priceFood;
        this.numberOfDaysFood = numberOfDaysFood;
        this.priceMilk = priceMilk;
        this.numberOfDaysMilk = numberOfDaysMilk;

    }
    @Override
    public double calculateCost() {
        return (30/numberOfDaysFood)*priceFood
+(30/numberOfDaysMilk)*priceMilk;
    }
}

class CatFoodCost implements FoodCost {
    double priceFood, numberOfDays;

    public CatFoodCost(double priceFood, double numberOfDays){
        this.priceFood = priceFood;
        this.numberOfDays = numberOfDays;
    }
    @Override
    public double calculateCost() {
        return (30/numberOfDays)*priceFood;
    }
}

public class informationAnimal {
    public static void main(String[] args) {
        // animal dog
        Dog dog = new Dog();
        dog.setNumberOfLegs(4);
        dog.setAnimalType("Mammal");
        dog.setFoodGroup("Carnivore");

        System.out.println("(Dog Information)");
        System.out.println("Number of Legs: " + dog.getNumberOfLegs());
        System.out.println("Animal Type   : " + dog.getAnimalType());
        System.out.println("Food Group    : " + dog.getFoodGroup());
        System.out.println("");
        System.out.println("(Start Activity for Dog)");
        dog.eat();
        dog.sleep();
        dog.bark();
        dog.run();
        System.out.println("");
        System.out.println("(Estimated feed costs 1 month for dog)");
        DogFoodCost dogFoodCost = new DogFoodCost(32000, 7,20000,4);
        System.out.println("Dog food cost: Rp " +
dogFoodCost.calculateCost());

        System.out.println("===========================");
        System.out.println("");
        // animal cat
        Cat cat = new Cat();
        cat.setNumberOfLegs(4);
        cat.setAnimalType("Mammal");
```



```java
        cat.setFoodGroup("Carnivore");

        System.out.println("(Cat Information)");
        System.out.println("Number of Legs: " + cat.getNumberOfLegs());
        System.out.println("Animal Type    : " + cat.getAnimalType());
        System.out.println("Food Group     : " + cat.getFoodGroup());
        System.out.println("");
        System.out.println("(Start Activity for Cat)");
        cat.eat();
        cat.sleep();
        cat.meow();
        cat.run();
        System.out.println("");
        System.out.println("(Estimated feed costs 1 month for cat)");
        CatFoodCost catFoodCost = new CatFoodCost(18000, 4);
        System.out.println("Cat food cost: Rp " +
catFoodCost.calculateCost());

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

Output :



```
PS C:\Users\khaerulilman\Desktop\semester 4\programPBO\uts>  & 'C
er\workspaceStorage\ed9a72c0a6b5df0d213d28ecd47e8f17\redhat.java\
(Dog Information)
Number of Legs: 4
Animal Type    : Mammal
Food Group     : Carnivore

(Start Activity for Dog)
Dog eat Meat
Animal is sleeping
Dog is barking
Animal is running

(Estimated feed costs 1 month for dog)
Dog food cost: Rp 287142.85714285716
===========================

(Cat Information)
Number of Legs: 4
Animal Type    : Mammal
Food Group     : Carnivore

(Start Activity for Cat)
Cat eat Fish
Animal is sleeping
Cat is meowing
Animal is running

(Estimated feed costs 1 month for cat)
Cat food cost: Rp 135000.0
===========================

PS C:\Users\khaerulilman\Desktop\semester 4\programPBO\uts>
```

Penjelasan Code diatas :

code diatas merupakan implementasi dari konsep konsep

1. Encapsulation

2. Inheritance

3. Polimorphism overriding

4. Interface

program disini mencetak informarsi seperti

- numberOfLegs

- animalType

- foodGroup

Ketiga variabel tersebut kita buatkan setter dan getter sebagai konsep dari encapsulationnya.

Kemudian untuk konsep inherintance diterapkan pada class Dog dan class Cat yang mewariskan class Animal, sehingga class Dog dan Animal dapat menggunakan method eat() , sleep() dan run().

Kemudian untuk konsep polymorphism pada bagian ini mengimplementasikan contoh kode program Overriding. Contohnya pada method eat() ditemukan pada class induk (Animal) dan class child(Dog and Cat).

Kemudian disini menerapkan konsep interface, disini interface yang dibuat diberi nama FoodCost. Implementasi class interfacenya yaitu class DogFoodCost dan CatFoodCost.