

Lab Exercise 4

Programming In Java

Implement the concept of **package** and **interface** in your domain

Farm.java

Java

```
package Labworks.LabEx4;
import Labworks.LabEx4.Animals.*;
import Labworks.LabEx4.InAnimateObjects.*;

public class Farm {
    public static void main(String[] args) {
        Cow bessie = new Cow("Bessie",4,12.5);
        Sheep dolly = new Sheep("Dolly",2,4.5);
        Tractor Charlie = new Tractor("Charlie",30);
        Scarecrow Malcom = new Scarecrow("Malcom",30);

        System.out.println("\n----FARM----");

        System.out.println("\nAbout Our Cow ");
        bessie.move();
        bessie.makeNoise();
        bessie.feed();

        System.out.println("\nAbout Our Sheep ");
        dolly.move();
        dolly.makeNoise();
        dolly.feed();

        System.out.println("\nAbout Our Tractor ");
        Charlie.move();
```

```
        Charlie.makeNoise();

        System.out.println("\nAbout Our Scarecrow ");
        Malcom.makeNoise();

        System.out.println("\n");
    }
}
```

Animal.java

Java

```
package Labworks.LabEx4.Animals;

public abstract class Animal {
    private String name;
    public int age;

    public Animal(String name,int age) {
        this.name = name;
        this.age=age;
    }

    public String getName() {
        return name;
    }

    abstract public void Production();
}
```

Cow.java

Java

```
package Labworks.LabEx4.Animals;
import Labworks.LabEx4.Interfaces.*;

public class Cow extends Animal implements Movable, Noisy,
Feedable {

    public double milkPerday;

    public Cow(String name,int age,double milkPerday) {
        super(name,age);
        this.milkPerday = milkPerday;
    }

    @Override
    public void move() {
        System.out.println(getName() + " is moo-ving
gracefully.");
    }

    @Override
    public void makeNoise() {
        System.out.println("Moo! I'm a happy cow named " +
getName());
    }

    @Override
    public void feed() {
        System.out.println(getName() + " is enjoying a delicious
meal.");
    }

    @Override
    public void Production(){
        System.out.println(getName() + " produces
"+this.milkPerday+" a day");
    }
}
```

```
}  
}
```

Sheep.java

Java

```
package Labworks.LabEx4.Animals;  
import Labworks.LabEx4.Interfaces.*;  
  
public class Sheep extends Animal implements Movable, Noisy,  
Feedable {  
    public double woolGiven;  
  
    public Sheep(String name, int age, double woolGiven) {  
        super(name, age);  
        this.woolGiven = woolGiven;  
    }  
  
    @Override  
    public void move() {  
        System.out.println(getName() + " is happily walking  
around.");  
    }  
  
    @Override  
    public void makeNoise() {  
        System.out.println("Baa! I'm a fluffy sheep named " +  
getName()+ " And i give "+this.woolGiven+"kg of wool per year");  
    }  
  
    @Override  
    public void feed() {  
        System.out.println(getName() + " is enjoying some tasty  
grass for the past "+this.age+" years");  
    }  
}
```

```
@Override
public void Production(){
    System.out.println(getName() + " produces
"+this.woolGiven+" a year");
}
}
```

Movable.java

```
Java
package Labworks.LabEx4.Interfaces;

public interface Movable {
    void move();
}
```

Feedable.java

```
Java
package Labworks.LabEx4.Interfaces;

public interface Feedable {
    void feed();
}
```

Noisy.java

```
Java
package Labworks.LabEx4.Interfaces;

public interface Noisy {
    void makeNoise();
}
```

Tractor.java

Java

```
package Labworks.LabEx4.InAnimateObjects;
import Labworks.LabEx4.Interfaces.*;

public class Tractor implements Movable, Noisy {

    String name;
    int speed;

    public Tractor(String name,int speed){
        this.name = name;
        this.speed = speed;
    }

    @Override
    public void move() {
        System.out.println(this.name + " The tractor is plowing
the field.");
    }

    @Override
    public void makeNoise() {
        System.out.println("Vroom! The tractor is at work.Engine
Noise Rumbling. Goin at a Speed of "+this.speed+"km/h");
    }
}
```

Scarecrow.java

Java

```
package Labworks.LabEx4.InAnimateObjects;
import Labworks.LabEx4.Interfaces.Noisy;
```

```

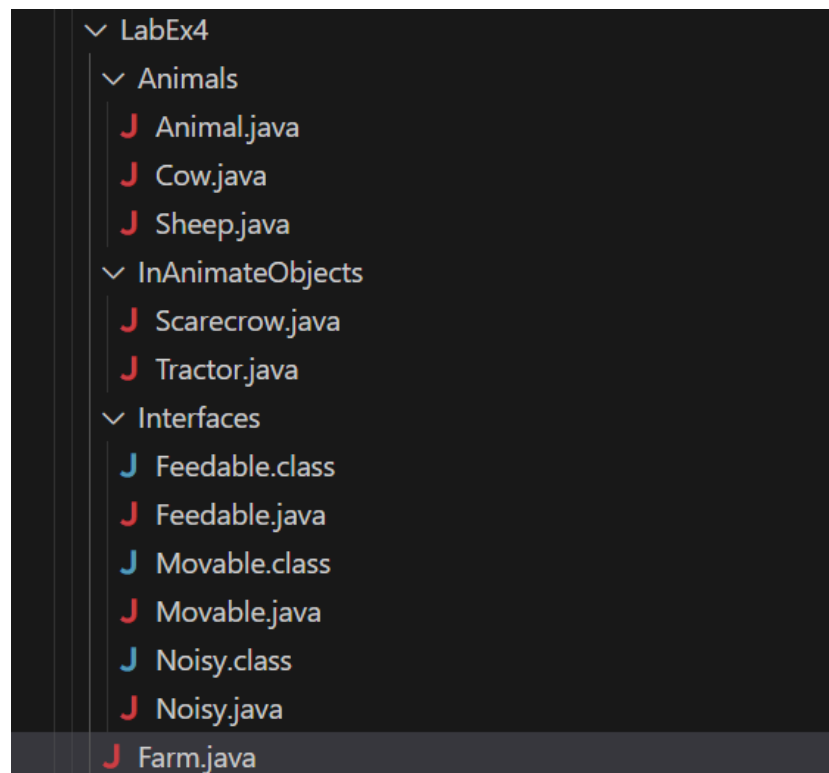
public class Scarecrow implements Noisy {
    public String name;
    public int AvgCrows;

    public Scarecrow(String name, int AvgCrows){
        this.name = name;
        this.AvgCrows=AvgCrows;
    }

    @Override
    public void makeNoise() {
        System.out.println(this.name+" The Scarecrow scaring
"+this.AvgCrows+"crows a day");
    }
}

```

File Structure



Output

----FARM----

About Our Cow

Bessie is moo-ving gracefully.

Moo! I'm a happy cow named Bessie

Bessie is enjoying a delicious meal.

About Our Sheep

Dolly is happily walking around.

Baa! I'm a fluffy sheep named Dolly And i give 4.5kg of wool per year

Dolly is enjoying some tasty grass for the past 2 years

About Our Tractor

Charlie The tractor is plowing the field.

Vroom! The tractor is at work.Engine Noise Rumbling. Goin at a Speed of 30km/h

About Our Scarecrow

Malcom The Scarecrow scaring 30crows a day