import java.util.ArrayList;

import java.util.List;

// Class representing a disease

class Disease {

String name;

String symptoms;

String treatment;

public Disease(String name, String symptoms, String treatment) {

this.name = name;

this.symptoms = symptoms;

this.treatment = treatment;

}}

// Class representing a Crop

class Crop {

String name;

Disease disease;

public Crop(String name) {

this.name = name;

this.disease = null;

}

public void setDisease(Disease disease) {

this.disease = disease;

}

public Disease getDisease() {

return this.disease;

}

}

// Class representing a Livestock

class Livestock {

String name;

Disease disease;

public Livestock(String name) {

this.name = name;

this.disease = null;

}

public void setDisease(Disease disease) {

this.disease = disease;

}

public Disease getDisease() {

return this.disease;

}

}

// Main FarmManagementApp class

public class FarmManagementApp {

List<Crop> crops;

List<Livestock> livestock;

List<Disease> diseases;

public FarmManagementApp() {

this.crops = new ArrayList<>();

this.livestock = new ArrayList<>();

this.diseases = new ArrayList<>();

}

// Method to add a crop to the farm

public void addCrop(String name) {

crops.add(new Crop(name));

}

// Method to add a livestock to the farm

public void addLivestock(String name) {

livestock.add(new Livestock(name));

}

// Method to add a disease

public void addDisease(String name, String description) {

diseases.add(new Disease(name, description));

}

// Method to set disease for a crop

public void setCropDisease(String cropName, String diseaseName) {

Crop crop = findCropByName(cropName);

Disease disease = findDiseaseByName(diseaseName);

if (crop != null && disease != null) {

crop.setDisease(disease);

} else {

System.out.println("Crop or Disease not found!");

}

}

// Method to set disease for a livestock

public void setLivestockDisease(String livestockName, String diseaseName) {

Livestock livestock = findLivestockByName(livestockName);

Disease disease = findDiseaseByName(diseaseName);

if (livestock != null && disease != null) {

livestock.setDisease(disease);

} else {

System.out.println("Livestock or Disease not found!");

}

}

// Method to find a crop by name

private Crop findCropByName(String name) {

for (Crop crop : crops) {

if (crop.name.equalsIgnoreCase(name)) {

return crop;

}

}

return null;

}

// Method to find a livestock by name

private Livestock findLivestockByName(String name) {

for (Livestock livestock : livestock) {

if (livestock.name.equalsIgnoreCase(name)) {

return livestock;

}

}

return null;

}

// Method to find a disease by name

private Disease findDiseaseByName(String name) {

for (Disease disease : diseases) {

if (disease.name.equalsIgnoreCase(name)) {

return disease;

}

}

return null;

}

// Method to display all crops with diseases

public void displayCropsWithDiseases() {

System.out.println("Crops with diseases:");

for (Crop crop : crops) {

if (crop.getDisease() != null) {

System.out.println(crop.name + ": " + crop.getDisease().name + " - " + crop.getDisease().description);

}

}

}

// Method to display all livestock with diseases

public void displayLivestockWithDiseases() {

System.out.println("Livestock with diseases:");

for (Livestock livestock : livestock) {

if (livestock.getDisease() != null) {

System.out.println(livestock.name + ": " + livestock.getDisease().name + " - " + livestock.getDisease().description);

}

}

}

public static void main(String[] args) {

FarmManagementApp farmApp = new FarmManagementApp();

// Adding crops

farmApp.addCrop("Wheat");

farmApp.addCrop("Corn");

// Adding livestock

farmApp.addLivestock("Cattle");

farmApp.addLivestock("Sheep");

// Adding diseases

farmApp.addDisease("Rust", "A fungal disease affecting grains.");

farmApp.addDisease("Foot-and-Mouth Disease", "A highly contagious viral disease affecting cloven-hoofed animals.");

// Setting diseases

farmApp.setCropDisease("Wheat", "Rust");

farmApp.setLivestockDisease("Cattle", "Foot-and-Mouth Disease");

// Displaying crops and livestock with diseases

farmApp.displayCropsWithDiseases();

farmApp.displayLivestockWithDiseases();

}

}