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/**
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 * Seminar number : 2
 *
 * Program Description:  This programs main function is to test all the methods and
connectivity of the classes
 *                                Plant, Tree, Flower, Vegtable, and the interface Equals
 *
 */

class PlantTester {
    public static void main(String[] args)
    {

        System.out.println();

        Plant [] plantArray = new Plant[6];

        plantArray[0] = new Tree("Oak", 12, 22.2);
        plantArray[1] = new Tree("Pine", 10, 10.11);

        plantArray[2] = new Flower("Daisy", 5, "Yellow");
        plantArray[3] = new Flower("Lily", 12, "Blue");

        plantArray[4] = new Vegtable("Squash", 8, "soft", "soup", "Squashitous");
        plantArray[5] = new Vegtable("Carrot", 12, "gritty", "Cake", "Carrotius");

        System.out.println("Listing array elements: ");
        for(int i = 0; i < plantArray.length; i++)
        {
            System.out.println(plantArray[i]);
        }


        //casting from plantArray to Tree, Flower, or Vegtable

        Tree tree1 = (Tree)plantArray[0];
        Tree tree2 = (Tree)plantArray[1];

        Flower flower1 = (Flower)plantArray[2];
        Flower flower2 = (Flower)plantArray[3];

        Vegtable veg2 = (Vegtable)plantArray[4];
        Vegtable veg1 = (Vegtable)plantArray[5];


        //Testing set and get for Tree class

        tree1.setName("Mahagony");
        tree1.setLifespan(45);
        tree1.setHeight(45.9);

        System.out.printf("%nTesting get and set for tree1: %s, %d , %f%n",
                        tree1.getName(), tree1.getLifespan(), tree1.getHeight());
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        tree2.setName("Redwood");
        tree2.setLifespan(900);
        tree2.setHeight(200.5);

        System.out.printf("%nTesting get and set for tree2: %s, %d , %f%n",
                        tree2.getName(), tree2.getLifespan(), tree2.getHeight());


        //Testing set and get for Flower class

        flower1.setName("Petunias");
        flower1.setLifespan(3);
        flower1.setColour("Red");


        System.out.printf("%nTesting get and set for flower1: %s, %d, %s%n",
                    flower1.getName(), flower2.getLifespan(), flower1.getColour());

        flower2.setName("Tulips");
        flower2.setLifespan(3);
        flower2.setColour("purple");


        System.out.printf("%nTesting get and set for flower2: %s, %d, %s%n",
            flower2.getName(), flower2.getLifespan(), flower2.getColour());



        //Testing set and get for Vegtable class
        veg1.setName("Cabbage");
        veg1.setLifespan(2);
        veg1.setFlavour("Bland");
        veg1.setPlantUse("Sandwich");
        veg1.setBotanicalName("Letticuse");

        System.out.printf("%nTesting set and get for veg1: %s, %d, %s, %s , %s%n",
                        veg1.getName(), veg1.getLifespan(), veg1.getFlavour(),
                        veg1.getPlantUse(), veg1.getBotanicalName());


        veg2.setName("Corn");
        veg2.setLifespan(9);
        veg2.setFlavour("Ew");
        veg2.setPlantUse("soup");
        veg2.setBotanicalName("Cornucous");

        System.out.printf("%nTesting set and get for veg2: %s, %d, %s, %s , %s%n",
                    veg2.getName(), veg2.getLifespan(), veg2.getFlavour(),
                    veg2.getPlantUse(), veg2.getBotanicalName());


        //Testing Tree compareTo method

        System.out.println("\nTesting Tree compareTo method, tree1 compareTo tree2: expected
outcome is -1  real out come: " + tree1.compareTo(tree2));
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        System.out.println("\nTesting Tree compareTo method, tree2 compareTo tree1: expected
outcome is 1  real out come: " + tree2.compareTo(tree1));

        System.out.println("\nTesting Tree compareTo method, tree2 compareTo tree2: expected
outcome is 0  real out come: " + tree2.compareTo(tree2));



        //Testing Equals method


        //Tree test
        System.out.println("\n\nTesting equals method for Tree class");
        System.out.println("tree1 equals tree2 expected output: false  real output:" +
tree1.equals(tree2));

        Tree tree3 = tree2;

        System.out.println("tree2 equals tree2 expected output: true  real output:" +
tree2.equals(tree2));



        //Flower test
        System.out.println("\n\nTesting equals method for Flower class");
        System.out.println("flower1 equals flower2 expected output: false  real output:" +
flower1.equals(flower2));

        Flower flower3 = flower2;

        System.out.println("flower2 equals flower3 expected output: true  real output:" +
flower2.equals(flower3));


        //Vegtable test
        System.out.println("\n\nTesting equals method for Vegtable class");
        System.out.println("veg1 equals veg2 expected output: false  real output:" +
veg1.equals(veg2));

        Vegtable veg3 = veg2;
        System.out.println("veg2 equals veg3 expected output: true  real output:" +
veg2.equals(veg3));



        //Testing tostring

        //tree toString
        System.out.println("\n testing tostring for Tree:\n" + tree1.toString() +"\n " +
tree2.toString());

        //flower toString
        System.out.println("\n testing tostring for Flower:\n" + flower1.toString() +"\n " +
flower2.toString());
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        //vegetable toString
            System.out.println("\n testing tostring for Vegtable:\n" + veg1.toString() +"\n " +
veg2.toString());
    }
}
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