CS 1073

FR03A

Assignment #3

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# Section 1

/\*\*

@author Ethan McCarthy 3573807

\*/

public class Saddle{

    //the material of the saddle

    private String material;

    //the width of the saddle

    private double width;

    //the cost of the saddle

    private double cost;

    /\*\*

    The constructor method to construct a saddle with the material,

    width, and cost of the saddle.

    @param materialIn the material

    @param widthIn the width

    @param costIn the cost

    \*/

    public Saddle(String materialIn, double  widthIn, double costIn){

        material = materialIn;

        width = widthIn;

        cost = costIn;

    }

    /\*\*

    method to retrieve the material of the saddle

    @return the material of the saddle

    \*/

    public String getMaterial(){

        return material;

    }

    /\*\*

    method to retrieve the width of the saddle

    @return the width of the saddle

    \*/

    public double getWidth(){

        return width;

    }

    /\*\*

    method to retrieve the cost of the saddle

    @return the cost of the saddle

    \*/

    public double getCost(){

        return cost;

    }

}

# Section 2

/\*\*

@author Ethan McCarthy 3573807

\*/

public class Horse{

    //the name of the horse

    private String name;

    //the age of the horse

    private int age;

    //the cost to rent the horse

    private double costToRent;

    //the saddle that is on the horse

    private Saddle saddle;

    /\*\*

     \* the constructor class to make a horse and initialize the variables

     \* @param nameIn the name

     \* @param ageIn the age

     \* @param costToRentIn the cost to rent

     \* @param saddleIn the saddle

     \*/

    public Horse(String nameIn, int ageIn, double costToRentIn, Saddle saddleIn){

        name = nameIn;

        age = ageIn;

        costToRent = costToRentIn;

        saddle = saddleIn;

    }

    /\*\*

     \* mutator class to make a new name for a horse

     \* @param nameIn new name

     \* @return the new given name

     \*/

    public String setName(String nameIn){

        name = nameIn;

        return name;

    }

    //mutator method to increase the age of the horse by one year

    public void incrementAge(){

        age += 1;

    }

    /\*\*

     \* mutator method to set a new cost to rent

     \* @param costToRentIn the new cost to rent

     \* @return the new cost to rent

     \*/

    public double setCostToRent(double costToRentIn){

        costToRent = costToRentIn;

        return costToRent;

    }

    /\*\*

     \* mutator method to assign a new saddle to the horse

     \* @param saddleIn the new saddle

     \* @return new saddle

     \*/

    public Saddle setSaddle(Saddle saddleIn){

        saddle = saddleIn;

        return saddle;

    }

    /\*\*

     \* method to retreive the info about the horse

     \* @return the info about the horse

     \*/

    public String getInfo(){

        return name + " (age: " + age + ")\n\tSaddle: " + saddle.getMaterial() + " (width: " + saddle.getWidth() + " cm)";

    }

    /\*\*

     \* method to retrieve the total cost for the lesson

     \* @return the total cost

     \*/

    public double getTotalLessonCost(){

        double totalCost = 17.50 + costToRent + saddle.getCost();

        return totalCost;

    }

}

# Section 3

/\*\*

 \* Test class for the Saddle and Horse classes

 \* @author Ethan McCarthy 3573807

 \*/

public class Lab3TestDriver{

    public static void main(String[] args){

        Saddle Plexiglass = new Saddle("Plexiglass", 67.25, 20.00);

        Saddle Leather = new Saddle("Leather", 63.5, 15.50);

        Saddle Wood = new Saddle("Pressed Wood", 53.5, 28.75);

        Horse Carrots = new Horse("Carrots", 3, 56.55, Plexiglass);

        Horse Betty = new Horse("Betty", 5, 65.33, Leather);

        Horse Maribelle = new Horse("Maribelle", 3, 75.50, Wood);

        Maribelle.setCostToRent(85.50);

        Betty.incrementAge();

        Betty.setCostToRent(75.75);

        Saddle Iron = new Saddle("Iron", 67.25, 24.00);

        Carrots.setSaddle(Iron);

        System.out.println(Carrots.getInfo());

        System.out.println("Total Lesson Cost: " + Carrots.getTotalLessonCost());

        System.out.println(Betty.getInfo());

        System.out.println("Total Lesson Cost: " + Betty.getTotalLessonCost());

        System.out.println(Maribelle.getInfo());

        System.out.println("Total Lesson Cost: " + Maribelle.getTotalLessonCost());

    }

}

# Section 4

Carrots (age: 3)

Saddle: Iron (width: 67.25 cm)

Total Lesson Cost: 98.05

Betty (age: 6)

Saddle: Leather (width: 63.5 cm)

Total Lesson Cost: 108.75

Maribelle (age: 3)

Saddle: Pressed Wood (width: 53.5 cm)

Total Lesson Cost: 131.75