

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 retrieve 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