CSC116 DISCUSSION 17

Gina Bai

LOGISTICS

- Exam 2 grades posted
  - Read the feedback
  - Regrade request by Friday afternoon.
- Extra Credit Opportunities
  - Growth Mindset #4
    - Due tomorrow, July 8th, at 11:45pm
  - Unit Testing Study
    - 2-hr lab session
    - Sign up by Tuesday via: : https://ncsu.qualtrics.com/jfe/form/SV_cYiVI3CvGzloZIF

EXAM 2 – COMMON MISTAKE

```
public class StringComparison{
    public static void main(String[] args){
        // equals() vs. ==
        String s1 = "HELLO";
        String s2 = "HELLO";
        String s3 =  new String("HELLO");
        System.out.println(s1 == s2);         // true
        System.out.println(s1 == s3);         // false
        System.out.println(s1.equals(s2));  // true
        System.out.println(s2.equals(s3));  // true
        System.out.println(s1.equals(s3));  // true
    }
}
```

- equals()
  - content comparison
- ==
  - reference comparison

OBJECT

- State
  - Fields / Instance Variables
- Behavior
  - Instance Methods

- public vs. private
  - accessor
  - mutator

LAB 17 – CARS

```java
public class Car {

    // Fields / Instance Variables
    private String make;
    private double fuelCapacity;
    private double milesPerGallon;
    private double gallonsInTank;

    // Constructor
    public Car(String m, double fc, double mpg) {
        make = m;
        fuelCapacity= fc;
        milesPerGallon= mpg;
    }

    // Accessor Methods
    public String getMake() {
        return make;
    }
    public double getFuelCapacity() {
        return fuelCapacity;
    }
    public double getMilesPerGallon() {
        return milesPerGallon;
    }
    public double getGallonsInTank() {
        return gallonsInTank;
    }
```

Lab 17 – Car.java

```
30      // Mutator Methods
31      public void fillTank() {
32          // TODO
33          // Set the tank to it's maximum capacity
34      }
35
36      public void addGas(double gallons) {
37          // TODO
38          // Do not add gas to the car, if gallons is less than or equal to 0
39          // Be careful not to overfill the car!
40      }
41
42      public void drive(int miles) {
43          // TODO
44          // If the miles is greater than 0, update the amount of gallons in tank.
45      }
```

Lab 17 – CarClient.java

```java
public class CarClient{
    public static void main(String[] args) {

        // Create a Car object with the constructor

        // Display the following information of your Car: make, fuel capacity, miles per gallon

        // Display the current gallons in tank

        // Fill the tank

        // Display the current gallons in tank

        // Drive the car for 400 miles

        // Display the current gallon in tank

        // Add -1 gallon to the tank

        // Add 1 gallon to the tank

        // Display the current gallon in tank

        // Add 100 gallon to the tank

        // Display the current gallon in tank

        // Drive the car for -10 miles

        // Drive the car for 20 miles

        // Display the current gallon in tank

        // Fill the tank

        // Display the current gallon in tank

    }
}
```

- Print Statements
- Method calls

Make: Honda
Fuel capacity: 15.0 gal.
Miles per gallon: 50.0 mpg.
The empty tank: 0.0 gal.
Filled the empty tank: 15.0 gal.
Drove for 400 miles: 7.0 gal.
Tried to add -1.0 gal., but it is an invalid amount.
Added 1 gallon: 8.0 gal.
Tried to add 100.0 gal., but exceeded the full capacity.
Added 100 gallons: 15.0 gal.
Tried to drive for -10 miles, but it is an invalid amount.
Drove for 20 miles: 14.6 gal.
Refilled the tank: 15.0 gal.