CS161
Intro to Computer Science I
Creating Our Own Classes
Chap. 8.2 – 8.3

Assignment #4

• How is everyone doing?
• Useful tips:
  – `Integer.parseInt(String s)`
  – `break;` vs `return;`
• Questions???

Writing our own *Point* Class

• With State Only
  ```java
  public class Point {
    int x;
    int y;
  }
  public class MakePoints {
    public static void main(String[] args) {
      Point p1 = new Point();
      Point p2 = new Point();
      p1.x=10; p1.y=20;
      p2.x=5; p2.y=6;
    }
  }
  ```
Writing our own *Point* Class

• With State and Constructors Only

```java
public class Point {
    int x;
    int y;
    public Point() {
        x = 0;
        y = 0;
    }
    public Point(int init_x, int init_y) {
        x = init_x;
        y = init_y;
    }
}
```

• Can you put the same variable name as a parameter?

```java
public class Point {
    int x;
    int y;
    public Point() {
        x = 0;
        y = 0;
    }
    public Point(int x, int y) {
        this.x = x;
        this.y = y;
    }
}
```

Writing our own *Point* Class

```java
public class MakePoints {
    public static void main(String[] args) {
        Point p1 = new Point();
        Point p2 = new Point(3, 8);
        System.out.println(p1.x + " * " + p1.y);
        System.out.println(p2.x + " * " + p2.y);
    }
}
```
Writing our own Point Class

• With State, Constructors, and Behavior
public class Point {
    int x;
    int y;
    public Point() {
        x = 0;
        y = 0;
    }
    public Point(int init_x, int init_y) {
        x = init_x;
        y = init_y;
    }
    public void translate(int dx, int dy) {
        x += dx;
        y += dy;
    }
}

Writing our own Point Class

public class MakePoints {
    public static void main(String[] args) {
        Point p1 = new Point();
        Point p2 = new Point(3, 8);
        p1.translate(-1, 3);
        p2.translate(2, -2);
        System.out.println(p1.x + " * " + p1.y);
        System.out.println(p2.x + " * " + p2.y);
    }
}

Mutators and Accessors

• Mutator
    – Modifies state
    – Usually set_____
• Accessor
    – Provides info about the state
    – Usually get______ or is______
• What is the translate method?
```java
public class Point {
    int x;
    int y;
    public Point(int init_x, int init_y) {
        x = init_x;
        y = init_y;
    }
    public void translate(int dx, int dy) {
        x += dx;
        y += dy;
    }
    public String toString() {
        return "Point values: x=" + x + " * y=" + y;}
    }
    }
```

• Is this a mutator or accessor?