

CSE 11

Accelerated Intro to Programming

Lecture 9

Greg Miranda, Spring 2021

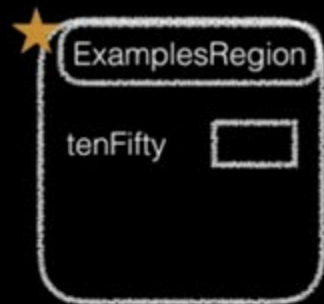
Announcements

- Quiz 9 due Monday @ 8am
- PA3 due Wednesday @ 11:59pm
- Survey 3 due tonight @ 11:59pm
- PA0.5 Resubmission due tonight @ 11:59pm
 - Or see a tutor during lab hours and demo it

Constructors

- Now that we understand the Stack, we have what we need to understand constructors

```
class Point {  
    int x;  
    int y;  
    Point(int x, int y) {  
        this.x = x;  
        this.y = y;  
    }  
  
}  
  
class ExamplesRegion {  
    Point tenFifty = new Point(10, 50);  
}
```



Constructor Summary

- Constructors:
 - Are special methods, called when **new** is used
 - Are passed the newly-constructed object as **this**, and any arguments
 - Typically assign values into fields using **this.field = value**
- When new is used:
 - A fresh object, with a new reference is created with uninitialized fields
 - The constructor with parameters that match the arguments is called
 - The whole new expression evaluates to the new reference

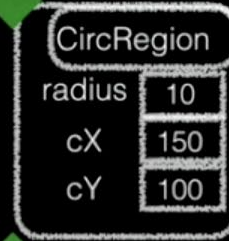
```

class CircRegion2 {
    int radius;
    int cX;
    int cY;
    CircRegion2(int radius, int cX, int cY) {
        this.radius = radius;
        this.cX = cX + 100;
        this.cY = cY;
    }
}

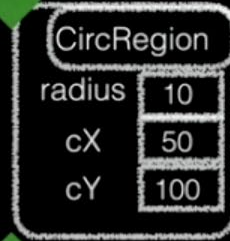
class ExamplesRegion {
    CircRegion2 cr2 = new CircRegion(10, 50, 100);
}

```

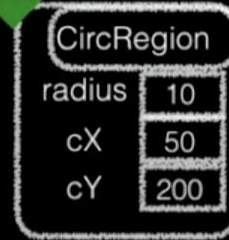
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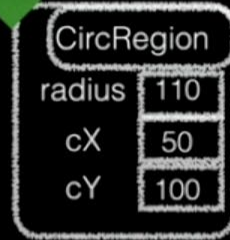
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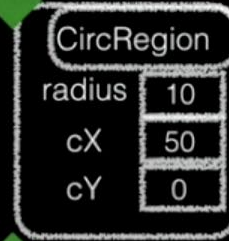
```

class CircRegion2 {
    int radius;
    int cX;
    int cY;
    CircRegion2(int radius) {
        this.radius = radius;
        this.cX = 0;
        this.cY = 0;
    }
}

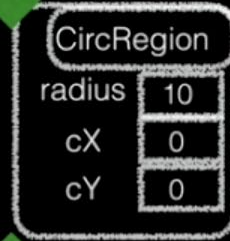
class ExamplesRegion {
    CircRegion2 cr2 = new CircRegion(10);
}

```

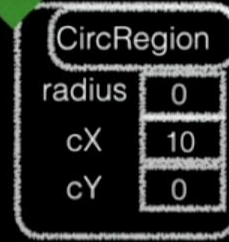
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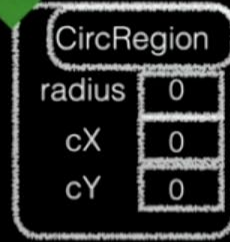
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Tester

- `import tester.*;`
 - `tester.jar` – java archive
 - Libraries that contain classes that we can use in our own code
 - `Tester`
 - `Tester` class allows us to create methods to unit test our code
 - Unit testing – compare actual values versus expected values
 - `t.checkExpect(<actual value>, <expected value>);`
 - Goal: get all tests to pass
 - Confidence that your code/solution is correct

Local Variables

- Local variables are defined inside the body of a method
 - They are 'local' to the method in which they are defined in
- Used temporarily while the method is running, then are removed
 - Similar to parameters
 - Added to the stack frame for the method
- No default value
 - Must be assigned a value before it's read from
 - i.e. used as an expression

