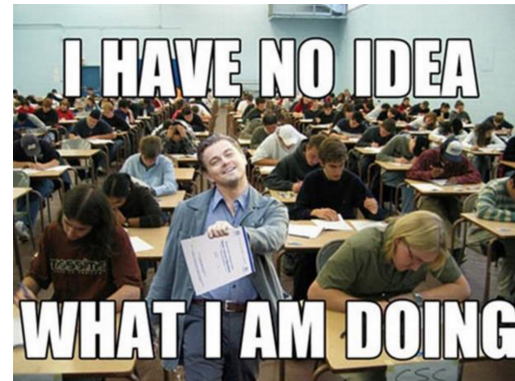


CS 11114

Introduction to Software Design

Spring 2017 - Michael Irwin



How's Program #2?

Test Format

- 12 quiz-style questions on Canvas
 - Multiple choice, short answer, true/false
- 2 questions on CodeWorkout
 - Expect to write a method that uses an if-then-else
 - Expect to write a method that uses a while loop

Basic Object-Oriented Terms

- Class
- Object
 - What's the difference between a class and an object?
- Methods
- Inheritance
 - Which is the parent/superclass?
 - Which is the child/subclass?
 - How do you inherit from a class?

Polymorphism

- What does it mean?
- Can you give an example?
- What is *method overriding*?
- What do `super` and `this` mean?

```
public class Hurdler extends Jeroo {  
    public void hop() {  
        if (this.seesNet(AHEAD)) {  
            hurdleNet();  
        }  
        else {  
            super.hop();  
        }  
    }  
  
    public void hurdleNet() {  
        // Hurdling went here  
    }  
}
```

Writing Methods

- What's need to write a method?
- How to call/invoke a method
- Difference between `super` and `this`

Constructors

- What is a constructor?
- What is a *default* constructor?
- How's it different than a method?
- How do you make a constructor?
- When is it called?

```
public FloweringStartingJeroo extends Jeroo {  
    public FloweringStartingJeroo() {  
        super(1, 1, 5);  
    }  
}
```

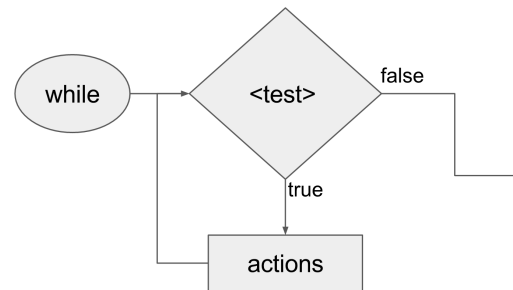
Conditionals

- If conditions
 - if/else if/else
- Boolean conditions
 - Boolean operators: &&, ||, !
 - Order of operations

```
if (seesWater(RIGHT) || !seesWater(LEFT) && seesNet(LEFT)) {  
    // When will this code actually run?  
}
```


Repetition using while loops

- While loops
- Boolean conditions/operators
- When does the loop continue?
- When does the loop stop?
- What if the condition is false when first get to the loop?



Boolean methods

- What is the method's return type?
- How does a method produce (return) a value to its caller?
- How can you write simple boolean methods?

```
public boolean isSurroundedByWater() {  
    return seesWater(AHEAD) && seesWater(LEFT)  
        && seesWater(RIGHT);  
}
```

Lightbot and Jeroo methods

- Know their basic methods
- Lightbot
 - `move()`, `turnLeft()`, `turnRight()`, `jump()`, `turnOnLight()`
- Jeroo
 - What constructors exist for a Jeroo?
 - `hop()`, `turn(...)`, `pick()`, `plant()`, `toss()`, `isClear(...)`, `isFacing(...)`, `seesFlower(...)`, `seesWater(...)`, `seesNet(...)`

Testing

- Difference between syntax and logic errors
- What is a test class?
- What is a test method?
- What is a test case?
- What is an assertion?
- How do you write a test case?
- How useful is a test case with no assertions?