CSE 113 B

September 27 – October 1, 2010

Announcements

- Exams Returned Monday 9/27
- Lab 4 posted

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Exam 1 Stats

Exam Statistics	
Min	52
Median	79
Average	78.84
Max	100
Std Dev	10.49

Grade Breakdown	
A	21%
A-	5%
B+	22%
B	22%
B-	12%
C+	8%
C	4%
C-	3%
D	3%
F	0%

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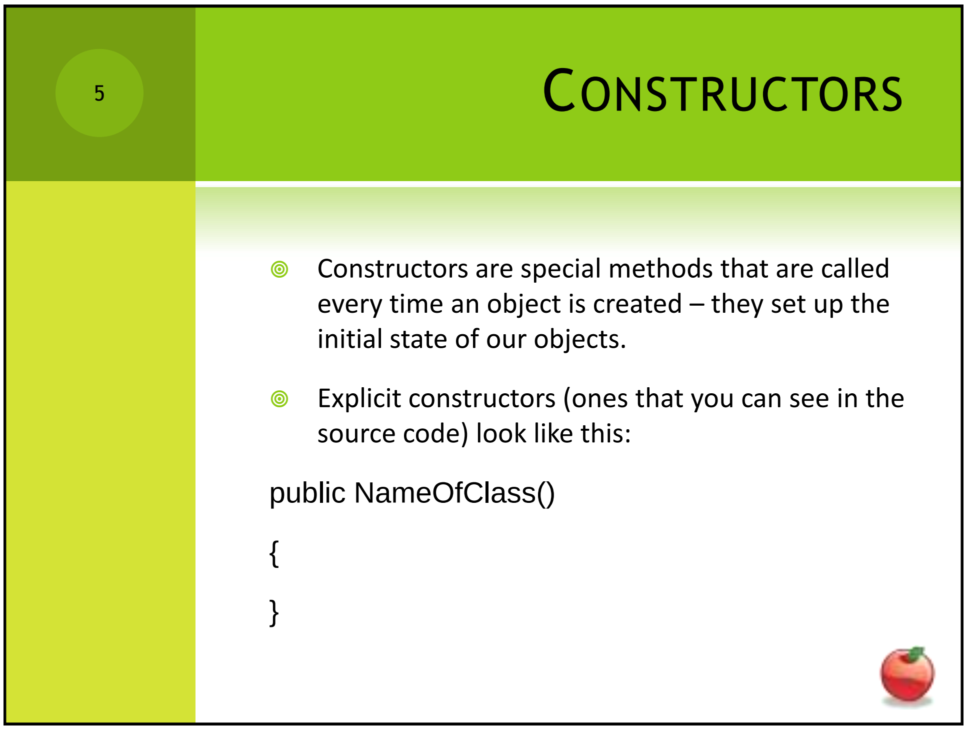
Last Year's Stats

Exam 1 Grades SP 2010	
A	22%
A-	14%
B+	14%
B	15%
B-	10%
C+	6%
C	6%
C-	3%
D	4%
F	6%

Overall Letter Grades - SP 2010	
A	14%
A-	14%
B+	10%
B	12%
B-	9%
C+	7%
C	6%
C-	2%
D	3%
F	11%
R	12%



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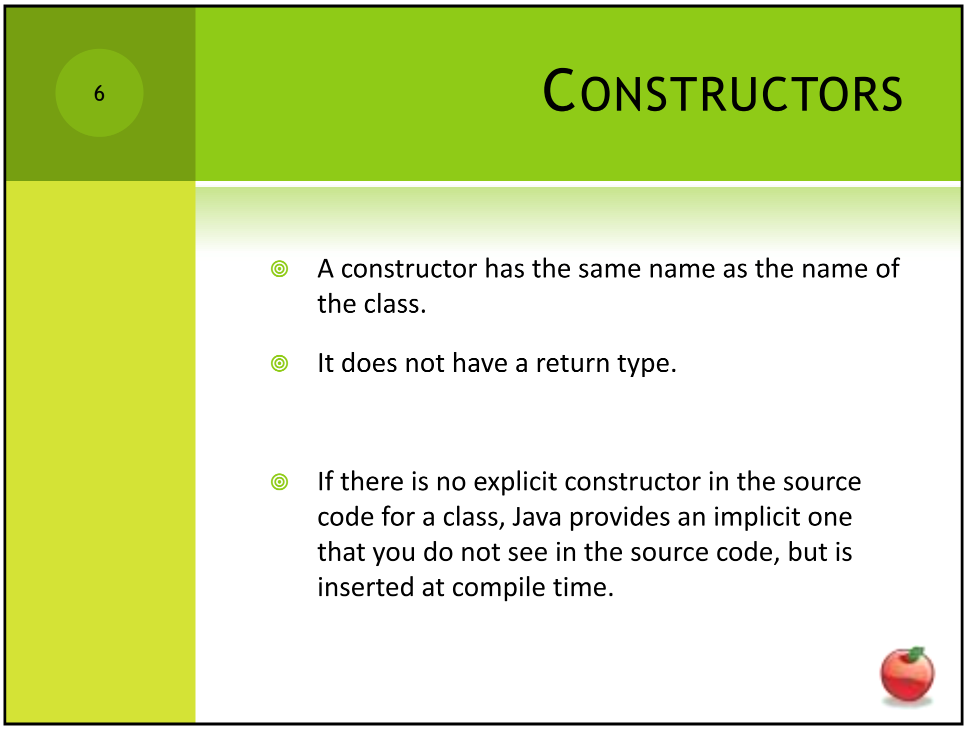
Constructors

- Constructors are special methods that are called every time an object is created – they set up the initial state of our objects.
- Explicit constructors (ones that you can see in the source code) look like this:

```
public NameOfClass()
{
}
```



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Constructors

- A constructor has the same name as the name of the class.
- It does not have a return type.

- If there is no explicit constructor in the source code for a class, Java provides an implicit one that you do not see in the source code, but is inserted at compile time.

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CarWorld Class

- Looking at the constructor of CarWorld, we can see a method call that looks like this:

```
super(x, y, z)
```

- Here, we are not calling a method called super, but rather super is a keyword that indicates the superclass. In this case, we are calling the superclass' constructor.

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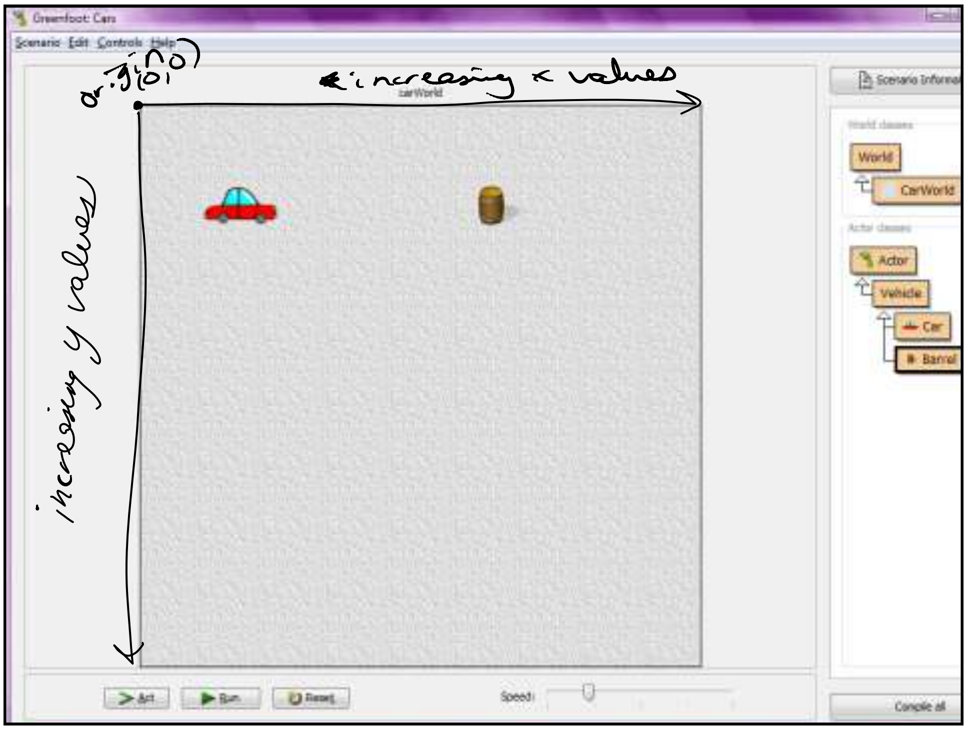
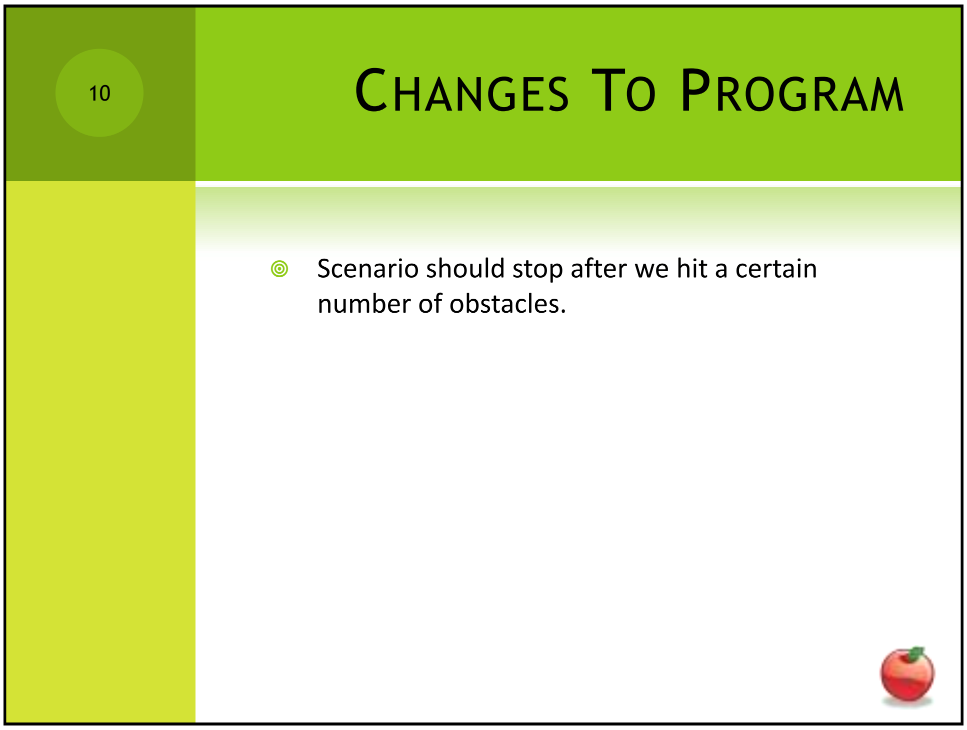
Adding objects at startup

- We can add objects to the world when it is created by calling the addObject method from the world.
- Example

```
addObject(new Car(), 34, 56);
```

- Note that we need to create a new Car object to add by using the expression new Car(). This expression creates an object and calls the constructor of that object.
- The numbers that follow are the x and y coordinates of where we would like the object to be in the world.





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Changes To Program

- Scenario should stop after we hit a certain number of obstacles.

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Question

- What do we need to do?

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Answer

- First, recognize that we've hit something:

```
if(hit barrel)
{
    //Q: What do we do?
}
```

1- Turning away or removing barrel

2- Keeping track of how many we've hit

3- Notice if we've gone over the limit

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```
if(hit barrel)
{
   turn away
   note that we hit another barrel
   if(we've hit too many)
   {
      stop scenario
   }
}
```

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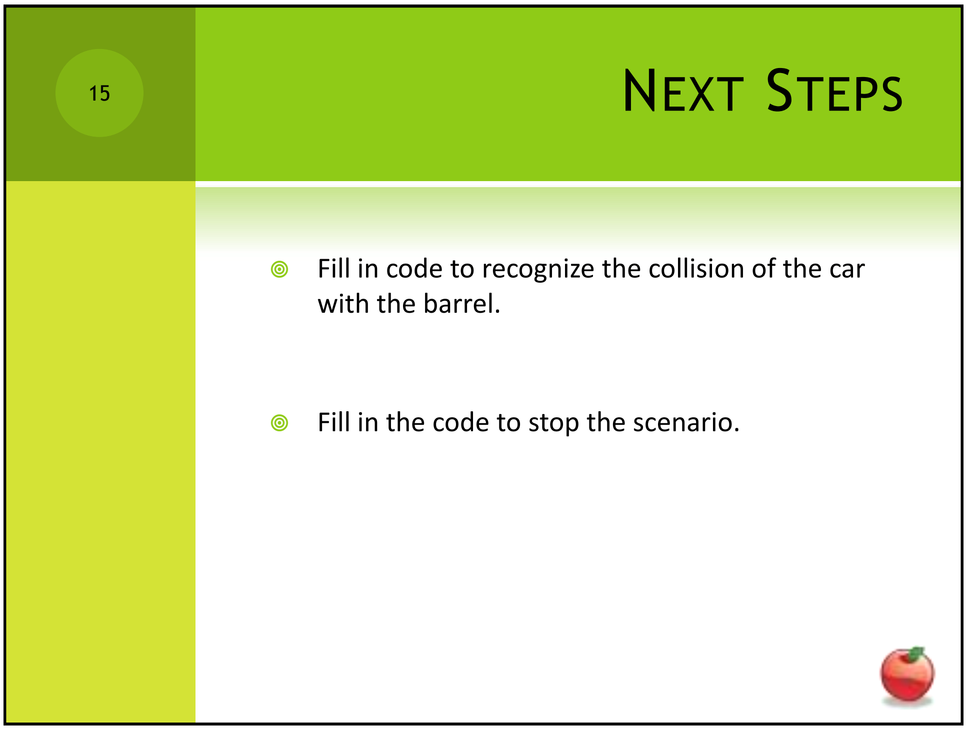
Code that will run (but not perfectly)

```
if(true) //hit barrel
{
   turn(45);
   //note that we hit another barrel
   if(false) //we've hit too many
   {
      //stop scenario
   }
}
```



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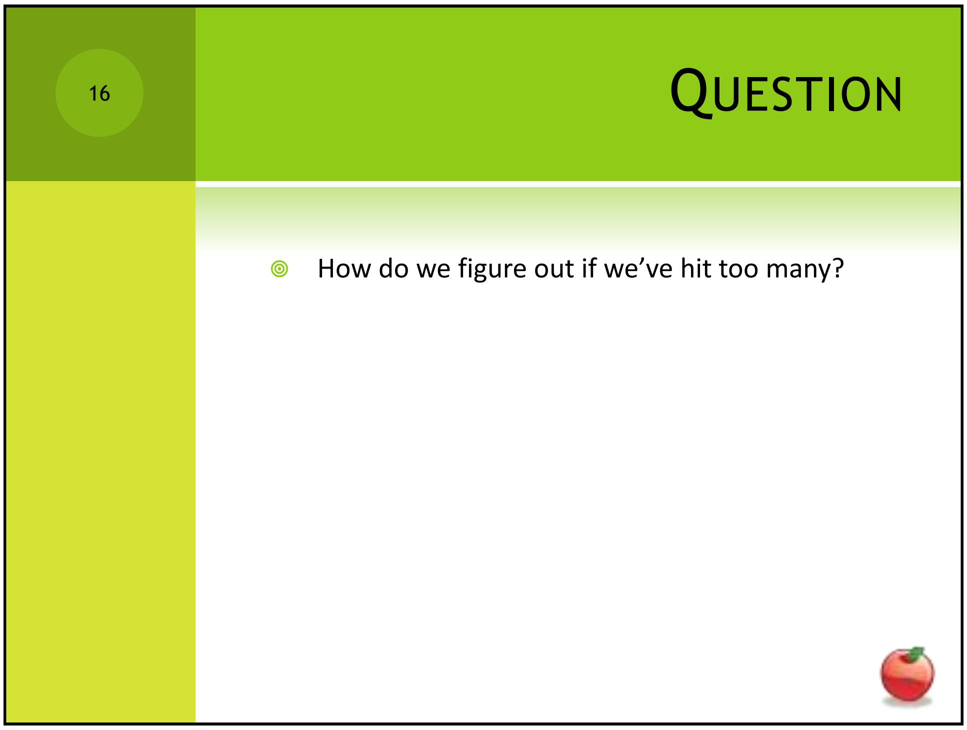
Next Steps

- Fill in code to recognize the collision of the car with the barrel.
- Fill in the code to stop the scenario.



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Question

- How do we figure out if we’ve hit too many?

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VARIABLES

- Variables are used to store information.
- Instance variables store information important to the entire class.

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INSTANCE VARIABLE SYNTAX

variable at the class level

private Type identifier ;

Type of information the variable stored

name for variable (programmer picks)

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VARIABLES

- After we declare the instance variables, it is good practice to give it an initial value.
- We would give an instance variable and initial value in the constructor of the class.
- Example

```
_barrelsHit = 0;
```

- Note that this expression uses the assignment operator (=) and takes the values on the right hand side and assigns them to the variable on the left hand side.

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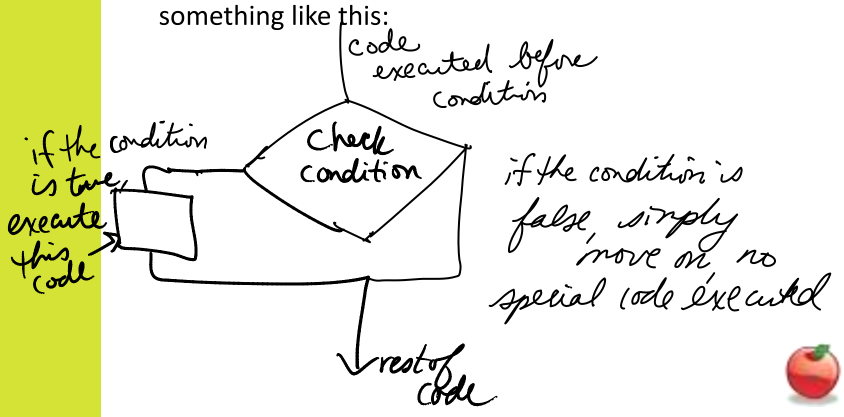
IF-STATEMENTS

- We have been working a lot with if-statements to determine choices in our programs. If we look at our program execution with if-statements, it would look something like this:


code executed before condition
Check condition
if the condition is true, execute this code
if the condition is false, simply move on, no special code executed
rest of code

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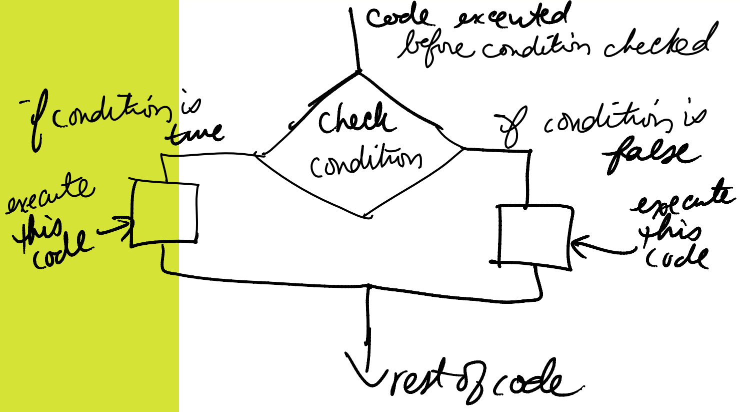
More ways to choose

- We could create choice in programs that looks like this:



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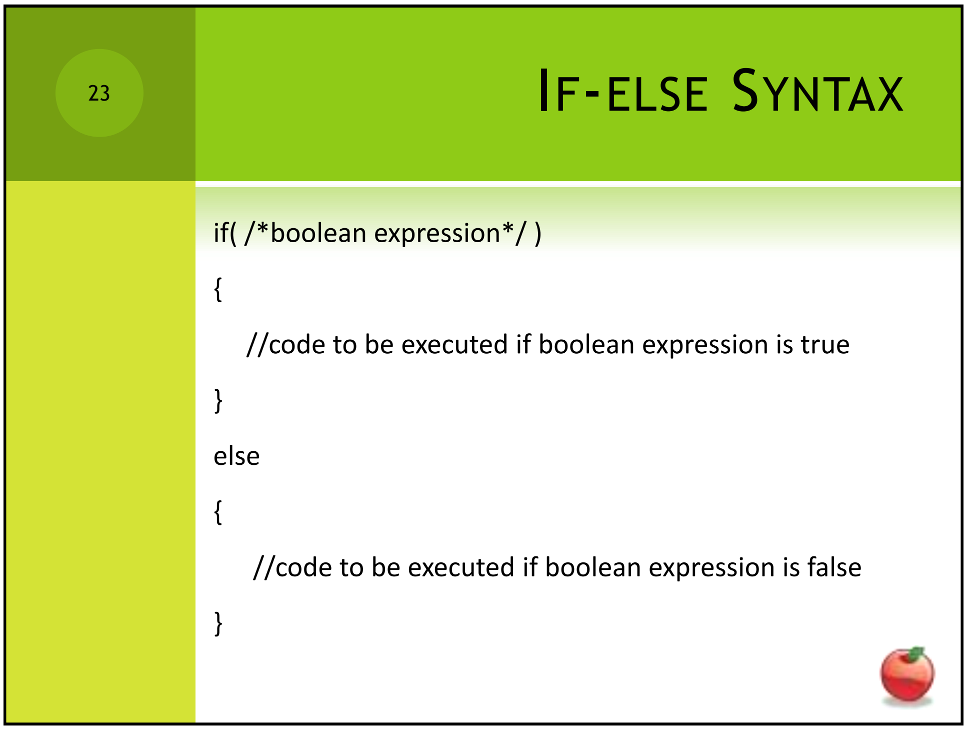
More ways to choose

- That would be the notion of a choice when there is a definitive path when a condition is true and another path when the condition is false.
- In order to do this type of choice in code, we would need to use if-else statements instead of just if-statements.



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IF-ELSE SYNTAX

```
if( /*boolean expression*/ )
{
    //code to be executed if boolean expression is true
}
else
{
     //code to be executed if boolean expression is false
}
```