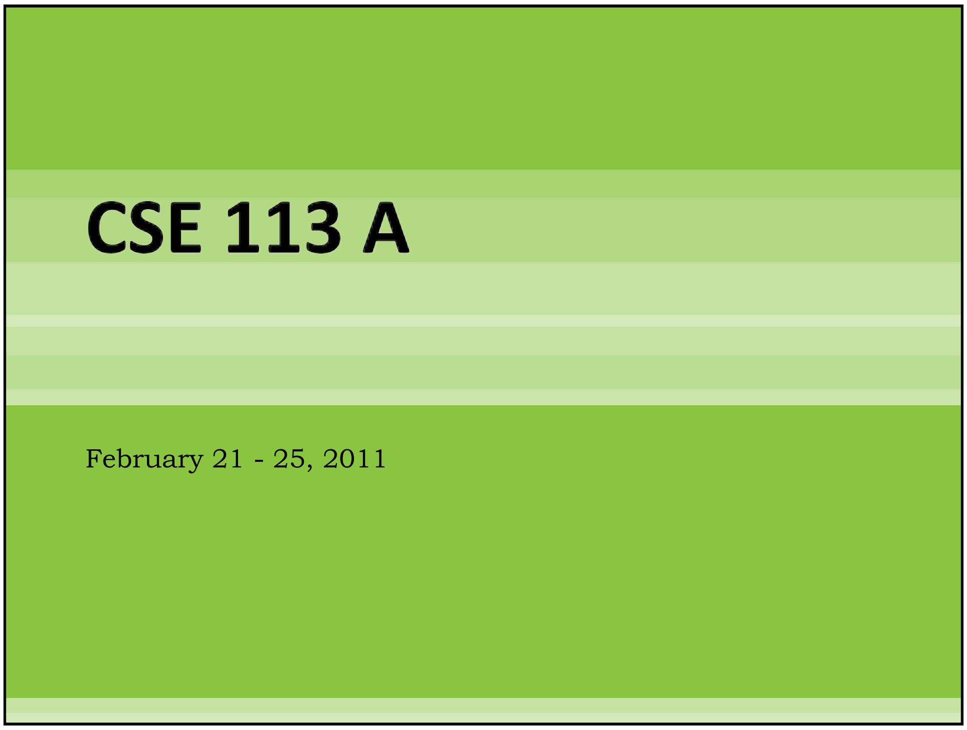
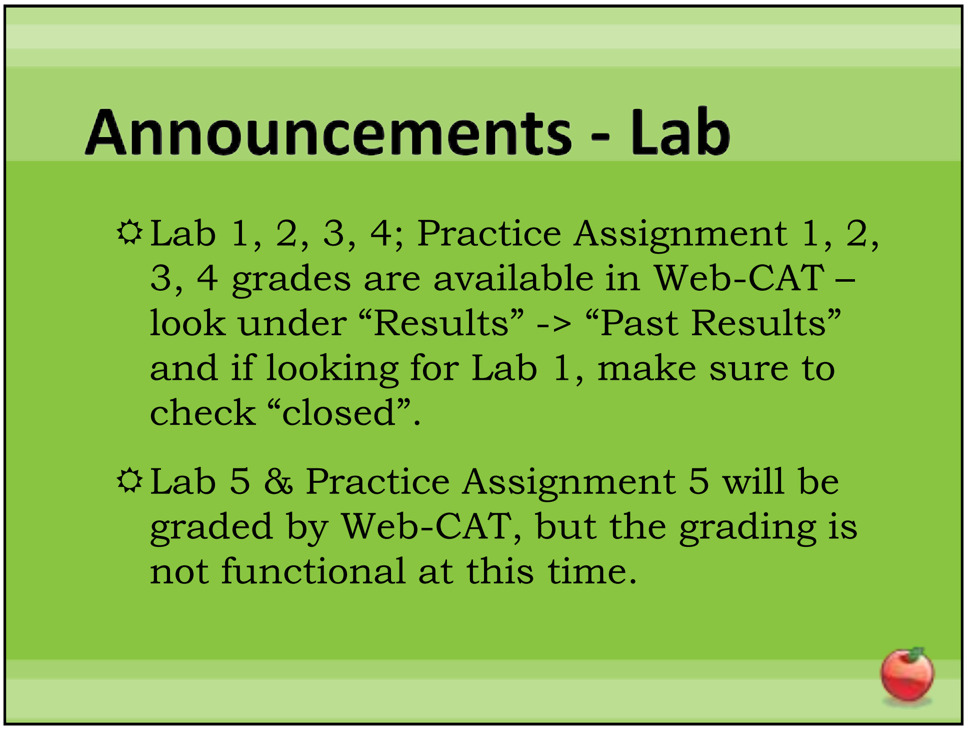


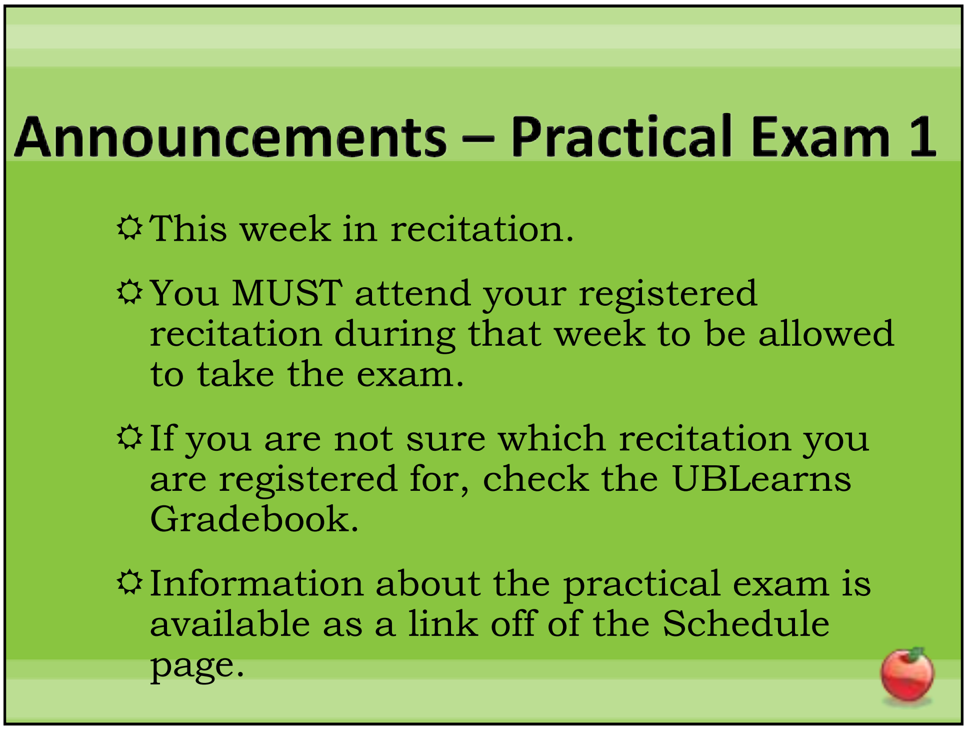
CSE 113 A

February 21 - 25, 2011



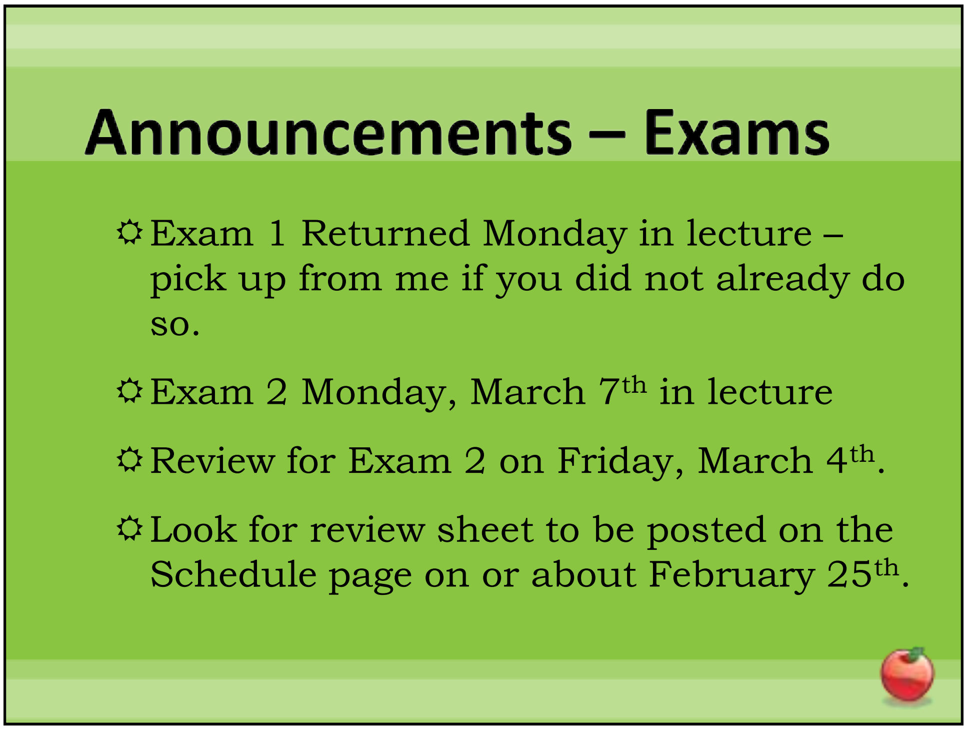
Announcements - Lab

- Lab 1, 2, 3, 4; Practice Assignment 1, 2, 3, 4 grades are available in Web-CAT – look under “Results” -> “Past Results” and if looking for Lab 1, make sure to check “closed”.
- Lab 5 & Practice Assignment 5 will be graded by Web-CAT, but the grading is not functional at this time.



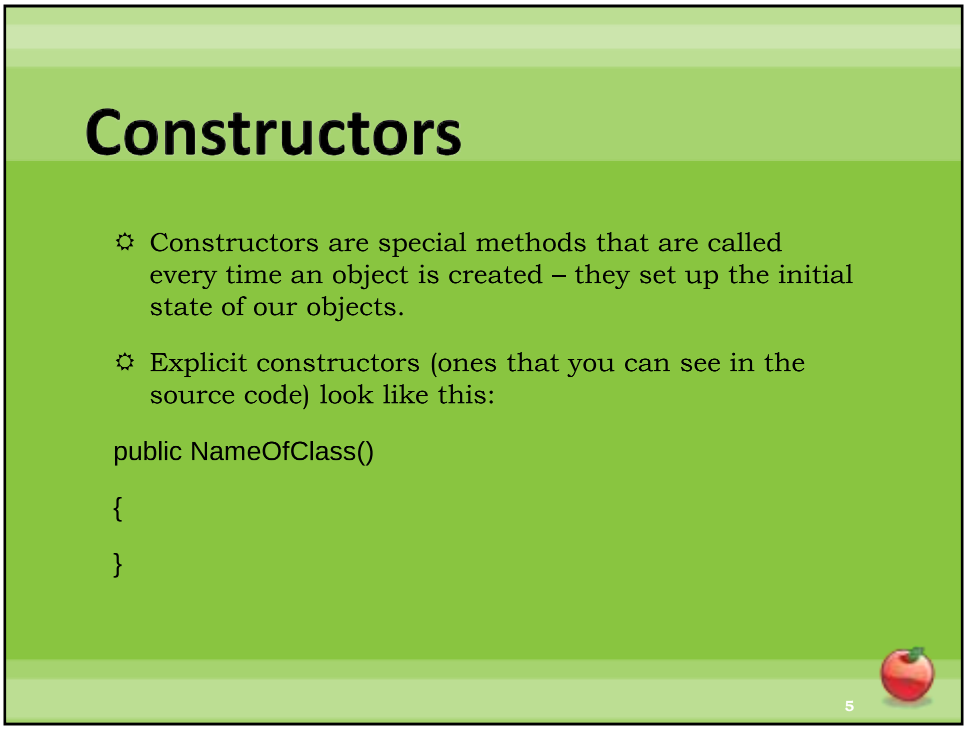
Announcements – Practical Exam 1

- This week in recitation.
- You MUST attend your registered recitation during that week to be allowed to take the exam.
- If you are not sure which recitation you are registered for, check the UBLearns Gradebook.
- Information about the practical exam is available as a link off of the Schedule page.



Announcements – Exams

- Exam 1 Returned Monday in lecture – pick up from me if you did not already do so.
- Exam 2 Monday, March 7th in lecture
- Review for Exam 2 on Friday, March 4th.
- Look for review sheet to be posted on the Schedule page on or about February 25th.



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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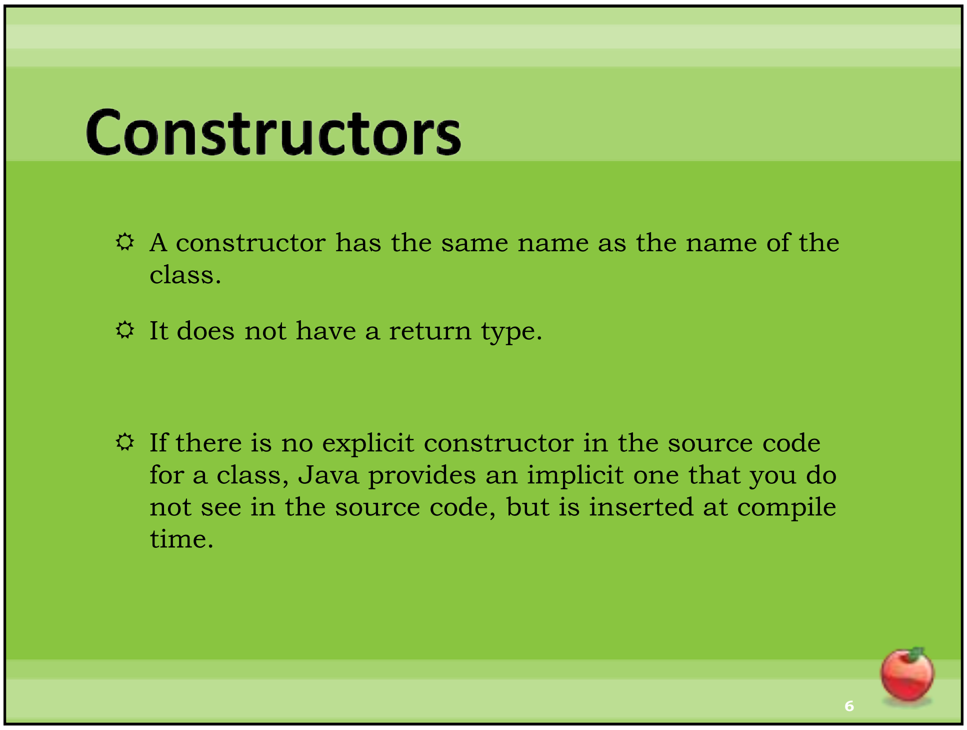

Constructors

- 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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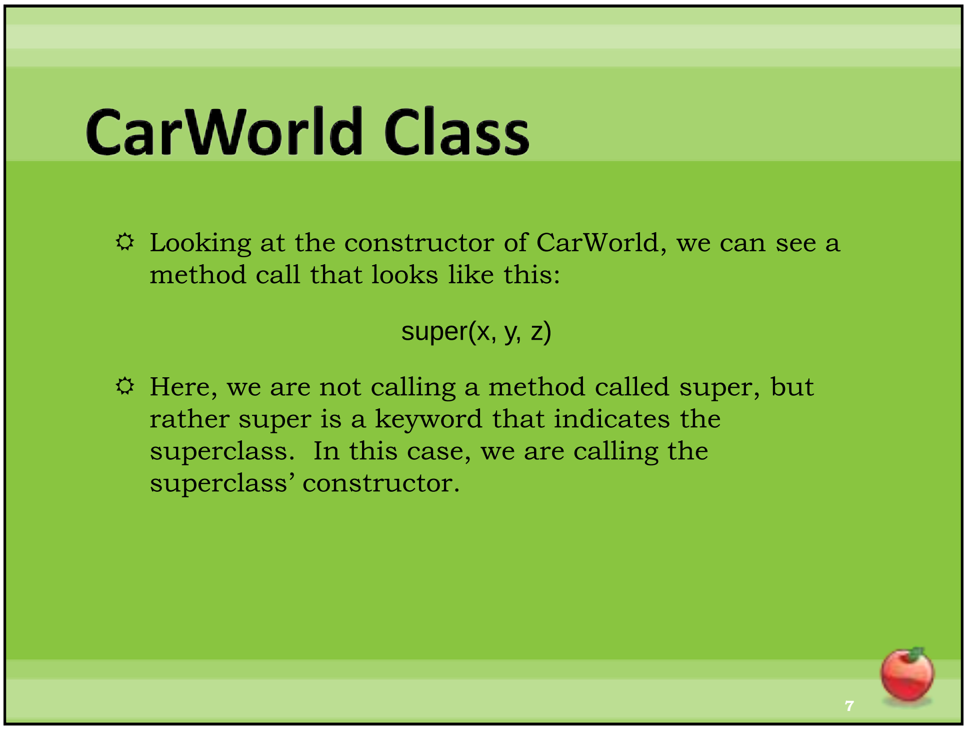

CarWorld Class

- 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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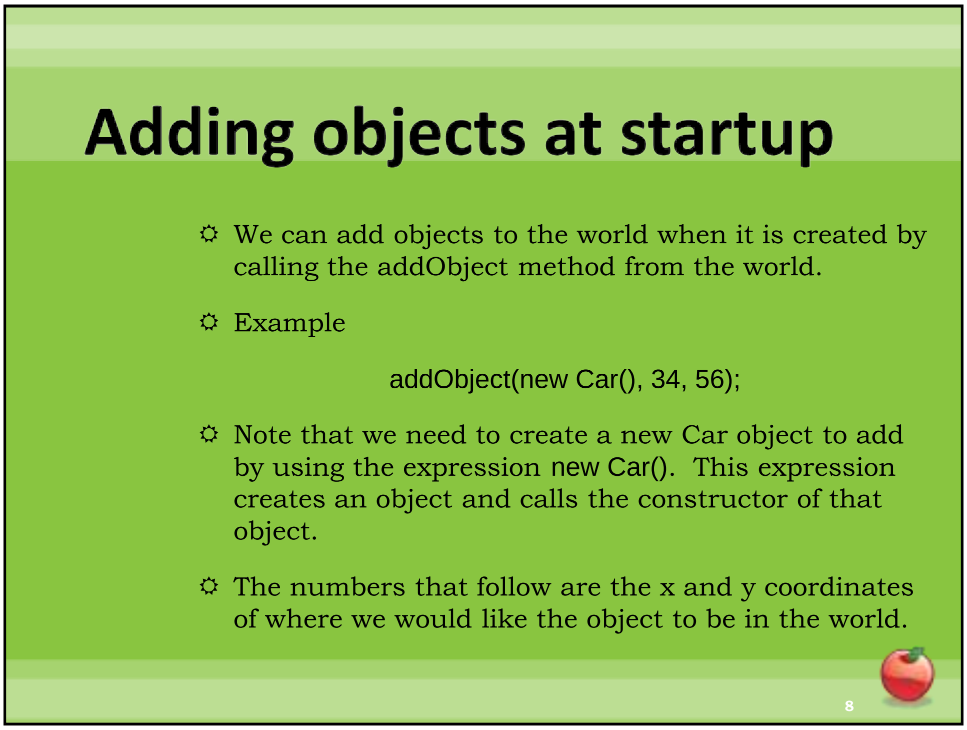

Adding objects at startup

- 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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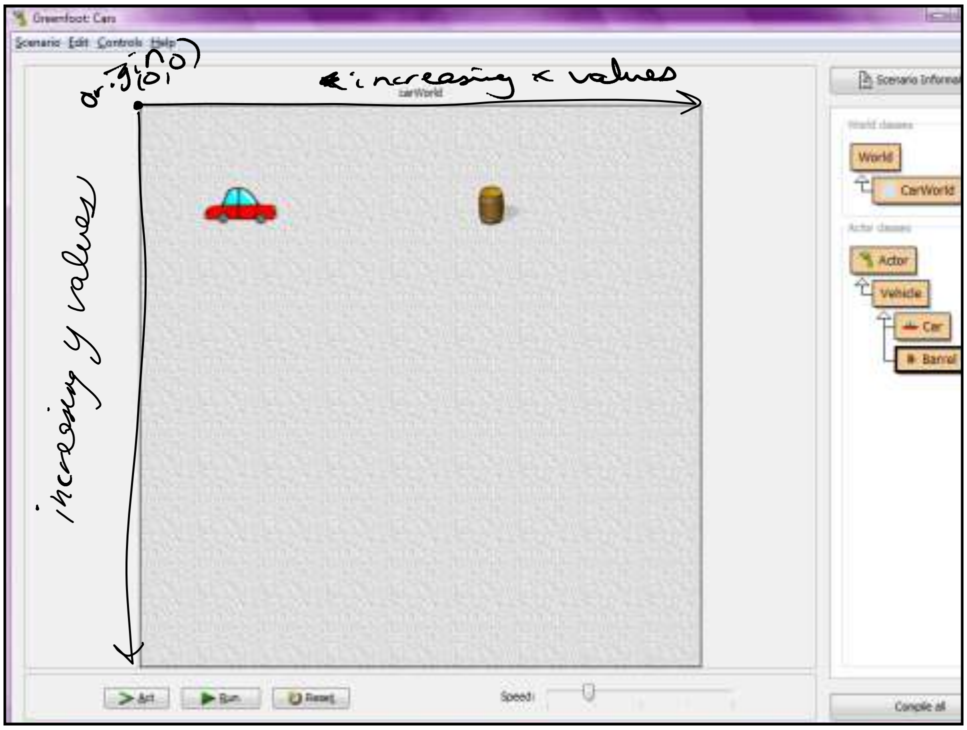

Variables

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

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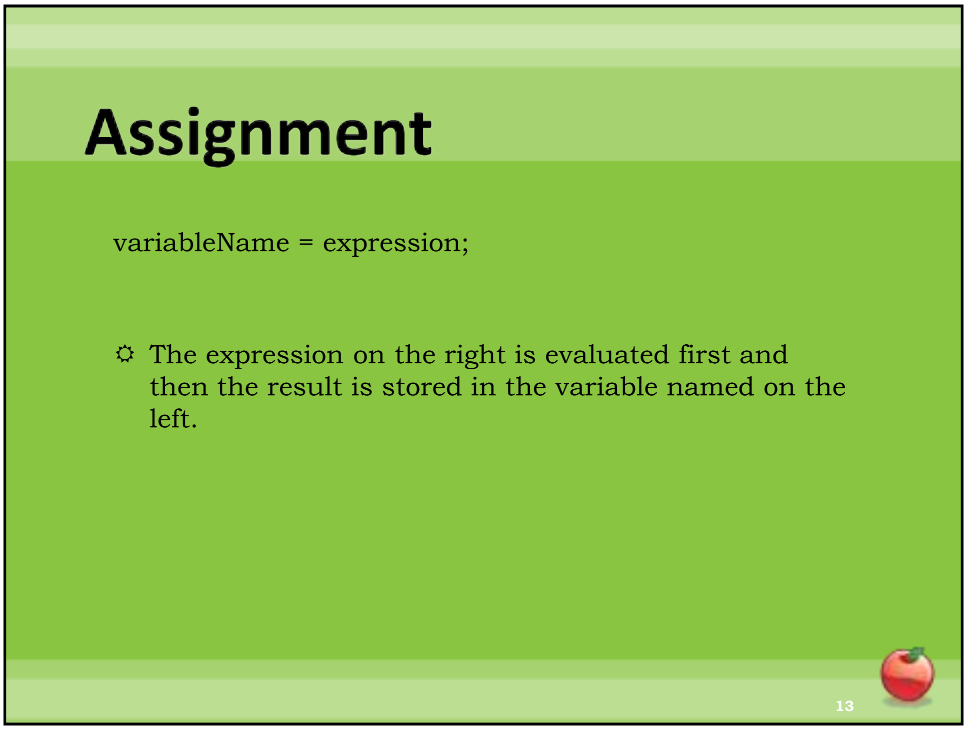
Declaring an Instance Variable

private type identifier;

- type: The type of information the variable stores.
- identifier: Name for the variable picked by the programmer.

More notes on instance variables

- This code goes inside of the class body, but outside of any methods.
- Once we declare an instance variable, it is good practice to initialize it. We initialize in the constructor.



Assignment

```
variableName = expression;
```

- The expression on the right is evaluated first and then the result is stored in the variable named on the left.

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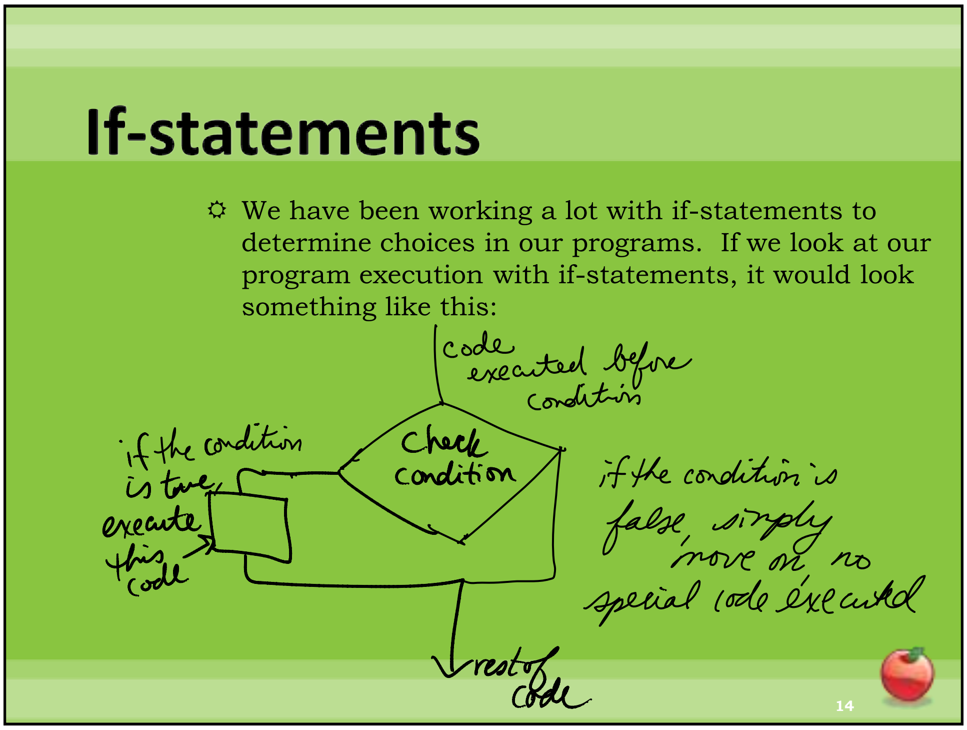
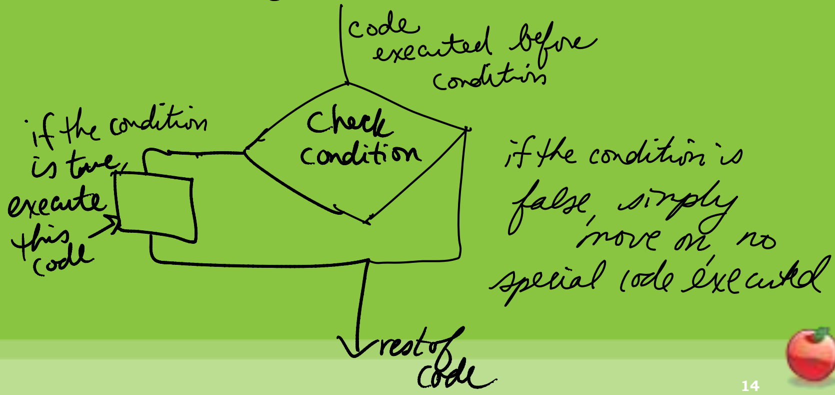


If-statements

- 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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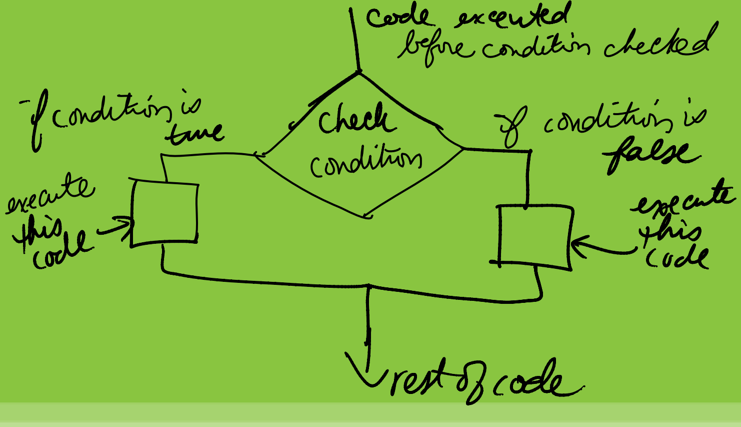
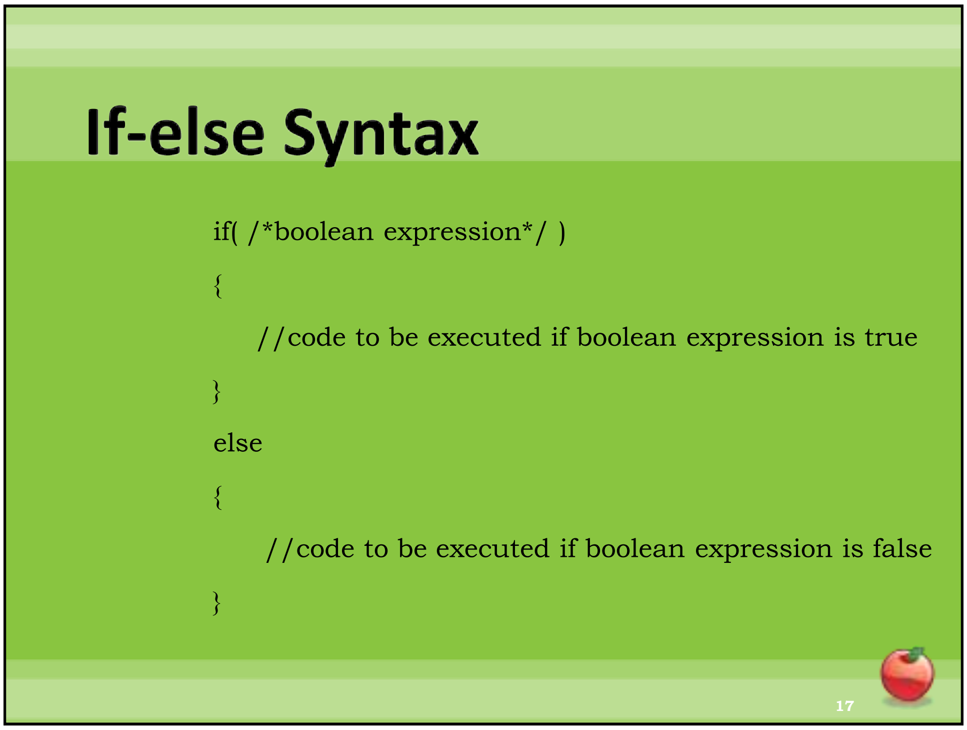
More ways to choose

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



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.



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
}
```

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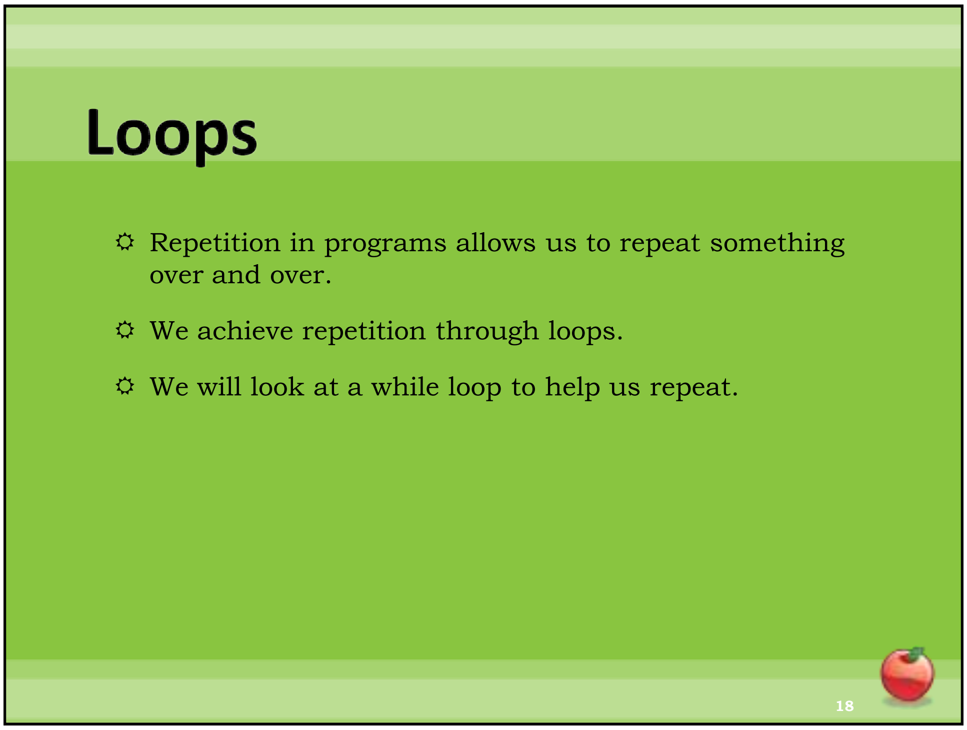

Loops

- Repetition in programs allows us to repeat something over and over.
- We achieve repetition through loops.
- We will look at a while loop to help us repeat.

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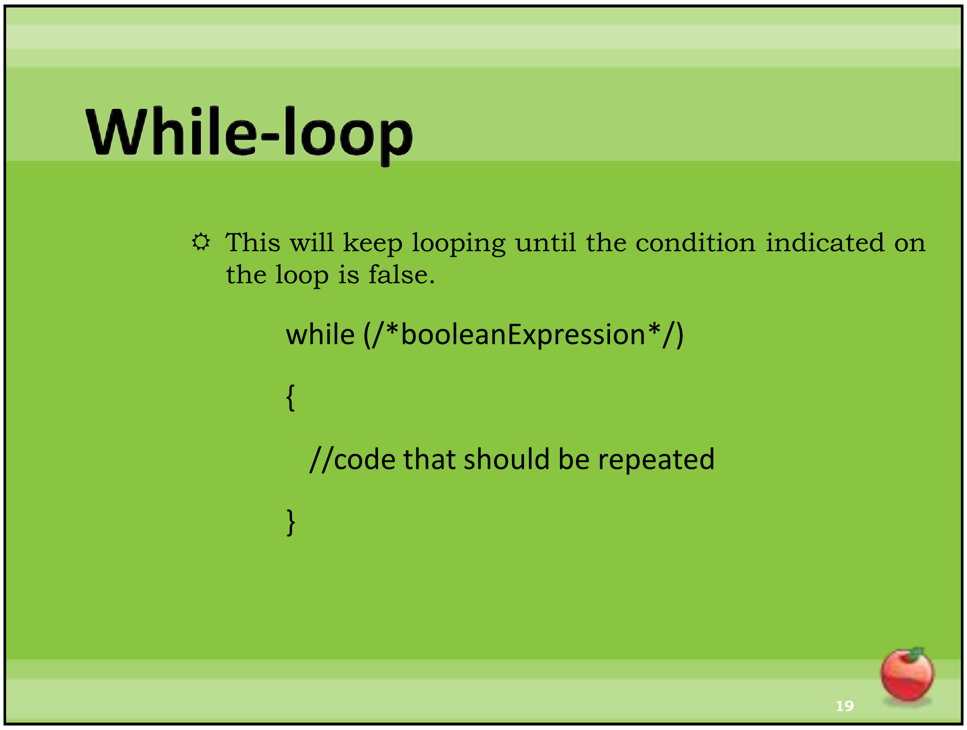

While-loop

- This will keep looping until the condition indicated on the loop is false.

```
while (/*booleanExpression*/)
{
  //code that should be repeated
}
```

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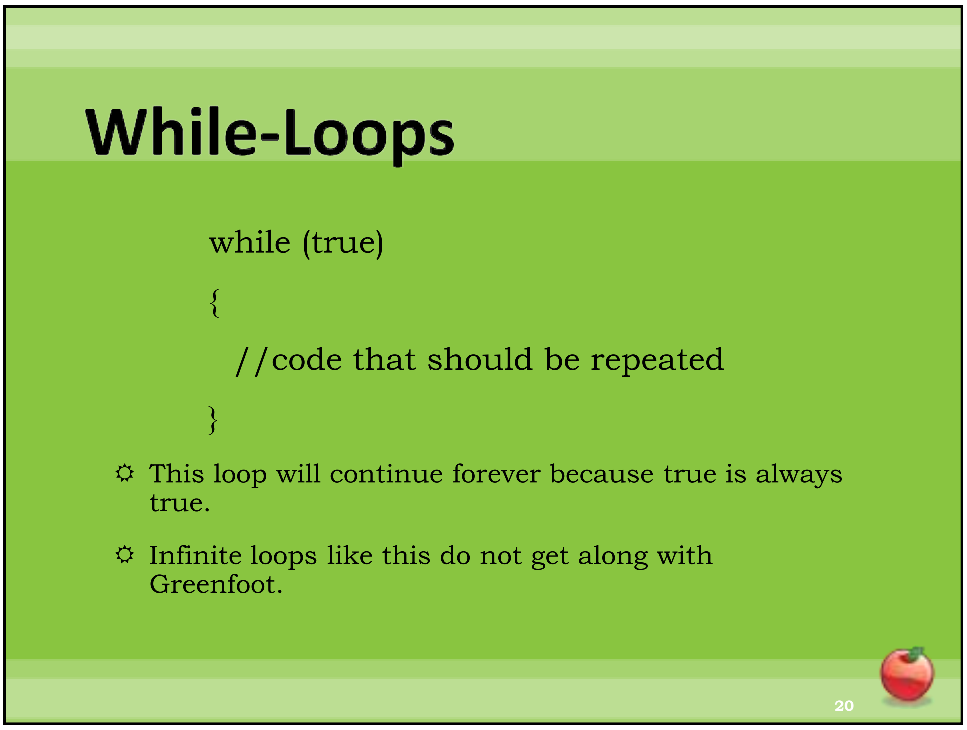

While-Loops

```
while (true)
{
  //code that should be repeated
}
```

- This loop will continue forever because true is always true.
- Infinite loops like this do not get along with Greenfoot.

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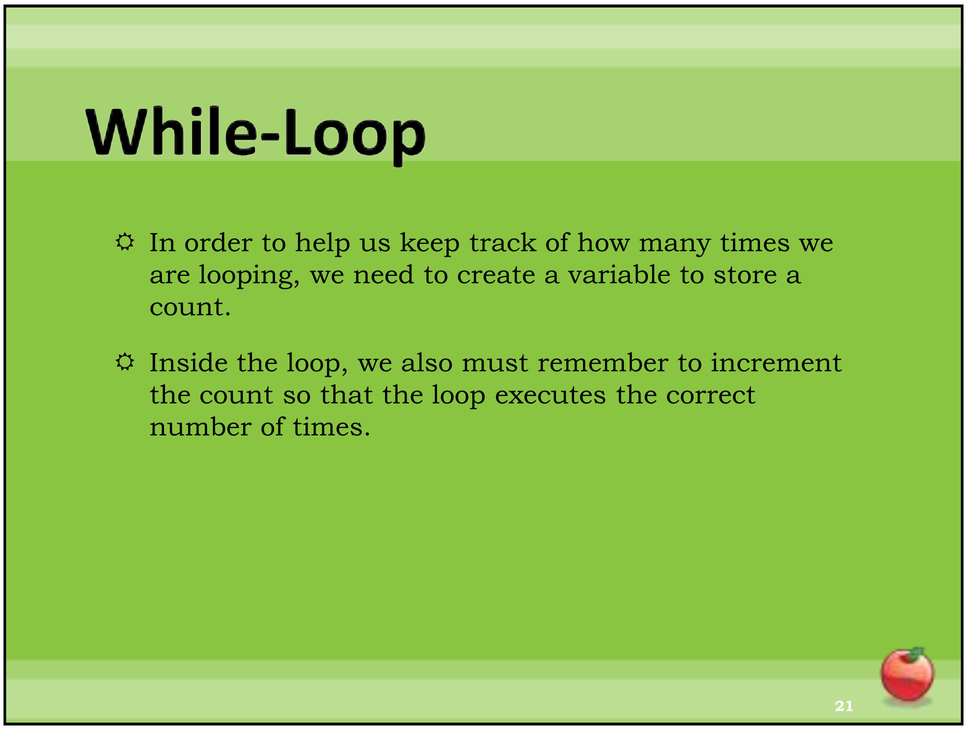

While-Loop

- In order to help us keep track of how many times we are looping, we need to create a variable to store a count.
- Inside the loop, we also must remember to increment the count so that the loop executes the correct number of times.

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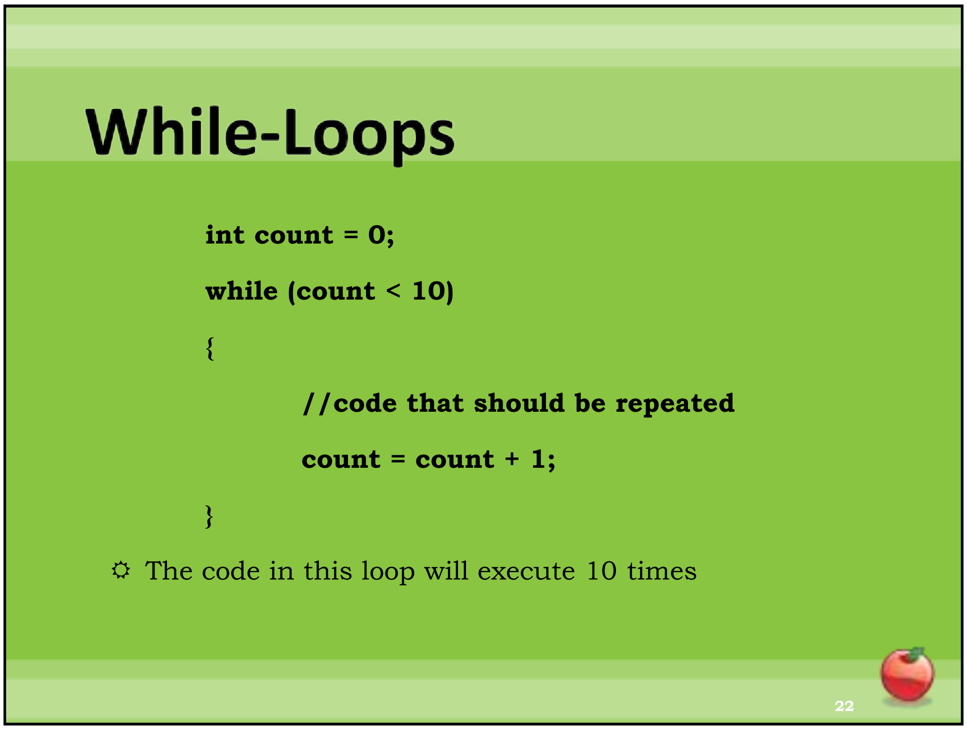

While-Loops

```
int count = 0;
while (count < 10)
{
        //code that should be repeated
        count = count + 1;
}
```

- The code in this loop will execute 10 times

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