CSE 113 A

March 22 - 26, 2010

Announcements

- Lab 3 continued this week in recitation
- Friday, March 26th – Review for Exam 3
- Monday, March 29th – Exam 3
- Wednesday, March 31st – Go over Exam 3
- Friday, April 2nd – Class cancelled
  - (Adrienne will be out of town April 1st – 4th)
Chapter 7 – Drawing Stars

- Drawing stars on the screen
  - Create method for drawing stars and call it from constructor of Space
  - Inside method we retrieve the background image and draw ovals at random locations
  - We also added functionality to create stars in random shades of gray.

Speeding Up Rocket

- Create code so that the rocket will show a different image when the user selects to speed it up.
Casting

Recall from earlier examples the following code:

```java
Actor a = getOneIntersectingObject(X.class);
```

- Remember that X is the class we are interested in looking for collisions with – it can be anything (Flower, Ball, Brick, Barrel).
- `getOneIntersectingObject` returns the object we are interesting with or null if not intersecting an object of the passed-in type. The object that is passed back is of type Actor.

Therefore, the type of the variable `a` is `Actor`.

If we try to do this:

```java
X a = getOneIntersectingObject(X.class);
```

- The code will not compile because `getOneIntersectingObject` returns an `Actor`, not an `X`.
- But we know that the `Actor` that is really being returned is an `X`. 
Casting

- However, sometimes we may want to do things with a (the variable) that only X’s can do.
- However, a is an Actor and can only do things Actors can do.
- If we want to treat the object that is returned by `getOneIntersectingObject` as an X, we can explicitly cast it as an X.

```java
X a = (X) getOneIntersectingObject(X.class);
```

- The (X) is the cast.
Proton Wave Animation

- In ProtonWave class, we see a number of new things:
  - Array
  - While loop
- Each of these things is explained in greater detail in Chapter 5. We are not covering the example from Chapter 5, but these concepts are being covered.

Arrays

- Another type of collection (way to keep track of a group of objects).
- Arrays are fixed size.
- To declare a variable that holds an array:
  
  `TypeOfThingInArray[] name;`

- To create an array and assign it to the variable:
  
  `name = new TypeOfThingInArray[NUMBER];`
  - Where number is the number of elements you can store in the array.
Arrays

- You can access elements in an array by using their index.
- Indices for an array are from 0 to size - 1. So, if there are 20 elements in an array, valid indices are 0-19.

\[
\text{nameOfArray[\text{index}]}
\]
- Would allow you to access the element at that index

\[
\text{nameOfArray[\text{index}]} = \text{blah};
\]
- Would assign \text{blah} to that index.

While-loop

- Another form of iteration (looping).
- This loop is not a counting loop like the for-loop, but rather will keep looping until the condition indicated on the loop is false.

\[
\text{while (booleanExpression)}
\]
\[
\{
    //code that should be repeated
\}
\]