Announcements:

1. If you are joining the class for the first time today after passing the CS 101 competency exam, the course website is: http://bit.ly/cs102
   See the videos of last week’s lectures (See Course Documents --> Class Recordings)
   Please also send me an email indicating you registered late.
2. To those who are observant Muslims, happy Eid!
3. For those using webClicker, see registration information at: https://sites.google.com/site/examplesandnotes/#TOC-iClicker
4. Note that Program #1 is due tomorrow (See class schedule for ongoing deadlines)

Questions?

Last Time:
Important facts to remember using basic Java constructs: variables, comments, precedence, \textit{printf} statement, \textit{if} statements & indenting, Scanner class

Quiz:
For each of the following identifiers, press A if it is valid, press B if it is not.
(An identifier could be used, for instance, as a variable name. It is \textit{invalid} if it would cause a compiler error.)
1. veryLongVariableNameIsReallyLongTooLongPerhaps
2. Allfor1and1forall
3. hey!StopThat
4. while
5. Main

Today:
- Take a look at Program #2
- More important facts to remember using basic Java constructs:
  - Common Problems with an \textit{if} statement:
Common Problems with an *if* statement:

```
boolean x = false;
if (x = true) {  
    System.out.println("x is true");
}
else {  
    System.out.println("x is false");
}
```

```
int num = keyboard.nextInt();
if (num>=3) {  
    if (num==3)  
        System.out.print("Is three.");
    else  
        System.out.print("Less than three. ");
}  
else  
    System.out.println("Done.");
```

Does the else belong with the *if* on line 2, or the *if* on line 3?

Alternative to multiple *if-else-if* statements:

/* Illustrating the switch statement

Assume a program that prompts for your weight on earth and then gives you a menu of planet numbers to choose from for converting your weight to what it would be on that planet. One approach is to use multiple *if* statements:

```
// Calculate weight on desired planet given earthweight and chosen planet
if (menuOption==1) {
    planetWeight = earthWeight * 0.39;    // Mercury
}
else if (menuOption==2) {
    planetWeight = earthWeight * 0.91;    // Venus
}
else if (menuOption==3) {
    planetWeight = earthWeight * 0.38;    // Mars
}
else {
    planetWeight = earthWeight - 1;       // marketing ploy
}
```

Instead, we can use the "switch" statement shown below:

```
switch ( menuOption) {
    case 1: planetWeight = earthWeight * 0.39;    // Mercury  
    break;
    case 2: planetWeight = earthWeight * 0.91;    // Venus  
    break;
    case 3: planetWeight = earthWeight * 0.38;    // Mars  
    break;
    default: planetWeight = earthWeight - 1;       // Earthweight - 1  
        // People like to think they're losing weight (marketing)  
    break;
}
```

```
cout << " Your new weight is " << planetWeight "\n";
```

Pasted from <https://sites.google.com/site/learnjav/java/switch-statement>.
Note that `switch` cannot be used with variables of type `String` or `float`.

- **Boolean Operators:**
  Inside an expression we can also use the following *boolean operators*:
  
  | `&&`  | And   |
  | `||`  | Or    |

  [Pasted from <https://sites.google.com/site/learnjav/java/if-statement>]

- **Note the alternative to using boolean operators:**

- **Short circuit operators in Java:**

  ```java
  if ( (kids != 0) && ((numberOfCookies/kids) >= 2) ) {
      System.out.println("Please, only take two cookies each.");
  }
  ```

- **Looping:**
  - Difference between a *while* loop and a *do-while* loop:
    - *while* is executed 0 or more times, while the *do-while* is executed at least once.
  - One loop can be made to model any other with some additional code. See the following comparison between *while* and *for* loops:

- **break and continue** can be used to go to the beginning or end of a loop.