Announcements

Ch 4 Embedded problems due Thursday, 10 AM
Ch 4 OWL assignment due Saturday, 11 PM
Programming Assignment 3 due Monday at 11 PM

TA Office hours: see website, CourseAdministration. Note: Office hours on Thursday end this week at 5. So this week:
Thur 2:30-5; Fri 9-5.

Remember to use the learning resource center, schedule at umass.edu/lrc

SI review session Thursday 8:45-10 (1349 main library);
Sun 8:15-9:30 (1085 main library)
Arithmetic and Operator Precedence

1) +, -, *, behave in standard way. Division / different

2) 5/3 = 1 (but 5.0/3 = 5/3.0 = 1.6666), 10/4 = ?

3) In the absence of parentheses, *, /, have higher precedence than +, -
So: (3 + 5 * 2) = 13, (7 - 4 / 2) = ?

4) mod (remainder) operator %: 10 % 3 = 1, 10 % 7 = ?

(3 + (7/2)) = ?
(2 * 3 - 1 + 5 / 3) = ?
(20 % (9 % 4)) = ?
(5 % 0) = ?
What is 365 % 10

What is 365 / 10

What is (365 / 10) % 10

What is (365 / 100)
Shorthand operators in Java

j++;  -->  same as  j = j+1;

j--;  -->  same as  j = j -1;
Conditional, Looping Statements in Java

Conditional statements and looping statements are flow of control constructions.

At a primitive level, Java programs are made up of statements, and it often makes sense to

1) have statements repeat in a systematic way; and
2) have statements execute conditionally.
Java.util - includes Scanner, Random, etc.

Infant class
Car class, etc.

myCar.unusedCap();

Looping; Conditional statements;

Packages

Classes

Methods

Statements
Looping in Java - Java’s for loop

for(int j = 0; j < 10; j=j+1){
    System.out.println(j); }

Same as

for(int j = 0; j < 10; j++){
    System.out.println(j); }
for(int j = 0; j < 10; j=j+2){
    System.out.println(j);
}

General form:

```plaintext
for(<initialize> ; <test> ; <increment>){
    do a bunch of stuff;
}
```
for(int j = 10; j > 0; j=j-1){
    System.out.println(j);
}

for(int j = 2; j < 1000; j = j*j){
    System.out.println(j);
}

What happens here??

for(int j = 2; j < 1000; j = j*j){
    System.out.println(j);
}
System.out.println(j);
What happens here??

```java
int j;
for(j = 2; j < 1000; j = j*j){
    System.out.println(j);
}
System.out.println(j);
```
String s = "hi there";

for(int j = 0; j < s.length(); j = j + 1){
    System.out.println(s.charAt(j));
}

for(int j = 0; j < s.length(); j = j + 1){
    System.out.print(s.charAt(j));
    System.out.print('*');
}

String s = "hi there";
for(int j = s.length() - 1; j >= 0; j = j - 1){
    System.out.println(s.charAt(j));
}
Conditionals first - Consider:

if (n % 2 == 0) System.out.println("n is even");

Lots going on here: statement says: “if the remainder after dividing n by 2 is equal to (==) 0, then report that n is an even number

Master this difference:

(n % 2 == 0)     #1

n = 0;           # 2
if (n % 2 != 0) System.out.println("n is odd");
else System.out.println("n is even");

An important point: (n % 2 == 0) is a boolean expression (returns a boolean value) --
a boolean must go into the test slot of an if stmt! (if-then or if-then-else)

Nothing else will do!!
if (<some boolean test>) do something;

if (<some boolean test>)
{
    do a bunch of things;
}

if (<some boolean test>)
{
do a bunch of things;
}
else
{
do a bunch of other things
}

if (<some boolean test>) do something;
else
{
do a bunch of other things
}
Write an application that reads two Strings for the keyboard, and then announces (prints, or echoes) the longer of the two.

In case of a tie - either will do.

(One way to proceed: do an easier problem first)
Count number of ‘a’ s in a String s - 
a critical example

```java
int ct = 0;
for(int j = 0; j < s.length(); j++){
    if(s.charAt(j) == 'a') ct++;
}
System.out.println("a count is: " + ct);
```