Announcements

- Assignment 7
  - Must have Storyboard!
  - Assignment and web page due Monday
  - Assignment 7 presentation on Dec 1 and 3.
    - Attendance required!
- Last Java classwork is Tuesday, November 24
  - All Alice and Java classwork must be checked off by Dec 4 to receive credit
- Final Exam - Wednesday, Dec 9, 2-5pm

Java – Method/function format

- All methods in Java are functions
- Methods must be part of a class
- Methods must have a return type
  - Return type is “void” if no return type (method)
  - DO not use the name of the class or method for any variable
- Method has list and type of parameters
- Declare types of all local variables first
  - Exception: loop variables

More on indexOf

String course = “CPS 4 and CPS 6 and CPS 4G”;
System.out.println(course.indexOf(“CPS”));
System.out.println(course.indexOf(“CPS”, 6));
System.out.println(course.indexOf(“CPS”, 14));

- IndexOf with a string and number argument finds the position of the first occurrence starting from that number position on
Problem

- Given a Phrase and a word, return true if the word occurs at least twice in the phrase.

Finish Code – What does this do?

```java
public class StringExample {
    public boolean AppearTwice(String phrase, String word) {
        // declare types of variables and initial values
        int firstPosition = -1;
        int secondPosition = -1;
        // find first occurrence
        firstPosition = phrase.indexOf(word);
        // find second occurrence - FILL IN
        if (firstPosition >= 0) {
            secondPosition = phrase.indexOf(  
        }
        if (secondPosition > 0) {
            return true;
        }
        return false;
    }
}
```

Java Code - Note

- How many variables are there and what are their types?
- How many times is a variable declared (given its type)?
- Where is the return value?
- How many parameters and what are their types?

Adding a helper method to a class

```java
public class NameOfClass {
    public String someMethod(String[] str) {
        // code here
    }
    public int helperMethod(String str, int n) {
        // code here
    }
}
```
Adding a helper class

• Note the following
  – Names of methods and how many
  – Location of methods
  – Return types
  – Parameters
  – Where do return statements go?

Classwork today

• Create Java Project: CPS4Nov19
• Classwork today – 3 APTs
  – AccessLevel – Non-DNA problem
    • Given access levels and a minimum permission level, determine who has access to a resource.
  – Protein Counter – number of strings that have at least 3 copies of given amino acid
    • Consider a helper function to count number of amino acids in one string
  – DNAHeavyMax – most frequently occurring nucleotide
    • Consider a helper function

Extra Credit (5 pts)

• ProteinFinder – finding a protein
  • Use indexOf to find codons
  • Search for stop codon past the start codon, not from beginning of string