CompSci 4
Java 3
November 19, 2009

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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
    }
}
```
Making 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