CompSci 4
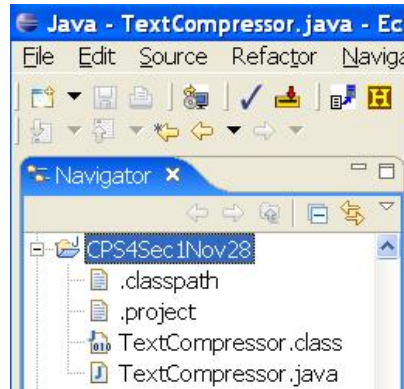## Java 3
Nov 27, 2007

Prof. Susan Rodger

Announcements

- Assignment 7
  - Storyboard due today
  - Assignment and web page due Thursday
    - Turn in Alice world, web page, and README file
    - Also link in web page
  - Demo due next Tuesday
- Last Java classwork is this Thursday
  - All Alice classwork must be checked off by 11/30 to receive credit
  - All Java classwork must be submitted by Dec. 4 to receive credit.

Java – Method/function format

- Method must be part of a class
- Method 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 class = "CPS 4 and CPS 6 and CPS 4G";
System.out.println(class.indexOf("CPS"));
System.out.println(class.indexOf("CPS", 6));
System.out.println(class.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 occurence
        firstPosition = phrase.indexOf(word);
        // find second occurence - 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 there 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: CPS4Sec1Nov27
- Classwork today – 3 APTs, 1 is extra credit
  - 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 frequent occuring nucleotide
    - Consider a helper function
  - ProteinFinder – finding a protein
    - Use indexOf to find codons
    - Search for stop codon past the start codon, not from beginning of string

Extra Credit

- Include extra credit in same project.
- Submit all three APTs at the same time.