More Loops and Strings!
Sept 27, 2019

Announcements
- HW 3 due Mon
- Lab 4 has been posted. It is more challenging! Please read it in advance (and maybe even get started!)
- Today’s lecture should really help you prepare for Lab 4

Last Time
- String methods
  String s = "www.amherst.edu";
  String newS = s.substring(0,s.indexOf(".")+1) + "williams" + s.substring(s.indexOf(".",s.indexOf("")+1));
- Suppose we want to replace amherst with williams…

Last Time
- String methods
  String s = "www.amherst.edu";
  String newS = s.substring(0,s.indexOf(".")+1) + "williams" + s.substring(s.indexOf(".",s.indexOf("")+1));
- While loops
String s = "www.amherst.edu";
012345678901234

s.substring(0,s.indexOf(".")+1) + "williams"
+ s.substring(s.indexOf(".",s.indexOf("."))}

NOTE: These slides were added AFTER class to help clarify some confusion!

String s = "www.amherst.edu";
012345678901234

s.substring(0,s.indexOf(".")) + "williams"
+ s.substring(s.indexOf(".",s.indexOf(".")+1))

NOTE: These slides were added AFTER class to help clarify some confusion!

String s = "www.amherst.edu";
012345678901234

s.substring(0,4) + "williams"
+ s.substring(s.indexOf(".",4))

NOTE: These slides were added AFTER class to help clarify some confusion!

String s = "www.amherst.edu";
012345678901234

s.substring(0,4) + "williams"
+ s.substring(s.indexOf(".",4))

"starting index"
This is asking for an index of "." that is >=4
String s = "www.amherst.edu";
012345678901234
11111
s.substring(0,4) + "williams"
+ s.substring(11)

NOTE: These slides were added AFTER class to help clarify some confusion!

Today’s Plan

More fun with Strings and loops!
Recap: String methods()
- str.length() : int ≥ 0
- str.startsWith(otherString) : boolean
- str.equals(otherString) : boolean
- str.indexOf(otherString) : int ≥ -1
- str.indexOf(otherString, startIndex) : int ≥ -1
- str.contains(otherString) : boolean
- str.substring(startIndex, endIndex) : String
- str.substring(startIndex) : String

Recap: While Loops

while ( condition )
    statement to be repeated

statement(s) to initialize loop variable(s)
while ( condition ) {
    statement(s) to perform one step
    statement(s) to move onto next step
}
Statement(s) to initialize loop variable(s)
while ( condition ) {
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}

line = toServer.in.nextLine();

while ( ! line.equals("") ) {
  message.append( line + "\n" );
  line = toServer.in.nextLine();
}

DictSentenceClient
- Our main goal for today: Build ChoiceReplacer
- Recall DictWordClient...let’s extend it to an entire sentence
- DictSentenceClient: How to transform an entire sentence
  - While the original sentence still has words in it:
    - Remove first word from original sentence
    - Find synonym for word using dict server
    - Add synonym to end of ‘translated’ sentence
    - Repeat

SentenceMenu
- We know how to break apart and build Strings
- Recall www.williams.edu example
- We know how to find synonyms
  - See DictWordClient and DictSentenceClient
- We need a JComboBox. See SentenceMenu
- BuildMenuSlowly: Remove one word at a time from sentence to add to menu.
- BuildMenuQuickly: Can we avoid the repeated button clicks? Yes! Use a while loop.
BuildMenuQuickly

```java
int positionOfSpace = words.indexOf(" ");
if (positionOfSpace >= 0) {
    String firstWord = words.substring(0, positionOfSpace);
    wordMenu.addItem(firstWord);
    words = words.substring(positionOfSpace + 1).trim();
    positionOfSpace = words.indexOf(" ");
}
```

```
statement(s) to initialize loop variable(s)
while ( condition ) {
    statement(s) to be perform one step
    statement(s) to move onto next step
}
```
int positionOfSpace = words.indexOf( " " );
while ( positionOfSpace >= 0 ) {
    String word = words.substring(0, positionOfSpace );
    wordMenu.addItem( word );
    words = words.substring( positionOfSpace + 1 ).trim();
    positionOfSpace = words.indexOf( " " );
}