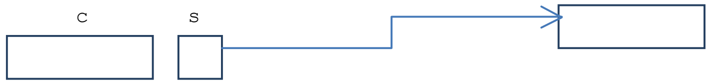
Practice Problems: String Problems

1. Tracing Code with Strings

Show what is stored in memory at the end of each of these programs.

```
public class String-CharAt {
  public static void main(String [] args) {
      String s = “hello”;
      char c = s.charAt(1);  // str.charAt(int)
      c++;
      s = “he” + c + c + “o”;
  }
}
```



```
public class String-Substring {
  public static void main(String [] args) {
      String t = “he-de-he-de”;
      int x = t.indexOf(“de”);      // str.indexOf(substr)
      String u = t.substring(0,x);  // str.substring(int, int)
      u = u + “hee”;
  }
}
```

```
public class String-IndexI {
  public static void main(String [] args) {
      String s = “he-de-he-de-hi”;
      String t = “”;
      int x = s.indexOf(“de”, 0); // str.indexOf(substr, start)
      while(x>=0) {
            t = t + “he-”;
            x = s.indexOf(“de”, x+1);
      }
      t = t + “ho”;
  }
}
```

```
public class String-Equals {
  public static void main(String [] args) {
      String s = “hibbity-hibbity”;
      int i=0;
      int count = 0;
      while(i<s.length()-2) {    // str.length(), need ()
            if(s.substring(i,i+2).equals(“ty”)) {
                                                      // str.equals(str2)
                  count++;
            }
            i++;
      }
  }
}
```

```
public class String-Assignments {
  public static void main(String [] args) {
    String s;
    String t = null;
    String u = "you";
    String v = new String("me");
    String w = u + v;
  }
}

// Here is an example that removes a portion of a String,
// and inserts a replacement
public class String-Insert-Delete {
  public static void main(String [] args) {
    String s = "The-clocks-were-striking-thirteen.";
    int startThirteen = s.indexOf("thirteen");    // str.indexOf(substr)
    int endThirteen = startThirteen + "thirteen".length();
    s = s.substring(0, startThirteen)
        + "twenty-five"
        + s.substring(endThirteen);       // str.substring(int), same as
                                          // str.substring(int, str.length()
  }
}
// Here is a typical example of a loop used to
// process a String.
// In this example, the loop visits each character
// in the String once.
public class String-Processing {
  public static void main(String [] args) {
    String s = "Please call me Ishmael.";
    int aCount = 0;
    for(int i=0; i<s.length(); i++) {
      char c = s.charAt(i);
      if(c == 'e') {
        aCount++;
      }
    }
  }
}
```

```
// Here is an example that repeatedly loops through the String,
// processing one word at a time.
public class String-Processing {
  public static void main(String [] args) {
    String s = "Ships-at-a-distance";
    int spacePos1 = 0;
    int spacePos2 = s.indexOf("-");  // target
    String hyphenated = "";
    while(spacePos2>=0) {
      String word = s.substring(spacePos1,spacePos2);
      hyphenated = hyphenated + word + "^";  // replacement
      spacePos1 = spacePos2 + 1;
      spacePos2 = s.indexOf("-", spacePos1);  // multiple appearance
    }
    if(spacePos1<s.length()) {
      hyphenated = hyphenated + s.substring(spacePos1);
    }
  }
}
```

2. Repeat-X and Sum Algorithms with Strings

(StringConcat.java) This program asks the user to repeatedly enter a String. It should concatenate those Strings together, but insert spaces and the word “not” between every pair of words the user enters. Stop when the user enters the String “stop”. Display the final String. For instance, the program output might look like:

```
Please enter some Strings:
Such
eyes
you
have
stop

Such not eyes not you not have
```

Source code?