

```

1  import java.util.*;
2  /** Review programming tools we may want to use when writing a String algorithm
3  program. Add each tool in the comments at the top of the code.
4  ***** TOOLBOX *****
5  - loops: for, while
6  - if statements
7  - variables
8  - String methods: length, substring, indexOf, toLowerCase, etc
9  *****
10 */
11 public class StringAlgorithms
12 {
13     /* Returns the number of times the letter a (case insensitive) appears in the
14     String parameter text. */
15     public static int numAs(String text) {
16         //First we set up a variable to keep track of how many times we have seen the
17         letter 'a' while looking through the String
18         int count = 0; //How should we initialize this variable? How many times have we
19         seen the letter 'a' so far?
20
21         //What is the next step? What programming tool will allow us to look through
22         every character in the String? (If no responses, direct attention
23         //to TOOLBOX comment above.
24         for(int i = 0; i < text.length(); i++) //Cold call on students to provide each
25         part of for loop. If they forget .length(), direct attention to
26         //TOOLBOX comment above
27         {
28             if(text.substring(i, i+1).equals("a")) //How can we extract a single
29             character from text at the position we want? TOOLBOX will give hints
30             //to the proper method. If they
31             don't rememeber parameters - direct
32             to String methods resource
33             //If they don't remember i - which
34             variable indicates "the current
35             position?"
36             count++; //What do we do?
37             //Possible purposeful mistake - put
38             1 instead of i
39         }
40         return count; //What is the last step we need to take to give count to the
41         calling method?
42         //Purposeful mistake - forget to include return statement
43     }
44
45     public static void main (String[] args)
46     {
47         System.out.println(StringAlgorithms.numAs("aaa"));
48         //What other tests should we run?
49     }
50 }

```