

More Recursion – with Strings

Create all recursive methods below in a class **StringRecursion.java**.

1. Write a recursive method `length` that computes the length of a String `s`. You are not allowed to use the `length` method from `String` class. You may find the `isEmpty` method of `String` class useful.

```
public static int length(String s)
```

2. Write a recursive method `equalsIgnoreCase` that checks if two strings are equal. Two strings are equal if they are the same length and both strings have same letters in the same position, but upper and lower case letters are regarded as equivalent.

```
public static boolean equalsIgnoreCase(String s1,  
String s2)
```

3. Write a recursive method `countChar` that counts the number of times a particular character occurs in a string. The string and the particular character are both parameters of the method.

```
public static int countChar(String s, char c)
```

For example,

```
countChar( "XaaaYaaaZaaaYaaaaY", 'Y' )  
returns 3.
```

4. Write a recursive method `equalsIgnoreVowel` that checks if two strings are equal but vowels are ignored. Now “kangaroo” equals “kongeroo”, both of them equals to “kaangaro”, and also equal to “kngr”.
The easy way to program this would be first strip out all vowels and then compare what is left. But for this exercise, you need to write a recursive method that compares the unaltered strings.

```
public static boolean equalsIgnoreVowel(String s1,  
String s2)
```

5. Write a recursive method `moveToEnd` that returns a string with all specified character in the string `s` moved to the back.

```
public static String moveToEnd(String s, char x)
```

For example,

```
moveToEnd("How are you", 'o')  
returns "Hw are yuoo"
```

6. Write a recursive method `reverse` that implements an algorithm for reversing a string. The method should have the following header. Use a different approach than the one discussed in class

```
public static String reverse (String s)
```

7. A palindrome is a word that reads the same backward as forward, e.g. madam, racecar. Write a recursive method `palindrome` that checks if a string is a palindrome or not. The method should have the following header.

```
public boolean palindrome (String s)
```