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SENG 201 Data and Game Structures

Lab Assignment 4

This assignment is designed to help your understanding for recursion.

PART 1

Write a recursive static method "`isPalindrome`" that takes a string and checks if a given string is a **palindrome** or not.

A **palindrome** is a word that reads the same forward and backward. For example, "level", "racecar", "madam" and "abccba" are palindromes.

Here are some examples:

```
isPalindrome( "level" )
   ➢ true
isPalindrome( "test" )
   ➢ false
```

Use the following template to start writing your method:

```
public static boolean isPalindrome( String word ) {
      // write your code here
      // hint: make use of word.substring() and word.charAt(i) methods!
}
```

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PART 2

Fibonacci numbers, often referred to as the Fibonacci sequence, are a series of numbers where each number is the sum of the two preceding ones. The sequence starts with 0 and 1, and the subsequent numbers are generated by adding the two most recent numbers in the sequence. So, the Fibonacci sequence begins as follows:

```
0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ...
```

Write a **recursive** static method called "`fibonacci`" which takes an integer n and prints the first n fibonacci numbers, as in the examples below:

```
fibonacci( 4 )
   ➢ 0, 1, 1, 2
fibonacci( 10 )
   ➢ 0, 1, 1, 2, 3, 5, 8, 13, 21, 34
```

Use the following template to start writing your method:

```
public static void fibonacci( int n ) {
      // write your code here
      // hint: you can use an additional helper method!
}
```

You should submit one zip file name as **"YourNameSurname_Lab4.zip"** and it should contain 2 java files you created!