SWEN 601 HOMEWORK
Recursion & Binary Search

You should have already accepted the GitHub classroom invite for this assignment, but if for some reason you have not, do so now. Create a package for this homework, and commit/push your project to GitHub.

Before you begin the problems below, create a new package called "homework05". **Unless otherwise instructed, implement each problem below in a separate class in that package**.

1. Find the error and write it in a comment.
```java
public class FindTheError {
    //write the Error here
    public static void main(String [] args){
        myMethod(0);
    }
    public static void myMethod(int num){
        System.out.println(num + " ");
        myMethod(num+1);
    }
}
```

2. Convert the following iterative method to one that uses recursion:
```java
public class Question2 {
    public static void sign(int n){
        while (n >0){
            System.out.println("No Parking");
            n--;
        }
    }
}
```

3. Write a recursive function that accepts two arguments into the parameters x and y. The function should return the value of x times y. Remember, multiplication can be performed as repeated addition as follows:

$$7 * 4 = 4 + 4 + 4 + 4 + 4 + 4 + 4$$

4. Write a method that accepts an integer argument and returns the sum of all the integers from 1 up to the number passed as an argument. For example, if 50 is passed as an argument, the method will return the sum of 1,2, 3, 4 , . , .50, Use recursion to calculate the sum.
Demonstrate the method in a program.

5. Write a method that uses recursion to raise a number to a power. The method should accept two arguments: the number to be raised and the exponent.

Assume that the exponent is a nonnegative integer. Demonstrate the method in a program.

6. A palindrome is any word, phrase, or sentence that reads the same forward and backward.

    Here are some well-known palindromes:

    a. Able was I, ere I saw Elba
    b. A man, a plan, a canal, Panama
    c. Desserts, I stressed
    d. Kayak

Write a Boolean method that uses recursion to determine whether a String argument is a palindrome. The method should return true if the argument reads the same forward and backward. Demonstrate the method in a program.

7. Write a method that uses recursion to count the number of times a specific character occurs in an array of characters. Demonstrate the method in a program.

When you are finished, draft a new GitHub release. Use the "Source code (.zip)" link to download your release. Submit this to the assignment on MyCourses. Late submissions are not accepted.

Grading Rubric

Exceptional Performance 4	Competent Performance 3	Acceptable Performance 2	Developing Performance 1	Beginning Performance 0
All assignment instructions followed. Program runs as described.	A small number of minor problems, e.g. 1-2 instructions not followed, specifications not met, few commits, few comments, etc.	Several minor problems, e.g. several instructions not followed, specifications not met, few commits, few comments, etc.	Many minor or major problems, e.g. code does not compile or run, does not meet functionality requirements, etc.	Very little effort or no submission at all.
100%	88%	75%	50%	0%