Problem Set 4 Exercise #28: Recursive Addition on Two Integers

Reference: Lecture 12 notes

Learning objective: Recursion

Estimated completion time: 40 minutes

Problem statement:

[CS1010 AY2013/14 Semester 1 Exam Q4]

Do you remember how you performed addition of two numbers when you were in primary school? For example, if given two integers 4673 and 5239:

```
  4673
+ 5239
  9912
```

You would start from the right hand side (least significant digit) and add 3 and 9, to get 12. So you put 2 and carry 1 to the next column. For the next column, you would add 7 and 3 and add the carry of 1 to get 11, and so on.

Write a program **PS4_Ex28_Addition.java** to simulate the above addition process. The program reads in two positive integers (*you may assume both are equal in length*), and calls a static recursive method

```
    int add(int num1, int num2, int carry)
```

to do the addition. This method takes in **num1** and **num2** (the first two numbers being added) and **carry** (the carry from the previous column), and returns the sum.

You should not use any loop structures (*for*, *while* or *do-while* loop) in your program.

Sample run #1:

```
Enter two positive integers: 4673 5239
Sum = 9912
```

Sample run #2:

```
Enter two positive integers: 1234 9876
Sum = 11110
```