

# Comp 401 - Assignment 1: Writing a Number Scanner

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**Date Assigned: Tue Jan 13, 2009**

**Completion Date: Thu Jan 22, 2009**

**Early Submission Date: Tue Jan 20, 2009 (midnight)**

In this assignment, you will revise your programming skills by doing an assignment involving the use of many of the concepts that are a pre-requisite for this course, which include arrays, loops, and methods (procedures).

## ***Assignment Specification***

Write a Java program that expects exactly one string argument consisting of digit and space characters, converts each digit sequence into a number, and prints these numbers and their sum and product. You can assume that there:

1. is exactly one space character after each number (including the last one).
2. is at least one number in the argument.
3. are no errors.

Thus, if the argument is:

“2 3 100 “

The output should be of the form:

Numbers: 2 3 100 Sum: 105 Product: 600

## ***Constraints***

1. Java has libraries that make the writing of this program trivial. The only library functions you should use are the `Character.isDigit()`, `substring()` and the `Integer.parseInt()` functions. `Character.isDigit()` is like `Character.isUppercase()` except that it tells us whether a character is a digit rather than whether it is an uppercase letter. `Substring` is explained in the class material.

Integer.parseInt() takes a string consisting of digits and converts into an integer. Thus, Integer.parseInt("100") returns the integer 100.

2. You should store the numbers you scan into an array for later use. This demonstrates that you understand arrays.
3. You should decompose your program into at least two methods, that is, you should not write a monolithic main method. This will demonstrate your ability to write and call methods. The more meaningful methods you write, the more points you will get.
4. Use meaningful variable names to make your code understandable to the reader. Comment if you think it is necessary.

### ***Extra Credit***

1. Allow an arbitrary number of spaces before and after each number.
2. Give error messages in case the user does not enter any number or enters non digits.

### ***Submission Instructions***

The submission instructions for this assignment:

1. Submit a print out of your code.
2. Upload the assignment directory in blackboard. In general, for all assignments, you should do so by midnight of the day the assignment is due. But do not change the code after you submit it in class.

*Good luck with your first 401 program!*