Assignment 1

Java for C programmers.

In this assignment you will write a few simple java programs in a procedural (not Object Oriented) style. The purpose of this assignment is to refresh your memory on the Intro to CS course material and get you up to speed with the basic java syntax. For each task, you can assume that the argument is correct, except for cases specified in the task.

As we learn, the java code writes as class in file with the same name of this class. Every class needs to have a main method, there you write your code.

The algorithm efficiency will not be checked in this assignment.

Note that the variables received in the run command end up in the args array in the main. Your main(String[] args) method will read the input from the args array as a string (you can convert it if you need).

Task 1

in this task you need to write class name:

```
public class SumOfInteger {
    public static void main(String[] args){
        /// your code
    }
}
```

which use recursive method to find the sum of the digits of a given integer.
If no number was received, print 'Invalid input'.

For Example:

```
>>java SumOfInteger 17624
20
```
Explain: 1+ 7 + 6 + 2 + 4 = 20

```
>> ant run1 -Dargs="98724021"
33
```
Explain: 9 + 8 + 7 + 2 + 4 + 0 + 2 + 1 = 33

```
>>ant run1 -Dargs=""""
Invalid input
```

Task 2

in this task you need to write class name:

```
public class CountPairs{
    public static void main(String[] args){
        /// your code
    }
}
```

Given a list of integer nums and at end an integer target , return the number of pairs (i, j) where 0 <= i < j < n and nums[i] + nums[j] < target.

If there are less then 2, print 'Invalid input'.

For Example:

```
>>java CountPairs 1 2 4 3
2
```

1, 2 smaller than 3

```
>>ant run2 -Dargs="5 7 12 3 10"
 3
```

5, 7, 3 smaller than 10

```
>>ant run2 -Dargs="4"
Invalid input
```

Task 3

In this task you need to write class name:

```
public class FindWordsContaining {
    public static void main(String[] args){
        /// your code
    }
}
```

Givan array of strings words and a character x, you need print list of the words that contain the character x. the words should be printed in the order that they were received.

If the last input is not a char, or if there are less then 2 inputs the program should print out: 'Invalid input'

For example:

```
>>java FindWordsContaining henry is thinking on muffins f
muffins
```

```
>>ant run3 -Dargs="hello world big lovely day l"
hello
world
lovely
```

```
>>ant run3 -Dargs=" hello world bf"
Invalid input
```

Helpful tips:

- Inside your main function, you receive the command line arguments as an array of Strings: public static void main(String[] args)

If you have a string str and an array arr :

- Check string length - str.length()
- Check the array size - arr.length
- Get a substring - str.substring(int i, int j) - from the i index (including) to the j index (not incuding) - example: "Hello World".substring(1,7) → "ello W"
- Get element from array by index - arr.index
- Get char from string by index - str.charAt(index)

For Submission:

- Your assignment includes three main classes:
  - SumOfInteger.java
  - CountPairs.java
  - FindWordsContaining.java

Submission Instructions Important: The first row of each file should include your ID and your name as follows.

      // 012345678 David Cohen (not in the Javadoc)

It's not allowed to import any JAVA class.

Submit through the Submission System.

Please follow the general **Submission Instructions** for the course.

Make sure your code follows the **CodingStyle**.

Make sure you have JAVADOC as expected.

Good luck!