

# CS 0411 assignment 3

Due on Friday, Feb. 12, 2010

Each student is required to do this assignment **individually**. Type all of your answers in an electronic file (you can use plain text or Microsoft Word), which includes your explanation and data of inputs and output. All computer programs should be saved in separated files. Send your answer sheet and program files to the course email account:

`cs0411@peace.lakeheadu.ca`

In the email, you should indicate your name, student ID, assignment number and a list of attachments. All the program files should be sent as attachments of the email.

Assignments which do not meet above requirement risk reduced marks or even no marks.

The grade of the assignment will depend on:

Documentation and readability: 20 %

Correctness: 80 %

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## Problem 1.

The sequence of *Fibonacci numbers* begins with the integers

1, 1, 2, 3, 5, 8, 13, 21, . . . . .

where each number after the first two is the sum of the two preceding numbers.

(a). Write a program that reads a positive integer  $n$  and then displays the first  $n$  Fibonacci numbers. The following are an example of output.

How many Fibonacci numbers do you want to display?

21

The 21 Fibonacci numbers are:

1  
1  
2  
3  
5  
8  
13  
21  
34  
55

89  
144  
233  
377  
610  
987  
1597  
2584  
4181  
6765  
10946

(b) Write a program to calculate the largest Fibonacci number which is less than a given number  $m$ , where  $m$  is an positive integer read from key board.

**Problem 2.**

Write a program that reads two three-digit integers and then calculates and displays their sum, their difference and their product. The output should be formatted to appear as follows

The sum, difference and product of 456 and 123 are as follows:

456	456	456
+ 123	- 123	X 123
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579	333	56088