同济大学
TONGJI UNIVERSITY

School of Software Engineering

Object-Oriented Programming OOP (2016)

Exercise 3

Please submit the source files, program results after running the .exe file and related documents. The submitted package/files should be named by "yourname_studentid_exerciseno". Submit the package/files to your own folder on server (\\10.60.41.1). It should be the C++ folder.

Due day: 12:00 noon, Wednesday, Apr.6, 2016

Problem 1

We have written a function to generate Fibonacci numbers with a certain size by vectors in the class. Please implement the same function by two other ways: array and recursive way. Compare the time efficiency of the two ways and get your conclusion. The comparison can be done through theoretical analysis or data testing.

Problem 2

There are several sorting algorithms, such as selection sort, bubble sort and quick sort etc. Choose one of the sorting algorithms, and write a template function for the sorting algorithm to sort data in an array with different data types (including integers, floating numbers and strings). Please also write a template function to display the sorted result. Test your functions in the main function.

Problem 3

There are ***n*** people with label **1**, **2**, **3**,…, ***n*** sitting around a circle clockwise. A positive integer is given as a counting number ***m***. The person with label **1** starts the counting. The counting continues one by one clockwise and stops at number ***m***, and the person counts ***m*** is out. Then, the next person in the clockwise direction counts again from **1**, and the next person counts ***m*** is out. This continues until the last person. Write a function to get the label of this last person. The number of ***n*** and ***m*** should be the inputs of the function (given by users). Please use a container in the implementation and test the function.