**Homework set #1**

**CSB021: Object Oriented Programming**

**(Upload your homework to E-learning by Oct./15/2015. Please consult your TA for any questions).**

**Problem 1: Compare the difference between using “inline” and regular function calls. Follow the steps below.**

**Step 1: Get the sample code "no\_inline\_test.zip" in E-learning.**

**Then decompress it and you shall see no\_inline\_test.cpp**

**Step 2: Compile the source code; then run the executable. The total time taken to run this program (in seconds) will be displayed as the final several lines on the screen. This is the time spent for regular function calls. Modify the code properly and run this program 10 times and record the total time taken for each run. Then take the average and name it as Avg\_no\_inline.**

**For example:**

**After you run the program 10 times, you may get**

**1st run: 76.1 seconds**

**2nd run: 76.3 seconds**

**3rd run: 77.2 seconds**

**4th run: 75.1 seconds**

**5th run: 78.1 seconds**

**6th run: 77.1 seconds**

**7th run: 76.1 seconds**

**8th run: 78.1 seconds**

**9th run: 76.2 seconds**

**10th run: 77.1 seconds**

**Then compute Avg\_no\_inline and you get the average of these 10 numbers = 76.74**

**Step 3: Comment out line 19 of** [**no\_inline\_test.cpp**](http://www.csie.nuk.edu.tw/~cfhuang/OOP2009/no_inline_test.cpp) **and remove the comment on line 20 (i.e., remove the “//” before line 20). Then save the file and re-compile it; then run the executable. The total time taken to run this program will be displayed again on the screen. This is the time spent for running inline usage. Run this program 10 times and record the total time taken for each run. Then take the average and name it as Avg\_inline.**

**Problem 2:** 請自定義兩個名稱空間，分別是 dimensionTwo還有dimensionThree，並且在這兩個名稱空間中，皆需放入名稱為print的自定義函式。其print函式的功能為：在dimensionTwo名稱空間裡頭的print函式負責印出”This is dimensionTwo.\n”；而在dimensionThree名稱空間裡頭的print函式負責印出”This is dimensionThress.\n”。

　　最後，在int main的區塊中，dimensionTwo使用using namespace 的方式來呼叫print函式；dimensionThree則使用範疇解析運算子(::)來呼叫print函式，並且印出執行結果。

**Problem 3: Exercises 15.6 of the textbook, on page 613.**

**Problem 4: Exercises 15.8 of the textbook, on page 613.**

**Notes on the format of your homework document to be uploaded: Generate a file in .doc format to show your answer. Especially for Problem 1, report the time taken for each run and the average number for “regular function calls” and “inline usage”. Then discuss your observation about whether inline usage is faster than regular function calls or not.**

**Also for Problem 1, in your homework to be uploaded, please follow the display format in the following:**

**For regular function calls:**

**1st run: 76.1 seconds**

**….**

**10th run: 77.1 seconds**

**Avg\_no\_inline = 76.74 seconds**

**For inline usage:**

**1st run: 75.2 seconds**

**….**

**10th run: 75.8 seconds**

**Avg\_inline = 75.24 seconds**

**Finally, zip your source codes, word document, and name your zip file using your student ID as, e.g., Hw1\_Fall2015\_A1035501.zip and upload it to E-learning.**