Programming Session Assignment 05

2017/10/31 by TA 陳姿玲

REQUIRED FILES

Please **compress a folder** named **PSA05_b06901XXX** (student ID) that contains the following files:

✓ b06901XXX _p1.cpp
 ✓ b06901XXX _p2.cpp
 ✓ b06901XXX _p3.cpp
 ✓ b06901XXX _p4.cpp

Do not submit executable files (.exe). Files with names in wrong format will not be graded. In your .cpp files, we suggest you write comments in details as much as you can. It will be good for the TAs to read your code and for your future reference and maintenance. (Due date: 11/01 06:00)

PROBLEM DESCRIPTION

1. Design a program so you can input the values of matrices A and B, and then output matrix C based on the following matrix formula.

$$A = \begin{bmatrix} A_{00} & \cdots & A_{04} \\ \vdots & \ddots & \vdots \\ A_{20} & \cdots & A_{24} \end{bmatrix}_{3 \times 5}, B = \begin{bmatrix} B_{00} & B_{01} \\ \vdots & \vdots \\ B_{40} & B_{41} \end{bmatrix}_{5 \times 2}$$

$$C = A \times B = \begin{bmatrix} \sum_{n=0}^{4} A_{0n} B_{n0} & \sum_{n=0}^{4} A_{0n} B_{n1} \\ \vdots & & \vdots \\ \sum_{n=0}^{4} A_{2n} B_{n0} & \sum_{n=0}^{4} A_{2n} B_{n1} \end{bmatrix}_{3 \times 2}$$

Format:

- Design a program that reads two strings of 4 characters each ("Correct numbers" & "Compared numbers") and then shows the result as the following rules.
 Rules:
 - Get one A: 2 numbers in different strings have an identical value in the same position.
 - Get one B: 2 numbers in different strings have an identical value in different positions.

Format:

```
example 1
1352 <--- Correct numbers
1376 <--- Compared numbers
2A0B <--- Result

example 2
3215 <--- Correct numbers
1984 <--- Compared numbers
0A1B <--- Result
```

3. There are some bugs in the file "PSA05_P3.cpp". Try to fix them, and then make it work like this:

```
a=3.15 ---+ b=5.5 No need to use "\t" or " " in the output. Just be same as we show. axb=17.325---+
```

4. Design a program that inputs the level "n" and shows the Pascal's diamond as the following format.

Format: