**Programming Assignment Two**

In this assignment, there are three tasks. Please submit all the required files in each task description.

**Task 1**

Run the program in ***ch6,7: Slides 47-49*,** directing the output to a file named ***A2\_T1\_####.txt*** where #### are the last four digits of your student ID.For this part, you only need to submit **A2\_T1\_####.txt***.*

**Task 2**

Replace the code that uses C++ with the code for C. You can refer to the code in ***ch6,7: Slide 3***. Submit the source code file and the output file. File names are ***A2\_T2\_####.c* and *A2\_T2\_####.txt*** where #### are the last four digits of your student ID.

**Task 3**

Further modify the code from task 2 to fulfill the following requirements:

1. The program create two producers and two consumers and one reader.
2. Producers cannot write to buffer at the same time
3. Consumers cannot consume at the same time
4. Producer and consumer cannot write and consume at the same time
5. Consumers and reader cannot consume and reader at the same time
6. Reader will read the first item in the current queue

You can refer to ***Ch4: Slide 30*** to learn how to create multiple thread with certain indexes. A sample output file is provided here for you to know the output format requirements. Since each time, threads will run in different order, the output files are different. The submitted file names are ***A2\_T3\_####.c* and *A2\_T3\_####.txt*** where #### are the last four digits of your student ID.