Operating Systems: Programming Assignment #1

Fall 2020

Due: Nov. 16th, 2:00pm

Implement Banker's Algorithm to determine whether a system is in a safe state or not in C/C++ or JAVA.

- Your program should conduct the followings:

1. Read 3 text files ("allocation.txt", "max.txt", "available.txt")

   A. The 3 files contain the content of the two matrices (**Allocation** and **Max**) and an array **Available**

   B. Each text file must contain numeric values only, separated by a space.

   C. In the two matrices (**Allocation** and **Max**), each row represents a process and each column is a resource type. In an array **Available**, each column is a resource type.

Allocation

	A	B	C	D
P0	2	3	1	4
P1	1	1	0	2
P2	0	1	2	1
P3	0	0	2	1
P4	2	0	1	3

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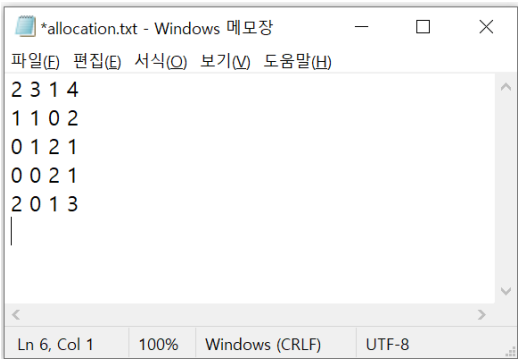

   D. Assume that the maximum number of resource types and maximum number of processes are 10

2. Determine whether the system is in a safe state or not

   A. If in a safe state, print out "Safe state"

   B. Otherwise, print out "Unsafe state" and terminate the program

3. Ask whether there is an additional request or not. If no further request, then terminate the program

4. Receive an additional request and decide whether the request can be granted immediately

    A. If yes, print out “Granted” and update the contents of the system. Go to 3.

    B. If no, print out “Not Available” and terminate the program

- Submission

1. You must submit your source code (all files that are required to compile and execute the program)
2. All the files must be zipped in a single file