CSCI 315 Operating Systems Design

In-Class Exercise
Fall 2013
Professor Meng

Work out the following problems in a group of 2-3 students. (Source: SGG 9th edition Problem 7.23)

Consider the following snapshot of a system:

	Allocation	**Max**	**Available**
	A B C D	**A B C D**	**A B C D**
P0	2 0 0 1	4 2 1 2	3 3 2 1
P1	3 1 2 1	5 2 5 2	
P2	2 1 0 3	2 3 1 6	
P3	1 3 1 2	1 4 2 4	
P4	1 4 3 2	3 6 6 5	

Answer the following questions for the given system state at the moment using the banker's algorithm:

1. What is the content of the *Need* matrix at this moment?
2. What are the total resource counts in the system?
3. Illustrate that the system is in a safe state by demonstrating an order in which the processes may complete.
4. If a request from process P1 arrives asking for resources (1, 1, 0, 0), what should be the system's response? Why?
5. If a request from process P4 arrives asking for resources (0, 0, 2, 0), what should be the system's response? Why?