

CS 3204: Homework: Banker's Algorithm
Spring 2003
Due: in class 4/17/2003

The Banker's Algorithm discussed in class can be easily generalized to N resources classes. Consider the following set of processes and their resource acquisition/need. There are 4 types of resources A, B, C and D.

Process	Current Loan				Maximum Needed				Current Claim			
	A	B	C	D	A	B	C	D	A	B	C	D
1	1	0	2	0	3	2	5	2				
2	0	3	1	2	4	5	1	2				
3	2	4	5	1	10	7	7	5				
4	3	0	0	6	5	7	0	8				
5	4	2	1	3	6	2	1	4				
Total Resources				Resources Available								
A	B	C	D	A	B	C	D					
13	13	9	13									

- (a) Based on the state of the system given above
 - (i) for each process/resource class pair provide the current resource claim
 - (ii) for each resource class provide the number of resources currently available.

- (b) According to the Banker's Algorithm is the state of the system shown above safe?

- (c) If the system is safe, provide the corresponding sequence of process completions.
 If the system is unsafe, show how deadlock might occur.