CS 4315 HW Assignment 3

1. Briefly explain the starvation of a process <u>in priority scheduling</u> and how to prevent starvation? (10 points)

2. Suppose that there are 12 resources available to three processes. At time 0, the following data is collected. The table indicates the process, the maximum number of resources needed by the process, and the number of resources currently owned by each process. Is the system in a safe state? Why? (10 points)

Process	Maximum Needs	Currently holding
P_0	10	4
P_1	3	2
P_2	7	4

3. Consider the following snapshot of a system:

	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P_0	0	0	1	2	0	0	1	2	1	5	2	0
P_1	1	0	0	0	1	7	5	0				
P_2	1	3	5	4	2	3	5	6				
P_3	0	6	3	2	0	6	5	2				
P_4	0	0	1	4	0	6	5	6				

Answer the following questions using the banker's algorithm:

a) How many instances of each resource type does the system have? (5 points)
b) What is the content of the matrix **Need**? Draw the table. (5 points)
c) Is the system in a safe state? Why? (10 points)
d) If a request from process P_1 arrives for (0, 4, 2, 0), can the request be granted immediately? Explain why. (Hint: Suppose the request is granted, then is the system safe? If yes, then the request can be granted immediately; else, it cannot be granted. So, for this question, you need to inspect whether the system is safe after the request is granted.) (10 points)