1. Find all the safe sequence for the following resource allocation chart.

Total Resources	R1	R2	R3
	10	5	7

Process	Allocation			Max		
	R1	R2	R3	R1	R2	R3
P1	0	1	0	7	5	3
P2	2	0	0	3	2	2
P3	3	0	2	9	0	2
P4	2	1	1	2	2	2

2. We have a buffer of fixed size. A producer can produce an item and can place in the buffer. A consumer can pick items and can consume them. We need to ensure that when a producer is placing an item in the buffer, then at the same time consumer should not consume any item. In this problem, buffer is the critical section. Implement the algorithm to solve the mentioned problem.

3. Consider the following table of arrival time and burst time for four processes P1, P2, P3 and P4.

Process	Arrival time	Burst Time
P1	1 ms	2 ms
P2	2 ms	4 ms
P3	3 ms	6 ms
p4	4 ms	8 ms

   Calculate the avg TAT and avg Waiting time when scheduled using Longest Remaining Time First scheduling algorithm.

4. Implement the following tree structure using fork() system call and execute the process in the reverse order of their creation. i.e order of execution should be GC1 - C2 - C1 - Parent Process.