# Week 9 – LAQ's

Instructions

## Consider the following snapshot

1. Calculate the content of the need matrix?
   The need matrix represents the maximum resources each process can still request. It's calculated by subtracting the allocated resources from the maximum resources:

| Processes | A | B | C |
|---|---|---|---|
| P0 | 321 | 221 | 223 |
| P1 | 110 | 110 | 110 |
| P2 | 401 | 801 | 801 |
| P3 | 020 | 753 | 753 |
| P4 | 000 | 000 | 000 |

2. Check if the system is in a safe state:

To check for a safe state, we need to find a sequence of processes that can complete their tasks without encountering a deadlock. We can use the Banker's Algorithm for this:

Step 1: Create a Work vector initialized with the available resources: Work = (210, 0, 0).

Step 2: Find a process whose Need vector is less than or equal to the Work vector. Here, P4 satisfies this condition (Need of P4 = (0, 0, 0)).

Step 3: Add the allocation of the selected process to the Work vector. Work = (210, 0, 0) + (112, 112, 112) = (322, 112, 112).

Step 4: Repeat steps 2 and 3 until all processes are completed.

Following the above steps, we can find a safe sequence: P4, P0, P1, P3, P2. This indicates that the system is in a safe state.

3. Determine the total sum of each type of resource:

Total A: 112 + 212 + 401 + 0 + 112 = 837

Total B: 112 + 212 + 401 + 20 + 112 = 857

Total C: 112 + 212 + 401 + 20 + 112 =857