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CS 3600 – Operating Systems

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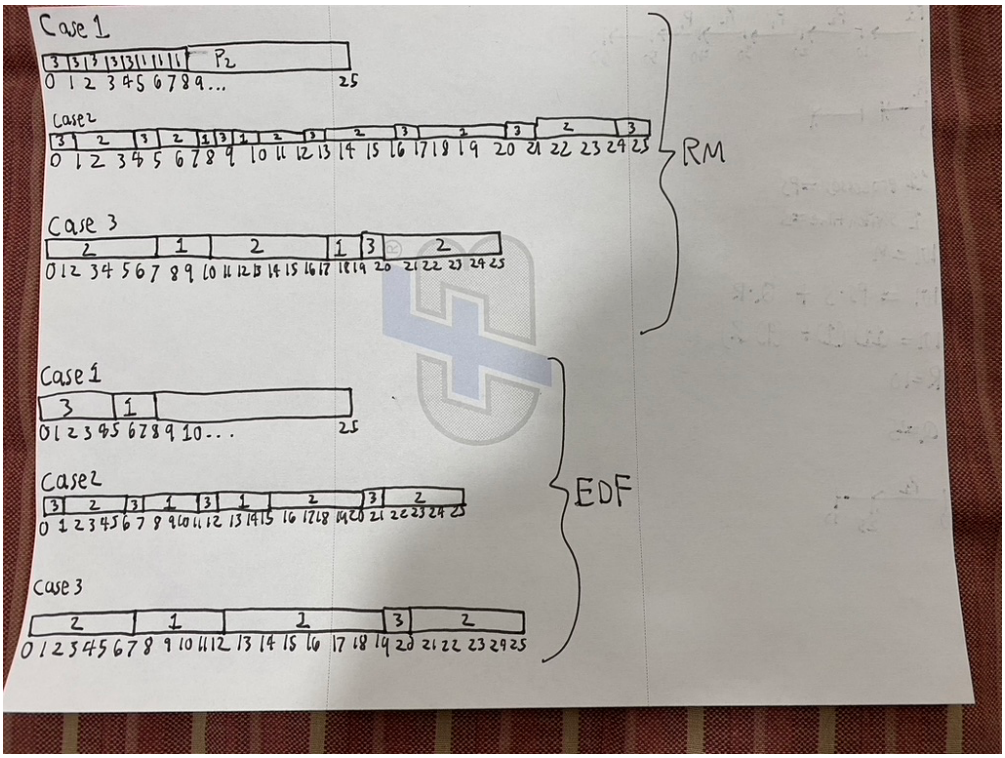
Worksheet 3

1. Two processes, p1 and p2 arrive at time 0 and start executing using RR scheduling. (p1 starts before p2) The total CPU time of p1 is 30-time units, and p2 is 50. The quantum is Q = 10. The context switching time is S = 0. Find Turnaround Time (TT) of P1, P2 and Average Turnaround Time (ATT).
    a. P1 TT = 50 – 0 = 50
    b. P2 TT = 80 – 0 = 80
    c. ATT = (80+50) / 2 = 65
2. Two processes, p1 and p2 are executing using RR scheduling. The context switching time is S = 5.
    a. Determine the maximum quantum size Q such that the gap between the end of a process pi's quantum and the start of pi's next quantum does not exceed M = 30 time units.
        i. 30 - 5 = 25
    b. Determine the percentage of CPU time wasted on context switching.
        i. 5/25 = 20%
3. Three periodic processes with the following characteristics are to be scheduled: (D is the period and T is the total CPU time.)
    a. A feasible schedule does exist.
    b. Two new processes can run concurrently under EDF.
4. See below photo.


Case 1
P2
Case2
Case 3
RM
Case 1
Case2
Case 3
EDF