CS & IT ENGING

Operating System

Process Synchronization



Lecture - 03

Recap of Previous Lecture









Topic

Synchronization

Topic

Race Condition

Topic

Mutual Exclusion

Topics to be covered













Requirements of Critical Section problem solution:

- 1. Mutual Exclusion
- Progress
- Bounded Waiting





Mutual Exclusion:

If one process is executing the critical section, then other process is not allowed to enter into critical section.





Progress:

If no any process is in critical section and any process wants to enter into critical section, then the process must be allowed.





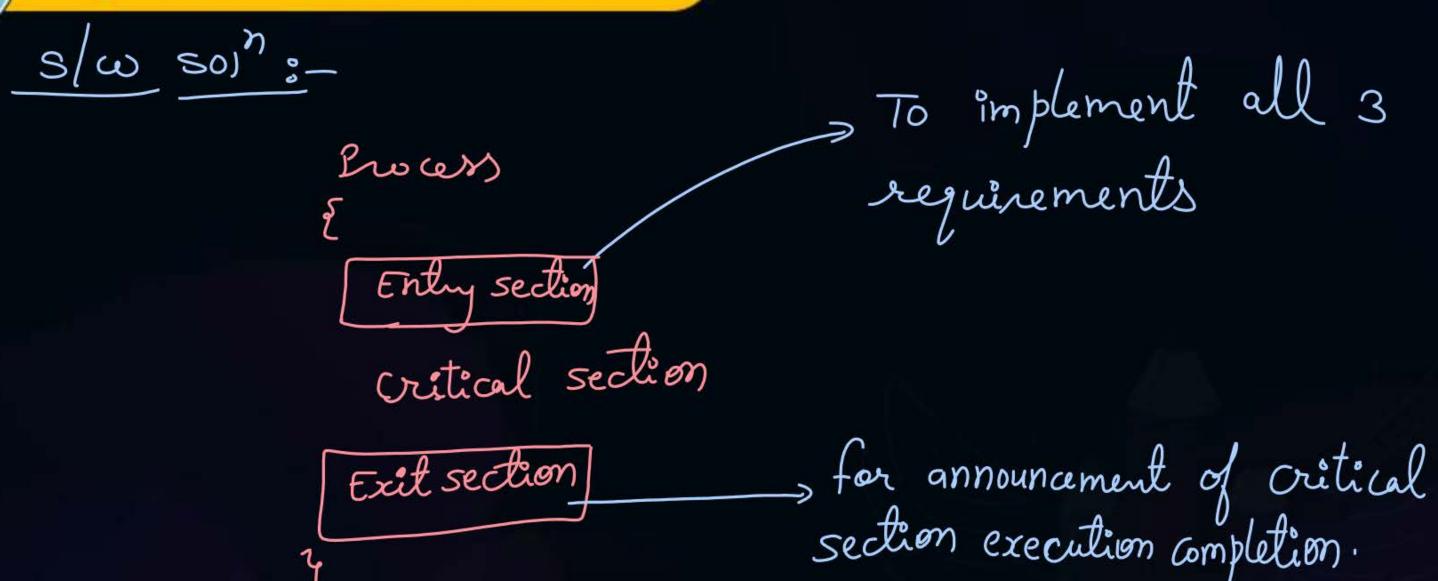
Bounded Waiting:

If a process p1 is executing in critical section and other process p2 is waiting for critical section, then the waiting time of p2 must be bounded. Which means p1 must not enter in to critical section again and again by keeping p2 in waiting for long.



Topic: 2-Process Solution





```
Cock = false denotes that c.s. is
  Solution 1
                                                       - c.s. is occupied
~ shared variable
     Boolean lock=false;
                                              P2
           P1
                                          while(true)
     while(true)
        while(lock);
                                              while(lock);
                                              lock=true;
        lock=true;
                                               //CS
           //CS
                                             lock=false;
        lock=false;
        RS;
                                              RS;
```

Checking for mutual exclusion:

Case 1:-

one process in c.s. and other process wants to enter into c.s.

Cock = fabse True

if p1 in c.s. then lock = True

p2 can not enter into c.s.

because it runs while (lock);

PI and P2 runs while (lock); one after another.

PI	P2	₽1	92
while (lock).	while (lock);	C.S.	Lock = T C.S.

lock = XT both processes are in c.s.

No Mulual Exclusion



2 mins Summary



Topic

Mutual Exclusion

Topic

Progress

Topic

Bounded Waiting

Topic

Two-Process Solution for Critical Section





Happy Learning

THANK - YOU