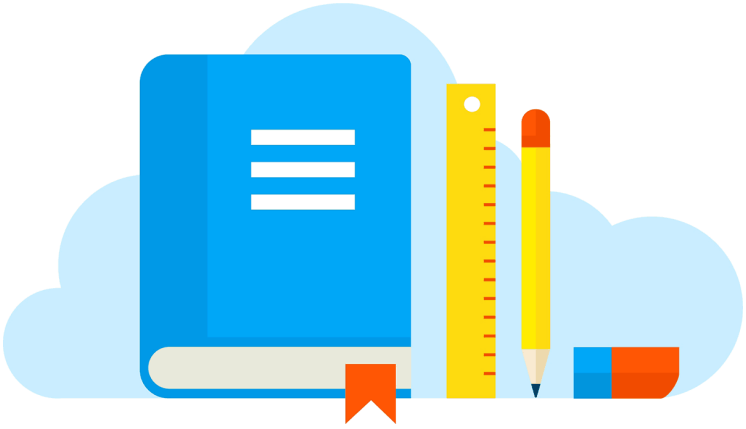

LAB-7

Mayank Raj(B19CSE053)

PART-1:

- Implemented pizza problem by creating threads for students and pizza delivery.
- The solution is implemented using mutex and semaphores . Therefore, this solution is deadlock free as student's threads wait until the pizza arrives.
- How to run:
    i. Open terminal
    ii. gcc latenightpizza.c -pthread;./a.out

```
0 got pizza slice
1 got pizza slice
2 got pizza slice
3 got pizza slice
0 finishes pizza slice
0 got pizza slice
2 finishes pizza slice
3 finishes pizza slice
3 goes to sleep
1 finishes pizza slice
2 ordered pizza and 2 goes to sleep
0 finishes pizza slice
the pizza is delivered
0 got pizza slice
3 got pizza slice
1 got pizza slice
1 finishes pizza slice
1 got pizza slice
3 finishes pizza slice
3 got pizza slice
```

PART-2

a)Used monitors to implement the barber's problem. Threads for barbers and customers are created and synchronization is attained using monitors.

How to run:

1. Open terminal and write
2. gcc barber_monitor.c -pthread;./a.out

```
cutsomer 0 sits on the chair
cutsomer 4 sits on the chair
cutsomer 1 sits on the chair
cutsomer 3 sits on the chair
cutsomer 2 sits on the chair
customer 5 is returning(no chairs left)
customer 6 is returning(no chairs left)
barber engaged with 0
customer 6 has come back after 5 mins
customer 6 is returning(no chairs left)
barber done with 0, 0 leaves
customer 5 has come back after 5 mins
cutsomer 5 sits on the chair
barber engaged with 4
customer 6 has come back after 5 mins
customer 6 is returning(no chairs left)
barber done with 4, 4 leaves
barber engaged with 1
barber done with 1, 1 leaves
customer 6 has come back after 5 mins
cutsomer 6 sits on the chair
barber engaged with 3
barber done with 3, 3 leaves
barber engaged with 2
```

b)Fully Implemented Banker's algorithm using C++.

Input format:

->Enter number of processes

->Enter number of resources

->Allocation matrix

->Max resources required

Enter the number of resources you want to allocate for what process and it will tell whether it is safe or not.

How to run:

1. Open terminal and write
2. G++ banker.cpp;./a.out
3. Enter according to input format