Ellika Mishra 33221

bestfriend
Date
Page

Assignment 4

Title:: Thread synchronization using Couting Semaphore

Problem Statement:: Thread Synchronization using couting semaphores. Application to demonstrate:: producer - consume proble with couting semaphors and matrix

Theory:: Semaphore is a variable which is non-negative and is shared between threads.

Producer-Consumer Problem:: Given a buffer of fixed size, a producer can produce an item and place it in the buffer. A consumer can pick items and consume them We need to ensure that when a producer is placing an item in the buffer, then at same time consumer should not consume any item. In this problem buffer is ~~a~~ ~~not~~ the critical section

Algorithm :: Consumer Function

```
Void Consumer (){
// consumes items and finally pops from buffer and
   processes int item c;
   while (true) {
```

Regular

Signature .....

```
while (count==0); // buffer empty
  item = Buffer (out);
  (out) = (out+1) mod n;
   count -=1;
   process_item(item);
   // I1 load Rc, Count
   // I2 dec Rc
   // I3 store count, Rc
  }
 }
int count = 0; // global variable shared by bo
// buffer common to both, shared
```

Producer Function

```
Void Producer (){
  // Producer items are puts to buffer
    int itemp;
   while (true){
      while (count==n); // buffer full
    Buffer [in] = itemp;
      in = (in+1) mod n;
     count += 1;
     // I1 load Rp, Count
     // I2 inc Rp
     // I3 Store count, Rc
  }
```

Conclusion:- I have successfully implemented prod
consums problem.

Signature .....