



Problems of Producer and Consumer :-

Producer :-

- * When a Producer Produces something it occupies a cell, before Producer do that, Producer must know in an array minimum One cell is Vacent or not?

Consumer :-

- * When a Consumer Consumes some data, before Consumer consume Consumer must know that, in an array minimum One cell is filled or not.
- * One of the main Problem is, Producer and Consumer Can not Work at the Same time.

Semaphore :- A Semaphore is a Variable or Abstract data type used to Control access to a Common resource by multiple Processes in a Concurrent System such as multitasking Operating System.

- In Producer Consumer Problem, We Use 3 Semaphore,
- $S = 1$ * S - is a Semaphore which are use to solve or take Care of Critical Section.
- $E = n$ * E - Empty Slots, in Empty Slots we have initialize with n.
- $F = 0$ * F - How many slots are full.

How Producer and Consumer Works:-

* Producer

```
Void Producer ( )  
{  
  While (T)  
  {  
    Producer ( )  
    Wait (E)  
    Wait (S)  
    Append ( )  
    Signal (S)  
    Signal (F)  
  }  
}
```

Consumer

```
Void Consumer ( )  
{  
  While (T)  
  {  
    Wait (F)  
    Wait (S)  
    Take ( )  
    Signal (S)  
    Signal (E)  
    Use ( )  
  }  
}
```


Process Synchronization:-

① Producer Consumer Problem:-

