CODE SCREENSHOTS

cs182019_Lab09_Task.cpp   cs182019_Lab09_Assg.cpp

```cpp
1    #include<iostream>
2    using namespace std;
3    int bufferSize = 5;
4    int buffer[5];
5    // cs182019 Lab 09 Assignment
6
7    // production in slot's is 1
8    int produced = 1;
9    // consumption from slot's is 0
10   int consumed = 0;
11
12   int emptyspace=0;
13   int productionCount=0;
14   int consumptionCount=0;
15
16   void bufferCheck()
17   {
18       cout<<"<--- BUFFER SLOTS ----> "<<endl;
19       for(int i =0; i<bufferSize; i++)
20       {
21           if(buffer[i]==1)
22               cout<<"SLOT " << i << " IS FILLED "<< buffer[i]<<endl;
23
24           else if(buffer[i]==0)
25               cout<<"SLOT " << i << " IS EMPTY "<< buffer[i]<<endl;
26       }
27       cout<<endl;
28   }
```

```cpp
void producer()
{
    int notFull=1; // 1 is true

    // checking if buffer is NOT FULL
    for(int i =0 ;i<bufferSize;i++)
    {
        //if the slot is filled
        if(buffer[i]==1)
            notFull=0;

        // else if slot is empty
        else
        {
            notFull=1;
            emptyspace=i;
            break;
        }
    }
    // data production
    if(notFull==1)
    {
        buffer[emptyspace] = produced;
        productionCount++;
    }
    // if buffer is filled.
    if(notFull==0)
        cout << "Cant Produce Buffer is Full .\n" << endl;

    bufferCheck();
}
```

```cpp
void consumer ()
{
    // 1 is true
    int notEmpty=1;
    // checking if Buffer is NOT EMPTY
    for(int i =0 ;i<bufferSize;i++)
    {
        //if slot is empty
        if(buffer[i]==0)
            notEmpty=0;

        // if slot is not empty
        else
        {
            notEmpty=1;
            buffer[i]=consumed;
            consumptionCount++;
            break;
        }
    }
    //if buffer is empty.
    if(notEmpty==0)
        cout<<"Cant Consume Buffer is Empty .\n"<<endl;

    bufferCheck();
}


void emptyBuffer()
{
    for(int i =0;i<bufferSize;i++)
        buffer[i]=0;
}
```

Continued…..

```cpp
int main()
{
    // creating an empty buffer filled with only zeros
    emptyBuffer();
    // 0 indicates slot is empty for production
    bufferCheck();
    int request;

    while(1)
    {
        cout <<"-->> Press 1 for Consumption .\n";
        cout <<"-->> Press 2 for Production .\n";
        cin >> request;
        cout << endl;

        if(request==1)
            consumer();

        else if(request==2)
            producer();

        else
        {
            cout<<"Invalid Choice, Terminated.\n"<<endl;
            break;
        }
    }

    cout<<"Productions : "<<productionCount<<endl;
    cout <<"Consumptions : "<<consumptionCount<<endl;

    return 0;
}
```

Continued….

CODE OUTPUT

*starting with empty buffer

```
C:\Users\user\Desktop\Semester 4\OS Lab\

<--- BUFFER SLOTS ---->
SLOT 0 IS EMPTY 0
SLOT 1 IS EMPTY 0
SLOT 2 IS EMPTY 0
SLOT 3 IS EMPTY 0
SLOT 4 IS EMPTY 0

-->> Press 1 for Consumption .
-->> Press 2 for Production .
```

*checking consume on empty buffer

```
C:\Users\user\Desktop\Semester 4\OS Lab\

<--- BUFFER SLOTS ---->
SLOT 0 IS EMPTY 0
SLOT 1 IS EMPTY 0
SLOT 2 IS EMPTY 0
SLOT 3 IS EMPTY 0
SLOT 4 IS EMPTY 0

-->> Press 1 for Consumption .
-->> Press 2 for Production .
1

Cant Consume Buffer is Empty .

<--- BUFFER SLOTS ---->
SLOT 0 IS EMPTY 0
SLOT 1 IS EMPTY 0
SLOT 2 IS EMPTY 0
SLOT 3 IS EMPTY 0
SLOT 4 IS EMPTY 0

-->> Press 1 for Consumption .
-->> Press 2 for Production .
```

*producing

```
-->> Press 1 for Consumption .
-->> Press 2 for Production .
2

<--- BUFFER SLOTS ---->
SLOT 0 IS FILLED 1
SLOT 1 IS EMPTY 0
SLOT 2 IS EMPTY 0
SLOT 3 IS EMPTY 0
SLOT 4 IS EMPTY 0

-->> Press 1 for Consumption .
-->> Press 2 for Production .
```

*filling all slots and checking production

```
<--- BUFFER SLOTS ---->
SLOT 0 IS FILLED 1
SLOT 1 IS FILLED 1
SLOT 2 IS FILLED 1
SLOT 3 IS FILLED 1
SLOT 4 IS FILLED 1

-->> Press 1 for Consumption .
-->> Press 2 for Production .
2

Cant Produce Buffer is Full .

<--- BUFFER SLOTS ---->
SLOT 0 IS FILLED 1
SLOT 1 IS FILLED 1
SLOT 2 IS FILLED 1
SLOT 3 IS FILLED 1
SLOT 4 IS FILLED 1

-->> Press 1 for Consumption .
-->> Press 2 for Production .
```