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Sub: Operating Systems Laboratory

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### **EXPERIMENT NO. 03**

Source Code:

```
#include <stdio.h>
#include <stdlib.h>
int mutex = 1;
int full = 0;
int empty = 10, x = 0; void producer()
{
    --mutex; ++full;
    --empty; x++;
    printf("\nProducer produces" "item %d",
x); ++mutex;
}
void consumer() {
    --mutex; --full; ++empty;
    printf("\nConsumer consumes " "item %d",x);
    x--;
    ++mutex;
}
int main() {
    int n, i;
    printf("\n1. Press 1 for Producer" "\n2. Press 2 for Consumer" "\n3. Press 3 for Exit");
    #pragma omp critical
    for (i = 1; i > 0; i++) {
        printf("\nEnter your choice:");
        scanf("%d", &n);
        switch (n) {
            case 1:
                if ((mutex == 1)&& (empty != 0)) {
                    producer();
```

```
}  
else {  
    printf("Buffer is full!");  
}  
break;  
case 2:  
    if ((mutex == 1)&& (full != 0))  
    {  
        consumer();  
    }  
    else {  
        printf("Buffer is empty!");  
    }  
    break;  
case 3:  
    exit(0);  
    break;  
} }  
}
```

### Output:

```
1. Press 1 for Producer
2. Press 2 for Consumer
3. Press 3 for Exit
Enter your choice:1
Producer produces item 1
Enter your choice:1
Producer produces item 2
Enter your choice:1
Producer produces item 3
Enter your choice:1
Producer produces item 4
Enter your choice:1
Producer produces item 5
Enter your choice:1
Buffer is full!
Enter your choice:2
Consumer consumes item 5
Enter your choice:2
Consumer consumes item 4
Enter your choice:2
Consumer consumes item 3
Enter your choice:2
Consumer consumes item 2
Enter your choice:2
Consumer consumes item 1
Enter your choice:2
Buffer is empty!
Enter your choice:3
```

