Academic Year: 2023-24   Sem: III

Sub: Operating Systems Laboratory   SAP ID: 60003220131

EXPERIMENT NO. 03

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BATCH: 1

```c
#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);
```

```c
        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;
        }
    }
}
```

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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
```