## Ex No.: 8 PRODUCER CONSUMER USING SEMAPHORE

Date : 02.04.2025

### Aim :

To write a program to implement solution to producer consumer problem using semaphores.

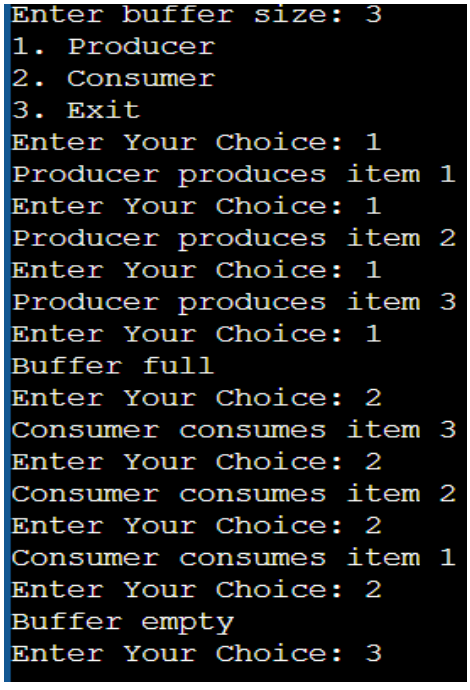
### Code:

```
#include <stdio.h>

#include <stdlib.h>

int mutex = 1, full = 0, x = 0;

int empty;

void Producer() {

    --mutex;

    ++full;

    --empty;

    x++;

    printf("Producer produces item %d\n", x);

    ++mutex;

}

void Consumer() {

    --mutex;

    --full;

    ++empty;

    printf("Consumer consumes item %d\n", x);

    x--;
```

```
    ++mutex;
}
int main() {
    int n;
    printf("Enter buffer size: ");
    scanf("%d", &empty);
    printf("1. Producer\n2. Consumer\n3. Exit\n");
    do {
        printf("Enter Your Choice: ");
        scanf("%d", &n);
        switch (n) {
            case 1:
                if (mutex == 1 && empty > 0) {
                    Producer();
                } else {
                    printf("Buffer full\n");
                }
                break;
            case 2:
                if (mutex == 1 && full > 0) {
                    Consumer();
                } else {
                    printf("Buffer empty\n");
                }
                break;
```

```
        case 3:
            exit(0);
            break;
        default:
            printf("Invalid choice\n");
            break;
    }
  } while (n != 3);
  return 0;
}
```

**Output:**




**Result:**

Thus the program to implement solution to producer consumer problem using semaphores has been executed successfully.