Lab-4

Program to perform producer consumer problem using binary semaphore

```
#include <stdio.h>
#include <stdlib.h>

int mutex = 1;
int full = 0;

int empty = 100, x = 0;

void producer()
{
        --mutex;
        ++full;
        --empty;
        x++;
        printf("\nProducer produces item %d\n",x);
        ++mutex;
}
void consumer()
{
        --mutex;
        --full;
        ++empty;
        printf("\nConsumer consumes item %d\n",x);
        x--;
        ++mutex;
}
int main()
{
```

```
        int n, i;
        printf("\n1. Press 1 for Producer");
        printf("\n2. Press 2 for Consumer");
        printf("\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("\nBuffer is full\n");
                        }
                        break;
                case 2:
                        if ((mutex == 1) && (full != 0))
                        {
                                consumer();
                        }
                        else
                        {
                                printf("\nBuffer is empty\n");
                        }
                        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: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
```

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