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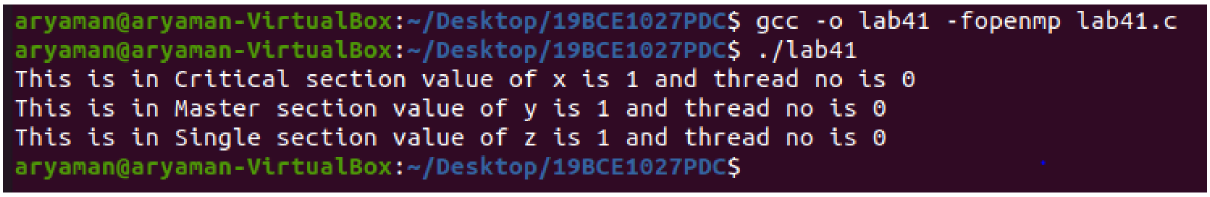
19BCE1027

LAB 4

Program 1:

Critical,Master and Single

```
#include<stdio.h>
#include<omp.h>
int main(){
int x=0,y=0,z=0;
#pragma omp parallel shared(x) shared(y) shared(z)
{
#pragma omp critical
{
x=x+1;
printf("This is in Critical section value of x is %d and thread no is %d\n",x,omp_get_thread_num());
}
#pragma omp master
{
y=y+1;
printf("This is in Master section value of y is %d and thread no is %d\n",y,omp_get_thread_num());
}
#pragma omp single
{
z=z+1;
printf("This is in Single section value of z is %d and thread no is
%d\n",z,omp_get_thread_num());

}

}

}
```



```
aryaman@aryaman-VirtualBox:~/Desktop/19BCE1027PDC$ gcc -o lab41 -fopenmp lab41.c
aryaman@aryaman-VirtualBox:~/Desktop/19BCE1027PDC$ ./lab41
This is in Critical section value of x is 1 and thread no is 0
This is in Master section value of y is 1 and thread no is 0
This is in Single section value of z is 1 and thread no is 0
aryaman@aryaman-VirtualBox:~/Desktop/19BCE1027PDC$
```

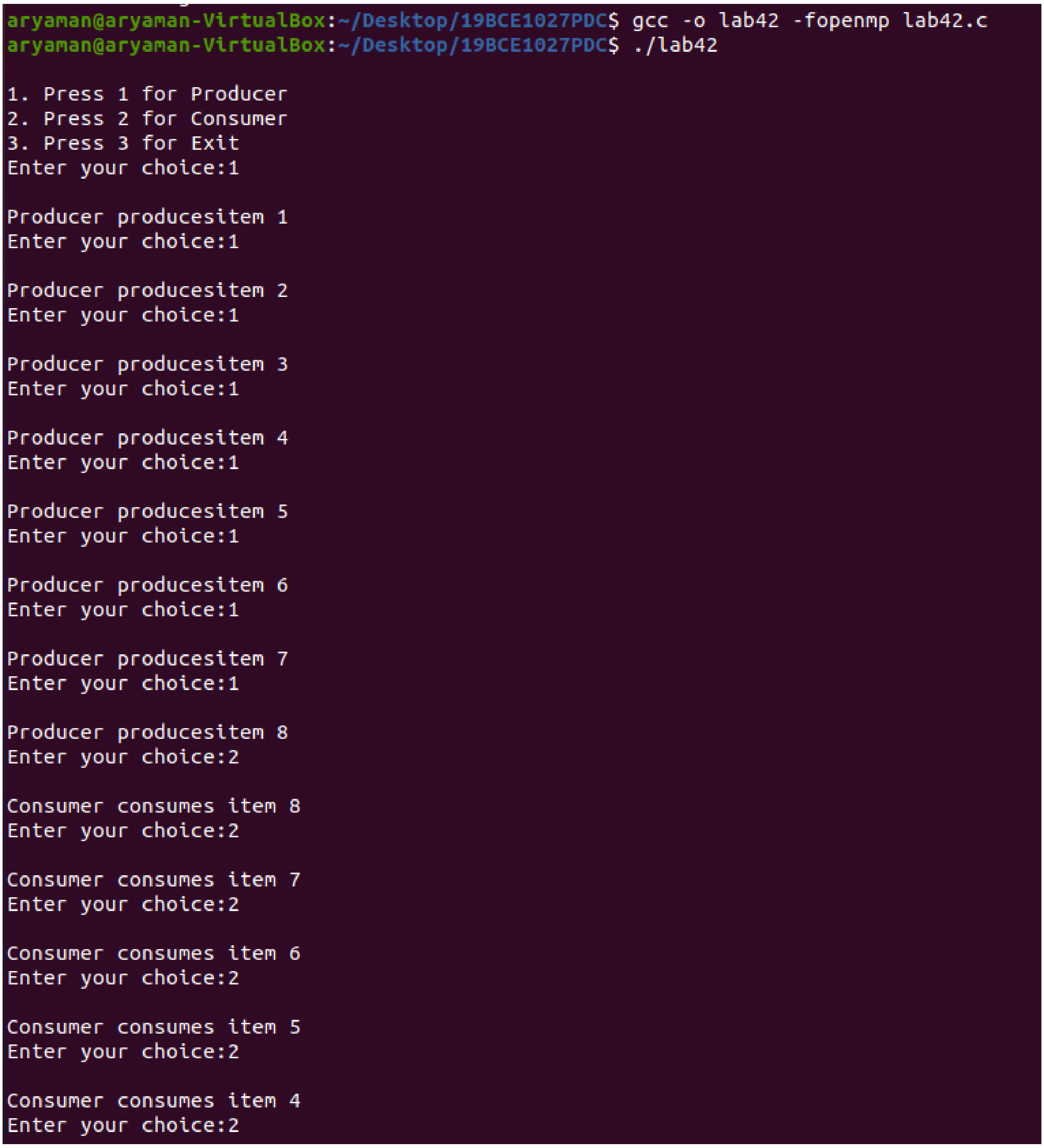
Program 2:

Critical:Producer and Consumer Problem

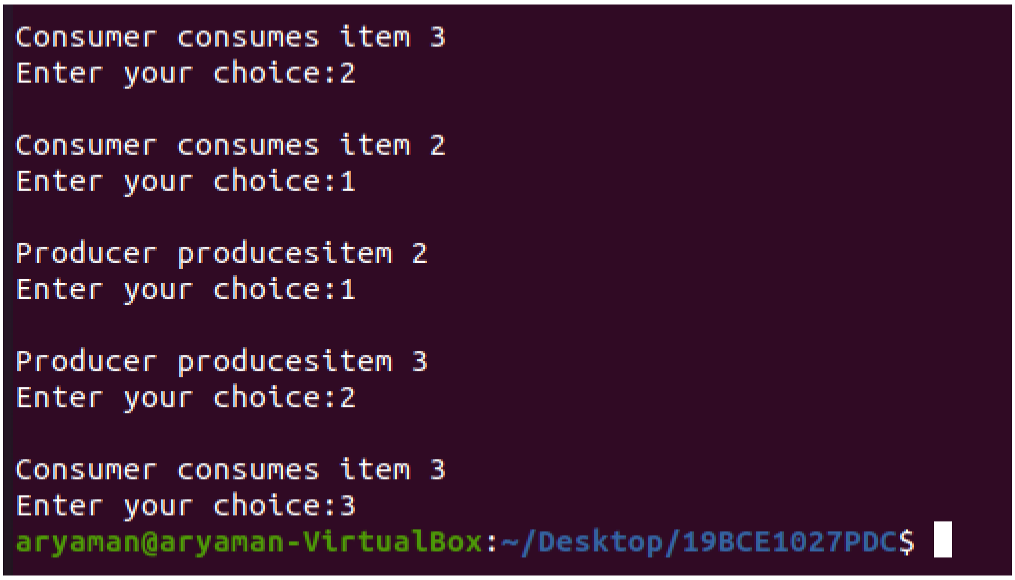
```
#include <omp.h>

#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;
        }
    }
```

```
}
```



```
aryaman@aryaman-VirtualBox:~/Desktop/19BCE1027PDC$ gcc -o lab42 -fopenmp lab42.c
aryaman@aryaman-VirtualBox:~/Desktop/19BCE1027PDC$ ./lab42

1. Press 1 for Producer
2. Press 2 for Consumer
3. Press 3 for Exit
Enter your choice:1

Producer producesitem 1
Enter your choice:1

Producer producesitem 2
Enter your choice:1

Producer producesitem 3
Enter your choice:1

Producer producesitem 4
Enter your choice:1

Producer producesitem 5
Enter your choice:1

Producer producesitem 6
Enter your choice:1

Producer producesitem 7
Enter your choice:1

Producer producesitem 8
Enter your choice:2

Consumer consumes item 8
Enter your choice:2

Consumer consumes item 7
Enter your choice:2

Consumer consumes item 6
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:1

Producer producesitem 2
Enter your choice:1

Producer producesitem 3
Enter your choice:2

Consumer consumes item 3
Enter your choice:3
aryaman@aryaman-VirtualBox:~/Desktop/19BCE1027PDC$ 
```