

## OS LAB: 15

### PRODUCER-CONSUMER PROBLEM USING SEMOPHERES

#### Source Code:

```
#include<stdio.h>

void main(){
int buffer[10], bufsize, in, out, produce, consume, choice=0;
in = 0;
out = 0;
bufsize = 10;
while(choice !=3)
{
printf("\n1. Produce \t 2. Consume \t3. Exit");
printf("\nEnter your choice: =");
scanf("%d", &choice);
switch(choice)
{
case 1: if((in+1)%bufsize==out)
printf("\nBuffer is Full");
else
{
printf("\nEnter the value: ");
scanf("%d", &produce);
buffer[in] = produce;
```

```

in = (in+1)%bufsize;
}

break;

case 2: if(in == out)

printf("\nBuffer is Empty");

else

{

consume = buffer[out];

printf("\nThe consumed value is %d", consume);

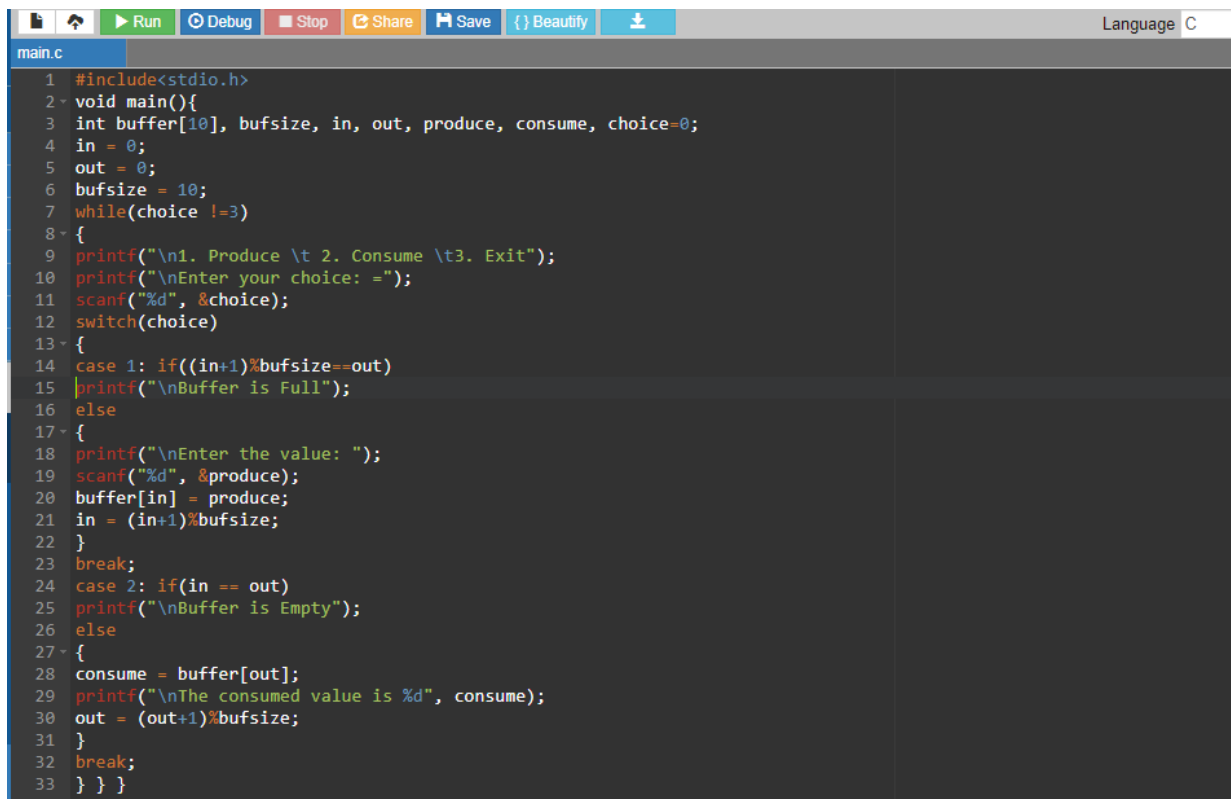
out = (out+1)%bufsize;

}

break;

}}}

```



The screenshot shows a code editor with a toolbar at the top containing icons for Run, Debug, Stop, Share, Save, Beautify, and a download icon. The language is set to C. The code is in a file named 'main.c' and implements a buffer with a size of 10. It uses a switch statement to handle three choices: 1 (Produce), 2 (Consume), and 3 (Exit). For choice 1, it checks if the buffer is full and produces a value. For choice 2, it checks if the buffer is empty and consumes a value. The buffer is represented as an array, and the 'in' and 'out' pointers track the current positions.

```

1 #include<stdio.h>
2 void main(){
3 int buffer[10], bufsize, in, out, produce, consume, choice=0;
4 in = 0;
5 out = 0;
6 bufsize = 10;
7 while(choice !=3)
8 {
9 printf("\n1. Produce \t 2. Consume \t3. Exit");
10 printf("\nEnter your choice: =");
11 scanf("%d", &choice);
12 switch(choice)
13 {
14 case 1: if((in+1)%bufsize==out)
15 printf("\nBuffer is Full");
16 else
17 {
18 printf("\nEnter the value: ");
19 scanf("%d", &produce);
20 buffer[in] = produce;
21 in = (in+1)%bufsize;
22 }
23 break;
24 case 2: if(in == out)
25 printf("\nBuffer is Empty");
26 else
27 {
28 consume = buffer[out];
29 printf("\nThe consumed value is %d", consume);
30 out = (out+1)%bufsize;
31 }
32 break;
33 } } }

```

## Output:

```
1. Produce      2. Consume      3. Exit
Enter your choice: =2

Buffer is Empty
1. Produce      2. Consume      3. Exit
Enter your choice: =1

Enter the value: 100

1. Produce      2. Consume      3. Exit
Enter your choice: =2

The consumed value is 100
1. Produce      2. Consume      3. Exit
Enter your choice: =3

...Program finished with exit code 0
Press ENTER to exit console.
```

-----THE END-----