Operating Systems
CT-353

Name: Sabrina Shahzad
Roll No. : DT-026

Lab 04:
Process Synchronization

- **Producer Consumer Problem:**

```
#include <stdio.h>

int 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;  // Corrected 'Break' to '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;
        }
    }
}
```

Output:

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

Enter the value: 21

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

Enter the value: 34

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

Enter the value: 12

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

Enter the value: 45

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

The consumed value is 21
1. Produce      2. Consume     3. Exit
Enter your choice: 2

The consumed value is 34
1. Produce      2. Consume     3. Exit
Enter your choice: 2

The consumed value is 12
1. Produce      2. Consume     3. Exit
Enter your choice: 2

The consumed value is 45
1. Produce      2. Consume     3. Exit
Enter your choice: 2

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