Operating Systems
(CT-353)

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Lab 04:
Process Synchronization

- **Producer Consumer Problem:**

```c
#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: _
```