

Institute of Computer Technology  
B. Tech. Computer Science and Engineering  
Sub: DS  
Course Code: 2CSE302

Practical – 11

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Sem - 3  
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**Problem Definition-1:** Imagine you are developing a music player application that allows users to create and manage playlists using a circular queue data structure. The playlist has a user-defined maximum length, and if a user chooses to play a song at a particular position, it will play songs in order from that position to the end and then wrap around to the beginning.

Code:

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

struct queue
{
    int data;
    struct queue *next;
};

struct queue *head = NULL;

struct queue *createQueue(int data); // Forward declaration

void enqueue(int data)
```

```
{
    struct queue *newQueue = createQueue(data);

    if (head == NULL)
    {
        head = newQueue;
        return;
    }

    struct queue *last = head;
    while (last->next != NULL)
    {
        last = last->next;
    }

    last->next = newQueue;
}

struct queue *createQueue(int data)
{
    struct queue *newQueue = (struct queue *)malloc(sizeof(struct queue));
    newQueue->data = data;
    newQueue->next = NULL;
    return newQueue;
}

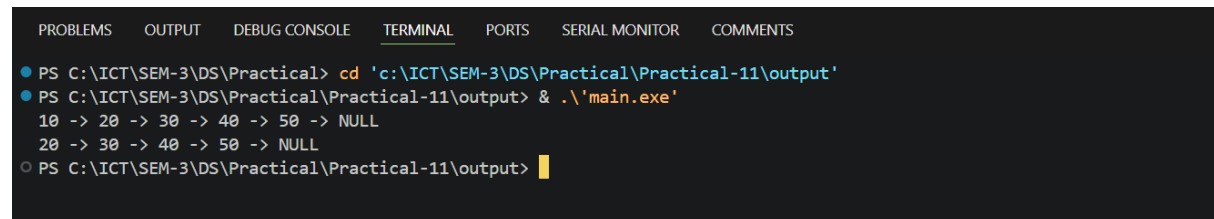
void dequeue()
{
    if (head == NULL)
    {
        printf("Queue is empty\n");
        return;
    }

    struct queue *temp = head;
    head = head->next;
    free(temp);
}

void display()
{
    struct queue *temp = head;
    while (temp != NULL)
    {
        printf("%d -> ", temp->data);
        temp = temp->next;
    }
    printf("NULL\n");
}
```

```
}  
  
int main()  
{  
    enqueue(10);  
    enqueue(20);  
    enqueue(30);  
    enqueue(40);  
    enqueue(50);  
    display();  
    dequeue();  
    display();  
    return 0;  
}
```

### Output:



```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  SERIAL MONITOR  COMMENTS  
● PS C:\ICT\SEM-3\DS\Practical> cd 'c:\ICT\SEM-3\DS\Practical\Practical-11\output'  
● PS C:\ICT\SEM-3\DS\Practical\Practical-11\output> & .\'main.exe'  
10 -> 20 -> 30 -> 40 -> 50 -> NULL  
20 -> 30 -> 40 -> 50 -> NULL  
○ PS C:\ICT\SEM-3\DS\Practical\Practical-11\output> █
```