Institute of Computer Technology

B. Tech. Computer Science and Engineering

Sub: DS

Course Code: 2CSE302

Practical – 10

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Sem – 3

Branch: CS

Class: A

Batch: 32

Problem Definition-1: Write a program in C/C++ to create and display a Doubly Linked List.

Code:

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

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

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

struct queue *head = NULL;
```

```c
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;
}

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(2);
    enqueue(5);
    enqueue(-1);
```

```
    display();
    dequeue();
    display();
}
```

Output:

```
Remote Explorer M-3\DS\Practical> cd 'c:\ICT\SEM-3\DS\Practical\Practical-10\output'
● PS C:\ICT\SEM-3\DS\Practical\Practical-10\output> & .\'main.exe'
 2 -> 5 -> -1 -> NULL
 5 -> -1 -> NULL
○ PS C:\ICT\SEM-3\DS\Practical\Practical-10\output>
```