DS PRACTICAL 08[B]

AIM: Implement a Queue using Linked List and perform the Queue operations: Enqueue, Dequeue and Print using Menu Driver Program such as 1.Add, 2.Delete and 3.Print and 4. Exit.

PROGRAM:

```
//Queue Implementation using linked list
#include<stdio.h>
#include<stdlib.h>

//Structure of the node
struct node{
    int data;
    struct node* next;
};
int data;
struct node* front = NULL;
struct node* rear = NULL;

//Inserting data in queue.(Enqueue function):
int enqueue(){
    //Creating the node first
    struct node* p;
    p = (struct node*)malloc(sizeof(struct node));
    if(p == NULL){
        //Checking the queue is overflow or not
        printf("The Queue is overflow\n");
    }
    printf("Enter the data:\t");
    scanf("%d", &p->data);
    p->next = NULL; // Initialize new node's next to NULL

    if (front == NULL && rear == NULL)
    {
        // First element in queue
        front = rear = p;
    }
    else
    {
        // Add to the end of the queue
        rear->next = p;
        rear = p;
    }

    return 0;
}

// Deleting data in queue.(Dequeue function):
int dequeue(){
    struct node* p;
    if(front == NULL && rear == NULL){
        printf("The Queue is underflow\n");
    }
    else
    {
        struct node *p = front;
        printf("The deleting data is %d\n", front->data);
        front = front->next;

        if (front == NULL)
        {
            // If queue becomes empty, update rear to NULL
            rear = NULL;
        }
        free(p);
    }


    return 0;
}


void display(){
    struct node* display;
    display = front;
    if(front == NULL){
        printf("The Queue is empty can not print the element.\n\n");
    }else{
    printf("The data in the Queue:\t\n");
    while(display != NULL){
        printf("%d\t", display -> data);
        display = display -> next;
    }
    printf("\n" );
    }
}


int main(){
    int choice;
    printf("Queue Implementation using Linked List\n");
    printf("Choices\n1.Enqueue\t2.Dequeue\t3.Print\t4.Exit\n");
    do
    {   printf("Enter the choice:\t");
        scanf("%d",&choice);


        switch (choice)
        {
        case 1:
            enqueue();
            break;
        case 2:
            dequeue();
            break;
        case 3:
            display();
            break;
        case 4:
            printf("You exit the program successfully.\n");
            break;
        default:
        printf("Please enter valid choice as mention\n");
            break;
        }

    } while (choice != 4);

    return 0;
}
```

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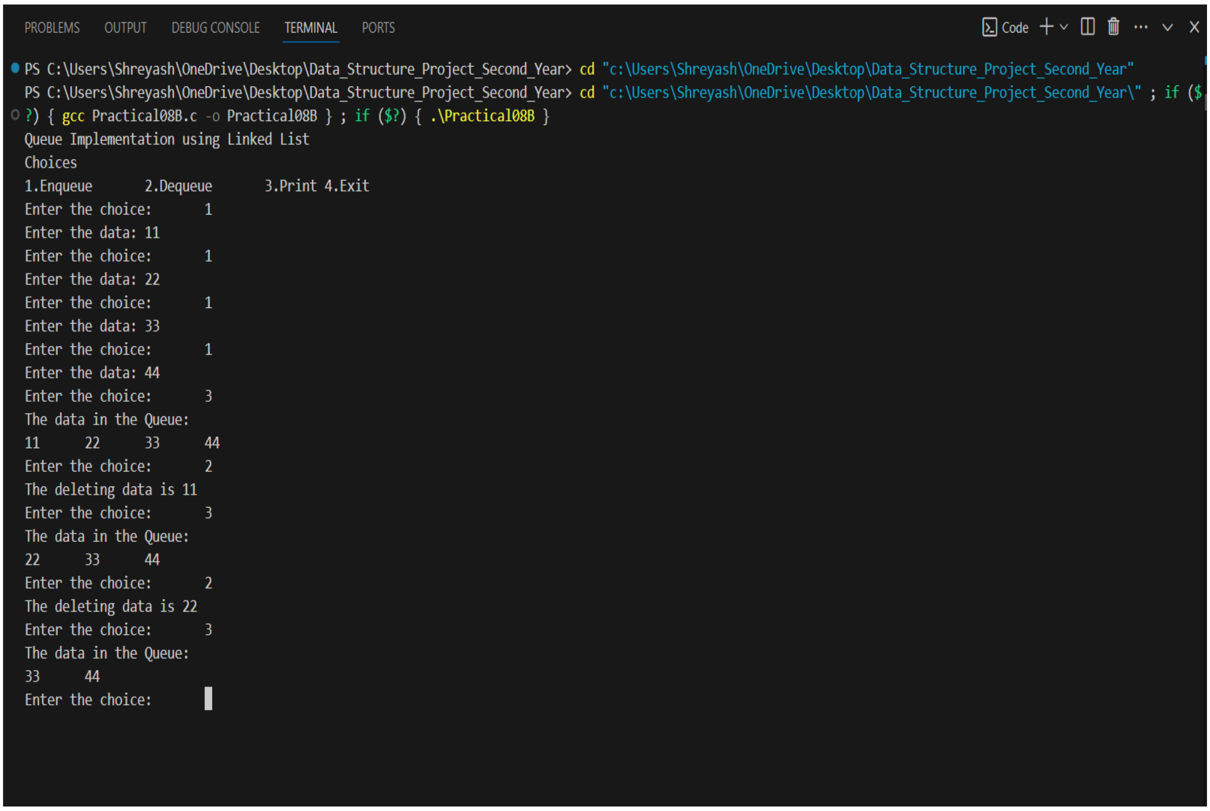
OUTPUT



```
PS C:\Users\Shreyash\OneDrive\Desktop\Data_Structure_Project_Second_Year> cd "c:\Users\Shreyash\OneDrive\Desktop\Data_Structure_Project_Second_Year"
PS C:\Users\Shreyash\OneDrive\Desktop\Data_Structure_Project_Second_Year> cd "c:\Users\Shreyash\OneDrive\Desktop\Data_Structure_Project_Second_Year\" ; if ($
?) { gcc Practical08B.c -o Practical08B } ; if ($?) { .\Practical08B }
Queue Implementation using Linked List
Choices
1.Enqueue       2.Dequeue       3.Print 4.Exit
Enter the choice:       1
Enter the data: 11
Enter the choice:       1
Enter the data: 22
Enter the choice:       1
Enter the data: 33
Enter the choice:       1
Enter the data: 44
Enter the choice:       3
The data in the Queue:
11      22      33      44
Enter the choice:       2
The deleting data is 11
Enter the choice:       3
The data in the Queue:
22      33      44
Enter the choice:       2
The deleting data is 22
Enter the choice:       3
The data in the Queue:
33      44
Enter the choice:
```

GITHUB LINK: https://github.com/ShreyashGajbhiye453/Data-Structure-Practical-No.-01