CollegeWork\DataStructure\queue-using-linked-list-1.c

```c
//write a c program to implement queue using linked list.

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

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

queue* head = NULL;

void enqueue(int data){
    queue* new_queue = (queue*)malloc(sizeof(queue));
    new_queue->data = data;
    new_queue->next = head;
     head = new_queue;
}

void dequeue(){
    if (!head) {
        printf("UnderFlow(No item found in this Queue).\n");
        return;
    }

    if (!head->next) {
        int data = head->data;
        head = NULL;
        printf("%d Removed.\n",data);
        return;
    }

    queue* current = head;
    while (current->next->next) {
        current = current->next;
    }

    int data = current->next->data;
    free(current->next);
    current->next = NULL;
    printf("%d Removed.\n",data);
    return;
}

void display(){
    if(head == NULL){
        printf("Underflow(Queue is Empty).\n");
        return;
    }
    queue* tmp = head;
    printf("Rear -> ");
    while(tmp  != NULL){
        printf("%d -> ",tmp->data);
        tmp = tmp->next;
    }
    printf("Front\n");
}

void main(){
    int data;
    int op;

    while(1){
```

```c
        printf("1. enQueue, 2. deQueue, 3. Display, 4. Exit.\nEnter Your Choice: ");
        scanf("%d",&op);
        switch(op){
            case 1:
                printf("Enter the element: ");
                scanf("%d",&data);
                enqueue(data);
                break;
            case 2:
                dequeue();
                break;
            case 3:
                display();
                break;
            case 4:
                printf("Oops..");
                exit(0);
                break;
            default:
                printf("Wrong Input.\n");
        }
    }
}

/*OUTPUT

PS S:\WorkSpace\CollegeWork\DataStructure> gcc .\queue-using-linked-list-1.c
PS S:\WorkSpace\CollegeWork\DataStructure> ./a
1. enQueue, 2. deQueue, 3. Display, 4. Exit.
Enter Your Choice: 1
Enter the element: 12
1. enQueue, 2. deQueue, 3. Display, 4. Exit.
Enter Your Choice: 1
Enter the element: 13
1. enQueue, 2. deQueue, 3. Display, 4. Exit.
Enter Your Choice: 1
Enter the element: 14
1. enQueue, 2. deQueue, 3. Display, 4. Exit.
Enter Your Choice: 1
Enter the element: 15
1. enQueue, 2. deQueue, 3. Display, 4. Exit.
Enter Your Choice: 1
Enter the element: 16
1. enQueue, 2. deQueue, 3. Display, 4. Exit.
Enter Your Choice: 2
12 Removed.
1. enQueue, 2. deQueue, 3. Display, 4. Exit.
Enter Your Choice: 2
13 Removed.
1. enQueue, 2. deQueue, 3. Display, 4. Exit.
Enter Your Choice: 2
14 Removed.
1. enQueue, 2. deQueue, 3. Display, 4. Exit.
Enter Your Choice: 3
Rear -> 16 -> 15 -> Front
1. enQueue, 2. deQueue, 3. Display, 4. Exit.
Enter Your Choice: 2
15 Removed.
1. enQueue, 2. deQueue, 3. Display, 4. Exit.
Enter Your Choice: 3
Rear -> 16 -> Front
1. enQueue, 2. deQueue, 3. Display, 4. Exit.
Enter Your Choice: 4
Oops..
PS S:\WorkSpace\CollegeWork\DataStructure>*/
```