



Queue using Linked List

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// This is my version of the code
#include<iostream>
using namespace std;
#include<stdlib.h>

struct list {
    int data;
    struct list *link;
};

typedef struct list *NODE;

NODE front = NULL, rear = NULL;
// front = rear = NULL;

NODE getnode() {
    NODE x;
    x = (NODE) malloc(sizeof(NODE));
    return x;
}

void insertRear() {
    NODE temp;
    int num;
    temp = getnode();
    cout<<"Enter the number to be inserted: ";
    cin>>num;
    temp -> data = num;
    temp -> link = NULL;
    if (front == NULL) {
        front = rear = temp;
    } else {
        rear -> link = temp;
        rear = temp;
    }
}

void deleteFront() {
    NODE temp;
    if (front == NULL) {
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        cout<<"Linked list underflow\n";
    } else {
        cout<<"The deleted element is: "<<front -> data;
        temp = front;
        if (front == rear) {
            front = rear = NULL;
        } else {
            front = front -> link;
        }
        free(temp);
    }
}

void displayNodes() {
    NODE temp;
    if (front == NULL) {
        cout<<"Linked list is empty\n";
    } else {
        temp = front;
        while (temp != NULL) {
            cout<<temp -> data<<" -> ";
            temp = temp -> link;
        }
        cout<<"NULL";
    }
}

int main() {
    int ch;
    while (1) {
        cout<<"\nQueue Menu\n1. Insert\n2. Delete\n3. Display\n4. Exit\nEnter your choice: ";
        cin>>ch;
        switch (ch) {
            case 1: insertRear();
                    break;
            case 2: deleteFront();
                    break;
            case 3: displayNodes();
                    break;
            case 4: exit(0);
                    break;
            default: cout<<"Invalid choice";
        }
    }
    return 0;
}

```