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Mid term codes

Code 1…… remove duplicated

```
#include<iostream>

using namespace std;

class Node{

        private:

                int data;

                Node *next;

        public:

                Node *head;

                Node(){

                        head=NULL;

                }

                        void insert_beg(int n){

                        if(head==NULL){

                                head=new Node();

                                head->data=n;

                                head->next=NULL;

                        }

                        else{

                                Node *ptr;

                                ptr=new Node();

                                ptr->next=head;
```

```
                ptr->data=n;
                head=ptr;
            }
        }



        void display(){
            if(head==NULL){
                cout<<"There is no list "<<endl;
            }
            else{
                Node *ptr;
                ptr=head;
                cout<<"The linked list is: "<<endl;
                while(ptr!=NULL){
                    cout<<ptr->data<<" ";
                    ptr=ptr->next;
                }
                cout<<endl;
            }

        }
        void remove_duplicates() {
if (head == NULL || head->next == NULL) {
    cout<<"the list is empty or there is only one element"<<endl;
```

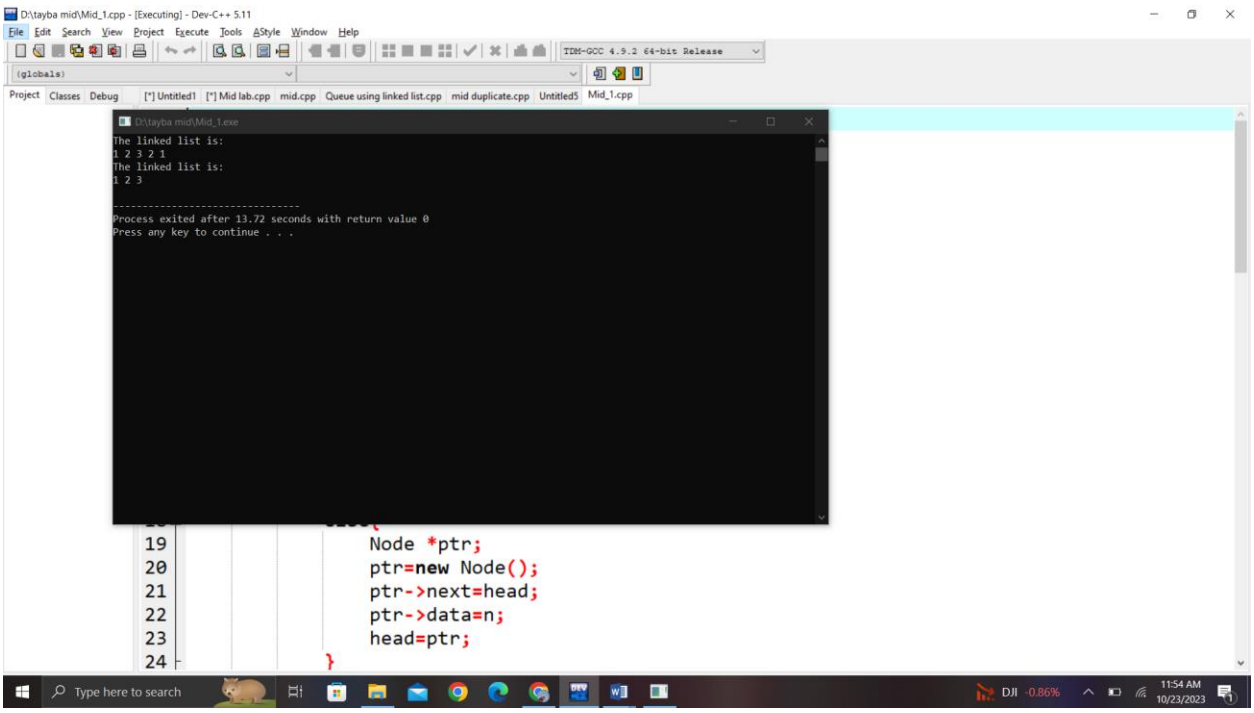
```
        return;
    }

    Node* current = head;
    while (current != NULL) {
        Node* runner = current;
        while (runner->next != NULL) {
            if (current->data == runner->next->data) {
                // Duplicate element found, remove it
                Node* temp = runner->next;
                runner->next = runner->next->next;
                delete temp;
            } else {
                runner = runner->next;
            }
        }
        current = current->next;
    }
  }

};
int main(){
        Node n;
        n.insert_beg(1);
        n.insert_beg(2);
        n.insert_beg(3);
        n.insert_beg(2);
```

```
        n.insert_beg(1);
        n.display();
        n.remove_duplicates();
        n.display();
        return 0;
}
```

Output



Code 2…. Queue by linked list

```
#include <iostream>
using namespace std;
class Node{
        private:
          int data;
```

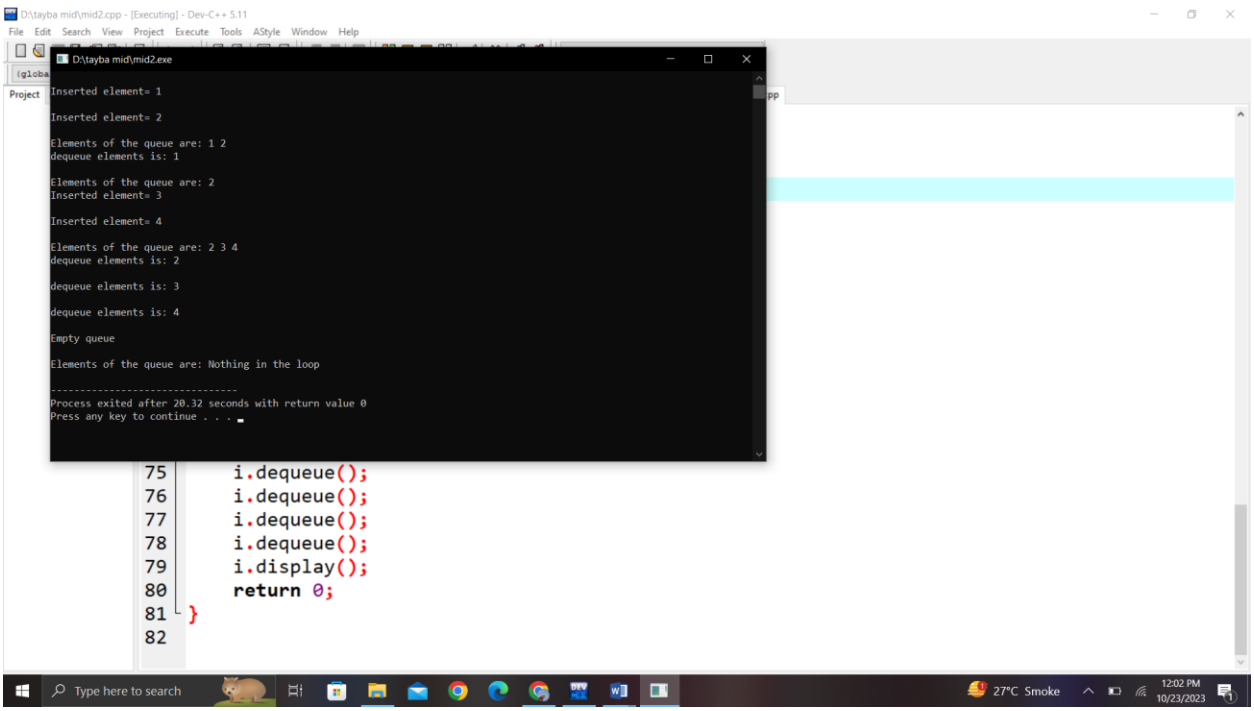
```
        Node *next;
public:
        Node *front=NULL;
        Node *rear=NULL;

        void enqueue(int n){
                Node *newnode= new Node();
                newnode->data=n;
                newnode->next=NULL;
                if(front==NULL || rear==NULL){
                        front=newnode;
                        rear=newnode;
                        cout<<endl<<"Inserted element= "<<rear->data<<endl;
                }
                else{
                rear->next=newnode;
                rear=newnode;
    cout<<endl<<"Inserted element= "<<rear->data<<endl;
                }
        }
        void dequeue(){
        Node *temp =new Node();
        temp=front;
        if(temp==NULL)
        {
                cout<<"\nEmpty queue"<<endl;
        }
```

```
        else{
                if(temp==NULL)
                {
                        cout<<endl<<"dequeue elements is: "<<endl;
                        cout<<temp->data;
                        front=front->next;
                        delete temp;
                        temp=NULL;
                }
                else{
                        cout<<endl<<"dequeue elements is: ";
                        cout<<front->data;
                        front=front->next;
                   delete temp;
                        temp=NULL;
                        cout<<endl;
                }
        }
}
void display(){
        Node *temp = front;
   cout <<endl<< "Elements of the queue are: ";
   if (temp == NULL) {
      cout << "Nothing in the loop"<<endl;
   }
   while (temp != NULL) {
      cout << temp->data << " ";
```

```
            temp = temp->next;
        }
        }

};
int main(){
        Node i;
        i.enqueue(1);
        i.enqueue(2);
        i.display();
        i.dequeue();
        i.display();
        i.enqueue(3);
        i.enqueue(4);
        i.display();
   i.dequeue();
   i.dequeue();
   i.dequeue();
   i.dequeue();
   i.display();
        return 0;
}
```


D:\tayba mid\mid2.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
Project
D:\tayba mid\mid2.exe
Inserted element= 1
Inserted element= 2
Elements of the queue are: 1 2
dequeue elements is: 1
Elements of the queue are: 2
Inserted element= 3
Inserted element= 4
Elements of the queue are: 2 3 4
dequeue elements is: 2
dequeue elements is: 3
dequeue elements is: 4
Empty queue
Elements of the queue are: Nothing in the loop
Process exited after 20.32 seconds with return value 0
Press any key to continue . . .
i.dequeue();
i.dequeue();
i.dequeue();
i.dequeue();
i.display();
return 0;
}
Type here to search
27°C Smoke
12:02 PM
10/23/2023