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Lab Assignment- Circular LinkList

```
#include <iostream>
using namespace std;

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

//Traverse the list
void traverse(struct node* head)
{
    struct node* temp = head->link;
    cout << endl;
    cout<<head->data<<" -> ";   //Base head printing
    while (temp != head)
    {
        cout << temp->data << " -> ";
        temp = temp->link;
        }
}

//Insert at the beginning of the circular list
void insert_beg(struct node* head)
{
    int n;
    cout<<"Enter data of new node: ";
    cin>>n;

        struct node* newnode = NULL;
    newnode = (struct node*)malloc(sizeof(struct node*));
    newnode->data = n;

        struct node* temp = head->link;
        while (temp->link != head)
    {
        temp = temp->link;
    }
        temp->link = newnode;
        newnode->link = head;
        head=newnode;

    cout<<endl;
        traverse(head);
}
```

```
//Insert at a position in the circular list
void pos_insert(struct node* head)
{
        int n, position;
        cout<<"Enter data of new node: ";
        cin>>n;
        cout<<"Enter position to enter: ";
        cin>>position;

        struct node* newnode = NULL;
    newnode = (struct node*)malloc(sizeof(struct node*));

        struct node* temp = head;
        for (int i = 1; i < position - 1; i++)
        {
                temp = temp->link;
        }
        newnode = (struct node*)malloc(sizeof(struct node*));
        newnode->data = n;
        newnode->link = NULL;
        newnode->link = temp->link;
        temp->link = newnode;
        cout<<endl;
        traverse(head);
}

// Deleting from the beginning of the circular list
void delete_beg(struct node* head)
{
        struct node* temp = head->link;
        while (temp->link != head)
        {
                temp = temp->link;
        }
        temp->link = head->link;
        head = head->link;
        cout<<endl;
        traverse(head);
}

//Creating the menu

void menu(struct node* head)
{
    int choice;

        cout<<"\n\n1. Traverse the list"<<endl;
        cout<<"2. Insert at the beginning of the list"<<endl;
        cout<<"3. Insert at a position in the list"<<endl;
```

```
        cout<<"4. Delete from the beginning of the list"<<endl;
        cout<<"5. Exit"<<endl;
        cout<<"Enter choice: ";
        cin>>choice;

        if(choice==1)
        {
                traverse(head);
        }
        else if(choice==2)
        {
                insert_beg(head);
        }
        else if(choice==3)
        {
                pos_insert(head);
        }
        else if(choice==4)
        {
                delete_beg(head);
        }
        else if(choice==5)
        {
                exit(0);
        }
        else
        {
                cout<<"Invalid choice"<<endl;
        }
        menu(head);

}

//Main function
int main()
{
    struct node* head = NULL;
    struct node* second = NULL;
    struct node* third = NULL;

    head = (struct node*)malloc(sizeof(struct node));
    second = (struct node*)malloc(sizeof(struct node));
    third = (struct node*)malloc(sizeof(struct node));

    head->data = 100;
    head->link = second;
    second->data=200;
    second->link=third;
    third->data=300;
    third->link=head;
```

```
    cout<<endl;
        menu(head);
    return 0;
}
```