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#include <stdio.h>
#include <stdlib.h>
struct node{
    int data;
    struct node *next;
};
struct node *head=NULL,*newnode , *temp;

void createNode(){
    int ch=1;
    while(ch!=0){
        newnode = (struct node *)malloc(sizeof(struct node));
        printf("Enter the data: ");
        scanf("%d",&newnode->data);
        newnode->next=0;
        if(head==NULL){
            head=temp=newnode;
        }
        else{
            temp->next=newnode;
            temp=newnode;
        }
        printf("To continue press 1 and to exit 0: ");
        scanf("%d",&ch);
    }
}

void display(){
    if(head==NULL){
        printf("Empty");
        return ;
    }
    else{
        temp=head;
        while(temp!=NULL){
            printf("Element: %d\n",temp->data);
            temp=temp->next;
        }
    }
}

void insertFront(){
    newnode=(struct node *)malloc(sizeof(struct node));
    printf("Enter the data: ");
    scanf("%d",&newnode->data);
    newnode->next=head;
    head=newnode;
}

void insertRear(){
    newnode=(struct node *)malloc(sizeof(struct node));
    printf("Enter the data: ");
    scanf("%d",&newnode->data);
    newnode->next=0;
    temp=head;
    while(temp->next!=NULL){
        temp=temp->next;
    }
    temp->next=newnode;
}

int getLen(){

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    temp=head;
    int count=0;
    while(temp!=NULL){
        count++;
        temp=temp->next;
    }
    return count;
}

void insertPosition(){
    int Position ,i=1,count;
    printf("Enter the Position: ");
    scanf("%d",&Position);
    count=getLen();
    if(Position>count){
        printf("Invalid Position");
    }
    else{
        temp=head;
        while(i<Position){
            temp=temp->next;
            i++;
        }
        newnode=(struct node *)malloc(sizeof(struct node));
        printf("Enter the data: ");
        scanf("%d",&newnode->data);
        newnode->next=temp->next;
        temp->next=newnode;
    }
}

void deleteFront(){
    if(head==NULL){
        printf("Empty");
        return;
    }
    else{
        temp=head;
        head=head->next;
        free(temp);
    }
}

void deleteEnd(){
    struct node *prevnode;
    temp=head;
    while(temp->next!=NULL){
        prevnode=temp;
        temp=temp->next;
    }
    if(temp==head){
        head=0;
    }
    else{
        prevnode->next=0;
    }
    free(temp);
}

void deletePostion(){
    struct node *nextnode;
    int Position , i=1;

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    printf("Enter the Position: ");
    scanf("%d",&Position);
    temp=head;
    while(i<Position-1){
        temp=temp->next;
        i++;
    }
    nextnode=temp->next;
    temp->next=nextnode->next;
    free(nextnode);
}

void main(){
    createNode();
    insertFront();
    insertRear();
    insertPosition();
    //display();
    //deleteFront();
    //deleteEnd();
    display();
    deletePostion();
    display();
}

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