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#include<stdio.h>
#include<stdlib.h>
struct student
{
    int s_no;
    char s_name[20];
    struct student *ptr;
};

struct student *create_list(struct student *start)
{
    char ch;
    struct student *s1=0,*dummy=0;
    do
    {
        dummy=(struct student*)malloc(sizeof(struct student));
        printf("Enter student number & name:");
        scanf("%d%s",&dummy->s_no,dummy->s_name);
        if(start==NULL)
            start=dummy;
        else
            s1->ptr=dummy;
            s1=dummy;
        printf("Do you want to continue:(y/n)");
        scanf(" %c",&ch);
    }while(ch=='y');
    dummy->ptr=NULL;
    return start;
}

struct student *insert_before(struct student *start)
{
    if(start!=NULL)
    {
        int ele;
        struct student *i=0,*nn,*prev=0;
        printf("Which element before do you want to insert:");
        scanf("%d",&ele);
        nn=(struct student*)malloc(sizeof(struct student));
        printf("Enter no and name for insert:");
        scanf("%d%s",&nn->s_no,nn->s_name);
        if(start->s_no==ele)
        {
            nn->ptr=start;
            start=nn;
        }
        else
        {
            for(i=start,prev=i;i!=NULL;prev=i,i=i->ptr)
            {
                if(i->s_no==ele)
                {
                    nn->ptr=i;
                    prev->ptr=nn;
                    break;
                }
            }
        }
    }
    else
        printf("\nNo Elements in the List to insert\n");
    return start;
}

struct student *insert_after(struct student *start)
{
    if(start!=NULL)
    {
        int ele;
        struct student *i=0,*nn;
    }

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    printf("Which element after do you want to insert:");
    scanf("%d",&ele);
    nn=(struct student*)malloc(sizeof(struct student));
    printf("Which element do you want to insert:");
    scanf("%d%s",&nn->s_no,nn->s_name);
    if(start->ptr==NULL)
        start->ptr=nn;
    else
    {
        for(i=start;i!=NULL;i=i->ptr)
        {
            if(i->s_no==ele)
            {
                nn->ptr=i->ptr;
                i->ptr=nn;
                break;
            }
        }
    }
}
else
    printf("\nNo Elements in the List to insert\n");
return start;
}
struct student *delete_before(struct student *start)
{
    int ele;
    if(start!=NULL)
    {
        struct student *i=0,*prev=0,*pprev=0;
        printf("Enter element which is after u want to delete:");
        scanf("%d",&ele);
        if(start->s_no==ele)
            printf("Sorry! No elements in the before given element\n");
        else if(start->ptr!=NULL)
        {
            for(i=start,prev=start,pprev=prev;i!=NULL;pprev=prev,prev=i,i=i->ptr)
            {
                if(i->s_no==ele)
                {
                    pprev->ptr=i;
                    printf("Before node has deleted\n");
                    break;
                }
            }
        }
    }
    else
        printf("\nNo Elements in the List to delete\n");
    return start;
}
struct student *delete_after(struct student *start)
{
    int ele;
    if(start!=NULL)
    {
        struct student *i=0;
        printf("Enter element which is before to element,u want to delete:");
        scanf("%d",&ele);
        if(start->ptr==NULL)
            printf("Sorry! No elements in the after given element\n");
        else
        {
            for(i=start;i!=NULL;i=i->ptr)
            {
                if(i->s_no==ele)
                    i->ptr=(i->ptr)->ptr;
            }
        }
    }
}

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        }
    }
}
else
    printf("\nNo Elements in the List to delete\n");
return start;
}
struct student *update_list(struct student *start)
{
    if(start!=NULL)
    {
        int ele;
        struct student *i;
        printf("Enter element no. which you want to update:");
        scanf("%d",&ele);
        if(start==NULL)
            printf("Sorry! no element in the list\n");
        else
        {
            for(i=start;i!=NULL;i=i->ptr)
            {
                if(i->s_no==ele)
                {
                    printf("What is updated no. and name:");
                    scanf("%d%s",&i->s_no,i->s_name);
                    break;
                }
            }
        }
    }
    else
        printf("\nNo Elements in the List to delete\n");
    return start;
}
struct student *display_list(struct student *start)
{
    struct student *i;
    if(start==NULL)
        printf("Sorry! No elements in the list\n");
    else
    {
        printf("\tNumber\tname\n");
        for(i=start;i!=NULL;i=i->ptr)
            printf("\n\t%d\t%s",i->s_no,i->s_name);
        printf("\n\n");
    }
}
main()
{
    system("clear");
    struct student *start=NULL;
    int ch;
    do
    {
        printf("\t\tMENU\n");
        printf("\t1->CREATE LIST\n");
        printf("\t2->INSERT BEFORE\n");
        printf("\t3->INSERT AFTER\n");
        printf("\t4->DELETER BEFORE\n");
        printf("\t5->DELETE AFTER\n");
        printf("\t6->UPDATE THE PARTICULAR\n");
        printf("\t7->DISPLAY THE LIST\n");
        printf("\t8->EXIT\n");
        printf("Enter your choice:(1-8)");
        scanf("%d",&ch);
        switch(ch)
        {

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    case 1:
        start=create_list(start);
        break;
    case 2:
        start=insert_before(start);
        break;
    case 3:
        start=insert_after(start);
        break;
    case 4:
        start=delete_before(start);
        break;
    case 5:
        start=delete_after(start);
        break;
    case 6:
        start=update_list(start);
        break;
    case 7:
        display_list(start);
        break;
    case 8:
        printf("Thank You!!!\n");
        break;
    default:
        printf("INVALID OPTION\n");
}
}while(ch!=8);
}
```