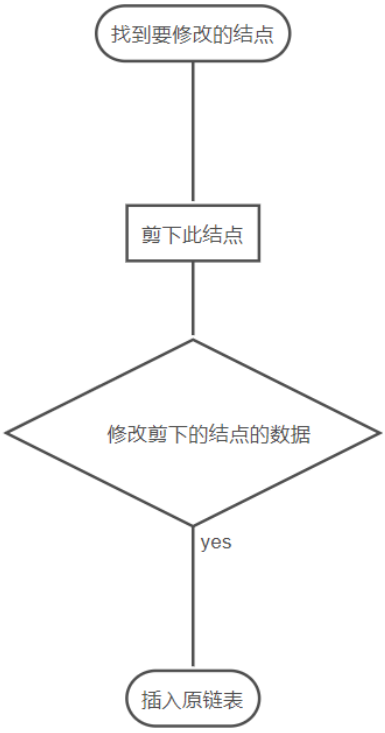
C语言链表实现学生管理系统

修改成绩并重新排序流程图




```
#include "stdio.h"
#include "stdlib.h"
#include "string.h"

struct Student
{
    unsigned long   ID;
    char            Name[21];
    float           Score;
};

struct Node
{
    struct Student  data;
    struct Node *   next;
};

int Count=0;
struct Node * H=NULL;

struct Node * Insert(struct Node * Head, struct Node * pNode)
{
    struct Node * p=Head,*q=Head;

    if (p==NULL)
    {
        Head=pNode;

    }
    else
    {
        while(p)
        {
            if (pNode->data.Score < p->data.Score)
            {
                q=p;
                p=p->next;
            }
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            else
            {
                if (p==Head)
                {
                    Head=pNode;
                    pNode->next=p;

                }
                else
                {
                    q->next=pNode;
                    pNode->next=p;

                }
                break;
            }
        }
        if (p==NULL)
        {
            q->next=pNode;
        }
    }
    return Head;
}

void Display(struct Node * Head)
{
    if (Head==NULL)
    {
        printf("当前没有学生成绩信息！\n");
        return;
    }

    struct Node * p=Head;
    for (int i=0;i<Count;i++)
    {
        printf("学号：%lu\t姓名：%s\t成绩：%.1f\n",p->data.ID,p->data.Name,p->data.Score);
        p=p->next;
    }
}

void Add()
{
    unsigned long ID;
    char Name[21];
    float Score;
    struct Node * Head=NULL;

    printf("请输入学号：");
    scanf("%lu",&ID);

    while (ID)
    {
        printf("请输入姓名：");
        scanf("%s",Name);
        printf("请输入成绩：");
        scanf("%f",&Score);

        struct Node * pNew=(struct Node *) malloc(sizeof (struct Node));
        pNew->data.ID=ID;
        strcpy(pNew->data.Name,Name);
        pNew->data.Score=Score;
        pNew->next=NULL;

        Count++;

        Head=Insert(Head,pNew);

        printf("请输入学号：");
        scanf("%lu",&ID);
    }
```

```
    H=Head;
}


void Search(struct Node * Head)
{
    char Name[21];
    int i=0;
    struct Node * p=Head;
    if (p==NULL)
    {
        printf("当前没有学生成绩信息！\n");
        return;
    }
    printf("请输入姓名：");
    scanf("%s",Name);
    while(p)
    {
        for(i=0;Name[i]≠0;i++)
        {
            if(Name[i]≠p→data.Name[i])
            break;
        }
        if(Name[i])
        p=p→next;
        else
        {
            printf("%.2f\n",p→data.Score);
            return ;
        }

    }
    if (p==NULL)
    {
        printf("无当前学生信息\n");
        return;
    }

}

void Change(struct Node * Head)
{
    unsigned long ID;
    struct Node *m=Head,*n=Head,*d=Head;
    float Score;
    printf("请输入学号：");
    scanf("%lu",&ID);
    printf("请输入成绩：");
    scanf("%f",&Score);
    while(m)
    {
        if(ID==m→data.ID)
        {
            if(m==Head)
            {
                m→data.Score=Score;
                Head=m→next;

            }
            else if(m→next==NULL)
            {
                n→next=NULL;
                m→data.Score=Score;
            }
            else
            {
                d=m→next;
                m→data.Score=Score;
                n→next=d;
            }
```

```
            Head=Insert(Head,m);
            H=Head;
            return;
        }
        else
        {
            n=m;
            m=m->next;
        }
    }
    if(m==NULL)
    printf("无当前学生信息\n");
    return;
}

int main()
{

    printf(" ============================================================\n");
    printf("<                    学生管理系统                            >\n");
    printf(" ============================================================\n");
    printf("                        （请选择功能）\n（1）成绩录入 （2）显示全部（3）成绩查询 （4）成绩修改 (0)退出\n");
    int a=0;
    scanf("%d",&a);
    while (a)
    {

        switch(a)
        {
            case 1:
                Add();
                break;
            case 2:
                Display(H);
                break;
            case 3:
                Search(H);
                break;
            case 4:
                Change(H);
                break;

        }
    printf("                        （请选择功能）\n（1）成绩录入 （2）显示全部（3）成绩查询 （4）成绩修改 (0)退出\n");
    scanf("%d",&a);

     }
     printf(" ============================================================\n");
    return 0;
}
```

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