**//1、输入字符a至f,按输入字符的顺序建立一个字符结点（每个结点存储一个字符）的单向链表，输出该链表中的字符,并释放链表结点所占用的空间。**

**#include <stdio.h>**

**#include <stdlib.h>**

**#define LEN sizeof(struct letter)**

**int main()**

**{**

**struct letter**

**{**

**char a;**

**struct letter \*next;**

**};**

**struct letter \*head, \*p1, \*p2;**

**char le;**

**head = p1 = (struct letter\*)malloc(LEN);**

**head->next = NULL;**

**//create**

**do**

**{**

**scanf("%c", &le);**

**if(le > 102 || le < 97 && le > 70)**

**break;**

**p2 = (struct letter\*)malloc(LEN);**

**p2->a = le;**

**p1->next = p2;**

**p1 = p2;**

**} while(1);**

**p2->next = NULL;**

**//print**

**struct letter \*p;**

**p = head->next;**

**while(p)**

**{**

**printf("%c", p->a);**

**p = p->next;**

**}**

**//free**

**p1 = head->next;**

**do**

**{**

**p2 = p1->next; //p1指向head的下一结点 p2指向p1的下一结点**

**free(p1);**

**p1 = p2; //释放p1后，指针依次往前挪**

**if(p1->next == NULL)**

**break;**

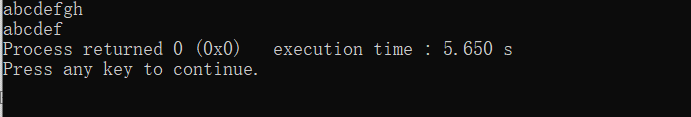
**} while(1);**

**free(p1);**

**p1 = NULL;**

**return 0;**

**}**

****

**/\*2、创建一个单向链表来记录学生信息，人数不确定；链表结点为结构变量，结构的要求如下：**

**struct stu\_info**

**{**

**char stu\_num; //学号**

**char stu\_name; //姓名**

**char stu\_sex; //性别**

**int stu\_score //成绩**

**struct stu\_info \*next;**

**};**

**程序设计要求：**

**（1）插入新的学生信息 insert**

**（2）删除指定的学生信息 delete**

**（3）根据学号查询并显示查询到的学生信息 search**

**（4）以上三项任务分别自定义函数实现**

**（5）程序运行后要求可以循环执行前三项操作，直到选择退出时结束程序\*/**

**#include <stdio.h>**

**#include <stdlib.h>**

**#define LEN sizeof(struct stu\_info) //16**

**struct stu\_info**

**{**

**int stu\_num; //学号**

**char stu\_name; //姓名**

**char stu\_sex; //性别**

**int stu\_score; //成绩**

**struct stu\_info \*next;**

**};**

**struct stu\_info \*create();**

**void insert(struct stu\_info \*h);**

**void deletes(struct stu\_info \*h);**

**void search(struct stu\_info \*h);**

**void print(struct stu\_info \*h);**

**int main()**

**{**

**struct stu\_info \*head;**

**char choose;**

**while(1)**

**{**

**head = create(), printf("\n"); //head为链表开头**

**insert(head), printf("\n");**

**deletes(head), printf("\n");**

**search(head), printf("\n");**

**printf("是否继续进行操作？ A.继续 B.结束操作");**

**while(getchar() != '\n')**

**continue;**

**scanf("%c", &choose);**

**if(choose == 'B' || choose == 'b') break;**

**printf("\n");**

**}**

**return 0;**

**}**

**struct stu\_info \*create() //先建立一个链表，再以此完成设计要求**

**{**

**printf("依次输入学生的信息：学号 姓名 性别 成绩（当输入的成绩小于0是结束输入）\n");**

**struct stu\_info \*h, \*p1, \*p2;**

**int num; //学号**

**char name; //姓名**

**char gender; //性别**

**int score = 0; //成绩**

**h = p1 = (struct stu\_info\*)malloc(LEN);**

**h->next = NULL;**

**do**

**{**

**scanf("%d%c%c%d", &num, &name, &gender, &score);**

**if(score < 0) break; //输入的score小于0结束输入**

**p2 = (struct stu\_info\*)malloc(LEN);**

**p2->stu\_num = num;**

**p2->stu\_name = name;**

**p2->stu\_sex = gender;**

**p2->stu\_score = score;**

**p1->next = p2;**

**p1 = p2;**

**} while(1);**

**p2->next = NULL;**

**return h;**

**}**

**void insert(struct stu\_info \*h) //选择要插在哪个学生后面，若无选择的学生，重新输入选择的学生**

**{**

**int num, score, insert\_num;**

**char name, gender;**

**printf("请输入要插入的学生信息：");**

**scanf("%d%c%c%d", &num, &name, &gender, &score);**

**printf("输入学生序号（信息将插入在该学生后面）：");**

**loopinsert:**

**while(getchar() != '\n')**

**continue;**

**scanf("%d", &insert\_num);**

**if(insert\_num < 0) return;**

**struct stu\_info \*p1, \*p2, \*temp;**

**p1 = h;**

**p2 = h->next;**

**while(p2)**

**{**

**if(p1->stu\_num == insert\_num)**

**break;**

**p1 = p2;**

**p2 = p1->next;**

**}**

**if(!p2 && p1->stu\_num != insert\_num)**

**{**

**printf("该学生不存在，请重新输入学生序号（若想停止输入，输入一个负数）：");**

**goto loopinsert;**

**}**

**temp = (struct stu\_info\*)malloc(LEN);**

**temp->stu\_num = num;**

**temp->stu\_name = name;**

**temp->stu\_sex = gender;**

**temp->stu\_score = score;**

**p1->next = temp;**

**temp->next = p2;**

**}**

**void deletes(struct stu\_info \*h)**

**{**

**int num;**

**printf("输入要删除的学生信息的学号：");**

**loopdeletes:**

**while(getchar() != '\n') continue;**

**scanf("%d", &num);**

**if(num < 0) return;**

**struct stu\_info \*p1, \*p2;**

**p1 = h;**

**p2 = h->next;**

**while(p2)**

**{**

**if(p2->stu\_num == num)**

**break;**

**p1 = p2;**

**p2 = p1->next;**

**}**

**if(!p2)**

**{**

**printf("该学生不存在,");**

**printf("请重新输入（若要停止删除过程，输入一个负数）：");**

**goto loopdeletes;**

**}**

**p1->next = p2->next;**

**free(p2);**

**}**

**void search(struct stu\_info \*h)**

**{**

**int num;**

**printf("输入要搜索学生的学号：");**

**loopsearch:**

**while(getchar() != '\n') continue;**

**scanf("%d", &num);**

**struct stu\_info \*p1, \*p2;**

**p1 = h;**

**p2 = h->next;**

**while(p2)**

**{**

**if(p2->stu\_num == num)**

**break;**

**p1 = p2;**

**p2 = p1->next;**

**}**

**if(!p2)**

**{**

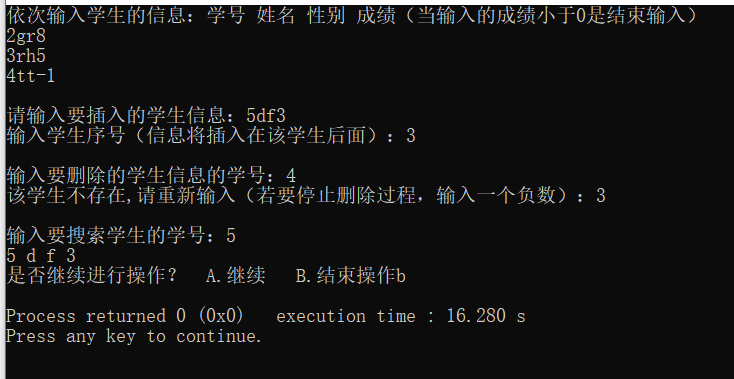
**printf("无该查询的学生,");**

**printf("请重新输入（若要停止搜索过程，输入一个负数）：");**

**goto loopsearch;**

**}**

**printf("%d %c %c %d", p2->stu\_num, p2->stu\_name, p2->stu\_sex, p2->stu\_score);**

**}**