**顺序表基本操作**

实验环境：code::blocks 17.12

实验内容：实现顺序表的增删改查

程序代码：*#include<stdio.h>*

*#include<stdlib.h>*

*#define OVERFLOW -2*

*#define LISTINCREMENT 10*

*#define ListSize 50*

*typedef struct {*

*char no[8];*

*char name[20];*

*int age;*

*}Student;*

*typedef Student ElemType;*

*typedef struct*

*{ ElemType \* elem;*

*int length;*

*int listsize;*

*}SeqList;*

*void CreateList(SeqList &L,int n)*

*{*

*L.elem=(ElemType \*)malloc(ListSize\*sizeof(ElemType));*

*if (!L.elem) exit(0);*

*L.listsize=ListSize;*

*printf("please input %d numbers:\n",n);*

*for(int i=1;i<=n;i++)scanf("%s%s%d",&L.elem[i].no,&L.elem[i].name,&L.elem[i].age);*

*L.length=n;*

*}*

*void PrintList(SeqList L)*

*{*

*printf("the sqlist is\n");*

*for(int i=1;i<=L.length;i++)*

*printf("%s %s %d\n",L.elem[i].no,L.elem[i].name,L.elem[i].age);*

*}*

*int LocateList(SeqList L,int x)*

*{*

*for(int i=1;i<=L.length;i++)*

*if((L.elem[i].age)==x) return i;*

*return 0;*

*}*

*void InsertList(SeqList &L,int i,ElemType e)*

*{*

*ElemType \*p;*

*ElemType \*q;*

*ElemType \*newbase;*

*if(i>=1&&i<=L.length+1)*

*{*

*if(L.length>=L.listsize)*

*{*

*newbase=(ElemType\*)realloc(L.elem,(LISTINCREMENT+L.listsize)\*sizeof(ElemType));*

*if(!newbase)exit(OVERFLOW);*

*L.elem=newbase;*

*L.listsize += LISTINCREMENT;*

*}*

*q=&(L.elem[i]);*

*for(p=&(L.elem[L.length]);p>=q;--p)*

*\*(p+1)=\*p;*

*\*q=e;*

*++L.length;*

*}*

*else {printf("no....");}*

*}*

*void DeleteList(SeqList &L,int i)*

*{*

*ElemType \*p;*

*ElemType \*q;*

*if((i>=1)&&(i<=L.length))*

*{*

*p=&(L.elem[i]);*

*q=L.elem+L.length;*

*for(++p;p<=q;++p)*

*\*(p-1)=\*p;*

*--L.length;*

*} else {printf("no....");}*

*}*

*int main()*

*{*

*SeqList L;*

*L.length=0;*

*ElemType x;*

*int i;*

*int n;*

*system("cls");*

*printf("主题：实验一 顺序表基本操作主题\n");*

*printf("姓名：2005级张三丰\n");*

*printf("内容：实现顺序表的初始化，数据元素的遍历，增、删、改、查等功能\n");*

*printf("please input the number of elements:\n");*

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

*CreateList(L,n);*

*PrintList(L);*

*printf("\ninput the age of reseach element:");*

*scanf("%d",&x.age);*

*i=LocateList(L,x.age);*

*printf("the first aged %d locate at posotion %d",x.age,i);*

*printf("\ninput the position of insertion:\n");*

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

*printf("\ninput the value of insertion\n");*

*scanf("%s%s%d",&x.no,&x.name,&x.age);*

*InsertList(L, i, x);*

*PrintList(L);*

*printf("\ninput the position of deletion：\n");*

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

*DeleteList(L,i);*

*PrintList(L);*

*getchar();*

*}*

运行截图

