**#include <stdio.h>**

**#include <string.h>**

**#include <stdlib.h>**

**#include <stdbool.h>**

**#define SIZE 20**

**struct DataItem {**

**int data;**

**int key;**

**};**

**struct DataItem\* hashArray[SIZE];**

**struct DataItem\* dummyItem;**

**struct DataItem\* item;**

**struct DataItem \*search(int key) {**

**int hashIndex = key%SIZE;**

**while(hashArray[hashIndex] != NULL) {**

**if(hashArray[hashIndex]->key == key)**

**return hashArray[hashIndex];**

**++hashIndex;**

**hashIndex %= SIZE;**

**}**

**return NULL;**

**}**

**void insert(int key,int data) {**

**struct DataItem \*item = (struct DataItem\*) malloc(sizeof(struct DataItem));**

**item->data = data;**

**item->key = key;**

**int hashIndex = key % SIZE;**

**while(hashArray[hashIndex] != NULL && hashArray[hashIndex]->key != -1) {**

**++hashIndex;**

**hashIndex %= SIZE;**

**}**

**hashArray[hashIndex] = item;**

**}**

**void display() {**

**int i = 0;**

**for(i = 0; i<SIZE; i++) {**

**if(hashArray[i] != NULL)**

**printf(" (%d,%d)",hashArray[i]->key,hashArray[i]->data);**

**else**

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

**}**

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

**}**

**int main() {**

**dummyItem = (struct DataItem\*) malloc(sizeof(struct DataItem));**

**dummyItem->data = -1;**

**dummyItem->key = -1;**

**insert(1, 20);**

**insert(2, 70);**

**insert(42, 80);**

**insert(4, 25);**

**insert(12, 44);**

**insert(14, 32);**

**insert(17, 11);**

**insert(13, 78);**

**insert(37, 97);**

**display();**

**item = search(37);**

**if(item != NULL) {**

**printf("Element found: %d\n", item->data);**

**} else {**

**printf("Element not found\n");**

**}**

**}**