

# Rajalakshmi Engineering College

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## NeoColab\_REC\_CS23231\_DATA STRUCTURES

### REC\_DS using C\_Week 7\_COD\_Question 3

Attempt : 1  
Total Mark : 10  
Marks Obtained : 10

#### Section 1 : Coding

##### 1. Problem Statement

In a messaging application, users maintain a contact list with names and corresponding phone numbers. Develop a program to manage this contact list using a dictionary implemented with hashing.

The program allows users to add contacts, delete contacts, and check if a specific contact exists. Additionally, it provides an option to print the contact list in the order of insertion.

##### ***Input Format***

The first line consists of an integer  $n$ , representing the number of contact pairs to be inserted.

Each of the next  $n$  lines consists of two strings separated by a space: the name of the contact (key) and the corresponding phone number (value).

The last line contains a string *k*, representing the contact to be checked or removed.

### **Output Format**

If the given contact exists in the dictionary:

1. The first line prints "The given key is removed!" after removing it.
2. The next *n* - 1 lines print the updated contact list in the format: "Key: X; Value: Y" where X represents the contact's name and Y represents the phone number.

If the given contact does not exist in the dictionary:

1. The first line prints "The given key is not found!".
2. The next *n* lines print the original contact list in the format: "Key: X; Value: Y" where X represents the contact's name and Y represents the phone number.

Refer to the sample outputs for the formatting specifications.

### **Sample Test Case**

Input: 3

Alice 1234567890

Bob 9876543210

Charlie 4567890123

Bob

Output: The given key is removed!

Key: Alice; Value: 1234567890

Key: Charlie; Value: 4567890123

### **Answer**

// You are using GCC

```
void insertKeyValuePair(Dictionary *dict, const char *key, const char *value) {
```

```
    if(dict->size == dict->capacity){
        dict->capacity *= 2;
        dict->pairs=(KeyValuePair*)realloc(dict->pairs,dict-
        >capacity*sizeof(KeyValuePair));}
```

```

    strcpy(dict->pairs[dict->size].key,key);
    strcpy(dict->pairs[dict->size].value,value);
    dict->size++;
}
void removeKeyValuePair(Dictionary *dict, const char *key) {

    int found=0;
    for(int i=0;i<dict->size;i++){
        if(strcmp(dict->pairs[i].key,key)==0){
            found=1;
            for(int j=i;j<dict->size-1;j++){
                dict->pairs[j]=dict->pairs[j+1];
            }
            dict->size--;
            break;
        }
    }
}
int doesKeyExist(Dictionary *dict, const char *key) {

    for(int i=0;i<dict->size;i++){
        if(strcmp(dict->pairs[i].key,key)==0){
            return 1;
        }
    }
    return 0;
}
void printDictionary(Dictionary *dict) {
    for(int i=0;i<dict->size;i++){
        printf("Key: %s; Value: %s\n",dict->pairs[i].key,dict->pairs[i].value);
    }
}

```

**Status :** Correct

**Marks :** 10/10