

student

You are required to write a C program to process an array of student records. For each student record, it stores the student id and name. In the program, you need to write the following three functions:

- The function `inputStud()` reads in students' information according to an input student size.
- The function `printStud()` prints the student information on the display. It will print the message "Empty array" if the student list is empty.
- The function `removeStud()` takes in three parameters. It removes the target student name from the array which has `*size` numbers in it. If `*size` is equal to zero the function should issue an error message "Array is empty". If the *target* name does not appear in the array, the function should issue an error message "The target does not exist". The program defines the constant `SIZE` as the maximum number of student records which can be stored in the array. The function will return 0 if the removal operation is successful, 1 if the array is empty or 2 if the number does not exist in the array.

The prototypes of the three functions are given below:

```
void inputStud(Student *s, int size);
void printStud(Student *s, int size);
int removeStud(Student *s, int *size, char *target);
```

The structure definition for the structure Student is given below:

```
typedef struct {
    int id;
    char name[50];
} Student;
```

A sample program template is given below to test the functions:

```
#include <stdio.h>
#include <string.h>
#define SIZE 50
typedef struct {
    int id;
    char name[50];
} Student;
void inputStud(Student *s, int size);
void printStud(Student *s, int size);
int removeStud(Student *s, int *size, char *target);
int main()
{
    Student s[SIZE];
    int size=0, choice;
    char target[80], *p;
    int result;

    printf("Select one of the following options: \n");
```

```

printf("1: inputStud()\n");
printf("2: removeStud()\n");
printf("3: printStud()\n");
printf("4: exit()\n");
do {
    printf("Enter your choice: \n");
    scanf("%d", &choice);
    switch (choice) {
        case 1:
            printf("Enter size: \n");
            scanf("%d", &size);
            printf("Enter %d students: \n", size);
            inputStud(s, size);
            break;
        case 2:
            printf("Enter name to be removed: \n");
            scanf("\n");
            fgets(target, 80, stdin);
            if (p=strchr(target, '\n')) *p = '\0';
            printf("removeStud(): ");
            result = removeStud(s, &size, target);
            if (result == 0)
                printf("Successfully removed\n");
            else if (result == 1)
                printf("Array is empty\n");
            else if (result == 2)
                printf("The target does not exist\n");
            else
                printf("An error has occurred\n");
            break;
        case 3:
            printStud(s, size);
            break;
    }
} while (choice < 4);
return 0;
}
void inputStud(Student *s, int size)
{
    /* Write your code here */
}
void printStud(Student *s, int size)
{
    /* Write your code here */
}
int removeStud(Student *s, int *size, char *target)
{
    /* Write your code here */
}

```

Some sample input and output sessions are given below:

(1) Test Case 1:
Select one of the following options:
1: inputStud()
2: removeStud()
3: printStud()
4: exit()
Enter your choice:
1
Enter size:
3
Enter 3 students:
Student ID:
11
Student Name:
Hui Siu Cheung
Student ID:
12
Student Name:
Kenny B
Student ID:
13
Student Name:
Victor Leong
Enter your choice:
3
The current student list:
Student ID: 11 Student Name: Hui Siu Cheung
Student ID: 12 Student Name: Kenny B
Student ID: 13 Student Name: Victor Leong
Enter your choice:
4

(2) Test Case 2:
Select one of the following options:
1: inputStud()
2: removeStud()
3: printStud()
4: exit()
Enter your choice:
1
Enter size:
3
Enter 3 students:
Student ID:
11
Student Name:
Hui Siu Cheung
Student ID:
12
Student Name:

Kenny B
Student ID:
13
Student Name:
Victor Leong
Enter your choice:
2
Enter name to be removed:
Victor Leong
removeStud(): Successfully removed
Enter your choice:
3
The current student list:
Student ID: 11 Student Name: Hui Siu Cheung
Student ID: 12 Student Name: Kenny B
Enter your choice:
4

(3) Test Case 3:
Select one of the following options:
1: inputStud()
2: removeStud()
3: printStud()
4: exit()
Enter your choice:
1
Enter size:
3
Enter 3 students:
Student ID:
11
Student Name:
Hui Siu Cheung
Student ID:
12
Student Name:
Kenny B
Student ID:
13
Student Name:
Victor Leong
Enter your choice:
2
Enter name to be removed:
Victor Hui
removeStud(): The target does not exist
Enter your choice:
3
The current student list:

Student ID: 11 Student Name: Hui Siu Cheung

Student ID: 12 Student Name: Kenny B

Student ID: 13 Student Name: Victor Leong

Enter your choice:

4

(4) Test Case 4:

Select one of the following options:

1: inputStud()

2: removeStud()

3: printStud()

4: exit()

Enter your choice:

2

Enter name to be removed:

Victor Hui

removeStud(): Array is empty

Enter your choice:

3

The current student list:

Empty array

Enter your choice:

4