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;
  char dummy[80];
```

```
  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");
        fgets(dummy,80,stdin);
        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)
{
   int i;

   printf("The current student list: \n");
   if (size==0)
     printf("Empty array\n");
   else
   {
     for (i=0; i<size; i++) {
```

```
            printf("Student ID: %d ", s[i].id);
            printf("Student Name: %s\n", s[i].name);
        }
    }
}
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