Structure and Functions assignments

1. Refer the code in “student.c”. Implement the following requirements.
a. Change the name member to char * datatype
b. Add 2 functions below to read and store name and percentage scores from user in student record.
//pass name address as parameter and read and update name field
Return updated name
char *read_update_name(char *name);
//pass address of percentage as parameter, read and update percentage field of student record. Also return updated percentage
int read_update_percentage(int *percent);
c. Check for memory leaks
d. Specify atleast 5 dataset used for testing
Check for memory leak.

Sol:

```
#include <stdio.h>

#include <string.h>

#include <stdlib.h>


struct student {

  int id;

  char *name;

  float percentage;

};


char *read_update_name(char *name) {

  printf("Enter student's name: ");

  name = (char *)malloc(50 * sizeof(char));

  if (name == NULL) {

    printf("Memory allocation failed!\n");

    exit(1);

  }

  fgets(name, 50, stdin);
```

```
    name[strcspn(name, "\n")] = '\0';
    return name;
}
float read_update_percentage(float *percent) {
    printf("Enter student's percentage: ");
    scanf("%f", percent);
    return *percent;
}
void func(struct student *record) {
    printf("Id is: %d\n", record->id);
    printf("Name is: %s\n", record->name);
    printf("Percentage is: %.2f\n", record->percentage);
}
int main() {
    struct student record;
    int i;
    record.name = NULL;
    record.id = 0;
    int num_students = 5;
    struct student students[num_students];
    for (i = 0; i < num_students; i++) {
        printf("Reading details for Student %d\n", i + 1);
         printf("Enter student's ID: ");
        scanf("%d", &students[i].id);
        getchar();
       students[i].name = read_update_name(students[i].name);
       students[i].percentage = read_update_percentage(&students[i].percentage);
       func(&students[i]);
    }
```

```
    for (i = 0; i < num_students; i++) {
        free(students[i].name);
    }
return 0;
}
```

Output:

```
Reading details for Student 1
Enter student's ID: 101
Enter student's name: Iswarya
Enter student's percentage: 90
Id is: 101
Name is: Iswarya
Percentage is: 90.00
Reading details for Student 2
Enter student's ID: 102
Enter student's name: Nani
Enter student's percentage: 98
Id is: 102
Name is: Nani
Percentage is: 98.00
Reading details for Student 3
Enter student's ID: 103
Enter student's name: chinnu
Enter student's percentage: 80
Id is: 103
Name is: chinnu
Percentage is: 80.00
Reading details for Student 4
Enter student's ID: 104
Enter student's name: Preethi
Enter student's percentage: 60
Id is: 104
Name is: Preethi
Percentage is: 60.00
Reading details for Student 5
Enter student's ID: 105
Enter student's name: Keerthi
Enter student's percentage: 85
Id is: 105
Name is: Keerthi
Percentage is: 85.00
```