Program 1:

```
#include <stdio.h>
struct s {
     char name[50];
     int height;
};
int main() {
     struct s a[5],b[5];
     FILE *fptr;
     int i;
     fptr=fopen("file.txt","wb");
     for (i=0;i<5;++i) {
            fflush(stdin);
            printf("Enter name: ");
            gets(a[i].name);
            printf("Enter height: ");
            scanf("%d",&a[i].height);
     }
     fwrite(a,sizeof(a),1,fptr);
     fclose(fptr);
     fptr=fopen("file.txt","rb");
     fread(b,sizeof(b),1,fptr);
     for (i=0;i<5;++i) {
            printf("Name: %s\nHeight: %d",b[i].name,b[i].height);
     }
     fclose(fptr);
}
```

Program 2:

```
#include <stdio.h>
#include <stdlib.h>

struct Student {
    char name[50];
    int roll_number;
    char grade;
};

void write_student_record(const char* filename, struct Student students[],
int num_students) {
    FILE *file = fopen(filename, "w");
    if (file == NULL) {
        perror("Error opening the file");
        exit(1);
    }

    for (int i = 0; i < num_students; i++) {
        fprintf(file, "%s %d %c\n", students[i].name,
students[i].roll_number, students[i].grade);
    }

    fclose(file);
    printf("Student records have been written to the file.\n");
}
```

```
void read_student_records(const char* filename) {
    FILE *file = fopen(filename, "r");
    if (file == NULL) {
        perror("Error opening the file");
        exit(1);
    }

    struct Student student;
    while (fscanf(file, "%s %d %c", student.name, &student.roll_number,
&student.grade) != EOF) {
        printf("Name: %s, Roll Number: %d, Grade: %c\n", student.name,
student.roll_number, student.grade);
    }

    fclose(file);
}

int main() {
    struct Student students[100]; // Maximum of 100 students
    int num_students = 0;

    while (1) {
        printf("\nOptions:\n");
        printf("1. Add a student record\n");
        printf("2. View all student records\n");
        printf("3. Save records to a file\n");
        printf("4. Load records from a file\n");
        printf("5. Exit\n");

        int choice;
        scanf("%d", &choice);

        switch (choice) {
            case 1:
                printf("Enter the student's name: ");
                scanf("%s", students[num_students].name);
                printf("Enter the student's roll number: ");
                scanf("%d", &students[num_students].roll_number);
                printf("Enter the student's grade: ");
                scanf(" %c", &students[num_students].grade);
                num_students++;
                break;
            case 2:
                for (int i = 0; i < num_students; i++) {
                    printf("Name: %s, Roll Number: %d, Grade: %c\n",
students[i].name, students[i].roll_number, students[i].grade);
                }
                break;
            case 3:
                write_student_record("student_records.txt", students,
num_students);
                break;
            case 4:
                read_student_records("student_records.txt");
                break;
            case 5:
                return 0;
```

```
            default:
                printf("Invalid choice. Please enter a valid option.\n");
        }
    }

    return 0;
}
```

Explanation:

1. We define a `struct Student` to represent a student record with fields for name, roll number, and grade.
2. The `write_student_record` function takes a filename and an array of student records and writes these records to a file. It uses `fopen` to open the file in write mode, and `fprintf` to write each student's details to the file.
3. The `read_student_records` function reads student records from a file. It opens the file in read mode and uses `fscanf` to read each student's details from the file.
4. In the `main` function, we create an array of `struct Student` to store student records, and `num_students` keeps track of the number of students.
5. The program provides a simple menu-driven interface for adding student records, viewing them, and saving/loading records to/from a file named "student_records.txt."
6. You can customize the maximum number of students (currently set to 100) and the filename as per your requirements.

Make sure to compile and run this C program, and it will allow you to store and retrieve student records from a file.