Midterm Exam System Project

This is project on C programming contains most of the important concepts in C.

I am Ahmed. I am Teaching Assistant at CS faculty. I want to develop system to organize midterm exam for my students.

I teach four levels in college, each level I teach a programming language:

- I teach the first year Python language.
- I teach the second year Java language.
- I teach the third year C++ language.
- I teach the fourth year C language.

Your task is developing system according to these specifications:

- **<u>Entrance</u>**: System must have two modes: teacher and student. Teacher mode has login page with specific username and password: [admin, admin]. Student mode hasn't login page, but each student has unique ID. When student enter his ID system will redirect student to his exam. Each exam consists of five questions. Copy these questions from this [file].
  N.B: file handling forbidden in this project.
- **<u>Teacher mode</u>**: teacher can add students' information in system. Information are name, ID, level, and grade. First three will entered by teacher, while grade will add automatically after student finished exam. The grade from 20.
- **<u>Questions</u>**: as a programmer you will copy questions with these answers from previous file to your code. You are free to choose mechanism of storing these questions: e.g. struct, array of array of strings…etc. but you must add question of each subject, regardless what mechanism used, in separate function. Name of this function must started with name of subject then underscore then "exam": such as "CPP_exam()" and the last line in this function you will call show_exam() function which show exam of this subject.
  But why?
  When student entered ID you will redirect it to his exam using function redirect_to_exam(). This function must use pointer to function to redirect to exam according to student level.

- **Exam**: When exam started and after each question you must store degree of this question. When exam finished you must store total degree. How about using singly linked list data structure to store it? You must do it with each student. So, what is the data type of grade variable!
  Program will not terminate after all students in all levels finished in one day. So, as a teaching assistant I need report in the last of the day. N.B: Don't show student his degree.
- **Report**: in admin mode beside add student feature I need print report feature. This feature to print all information of all students which are: name, ID, level, grade. But?
  You must print information in sorted way. Firstly, sort students according to levels and in each level you must sort students according to total grade. Report must contain grade of each question and total grade of each student.
  Don't use additional memory space in sort. Just print information in sorted way.
- **Testing step by step**:
  - Teaching assistant will enter information of students. At least four students each in a specific level.
  - Students will enter their ID to enter to exam student by student. (if ID is not found try again).
  - When exam started program behind the seen will store degrees of student. (exam is MCQ, so student will input a or b or c or d capital or small to choose answer). You will compare this answer with correct answer stored.
  - When all students finished teacher assistant will print report.