Using the Student Response System for tagged Multiple Choice Questions

The multiple choice program `attend` first gets the student ID (9 digit number) from each student. It then allows for a sequence of 5 choice multiple choice questions. During each question, it displays a histogram of results. It has provisions, if desired, for accumulating results on a given multiple choice question twice, before and after a discussion period, but it can be used with only one response period as well. After each question it records the results, both statistical and individual, on a $3\frac{1}{2}$ inch floppy disk supplied by the instructor. After each multiple choice question or attendance-taking period, it asks whether to do another question, retake attendance, or exit.

Instructions for the students are on separate sheets, suitable for display on a projector. One tells how to enter the ID, and how the system should behave while this is happening. The second discusses entering the choices on multiple-choice questions. In particular, these sheets tell the student how to erase an answer if (s)he wishes to change it.

Important Note: Entering a second answer causes the response to be considered invalid, it does not replace the previous answer. To change a response, the student must first erase the previous answer by pressing #, and then press the new answer.

To run `attend` at the `C:\>` prompt, type:

```
C:\> ATTEND
```

The program then asks for the names of four files

1. the file on the floppy disk which contains the list of identification numbers, and the names attached to those numbers.

2. the file which will contain the attendance list output. At the moment this gives only the identification numbers, but it will be changed to give the names as well, for those that are known from the first file. This list will include those who entered a number not on the roster, twice in a row.

3. the file which will contain the statistical results for each question.

4. the file which will contain the list of responses each student gave to each question.

All these files *must* go on the floppy disk. Like all MSDOS files, the filename can have a maximum of 8 letters with a 3 letter "extention", separated by a period. Only normal, alphanumerical characters are accepted, together with hyphens. Alphabetic characters are capitalized regardless of how you specify them. Spaces, tabs, commas and control-keys may not be included in a valid filename. The program does no validity checking on the filenames; it is the instructor's responsibility to follow MS-DOS's filename regimen.

As an example, the four filenames might be `202rost.f95`, `oct5.att`, `oct5.hst`, and `oct5.ans`.

Once these questions are answered, the program informs you of how many student ID's it read from the roster file. When you are ready to allow the students to enter their ID numbers, press "Enter". As the students successfully complete their numbers, the current number of successful entries is displayed. The students get a solid green light when they have hit 9 digits which constitutes a valid number. [Note: currently if another digit is hit at this time, the entry becomes **invalid**. This will be changed.] To end this period of acquiring ID numbers, the instructor must press the semi-colon key ; At any point during the period in which the students are to enter their ID, they can start afresh by pressing the `#` key. The answer is considered complete after exactly nine digits are entered. If their first answer is found on the roster, the green light will come on steady. If not, the red light comes on. They can then press `#` and then retype the number. If they retype the same number twice in a row, it is accepted even though it is not on the roster, and the green light comes on. All students who have not entered an acceptable number during the period provided will be listed without an ID number in the results. Their responses will be included in the histograms.

After the period for entering the ID numbers, the instructor is presented with a choice of beginning a multiple choice question, retaking attendance, or exiting. The same choice will be presented after each question is complete. The operation during the multiple choice question is identical to the `mchoice` program, except that this choice is presented instead of the blank screen. There is a flowchart available for the `mchoice` program. Please note: the instructor must exit the program properly with the escape key, as mentioned below, to insure that all files are correctly written to disk.

To activate the first histogram, the instructor hits the "Enter" key. Immediately, axes for the first histogram are drawn, the keypads are activated, and students are free to start answering the question.

While the students are answering the question, the instructor should type in a question label to associate a meaningful or trackable label to the responses recorded in the data file. This label can be up to 30 characters long, including spaces. It can be a number or a useful mnemonic or title. The prompt for this entry is in the upper-left hand corner of the screen, above the first histogram. When the instructor is finished typing in the question label, (s)he may optionally press the "Enter" key to signal the end of the question label. No changes can be made once enter is hit or once the `F1` or `F9` key (see below) has been hit.

To end the first session of recording results, the instructor has two options. The first option allows the recording of a second set of responses, while the second skips to the end for this question.

To allow the second set of responses, the instructor presses any of the `F1`, `F2`, `F3`, or `F4` keys. This freezes the first histogram, deactivates the keypads, and waits for the instructor to press `F5`, `F6`, `F7`, or `F8`, which signals the start of the second response period.

To end the second session (or to end the first session without allowing a second session) the instructor should press any of the `F9`, `F10`, `F11`, or `F12` keys. This will freeze the screen, allowing the instructor to discuss the results with the students. By pressing the "Enter" key, the graphs are cleared, and a textual form of the results is shown. It is at this point that the results are written to disk By pressing the "Enter" key once more, the instructor is brought back to the point at which he is asked to choice among doing another question, retaking attendance, or exiting. Most likely no pause to look at the textual results is wanted, in which case the instructor should simply hit enter twice quickly.

At any time, the instructor may press the "`Esc`" key to exit from the program. It is **NOT** advisable to press it while the histograms are displayed, for the program only writes the data to the disk when it is displayed in the text format on the screen. Pressing `Esc` during the display of the histograms will lose the data without saving it to disk.