

# PC-Registrar™

*A Specialized Database  
For Course Information*

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## Preface

Microcomputers are becoming an indispensable tool in American higher education by cheaply and effectively addressing the needs of both students and professors. For a professor the routine administrative details associated with teaching a university class, especially a class having an enrollment in excess of 50 students, can be burdensome. The widespread availability of microcomputers on the Cornell and other college campuses makes microcomputers an obvious choice for handling these administrative details.

The idea of using a computer to maintain class lists is an old one. Numerous mainframe programs and countless microcomputer programs have been spawned for just this purpose. Spreadsheet programs also serve this purpose. Why write yet another?

### Assumptions:

- Every member of the Cornell faculty has convenient access to a microcomputer.
- Physical control of diskette data files provides the best available security for the data.
- In the absence of mature and secure on-line access to confidential course files, completely decentralized access to one's own class records is an attractive alternative.
- The costs associated with the widespread usage of general purpose spreadsheet and database programs are prohibitive.

### Design specifications for such a program:

- Must be sufficiently inexpensive to permit universal use. Site licenses for spreadsheet and database programs are expensive.
- Must be convenient for use with small classes.
- Must be usable with even the largest Cornell course (2,500).
- Must clearly exceed any existing microcomputer or mainframe program in performance (speed, ease of usage, functionality, etc.).
- Must permit machine readable interchange of data (import student enrollment data and machine scored tests and export final grades to the University Registrar.)
- Must reduce, not just substitute, the administrative chores associated with a course.
- Must be easy to use with little or no continuing need for a user's manual.
- Must be flexible enough to accommodate diverse needs according to educational (not computer) requirements.

### Hardware:

IBM PC or PS-2 compatible microcomputer with at least one floppy drive and a hard disk. At least 512K RAM required, but larger improves performance. An 80 character printer width assumed, 132 compressed character width preferred.

**Acknowledgments:**

Joseph B. Bugliari, Dean of the University Faculty, commissioned the development of the Course Management System which is intended to become the standard for the University.

University Registrar Keith Ickes provided enthusiastic support for the development and adoption of this approach to grade reporting.

By a special grant the University Provost provided funding for the project.

The extraordinary speed of this program is attributable to three software components. The nearly instantaneous presentation of help screens and the student record screen is due to the "T-Screen" concept of Steve Wood (Using Turbo Pascal, Osborne, 1986), and we adapted the controlled input procedures from the programs presented in his useful text. The rapid access to the disk-based student records (less than 1 second for 2,500 students) is due to the B-tree retrieval software (Turbo Database Toolbox, Borland International, 1985). Finally, we produced the compiled Pascal code using Turbo Pascal (TurboPascal v5.0, Borland International, 1985).

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## Contents

	<b>Preface</b>	
	Assumptions	i
	Program design specifications	i
	Hardware Requirements	i
	Acknowledgments	ii
	Copyright	ii
	License	ii
	Disclaimer	iii
<b>1.0</b>	<b>Introduction</b>	
	Help Prompts	1
	Conventions	1
	Program structure	
	Menus	1
	Description	3
<b>2.0</b>	<b>A Guided Tour of PC-Registrar</b>	
	Startup	7
	Main Menu	13
	Update Class Records	14
	Student Data Record	16
	Add Students	19
	Drop Students	20
	Special Functions (Grade Calculations)	20
	Output	28
<b>3.0</b>	<b>Advanced Techniques</b>	
	Template Design	33
	Import & Export Data	35
	Change Drive or Course	39
	Rebuild Index File	39
	Change Password	39
<b>4.0</b>	<b>PCR Reference Guide</b>	
	Calculation of Weighted Average	41
	PCR Programmer's Guide	43
	Data Interchange	43
	Distribution Diskette Files	45
	Bug Reports	46
	List of Figures	46
	Index	47



# Chapter 1

## Introduction

We assume that you already have a working knowledge of the IBM PC operating procedures including an elementary knowledge of the disk operating system. For example, we assume that you have an elementary knowledge of file handling techniques.

### Extensive Help Prompts

Except for the first-time user, we expect you to use this manual infrequently because extensive context sensitive help screens are instantaneously available on-line. Simply press the F1 or F2 keys on the top row of the function key section of the keyboard for an explanation of each menu and the editing commands. The more frequently used commands appear on the bottom two lines of the screen.

### Conventions

PCR is a standard, menu-driven program. Specifically, it gives you a numbered list of all of the available options. Select the number associated with the command, enter that number in the window at the bottom of the screen and press enter. Alternatively, make your selection by scrolling up or down the list with the arrow keys at the right of the keyboard in endless loop fashion. This highlights the choices; then simply press enter to choose the highlighted item.

The program is organized in a tree structure, and successive presses of the "esc" key move you to successively more primitive levels. If you become confused, use "esc" to return to a familiar level. However, to exit from the program you must make an explicit check. If you use "esc" to leave a level of the program, any changes you made at that level are not preserved. To preserve your input, press the F10 key at the bottom-right of the function key portion of the keyboard. The "next" record and "previous" record function keys also save the input before the program moves you to another record.

### Program structure

The PCR program consists of an initialization module followed by eleven separate modules (Fig 1.1). In general, you use the first six of these modules in the order listed; the remaining five modules provide non-routine contingency operations. In the PCR Advanced Techniques chapter we describe the full details of each option. The main menu functions are described in brief in the main menu help screen (Fig 1.2). Upon entry into each of these modules you can receive further specialized help information in a context-sensitive help screen for each specific command.

06/03/1990	PC-Registrar
<p>Copyright, 1990 Cooke Publications, Ltd.</p> <p>Members of the Cornell Faculty may use this program on a royalty- free basis, making backup copies as needed.</p> <p>All other rights including external distribution are reserved.</p> <p>Press the F9 key for further information.</p>	<ol style="list-style-type: none"> <li>1. Template Design</li> <li>2. Add New Records</li> <li>3. Update Existing Records</li> <li>4. Enter Data Repeatedly</li> <li>5. Special Functions (Sort/Calc)</li> <li>6. Output (Screen/Printer/Disk)</li> <li>7. Delete Records</li> <li>8. Import/Export Data</li> <li>9. Change Drive or Course</li> <li>10. Re-Build Index File</li> <li>11. Change Password</li> </ol> <p><b>F1, F2</b> Help                      <b>Esc</b> End Session</p>

Fig 1.1 Program Structure (Main Menu)

Main Menu Options	
Template Design	:Allows you to define column headings and anticipated entries in each column(category).Can be updated later.
Add New Records	:Creates a blank record for manual addition to class list.
Update Records	:Edits existing records. Searches in alphabetical or arbitrary order by (partial) name. Optionally restricts search by TA. Select field for automatic cursor placement.
Enter Repeatedly	:Allows record updates with same data.
Special Functions	:Calculates means, standard deviations, class ranks, histograms, weighted averages, letter grade conversion, internal student ID.
Output	:Screen, printer or disk output with user-selected fields. Produces 1-line/student or complete student reports.
Delete	:Moves a record to inactive file.
Import/Export	:Creates class list, adds text file grades to records and produces file output for the Registrar.
Change Course	:Selects another data file.
Re-Build Index	:Repairs corrupted index file.
Change Password	:Re-assigns access password.

Fig 1.2 Main Menu Help



## Initialize

When you initialize the program, you place in memory various data files and help screens for rapid access during program execution. Next locate by disk drive and file name the data file for the course of interest. Under most circumstances the program and data files reside on different diskettes. For greatest security you should keep the data files on a floppy diskette rather than on a hard disk. Since with commercially available utilities you can recover a file previously deleted from a hard disk. Another option available would be to physically secure the hard disk or use a commercially available encryption program. You can assign a low-security password in this step. Enter or update course information (e.g., instructor's name, course name and number) in this step.

## Template Design

The program displays data for each student in a rectangular array. Each column corresponds to a category of graded material. In this section you assign the names of up to six categories and specify the maximum number of entries in each column. You can increase or decrease this maximum later. (Note: decreasing the number of entries after entering data will result in the erasure of data). The maximum number of entries (i.e., **fields**) to be parceled among the columns is fixed at forty-eight. The size of each student's record is fixed regardless of the number of fields actually allocated in the template design. You can allocate up to five fields as user-defined calculated fields. The heading for these calculated fields, Rank, can not be changed. The program reserves two fields: the course weighted average and the final course letter grade. You can use up to 46 of the 48 fields for data storage. This allows you to save a single data value (e.g., attendance) for each of three weekly meetings in a 14 week semester.

## Add New Records

You can manually add to the list records for new students using a blank template provided. The program maintains in memory an alphabetical index of students so that you can quickly retrieve the exact diskette record for any specific student with a single disk command. A special purpose editor allows you to select fields you wish to modify. An explanatory description for each field automatically appears at the bottom of the screen.

## Update Existing Records

You can access individual student records alphabetically or in an arbitrary search order using a rapid B-Tree technique. Normally you need enter only a few characters of a student's last name to locate the record of that student. (Press Enter without entering any characters to locate the alphabetically first student.) If the characters you enter are unique to the name of one student, the screen immediately displays the record of that student; otherwise, the screen presents in menu form for your final selection a list of names that match those characters. In most instances three or four keystrokes are enough to locate the record sought. In addition, you can qualify a search to locate a group of students belonging to a specific teaching assistant.

Further, during any update process you normally make grade entries for each student in a specific row and column. After you select the field, the program can automatically place the cursor in the appropriate row and column for each record. (Note: Handle removal of an entire student's record from the class list using Delete Record.)

You can flag with a message up to five grade entries for any student. The default message tags include the following: Make-up test, Excused absence, University trip, Regraded paper, and Other.

### **Enter Data Repeatedly**

You can enter data repeatedly for selected students with this command. For example, suppose that some students were in the same section and had the same grade option. By selecting this option, a blank template will show on the screen for you to enter data in. You then can choose the student records to update with this data. The program will ask you for verification before updating the records.

### **Special Functions**

In this section you can make calculations to characterize the grades for the class. This includes class rank, mean, standard deviation, weighted averages and final course letter grades. You can compute and save class ranks for up to fourteen graded fields. You can assign the weights for each graded item, elect to drop the lowest grade in any category, and assign the numerical ranges for each letter grade or S/U grade. You can calculate letter grades for the entire class or for individual students. You can calculate histograms (distribution of grades) and, if you use graphics hardware, plot the histogram. You can automatically assign a course specific student identification number to each student for use in posting grades. This affords the student greater privacy than possible even with social security numbers.

### **Output**

The program offers three forms of output. First, programs normally route output to the screen. This form of rapid output is vital during data entry. Second, printed output is necessary for verification and archival purposes. You can send a copy of the screen to a connected and operative printer using the shift Prt-Scrn command, but more organized printed output is also possible.

You can print in any order any combination of fields (data entries) for each student on a single line of 80 or 132 characters. You can print a long student name (25 characters) or a truncated name (12 characters) with selected data fields. If desired, you can choose to not print a field such as the student name. For example, you can elect to post grades using internal identification numbers rather than student names.

After selecting the output fields, you can print those selected fields in a one line per student form sorted by the first field and further sorted by the second selected field. For example, you can sort students by section or teaching assistant and then alphabetize the students within that grouping.

At the end of the term you may wish to produce a complete record of each student's performance for that student's verification. Such a report can be produced for selected students or for all students.

Output to a **disk file** is the third form of output. You can select the fields sent to a standard text file just as you selected the output to the printer. This form of output adds enormous flexibility to the program! For example, you can use your standard word processor to paginate the file or to make other adjustments before printing. Furthermore, you can write a program of your own in your favorite programming language to further manipulate the output file. We return to this theme in the "Import/Export Data" section.

### Delete Records

We have isolated deletion of students from the class list to prevent your accidentally removing a student's records. When you remove a student's name, the program keeps an archival copy of the deleted record. The program requires you to strike a different key from normal to accept the delete record command.

### Import/Export Data

This data transfer command adds great flexibility to PCR. You can avoid the tedious and error-prone entry student name, social security number, Cornell identification number, college, class, etc. list by using this command. Upon request the University Registrar's office provides your class list in diskette form as well as printed form. This student specific information comes in a standard format which your PCR program can automatically read. Included among the data fields is the student's class that automatically allows you to extract the grades for graduating students.

While the program reads your initial class list in its entirety, subsequent lists reflect the drop/add process. Consequently, your program must handle updates differently. The updates do not alter your grade entries; and if the Registrar updates your class list, the program creates an easily identifiable student file that reflects the changes from your initial class list. (Note: You can also manually update records. See "Update" above.)

Machine scored test results are another form of data you may wish to import. In this instance you must designate the fields to receive the input. You can do record matches by student name or probably more reliably by Cornell identification number plus the first three letters of the last name. To select the fields to receive the input use the procedure described above that you used to select fields for printed output.

PC-Registrar also allows you to add students to the list from a user defined text file the same way it reads in machine scored test results. Here the user selects the fields for input in the same way. This method can also be used to import student names into the database that are not in the Cornell Registrar format.

For submission to the Registrar at the end of the semester, the "Export to Registrar" option uses a predefined format to produce file output from your program.

## **Change Drive or Course**

You can select another disk drive or another course file on the same or a different drive for data retrieval or storage.

## **Rebuild Index File**

The index file is the retrieval directory for your student records. Should this index become corrupted as might happen, for example, if a power failure aborted the program, this option allows you to reconstruct this vital file.

## **Change Password**

In order to provide an additional level of security you may assign a four character password when you create a new data file. You can reassign this code during normal usage; however, you must supply the old code to begin the session. If you forget your password, you must take your diskette to the Registrar's office to regain access.



## Chapter 2

### A Guided Tour of PC-Registrar

In this chapter we present a quick, gentle introduction to routine usage of PCR as a specialized database program. Here, we consider only the filing and printing functions. In a second, more detailed example we describe all of the features of the PCR from the automatic creation of a class list from a data file supplied by the Registrar to the automatic creation of a term summary file that you return to the Registrar. Throughout the User's Guide boldface lines describe general steps; bullets (•) identify specific steps.

Before you begin:

Since the program has not been copy protected, use the normal disk operating procedures to make a backup of the distribution diskette. You also need a separate formatted data diskette. Format the data diskette *before* you begin the PCR program.

- Make a precautionary backup of the distribution disk and format a data diskette.

The PCR disk does not contain a system file so you must either start the computer with a system disk or transfer ALL the PCR files to a disk initialized with your system files.

#### Activate PC-Registrar

With your system active (and the A:> or C:> prompt present) place the program diskette in drive A or transfer the program to the fixed disk (C:).

- type: PCR <enter> Note: <enter> means press the enter key.

The program loads and initializes by loading the various data files.

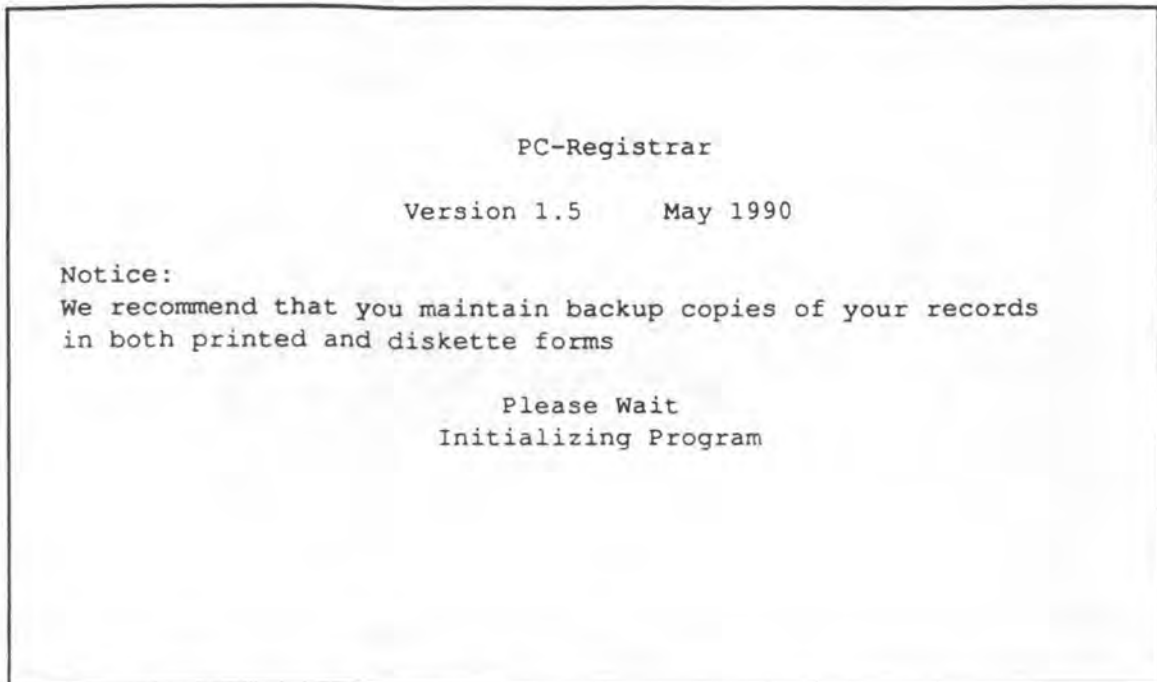


Fig 2.1 Program Initialization Screen

### Some program conventions

The program follows a consistent pattern throughout.

1. The program is *menu-driven*. At a decision point whenever feasible you have a list of options in menu format. This style is especially convenient for the novice or inexperienced user, yet the response is quick enough not to delay the experienced user.
2. Each menu contains instantaneous *on-screen* help . To obtain menu help press the special function key F1 at the top left of the keyboard. Press any key to restore the original contents of the screen without any side effects.

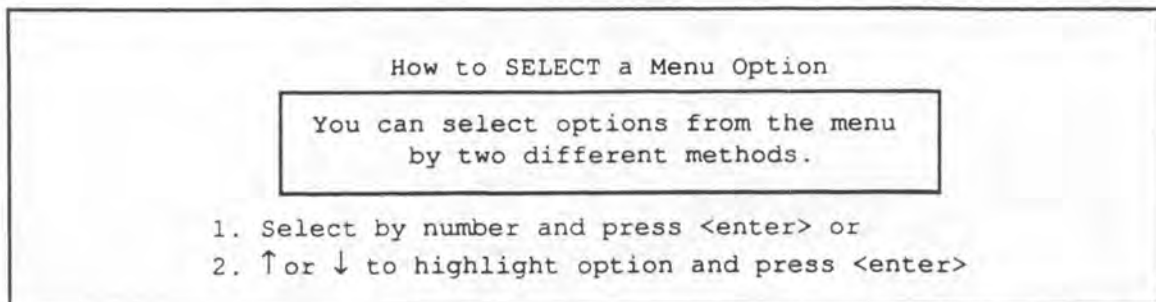


Fig 2.2 Select Help Screen



3. The *special function keys* are utilized. These keys allow you to immediately issue commands with a single keystroke. In general the keys are organized according to sequence of usage with initial usage at the top and exit at the bottom. For example, the keys at the top of the special function key pad (F1 & F2) provide help, and the bottom right key (F10) is the normal exit with acceptance.

4. The ESC key allows you to leave a level in the tree structure of the program **without** saving data. Repeated use of ESC always brings you back to the main menu.

5. *Prompts* and typed *input* always occur at the bottom of the screen.

### Identify your data files

In the following discussion we assume that your program disk resides in drive A and your data disk resides in drive B. PCR is disk-based so changes are continually made to the data file. For small courses (less than 50 students) the data files may also reside on the program diskette. Otherwise, you need a two drive configuration. The collection of student data records ( with .G48 file name extension) and an index file (.IND extension) must always be present on the same diskette. Some operations such as sorting may also require overflow disk space; therefore do not utilize the entire diskette with the data and index files.

Make your selection of the data disk drive with the following menu.

06/03/1990	Data Disk Drive Selection
Copyright 1990 Cooke Publications, Ltd.  Members of the Cornell Faculty may use this program on a royalty- free basis, making backup copies as needed.  All other rights including external distribution are reserved.  Press the F9 key for further information.	1. Drive A: 2. Drive B: 3. Drive C: 4. Drive D:   <div style="display: flex; justify-content: space-around;"> <span><span style="border: 1px solid black; padding: 2px;">F1,F2</span> Help</span> <span><span style="border: 1px solid black; padding: 2px;">Esc</span> End Init.</span> </div>
Select DATA DRIVE by Number =>	

Fig 2.3 Data Drive Selection Menu

Today's date is at the top left corner of the screen. Immediately below the date is the copyright notice. Press F9 for additional information about the use and distribution of this program.

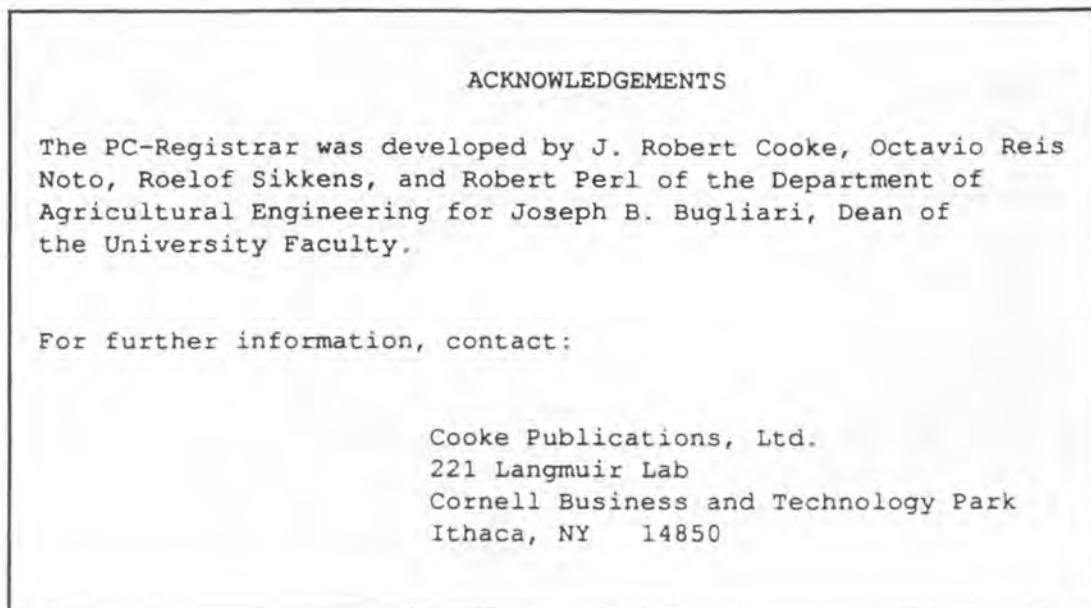


Fig 2.4 Acknowledgment Screen

Press F1 to receive the instructions (shown earlier) on making menu selections. Press F2 to receive additional instructions specific to this menu on data disk drive selection.

Select data disk drive.  
The data files with extensions .G48 and .IND must be on the same disk. Press 'Esc' to end program.

Fig 2.5 Data Disk Drive Selection Help

- Use the down arrow to highlight Drive B: and press *enter* if the data diskette is in drive B, as assumed above.

Now specify the specific course file you wish to use.

Enter Name of DATA FILE (no spaces) => \*.G48

Fig 2.6 Data File Prompt

Enter the name of your course file using up to 8 characters. ***Spaces and periods are prohibited !!*** A period and the extension (.G48) will be added by the program. Simply press *enter* to get a list of all the possible grade files on the previously selected drive.

- press *enter*

06/03/1990	
Copyright 1990 Cooke Publications, Ltd.	
Member Faculty program free b backup	<div style="border: 1px solid black; padding: 5px;"> <p>AGEN100.G48</p> </div>
All ot includ distrib reserv	Use arrow keys to highlight file, Press Enter to select.
Press the F9 key for further information.	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px 5px;">F1,F2</div> Help           <div style="border: 1px solid black; padding: 2px 5px;">Esc</div> End Session         </div>
Enter Name of DATA FILE (no spaces)=> *.G48	

Fig 2.7 Data File Selection

That file name and any other PCR grade files that happen to be on the diskette appear in the menu on the screen.

- Select AGEN100 by number or by pointing with the cursor and then press enter .

We assigned the 4-character access password EZRA to this file when we created it.

Enter 4 character password=>

Fig 2.8 Password Input Prompt

- Type: EZRA and press *enter*

Next, the program displays course information. If you were creating your own files, you would supply this information.

06/03/1990	Course Information
Copyright 1990 Cooke Publications, Ltd.  Members of the Cornell Faculty may use this program on a royalty- free basis, making backup copies as needed.  All other rights including external distribution are reserved.  Press the F9 key for further information.	Instructor's Name :Cooke, J. Robert Course Name :Intro Comp. AE Course College Code :04 Course Department Code :020 Course Number :100  Version 1.5 May 1990  <div> <input type="button" value="F1"/> Help             <input type="button" value="F10"/> Accept             <input type="button" value="Esc"/> End Info.           </div>
J: Cooke, J. Robert MSG: F1-Help ↑, ↓ Prev, Next F1d Enter-Chg F1d Tab-C1r ESC-Cancel F10-Accept	

Fig 2.9 Course Information Screen

Explore the editing capabilities using the commands listed at the bottom of the screen. If you press enter the program preserves the current contents of the field. While you edit the field, the original field contents appear at the bottom of the screen. The up and down arrows allow you to scroll through the fields.

- Press F1 to receive additional editing instructions. Any keypress restores the original screen.
- Press F10 when you have completed all fields to your satisfaction.

Remember that F10 is the accept key?

The Main Menu controls access to all program modules.

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Fig 2.10 Main Menu Screen

- Press F2 to obtain a more detailed explanation of the options.

Main Menu Options	
Template Design	:Allows you to define column headings and anticipated entries in each column(category).Can be updated later.
Add New Records	:Creates a blank record for manual addition to class list.
Update Records	:Edits existing records. Searches in alphabetical or arbitrary order by (partial) name. Optionally restricts search by TA. Select field for automatic cursor placement.
Enter Repeatedly	:Allows record updates with same data.
Special Functions	:Calculates means, standard deviations, class ranks, histograms, weighted averages, letter grade conversion, internal student ID.
Output	:Screen, printer or disk output with user-selected fields. Produces 1-line/student or complete student reports.
Delete	:Moves a record to inactive file.
Import/Export	:Creates class list, adds text file grades to records and produces file output for the Registrar.
Change Course	:Selects another data file.
Re-Build Index	:Repairs corrupted index file.
Change Password	:Re-assigns access password.

Fig 2.11 Main Menu Help Screen

In this quick tour we explore items 2-7. We look at the remainder in the next, more detailed example. Carefully review the help screen.

- Press F9 to get additional general information about the program. Any keypress returns you to the main menu.

### Update class records

- Select menu item 3, Update Existing Records, and press *enter* .

```
Full of partial name to MODIFY (Last,First)=>
```

Fig 2.12 Update Existing Records Prompt

You can retrieve the student records in an arbitrary order; you need not sort the graded papers. If you enter a student's name in entirety (Last name, comma, first name, middle name) the program retrieves the record as soon as you press enter. Often, however, only a partial entry is sufficient to uniquely identify the student. If you enter too few characters to make a unique match, the program presents a menu of the names which do match your partial entry for a final selection by number or by pointing with the arrow keys. For classes with fewer than 100 students you may type only one or two letters and then pick the student by number or cursor. Use any combination of upper and lower case letters for the name search. (Simply press *enter* to locate the first ten names.)

```
To select a student, enter the first few letters of the last name.  
If more than one student name matches, select from the menu list.  
Simply press <enter> to locate the first 10 names.
```

Fig 2.13 Student Selection Help

In this example with a hypothetical class list, the user typed the letter "B" and used the down arrow to highlight the student's name. Pressing enter quickly locates the student's file.



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	<div>F1,F2 Help</div> <div>Esc End Modify</div>
Select by number or highlight with cursor and press ↵=>	

Fig 2.14 Select Student Screen

Name:Brown, X		CUID:276562		SSN:145-06-5583		IntID:		TA:	
Cl:1Col:02Lec:05Lab:01Sec:06Credit:0200Gr_Opt:2Course:Intro Comp AE									
No.	HW	Quiz	Lab	Paper	Prelim	Exam	Rank	Average	
1	12	2			93	78		75.2	
2	15	5			66				
3	16	6			77				
4	17	7						Grade	
5	15	5						C	
6									
7									
8									
9									
10								Date	
								06/03/1990	
11									
12								Students	
13								86	
14									

J:Brown, X  
MSG:Student's Name (Last,First) or partial name  
F1-Help ↑,↓ Prev,Next Fld Enter-Change Fld Tab-Clr ESC-Cancel F10-Accept  
F4 Select Fld F5 First Student F6 Last Student F7 Prev Student F8 Next Student

Fig 2.15 Student Data Record

### The Data Record

The program presents all student personal data in the box at the top of the above figure. You can enter this data manually and edit it at any time. You control movement of the cursor from field to field by the commands listed at the bottom of the screen.

- Press F1 for a more extensive list of editing commands. When ready press any key to restore the original screen.

Editing	
Enter	:Accept current data in current field. (Field default displayed at bottom of screen.)
↑ or ↓	:Moves to next/previous field without alteration of field.
← or →	:Moves cursor left or right in current field.
Tab	:Clears current field and moves to next field.
BkSpc	:Deletes character to left in current field.
Del	:Deletes character in current field.
Ins	:Inserts a blank in current field.
Esc	:Abandons record WITHOUT updating any fields.
F10	:SAVES entire record before leaving.
Function Keys	
F4	:Selects field to be edited.
F5	:SAVES record and locates FIRST record.
F6	:SAVES record and locates LAST record.
F7	:SAVES record and locates PREVIOUS record (same TA option).
F8	:SAVES record and locates NEXT record (same TA option).
F10	:SAVES record and requests another student name.

Fig 2.16 Editing Help Screen

As you move the cursor through the fields, the program highlights the current field and aligns it at the left of the field. Press enter to accept the current contents of the field.

- Rather than using the cursor keys repeatedly press F4 to select a specific field you wish to edit.

Name:1		CUID:2		SSN:3-4-5		IntID:6		TA:7	
Cl:8		Col:9		Lec:10		Lab:11		Sec:12	
Credit:13		Gr_Opt:14		Course: Intro Comp AgEng					

No.	HW	Quiz	Lab	Paper	Prelim	Exam	Rank	Average
1	15	27	37	47	52	55	56	61
2	16	28	38	48	53		57	
3	17	29	39	49	54		58	
4	18	30	40	50			59	Grade
5	19	31	41	51			60	62
6	20	32	42					
7	21	33	43					
8	22	34	44					
9	23	35	45					
10	24	36	46					Date
11	25							
12	26							Students
13								
14								

Enter Field number. (1-62)=>

Fig 2.17 Template Fields by Number

- Enter 54 to select prelim 3 for grade entry.

This process has the added benefit that as you search for other student names the cursor automatically moves to this field for your entry.

- Press *F10* after adding (or updating) the score for the third prelim for this student.

If several teaching assistants (TAs) graded the student papers, you can restrict your searches for other students to the specific TA of this first search.

If you do answer "Y", the program restricts all subsequent searches to students having the same TA entry at the top right of the screen. (The TA field could be used to restrict the search for whatever you might have placed in the TA field.) To remove the TA specific restriction, simply press *ESC* to return to the Main Menu and select *UPDATE EXISTING RECORDS* again.

In addition to the editing commands listed above, six of the special function keys have assigned meaning during the update process. *F4*, select field for editing, has already been discussed, as has *F10* for saving the record to diskette. The remaining four, *F4* - *F8*, make it possible for you to update or examine records in alphabetical order. *F5* saves the current record to diskette and then displays the first (alphabetical) record. *F6* correspondingly saves the current records and fetches the last student record. *F7* and *F8* save the current record and locate the previous or next record, respectively.

## Add A Student To The Class List

- Press ESC as often as necessary to return to the Main Menu.
- Select option 2, **Add New Records**, to obtain a blank template.

Name:				CUID:	SSN:	- -	IntID:	TA:
Cl:	Col:	Lec:	Lab:	Sec:	Credit:	Gr_Opt:	Course:	IntroComp AgEng
No.	HW	Quiz	Lab	Paper	Prelim	Exam	Rank	Average
1								
2								
3								
4								Grade
5								
6								
7								
8								
9								
10								Date
11								
12								Students
13								
14								

↓:

MSG:Student's Name (Last,First) or partial name

F1-Help ↓,↑ Prev,Next F1d Enter-Change F1d Tab-C1r ESC-Cancel F10-Accept

Fig 2.18 Blank Student Record

Fill the blanks with the student's personal data. We generated the sample hypothetical class list this way.

- When ready, press **F10** to accept the record.

Another form automatically appears. As usual, press ESC after you have made all additions. **NOTE: You must use F10 to accept your last record; then use ESC when the screen shows a blank record!**

### Drop A Student From The Class List.

- Press ESC as often as needed to return to the Main Menu.
- Select "Delete Records"

Notice that this function has been isolated from the "Add Record" and "Update Existing Records" to prevent inadvertent erasure of a data file.

Here, you use the same procedures you used to locate a record in "Update Existing Records". The one major difference is the enabling of the F3 key and the disabling of F10 by the program. A flashing message at the right of the screen reminds you that a destructive operation is in progress.

F3 TO DELETE

If you change your mind about deleting this record, press ESC to abort the process non-destructively. You are given a final opportunity to reaffirm your decision to delete a record before the record is removed from the file; respond negatively if you are not sure about the deletion.

### Special Functions

Press ESC as often as necessary to reach the Main Menu; then select option 5, **Special Functions**.

06/03/1990	Special Functions
<p>Copyright 1990 Cooke Publications, Ltd.</p> <p>Members of the Cornell Faculty may use this program on a royalty- free basis, making backup copies as needed.</p> <p>All other rights including external distribution are reserved.</p> <p>Press the F9 key for further information.</p>	<ol style="list-style-type: none"> <li>1. Calculate class means &amp; std dev</li> <li>2. Display class means (after 1)</li> <li>3. Display class std. dev. (after 1)</li> <li>4. Rank scores</li> <li>5. Assign weight for each grade</li> <li>6. Assign maximum score for each grade</li> <li>7. Calculate wt. avg. for all (after 5&amp;6)</li> <li>8. Calc. avg. for 1 student (after 5&amp;6)</li> <li>9. Calc. course letter grades (after 7)</li> <li>10. Assign student internal ID's</li> <li>11. Change grade format: letter vs number</li> </ol> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span style="border: 1px solid black; padding: 2px;">F1, F2</span> Help           <span style="border: 1px solid black; padding: 2px;">Esc</span> End Calc.         </div>
Choose action (Weights must be assigned prior to grade calc.)=>	

Fig 2.19 Special Functions Menu



Press F2 for a **Special Functions** help menu.

Special Functions Help	
Class mean and standard deviation	:Use cursor to locate field; then press space bar to select (or unselect). Select any combination of fields. Show results with 2&3.
Class rank	:Select by number a field to be ranked, and then designate a computation field for the results.
Item maximum	:Individual graded items may be based upon an arbitrary maximum number of points. The default is 100.
Item weight	:A student's composite numerical average is based upon weights for each individual graded item. A weight of 0 may be assigned for future graded items.
Weighted Averages	
Course letter grades	:Calculates histograms, sets numerical range for letter grade conversion, and assigns letter grades.
Internal ID	:Assigns course-specific confidential ID for public grade posting.

Fig 2.20 Special Functions Help Screen

### Characterize The Grade Distribution Of The Class

You can compute and display the mean and standard deviation for any field using options 1-3 of the Special Function module.

- Select fields for which you wish to compute the mean and standard deviation by highlighting a field using the up and down arrow keys and press the space bar to designate the highlighted field for computation. Repeated pressing of the space bar alternately selects and unselects a field.

Toggling	
Use the ↑ or ↓ cursor keys to point to a field. Successive presses of the <space bar> select and unselect the field. The bottom 3 lines of the screen show the output line usage.	
ESC	: Ends session
F4	: Select field
F10	: Accepts format

Fig 2.21 Toggling Help Screen

- Use option 2 and 3 to display the computed results. The name field will contain CLASS MEANS or CLASS STD DEVIATIONS in the name field.
- Press ESC as many times as needed to return to the Special Function Menu.

### **Rank The Students According To The Recorded Grades**

You can obtain a student's class standing as reflected by the ranking of scores on a prelim or other graded item using option 4. Students with the same score receive the same rank and the numbering is adjusted accordingly.

- Activate option 4, Rank Scores.

You must designate the grade field used for the ranking and you must specify one of the computed fields under the heading of Rank to store the results. The thin vertical line on the student record form separates the entered and computed fields. The disk reading and writing process consumes most of the time for this operation.

### **Calculate The Weighted Average For Each Student**

We assume that you have now entered all grades and you wish to compute the weighted averages. If necessary, return to the UPDATE option in the Main Menu to complete all entries. [NOTE: If any graded fields remain unassigned, the weighted average field will be filled with \*\*\*\* to indicate that the program could not compute the average for that student.]

- Press ESC as often as needed to return to the main menu.
- Select the "Special Function" option.
- Request help by pressing F2.
- Press any key to return to the Special Function Menu.

## Assign Grade Weights

- Select option 5 to assign the weights for each grade entry.

Assign a decimal fraction for the weight of each grade. The wieghts must total 1.00 for the final grade.							
No.	HW	Quiz	Lab	Paper	Prelim	Exam	Rank
1	.02	.02			.15	.35	
2	.02	.02			.15		
3	.02	.02			.15		
4	.02	.02					
5	.02	.02					
6							
7							
8							
9							
10							
11							
12							
13							
14							
							Grade
							Total weight
							(Must = 1.00)
							1.00
							Date
							Students

MSG:

F1-Help ↑,↓ Prev, Next Fld Enter-Change Fld Tab-Clr ESC-Cancel F10-Accept

Fig 2.22 Grade Weight Template

- Assign a decimal fraction to each of the individual grade entries.

The total must be 1.00; however, you may override this requirement when you are asked whether you wish to "Edit or Save (E/S)?" the weights which do not total 1.00. For example, if you wish to rank students at mid-term when all grades are not yet available, the unreported items may be assigned a weight of zero.

You can partition the weight assigned to each grading category (i.e., column) among the individual entries of each column.

- Press **F10** when all entries are satisfactory.

See the Reference Section for numerical examples and the mathematical details of this process.

## Assign Grade Maximum Scores

- Select option 6 to assign maximum scores for each entry.

Specify the maximum points for each graded item. The default is 100.							
No.	HW	Quiz	Lab	Paper	Prelim	Exam	Rank Average
1	20	10	100	100	100	100	Grade
2	20	10	100	100	100		
3	20	10	100	100			
4	20	10	100	100			
5	20	10	100				
6	100	100	100				Date
7	100	100	100				
8	100	100	100				
9	100	100	100				
10	100	100	100				
11	100						Students
12	100						
13							
14							

↓:

MSG:

F1-Help ↑,↓ Prev, Next Fld Enter-Change Fld Tab-Clr ESC-Cancel F10-Accept

Fig 2.23 Grade Maximum Template

As with option 5, you must assign these values before you attempt to compute the weighted average. (Of course the program assumes you previously entered the grade entries.)

Next you must assign the maximum score for each entry. Again, see the Reference Section for details on the role this plays in computing the weighted average.

- Press F10 when all entries are satisfactory. (You could also have pressed ESC to abort the process.)
- Select option 7 or 8 to compute the weighted averages for all students or an individual student, respectively.

The program stores the weighted average in the computed field reserved for this purpose. Any values which could not be computed are recorded as \*\*\*\*. **Note:** Students that have the final grade of \*\*\*\* must be corrected either by entering the correct grades or by entering zeros in for missing grades.

## Assign Final Letter Grades

You can also automatically handle conversion of the numerical weighted averages to final letter grades.

- Return to the Special Function Menu, select option 9, Calculate Course Letter Grades

06/03/1990	Assigning Final Grade
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Select by number of highlight with cursor and then press ↵	

Fig 2.24 Assigning Final Grade Menu

The final grade menu give you four options. You must specify the numerical range for each letter grade (option 3) before you can calculate final grades for students.

- Select option 3, Assign the lower limit for each grade.

06/03/1990	Number = lower limit for grade
Copyright 1990 Cooke Publications, Ltd.  Members of the Cornell Faculty may use this program on a royalty- free basis, making backup copies as needed.  All other rights including external distribution are reserved.  Press the F9 key for further information.	1. A+ 97.00
	2. A 93.00
	3. A- 90.00
	4. B+ 87.00
	5. B 85.00
	6. B- 80.00
	7. C+ 77.00
	8. C 73.00
	9. C- 70.00
	10. D+ 67.00
	11. D 63.00
	12. D- 60.00
	13. S 70.00
	14. Calculate distribution
<div style="display: flex; justify-content: space-between; align-items: center;"> <span>F1,F2 Help</span> <span>F10 Accept</span> <span>Esc End Grade</span> </div>	

Select by number or highlight with cursor and then press ↵

Fig 2.25 Grade Distribution Template

You can modify these ranges. Simply highlight the grade or enter the number and you will be prompted for the lowest value corresponding to the letter grade. Option 14 can be helpful in determining the intervals. It gives you the letter grades with the number and percentage of students in each interval. Remember to press F10 before exiting to save the grade distribution. The distribution is saved each time it is updated so that grades may be recalculated using the same distribution.

Options 1 and 2 on the Assigning Final Grade menu provide you with an opportunity for a graphical presentation of the grades with a histogram. Any set of student grades can be plotted in a histogram. The student grade template will appear on the screen with numbers of the grade locations. Choose the field number you wish to display and you will further be prompted for the limits of the histogram as shown below.

Choose data field for Histogram =>

Enter the lowest limit of the histogram <0> =>

Enter the upper limit of histogram <100> =>

Fig 2.26 Histogram Information

The program calculates the number of students assigned each grade. (Note: the upper limit for the histogram is five when the data to be plotted is letter grades).



With option 1, the grades are plotted on the screen if you have the necessary graphics hardware. Option 2 prints the histogram on the printer. Check to see that the printer is turned on and online.

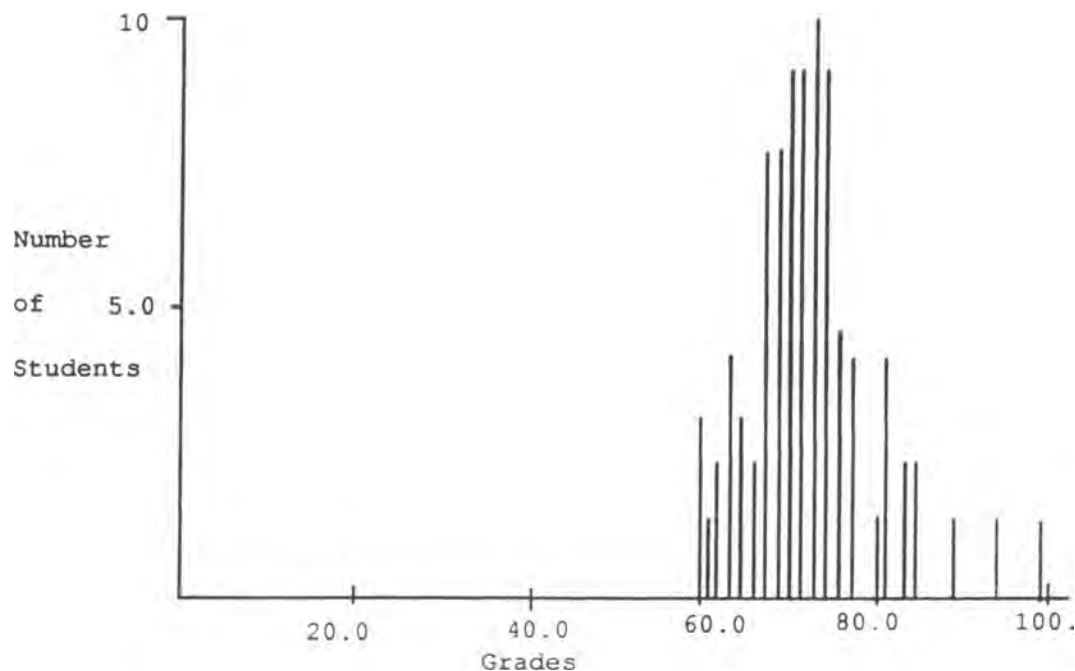


Fig 2.27 Class Histogram for Weighted Average

### Course-Specific Student ID

With option 10 you can automatically generate a unique list of random numbers to identify each student. This feature allows you to publicly post test results without violating the student's right to confidentiality. If you use this command more than once, the program erases previously assigned IDs.

### Change Grade Format

With option 11 you can change the grade format that was originally set up when you began the course database. This change does not affect data that was already entered, you must make those changes on your own.

## Output

Returning to the main menu, we can now look at option 6, Output. The program provides two types of output reports: class lists with selected fields in a one line per student format and student reports that contain a student's composite record. The instructor uses the former to administer the course and submits the latter to the student for end-of-term verification.

06/03/1990	Output
Copyright 1990 Cooke Publications, Ltd.  Members of the Cornell Faculty may use this program on a royalty- free basis, making backup copies as needed.  All other rights including external distribution are reserved.  Press the F9 key for further information.	1. Select output fields 2. Class list (1 line/student) (after #1)  3. A student record (student/page) 4. All student records (student/page)  <div style="display: flex; justify-content: space-around;"> <span><span style="border: 1px solid black; padding: 2px;">F1,F2</span> Help</span> <span><span style="border: 1px solid black; padding: 2px;">Esc</span> End Output</span> </div>

Select by number or highlight with cursor and then press ↵

Fig 2.28 Output Menu Screen

- Press F2 for help.

Output Help	
Select output fields	:Selects fields in any order using cursor and space bar. (Use 80 and 120 characters/line.)
Class list	:Outputs selected fields to screen, printer, or file.
Student record	:Outputs complete student records.

Fig 2.29 Output Help Screen

Option 1 creates a report where each line contains the data for a student; the choice of fields and their order is user-defined. Again use the same toggling sequence, press *space bar*, to designate field to be printed similar to selecting fields for calculating means and standard deviations.

The first two fields you select have special significance. The program automatically sorts by these fields. For example, if you select the student name first and the just entered grade field next, the program produces an alphabetical list by student name. Since the program prevents the entry of identical student names the secondary sort will not be meaningful in this case. On the other hand, if you select TA or section as the first field and the student name as the second field, you get a list for each TA or section with the students sorted alphabetically within each section.

Because a name can take up to 25 characters, you may elect to use a truncated form (you will be prompted with the options). The current length of the line is displayed graphically at the bottom of the screen as you add each field. The pages may be assigned a header.

You can route the output to three different devices: screen, printer, and diskette file.

06/03/1990	Output Device Selection
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Select by number or highlight with cursor and then press ↵	

Fig 2.30 Output Device Menu

Output might have the following form.

Name	CU_ID	HW_1	Qui_1	Exa_1
Albright,G	307446	11	1	96
Aneshansley, I	310066	13	3	85
Bart, B	311957	13	3	75
Bartsch, E	301814	12	2	75
Bates, W	284216	13	3	74
Becker, T	311675	13	3	75
Boss, F	309343	13	3	75

Fig 2.31 Output Results

The grade headers consists of the first four characters of the column name and a number to indicate the row. Printed output can be in either 80 or 132 characters per line format. The program issues the command for character size compression if the fields you select total more than 80 characters. Screen output scrolls a full screen with each keypress.

The printed output for a completed student record has the following form.

```

Name      :Brown, X

CU_ID      : 276562
Soc Sec #  : 145-06-5583
Internal ID# :
Student's Class : 1
Student's College : 02

Course Department : 04
Course Number : 100
Lecture Number : 05
Lab Number : 01
Section Number : 01
Credit Hours : 02
Grade Option : 2

TA :

      HW      Quiz      Lab      Paper      Prelim      Exam      Rank
1.    12        2          93        78        58
2.    15        5          66
3.    16        6          77
4.    17        7
5.    15        5

6.
7.
8.
9.
10.

11.
12.
13.
14.

Weighted average = 75.2

FINAL GRADE = C

```

Fig 2.32 Individual Student Output

You must supply the file name for output sent to a diskette text file. (The complete record format above can not be sent to a diskette file - only to the printer.) You can reformat output sent to a file using your word processor. You may also wish to use this output as input for a spreadsheet or statistics program. You may even write your own specialized program in Turbo Pascal or some other high level language.

You have now reviewed all of the steps needed to make use of the program in routine situations. In the next section we examine the remaining features.





## **Chapter 3**

### **Advanced Techniques**

In this section we illustrate the more specialized features of PCR. In particular, you can

- \* change the allocation of the data fields on the student record.
- \* automatically transfer your class list from a text file created by the Registrar's office or with your favorite word processor.
- \* automatically update your class list after the drop/add period has ended.
- \* automatically merge a text file of scores created with a word processor or as output from a machine scoring device.
- \* transfer scores to a text file for manipulation by another program such as a spreadsheet, data base, or a custom program to handle your unique grading procedures.
- \* automatically prepare a data file to report the term results to the Registrar.
- \* handle housekeeping chores.

If you have not just completed the simple example in part one, press the ESC key until you reach the Main Menu.

## Template Design

To accommodate the differences between courses we provide a form design capability. The student identification section of the record shown at the top of the following figure (repeated from the discussion of the select field command) has a fixed format as does the rightmost column containing the weighted average and course letter grade.

Name:1		CUID:2		SSN: 3 -4 - 5		IntID: 6		TA: 7	
Cl: 8		Col: 9		Lec:10		Lab:11		Sec:12	
Credit:13		Gr_Opt:14		Course: Intro Comp AgEng					
No.	HW	Quiz	Lab	Paper	Prelim	Exam	Rank	Average	
1	15	27	37	47	52	55	56	61	
2	16	28	38	48	53		57		
3	17	29	39	49	54		58		
4	18	30	40	50			59	Grade	
5	19	31	41	51			60	62	
6	20	32	42						
7	21	33	43						
8	22	34	44						
9	23	35	45						
10	24	36	46					Date	
11	25								
12	26							Students	
13									
14									

Fig 3.1 Template Fields by Number

However, you can define the remaining 46 fields numbered 15 through 60. You can assign up to 14 to a given column. Also, you can define the column headings. Normally you perform this formatting of the template once for the term. You can add or remove additional fields up to the limit of 46. Removing fields causes the deletion of data in the deleted fields.

- Select option 1, Template Design, from the main menu.

Template Design					48 Field Version
Column	Heading Name	# of Fields	# of Fields with data	Max. # of Fields	Total # of Fields Defined
1	HW	12	12	14	48
2	Quiz	10	10	14	
3	Lab	10	10	14	Note 1 field for Avg and 1 field for Grade are automatically assigned.
4	Paper	5	5	14	
5	Prelim	3	3	14	
6	Exam	1	1	14	
7	Rank	5	5	14	

Template design should be done at the beginning of the course. Change the number of fields as needed but restrict the number of changes to avoid erasing data that might have been previously entered. (The program will warn you before that happens.) The Heading Name Rank cannot be changed.

\* Make sure that the files .TSC and .FMT are not erased otherwise  
\* the data will be permanently scrambled.

Fig 3.2 Template Design Screen

The columns number from left to right. Normally you place any unused columns having a blank heading at the right, furthest from the row numbering. Fields may be added or deleted by changing the number of fields in the third column.

- Select a grading category by highlighting the box with cursor movement.
- Enter the new heading and press enter .

Next move the cursor to the corresponding column for the number of grades. Enter the number of data fields (1 to 14) for that category.

- Enter the number of data fields (1 to 14) you wish to place in this column. Enter 0 if you wish to remove a column heading.

Note: When reducing the number of grades, a grade template will appear on the screen with field numbers in the column you have chosen. Select the field number to remove from those available. This process will continue until the required number of fields have been deleted.

- Press F10 to accept the design after making other adjustments as desired.

**Warning: Redefinition of the template to remove a field after you record data will result in a loss of data. If you must remove a field, work with a duplicate of your data files until you can verify that the format change was successfully made. We recommend that you be cautious and only add fields.**

Better yet, plan ahead so that template changes are unnecessary.

### Import & Export Data

We placed an hypothetical sample data file named AGEN100.F89 on the distribution diskette for this exercise on importing data.

- Press ESC as many times as necessary to return to the Main Menu.
- Select option 8, Import/Export Data from the main menu.

06/03/1990	Import/Export
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Select by number or highlight with cursor and then press ↵	

Fig 3.3 Import/Export Menu

- Press F2 to review the help screen.

<p style="text-align: center;">Import/Export Help</p> <p>Registrar Import:Creates class list using Registrar supplied file. Updates class list using Registrar supplied file. (Creates inactive file;flags changed records.)</p> <p>Import Text File:Matches records;places data in user-designated field(s).</p> <p>Registrar Export:Creates file grade list for Registrar</p>
---

Fig 3.4 Import/Export Help Screen

- Press any key to resume.
- Select "Import data from Registrar".

06/03/1990	Import/Export
Copyright 1990 Cooke Publications, Ltd.  Members of the Cornell Faculty may use this program on a royalty- free basis, making backup copies as needed.  All other rights including external distribution are reserved.  Press the F9 key for further information.	The information from the Registrar con- cerning lecture, section, and lab numbers might not be current or updated. Indicate whether to modify this data in your file with the Registrar's data.  <div style="display: flex; justify-content: space-around;"> <span><span style="border: 1px solid black; padding: 2px;">F1,F2</span> Help</span> <span><span style="border: 1px solid black; padding: 2px;">Esc</span> End Im/Export</span> </div>

Modify lec, sec, lab data (Y/N)? =>

Fig 3.5 Import Data From Registrar

Identify the Registrar's file.

Enter file name to be read <\*.\*)>=>

Fig 3.6 Registrar Data File Prompt

If this were an update of your files, you might want to preserve a list of changes to your current records. Files from the Registrar only affect the fields in the student information box, not the grade fields.

Create list of deleted records (Y/N)? =>

Fig 3.7 Create Deleted list option

- Enter the name you wish to use for the inactive file.

Remember to follow the usual conventions for naming files. In particular, you can specify a drive, and the name that can have at most 8 characters (no blanks allowed). The program automatically adds the period and extension. In the example

we use a D prefix to identify the file of dropped students.

Enter INACTIVE list file name <DAGEN100> =>

Fig 3.8 Enter Inactive File Name

These inactive files retain the original format, and you can review them as you would your class list if you select that file using option 9 of the main menu.

- Press ESC as often as needed to return to the Import/Export Menu.

### Import Data From A User Text File

In contrast with the Registrar's data, you may wish to place data within the grade fields. You can arrange data in the input text file in any order. You must have at least two data entries for each student with a "carriage return" separating each student's entries. Field alignment (i.e., beginning column) must be maintained.

You have two option when importing from a user text file. The first option is to merge the data into current student records. The second option is to append data into new student records. This second option could be used to set up a student database is the file containing the student information is not in the Cornell University Registrar format (See Appendix for format). The menu showing the two choices is shown below.

06/03/1990	Import/Export
Copyright 1990 Cooke Publications, Ltd.  Members of the Cornell Faculty may use this program on a royalty- free basis, making backup copies as needed.  All other rights including external distribution are reserved.  Press the F9 key for further information.	1. Merge Data into current records 2. Append Data into new records  <div style="display: flex; justify-content: space-around;"> <span><span style="border: 1px solid black; padding: 2px;">F1,F2</span> Help</span> <span><span style="border: 1px solid black; padding: 2px;">Esc</span> End Import</span> </div>
Select by number of highlight with cursor and then press ↵	

Figure 3.9 User Import Menu



When choosing the first option on the user import menu, you can use either the student's name or CU\_ID and the first three letters of the last name to make positive matches for correct data transfer. Since students sometimes write their names illegibly and you need a character-for-character match to assure correct matching of records, the six digit CU\_ID is probably the more satisfactory basis of matching the grades with the student.

06/03/1990	Import/Export
Copyright 1990 Cooke Publications, Ltd.  Members of the Cornell Faculty may use this program on a royalty- free basis, making backup copies as needed.  All other rights including external distribution are reserved.  Press the F9 key for further information.	You may use the student name or CU_ID to assure record matches when importing data.  If using the names option, the spelling, including commas, must match EXACTLY.  If using the CU_ID option, the CU_ID and the first three letters of the student name must match EXACTLY. This option takes longer and requires extra disk space.  <div style="display: flex; justify-content: space-around;"> <span><span style="border: 1px solid black; padding: 2px;">F1,F2</span> Help</span> <span><span style="border: 1px solid black; padding: 2px;">Esc</span> End Im/Export</span> </div>
Match records by CU_ID (Y/N)? =>	

Fig 3.10 Import from user file

In addition to the student identifying field you can transfer one or more grades. Use the same procedures here that you used for identifying output fields to identify the input fields (See the Output section procedures discussed earlier in this chapter). The input fields should be identified in the order that they appear in the file you want to import. After you select a field, PCR will prompt you for the width of that data field in the import file. This width should also include spaces that separate the information in the file. After you have selected all the desired input variables, PCR will read the first line of the import file and display it on the screen. At this time you can check to see whether the widths that you specified were correct. If the data is not being read in the correct format, go back and specify the widths again. Repeat this process until you PCR reads the data in the correct format.

The program automatically handles records which match by importing the data into the correct fields. It saves those which do not match for manual entry in a file with the same filename as the import file, but with the extension .BAK.

The second option on the user import menu works the same, except it simply

appends the information to the existing student database. If the student name is not read from the datafile, a number is assigned to the student name field as the program uses the name field for keeping the student index. Also, if a student with the same name already exists in the database, PC-Registrar adds a number to the student name to distinguish the students.

### **Export data to the Registrar**

When you use this option the program automatically extracts the information needed to process the class lists.

- Select "Export data to Registrar"

The program creates a data file having the same name as your course file (e.g. AGEN100) with a file name extension of ".REG".

- When finished, Press "ESC" as often as needed to return to the Main Menu.

### **Change Drive Or Course**

This option allows you to select another course file which may be on the same or another drive. The commands are identical to those of the initialization section above and are not repeated here.

Select drive with .G48 & .IND files. ['ESC' aborts program]=>

Enter name of output file (no spaces) <AGEN100.REG>=>

Fig 3.11 Change Drive or Course Option

### **ReBuild Index File**

If your index file and data file should become incompatible as might occur if the program were terminated abnormally or the diskette had a surface flaw, this command allows you to re-construct the index (.IND) file. Since this process can take several minutes, you have an opportunity to abort this process.

### **Change Password**

You may change the password as often as you wish, provided, of course, you remember the current password in order to gain access to this option. Simply press enter without entering a password if you wish to disable this feature.

- Select "Change Password" from the Main Menu.

06/03/1990	
Copyright 1990 Cooke Publications, Ltd.  Members of the Cornell Faculty may use this program on a royalty- free basis, making backup copies as needed.  All other rights including external distribution are reserved.  Press the F9 key for further information.	A 4-character password is optional.  Enter a non-obvious code or optionally enter none if you do not wish to limit access.  Then press <enter>  [Code may be reassigned later using existing code. If you forget the code, see the Registrar.]  <div style="display: flex; justify-content: space-around;"> <span><span style="border: 1px solid black; padding: 2px;">F1, F2</span> Help</span> <span><span style="border: 1px solid black; padding: 2px;">Esc</span> End Session</span> </div>
Enter 4 character password =>	

Fig 3.12 Change Password Screen

- Review the help screen.

The 4-character access password limits routine access to your data files. If you do not wish to utilize a password, simply press <enter> to enter a null string password. You can modify the password during any subsequent legal access.

Fig 3.13 Change Password Help Screen

- Enter a new password.

The password provides a friendly reminder that access to these files is restricted. Do NOT assume that this minimal security measure can thwart a determined effort to violate the data files. As with manual grade lists, physical security of the diskette is the best protection.

We end this exercise with an important reminder:

**DISKETTES AND EVEN HARD DISKS ARE FRAGILE. Making a backup of the data diskette at frequent intervals is cheap insurance. The printed verification copy you make after each update of the records should be retained as the ultimate backup. Accidents can happen so be cautious.**



## Chapter 4

### PCR Reference Guide

#### Calculation of Weighted Average

The following figures, 4.1, 4.2 and 4.3 contain a typical student record, sample weights and sample maximum scores. The weighted average algorithm incorporated in the program uses the information contained in these three figures to calculate the weighted average for each student. It performs as follows.

Name: Brown, X		CUID: 276562		SSN: 145-06-5583		IntID:		TA:	
Cl: 1 Col: 02 Lec: 05 Lab: 01 Sec: 06 Credit: 0200 Gr_Opt: 2 Course: Intro Comp AE									

No.	HW	Quiz	Lab	Paper	Prelim	Exam	Rank	Average
1	12	2			93	78		75.2
2	15	5			66			
3	16	6			77			
4	17	7						Grade
5	15	5						C
6								
7								
8								
9								
10								Date
								06/03/1990
11								
12								Students
13								86
14								

␣: Brown, X

MSG: Student's Name (Last, First) or partial name

F1-Help ↑, ↓ Prev, Next Fld Enter-Change Fld Tab-Clr ESC-Cancel F10-Accept

F4 Select Fld F5 First Student F6 Last Student F7 Prev Student F8 Next Student

Fig 4.1 Sample Record

Assign a decimal fraction for the weight of each grade. The wieghts must total 1.00 for the final grade.							Rank	Average
No.	HW	Quiz	Lab	Paper	Prelim	Exam		
1	.02	.02			.15	.35		
2	.02	.02			.15			
3	.02	.02			.15			
4	.02	.02						Grade
5	.02	.02						
6								Total weight
7								(Must = 1.00)
8								<input type="text" value="1.00"/>
9								Date
10								
11								Students
12								
13								
14								

J:

MSG:

F1-Help ↑,↓ Prev, Next Fld Enter-Change Fld Tab-Clr ESC-Cancel F10-Accept

Fig 4.2 Sample Weights

Specify the maximum points for each graded item. The default is 100.							Rank	Average
No.	HW	Quiz	Lab	Paper	Prelim	Exam		
1	20	10	100	100	100	100		
2	20	10	100	100	100			
3	20	10	100	100				
4	20	10	100	100				Grade
5	20	10	100					
6	100	100	100					
7	100	100	100					
8	100	100	100					
9	100	100	100					
10	100	100	100					Date
11	100							Students
12	100							
13								
14								

J:

MSG:

F1-Help ↑,↓ Prev, Next Fld Enter-Change Fld Tab-Clr ESC-Cancel F10-Accept

Fig 4.3 Sample Maximum Points



## Sample Calculation

The average is calculated by dividing the student's grade by the maximum possible for that grade. This result is then multiplied by the weight given to the grade. To arrive at the weighted student average, the weighted grades are summed and multiplied by 100. Calculations for the data given in Figure 4.1 is shown below.

$$\begin{aligned}
 \text{Average} &= [+0.02(12/20)+0.02(15/20)+0.02(16/20)+0.02(17/20)+0.02(15/20) && \text{(HW)} \\
 &\quad +0.02(2/10)+0.02(5/10)+0.02(6/10)+0.02(7/10)+0.02(5/10) && \text{(Quiz)} \\
 &\quad +0.15(93/100)+0.15(66/100)+0.15(77/100) && \text{(Prelim)} \\
 &\quad +0.35(78/100)] 100 && \text{(Exam)} \\
 &= +75.2
 \end{aligned}$$

## PCR Programmers' Guide

The PCR program was written in Turbo Pascal™ Version 5.0. The source code is not available for distribution. Cooke Publications, Ltd. maintains the code by making the necessary upgrades to cover additional needs as they are identified and by correcting flaws as they are identified.

## Data Interchange

Designing a program that could deal with the rich diversity of grading practices at Cornell can be a lifelong activity. In order not to enforce a "foolish consistency", we provide a hook for you to access the data for further processing and return to this program. In the Output menu option you can select the fields and their order for output to a text file. If your application puts the data back into the proper format, you can use the Import option to return the data to the PCR data base. The following table provides the format for this purpose.

## Output Format

Format is dependent on the fields chosen when sending output to a file. The values are output with the specified field width and are separated by three blank spaces. A sample line is shown below.

```
FirstFieldChosenbbbSecondFieldbbbThirdField  etc
```

## Input Format

Inputting data from a user file requires that the data be separated by spaces. The data must contain either the student's name or ID number, but preferably both. You have a option of which one of these fields to use as the key for matching the record to the input. Suppose the data was in the following format. The first letter of the name is in the first column of the input file.

```

Albright,G          307446   11      1      96
Aneshansley, I     310066   13      3      85
Bart, B            311957   13      3      75
12345678901234567890123456789012345678901234567890

```

In order to input this file, the following would have to be done. After choosing the input data from a user file option on the Import/Export menu, select the *Name* field as the first field for input. Next, PCR will prompt you for the width of the field to be imported. For illustrations sake, I have put a number line under the contents of the file above. In this case, we want the program to import up to the *ID No* field, which is the second field. As we can see from above, this is 21 characters, which we would enter at the prompt. Next, we would choose the *ID No* field. Now we want it to import up to the next field in the file, which is 9 characters. PCR automatically removes any leading or trailing blanks when it is importing data. We would continue this by choosing the grade field for the first grade that is in the import file. The width in this case is 8 characters. After we have selected all fields for the data import, PCR will do a trial import and read in the first line. If the data appears in the correct fields, then we can continue with the importing. If the data is not in the correct fields, then the width of the import fields must be adjusted. Simply repeat the above process with the adjusted field widths.

Inputting data using the **Import from Registrar** command requires that data be in the following format (Cornell Registrar Format).

```
Instructor's name
Course Name
College number
Course number
NAMEbIDNUMbSSNbCLbCOLbLECbLABbSECbCRbGR_OPT
....continue with student information
```

The "b" represents a blank space in the file.

Example:

```
Cooke, J. Robert
02
02
100
Albright, G          307446 058784598 1 02 01 01 01 0200 2
Aneshansley, I      310066 907645354 1 03 02 02 02 0200 1
```

where: NAME	-	Student Name - 25 characters
IDNUM	-	Student ID Number - 6 characters
SSN	-	Social Security Number - 9 characters
CL	-	Student Class - 1 character
COL	-	College - 2 characters
LEC	-	Lecture Number - 2 characters
LAB	-	Lab Number - 2 characters
SEC	-	Section Number - 2 characters
CR	-	Credit Hours - 4 characters
GR_OPT	-	Grading Option - 1 character

**Distribution Diskette Files**

PCR	MSG	Message files
GRADE	MSG	
PRINT	MSG	
HLP-1	TSC	Screen image files
HLP-2	TSC	
HLP-3	TSC	
HLP-4	TSC	
HLP-5	TSC	
HLP-6	TSC	
HLP-7	TSC	
HLP-8	TSC	
DATA-INP	TSC	
ACKN	TSC	
PCRMAIN	TSC	
PCRPRMT	TSC	
PCR-2	TSC	
DATA-HLP	TSC	
TEMDES	TSC	
CHARAC	TSC	
PRINTING	MNU	Menu files
CHOOSFIL	MNU	
IMPORT	MNU	
DRIVE	MNU	
CALC	MNU	
FINALGRA	MNU	
PCR	MNU	
USER	MNU	
YEAR	MNU	
LETTER	MNU	
SECTION	MNU	
TERM	MNU	
PCR	EXE	executable file
AGEN100	F89	Registrar supplied class data
AGEN100A	F89	Registrar supplied class data - update
AGEN100	G48	Student records
AGEN100	IND	Index for student records
AGEN100	HDR	Header file
AGEN100	FMT	Template design data
AGEN100	TSC	Grade record template
AGEN100	DST	Grade Distribution for determining final grades
ATT	BGI	Turbo Pascal™ graphics device drivers
CGA	BGI	
EGAVGA	BGI	
HERC	BGI	

## Bug Reports

Please document any problems you encounter with the use of the program, the manual, or the administrative procedures connected with its usage.

If possible, supply sample data, preferably in diskette form, for testing. Submit your comments to the address below:

Cooke Publications, Ltd.  
221 Langmuir Lab  
Cornell Business and Technology Park  
Ithaca, NY 14850  
(607) 257 - 8148

## List of Figures

<u>Figure</u>	<u>Title</u>	<u>Page</u>
<b>Chapter 1</b>		
Fig 1.1	Program Structure (Main Menu)	2
Fig 1.2	Main Menu Help	2
<b>Chapter 2</b>		
Fig 2.1	Program Initialization Screen	8
Fig 2.2	Select Help Screen	8
Fig 2.3	Data Drive Selection Menu	9
Fig 2.4	Acknowledgement Screen	10
Fig 2.5	Data Disk Drive Selection Help	10
Fig 2.6	Data File Prompt	10
Fig 2.7	Data File Selection	11
Fig 2.8	Password Input Prompt	11
Fig 2.9	Course Information Screen	12
Fig 2.10	Main Menu Screen	13
Fig 2.11	Main Menu Help Screen	13
Fig 2.12	Update Existing Records Prompt	14
Fig 2.13	Student Selection Help	14
Fig 2.14	Select Student Screen	15
Fig 2.15	Student Data Record	16
Fig 2.16	Editing Help Screen	17
Fig 2.17	Template Fields by Number	18
Fig 2.18	Blank Student Record	19
Fig 2.19	Special Functions Menu	20
Fig 2.20	Special Functions Help Screen	21
Fig 2.21	Toggling Help Screen	21
Fig 2.22	Grade Weight Template	23

Fig 2.23	Grade Maximum Template	24
Fig 2.24	Assigning Final Grade Menu	25
Fig 2.25	Grade Distribution Template	26
Fig 2.26	Histogram Information	26
Fig 2.27	Class Histogram for Weighted Average	27
Fig 2.28	Output Menu Screen	28
Fig 2.29	Output Help Screen	28
Fig 2.30	Output Device Menu	29
Fig 2.31	Output Results	30
Fig 2.32	Individual Student Record	31

### Chapter 3

Fig 3.1	Template Fields by Number	34
Fig 3.2	Template Design Screen	35
Fig 3.3	Import/Export Menu	36
Fig 3.4	Import/Export Help Screen	36
Fig 3.5	Import Data From Registrar	37
Fig 3.6	Registrar Data File Prompt	37
Fig 3.7	Create Deleted list option	37
Fig 3.8	Enter Inactive file name	38
Fig 3.9	User Import Menu	38
Fig 3.10	Import from user file	39
Fig 3.11	Change Drive or Course Option	40
Fig 3.12	Change Password Screen	41
Fig 3.13	Change Password Help Screen	41

### Chapter 4

Fig 4.1	Sample Record	43
Fig 4.2	Sample Weights	44
Fig 4.3	Sample Maximum Points	44

**INDEX**

<b>A</b>		<b>I</b>	
Acceptance	9	Import data	5, 36
Access password	11	Import format	45
Acknowledgments	ii, 10	Index file	9
Add records	3, 19	Initialize	3
Assumptions	i	Internal ID	27
<b>B</b>		<b>L</b>	
Backup	7	License	ii
Bug reports	48	<b>M</b>	
<b>C</b>		Maximum score	24
Conventions	1, 8	Mean	21
Course Information	12	Menu	8
Copyright	ii	<b>O</b>	
<b>D</b>		Output	4, 28
Data files	9	<b>P</b>	
Data interchange	45	Password	6, 11, 40
Data record	16	PCR	7
Delete record	5, 20	Program structure	1
Disclaimer	iii	Programmer's Guide	43
Distribution rights	ii	Rank	22
Drive	6	Reference Guide	42
<b>E</b>		Rebuild index file	6, 40
Edit commands	17	<b>S</b>	
Enter data repeatedly	4	Sample calculation	41
Export data	5, 36	Search	14
Field tags	4	Special functions	4, 21
Function keys	1, 9, 17	Standard deviation	21
<b>G</b>		<b>T</b>	
Grade format	27	Template design	3, 34
Grade conversion	23	<b>U</b>	
Grade distribution	26	Update records	3, 14
<b>H</b>		<b>W</b>	
Hardware	i	Weighted average	22
Histogram	26		
Help	1		