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Using a Commercial Spreadsheet Package for Grading

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The traditional instructor's gradebook has been on the way out since the first computer was introduced in the educational environment. The advantages of using a computer for this data-handling task are obvious and do not have to be repeated here after so many articles have already been written describing various gradebook packages available to educators today.

There is a tendency in this field, however, to concentrate on highly-specific programs written in BASIC that reflect only the author's needs for grade recording and calculating. Grading is a subjective task that is usually handled in as many ways as there are educators. In addition, there are many of us who simply are not programmers and who do not care to be programmers, but would also like to be able to tailor a grading program to our particular needs and prejudices. Fortunately, there is a way out.

Background

At Michigan State, we have introduced a course, Introduction to Microcomputers, which is a basic "computer literacy" course, aimed at our two-year students in the Institute of Agricultural Technology. In this course, we assert that 80-90% of the student's computing needs may be met through the use of one or more of the three generalized software packages: the word processor, the spreadsheet, and the data base. The advantage of using these menu-driven programs in place of individually-written software is that no knowledge of programming languages is required.

This distinction is important. We feel that the term, "computer literacy" does not necessarily, nor should it, imply a knowledge of BASIC or any other programming language. Using these languages effectively is a special art that is not easily mastered unless one decides to devote considerable time to the effort. Due to the great number of professional programmers in the world today who are writing new and easier-to-use software, it becomes less and less necessary for a computer user to know programming. Instead, the user may, today, choose among a wide range of easy-to-learn, interactive, menu-driven programs, that can be quickly tailored to a specific application, thus finally placing the computer in its proper niche as a TOOL, rather than a novel toy.

For these reasons, the gradebook used in our introductory course is not a special purpose grading package, but a template for a commercially-available

spreadsheet. SuperCalc2 (TM), tailored to fit the grading requirements of the course. The same spreadsheet template is used in other courses as well, with easily-made modifications to adapt it to the specific course requirements.

A Spreadsheet Template for Grading

Figure 1 shows the spreadsheet template with student numbers and grades. The spreadsheet itself may be thought of as a large piece of paper marked off with vertical and horizontal lines to create a great number of "cells", which may contain data, formulas, or text. The rules for creating various templates for performing different chores are much easier to learn than are programming languages, due to the much smaller number of these rules.

On the template, all that is entered is the individual scores for each exercise, the student names and numbers. Everything else on the sheet, all averages and grade points, are calculated automatically. Each time a new exercise is completed, the scores are entered, new averages calculated, and a new spreadsheet printed and posted, all in about ten minutes' time. Normally, all that is posted is everything shown except the student names and disk numbers, which are either cut off manually or omitted in the print. The weighting factors can be changed as the term progresses and the "final average" column automatically reflects the new weights, as does the "grade" column.

Most grade posting spreadsheets, such as this one, are too wide to print in one pass. For this reason, we have also purchased another inexpensive commercial program, called Sideways (TM), that, in effect, turns your dot-matrix printed 90 degrees to print wide spreadsheets in a single pass. Super-Calc3 (TM) includes this useful utility automatically. Adding a macro processor, such as Prokey (TM) or Superkey (TM), makes it feasible, as we are doing at MSU, to post weekly summary grade sheets for a class with over 150 students. That particular class has 10 homework assignments, 9 lab exercises, two tests and a final exam. With 150 enrolled, that makes a staggering total of 3300 grades to record, weight and average! Each week, however, it is only necessary to enter the weekly scores, and, a Prokey (TM) - generated macro then prints seven spreadsheets (one per section) while the grader does something else.

Many readers will immediately ask, "Why didn't they include _____?" The reason is that it didn't seem important to us. If it does to you, it is the work of a few minutes to change the spreadsheet template to include _____, or whatever else you desire.

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Figure 1. Grading With Spreadsheets.

D1-AH44		AT 090 - INTRO TO MICROCOMPUTERS													CURRENT WEIGHTS:		
I NAME	I DISK	I ST. NUMBER	LABS							TESTS			I FINAL	I AVG	I GRADE	I	
			1	2	3	4	5	6	7	AVERAGE	MID	FIN					
I Student Name	I 1	I 12345678	I 99	65	100	64	100	64	100	64.57	I 77	79	I 80.63	I 3.00	I	LABS: 40%	
I Student Name	I 2	I 12345679	I 97	66	99	65	99	65	100	64.43	I 73	82	I 80.27	I 3.00	I	MIDTERM: 30%	
I Student Name	I 3	I 12345680	I 95	67	98	66	98	66	100	64.29	I 73	82	I 80.21	I 3.00	I	FINAL: 30%	
I Student Name	I 4	I 12345681	I 93	68	97	67	97	67	100	64.14	I 77	91	I 84.06	I 3.00	I	FINAL WEIGHTS:	
I Student Name	I 5	I 12345682	I 91	69	96	68	96	68	100	64.00	I 50	85	I 74.10	I 2.00	I	LABS: 40%	
I Student Name	I 6	I 12345683	I 89	70	95	69	95	69	100	63.86	I 63	82	I 77.04	I 2.50	I	MIDTERM: 30%	
I Student Name	I 7	I 12345684	I 87	71	94	70	94	70	100	63.71	I 77	94	I 84.79	I 3.50	I	FINAL: 30%	
I Student Name	I 8	I 12345685	I 85	72	93	71	93	71	100	63.57	I 70	94	I 82.63	I 3.00	I		
I Student Name	I 9	I 12345686	I 83	73	92	72	92	72	100	63.43	I 67	76	I 76.27	I 2.50	I		
I Student Name	I 10	I 12345687	I 81	74	91	73	91	73	100	63.29	I 57	79	I 74.11	I 2.00	I		
I Student Name	I 11	I 12345688	I 79	75	90	74	90	74	100	63.14	I 60	91	I 78.56	I 2.50	I		
I Student Name	I 12	I 12345689	I 77	76	89	75	89	75	100	63.00	I 53	91	I 76.40	I 2.50	I		
I Student Name	I 13	I 12345690	I 75	77	88	76	88	76	100	62.86	I 63	73	I 73.94	I 2.00	I		
I Student Name	I 14	I 12345691	I 73	78	87	77	87	77	100	62.71	I 50	73	I 69.99	I 2.00	I		
I Student Name	I 15	I 12345692	I 71	79	86	78	86	78	100	62.57	I 53	79	I 72.63	I 2.00	I		
I Student Name	I 16	I 12345693	I 69	80	85	79	85	79	100	62.43	I 87	100	I 89.07	I 3.50	I		
I Student Name	I 17	I 12345694	I 67	81	84	80	84	80	100	62.29	I 78	88	I 82.71	I 3.00	I		
I Student Name	I 18	I 12345695	I 65	82	83	81	83	81	100	62.14	I 63	85	I 77.26	I 2.50	I		
I Student Name	I 19	I 12345696	I 63	83	82	82	82	82	100	62.00	I 57	79	I 73.60	I 2.00	I		
I Student Name	I 20	I 12345697	I 61	84	81	83	81	83	100	61.86	I 67	91	I 80.14	I 3.00	I		
I Student Name	I 21	I 12345698	I 59	85	80	84	80	84	100	61.71	I 87	91	I 86.09	I 3.50	I		
I Student Name	I 22	I 12345699	I 57	86	79	85	79	85	100	61.57	I 80	97	I 85.73	I 3.50	I		
I Student Name	I 23	I 12345700	I 55	87	78	86	78	86	100	61.43	I 73	88	I 80.87	I 3.00	I		
I Student Name	I 24	I 12345701	I 53	88	77	87	77	87	100	61.29	I 70	91	I 80.81	I 3.00	I		
I Student Name	I 25	I 12345702	I 51	89	76	88	76	88	100	61.14	I 47	67	I 66.66	I 1.50	I		
I Student Name	I 26	I 12345703	I 49	90	75	89	75	89	100	61.00	I 87	91	I 85.80	I 3.50	I		
I Student Name	I 27	I 12345704	I 47	91	74	90	74	90	100	60.86	I 0	0	I 32.34	I .00	I		
I Student Name	I 28	I 12345705	I 45	92	73	91	73	91	100	60.71	I 83	88	I 83.59	I 3.00	I		
I Student Name	I 29	I 12345706	I 43	93	72	92	72	92	100	60.57	I 73	82	I 78.73	I 2.50	I		
I Student Name	I 30	I 12345707	I 41	94	71	93	71	93	100	60.43	I 87	91	I 85.57	I 3.50	I		
I Student Name	I 31	I 12345708	I 39	95	70	94	70	94	100	60.29	I 77	79	I 78.91	I 2.50	I		
I Student Name	I 32	I 12345709	I 37	96	69	95	69	95	100	60.14	I 67	79	I 75.86	I 2.50	I		
I Student Name	I 33	I 12345710	I 35	97	68	96	68	96	100	60.00	I 67	73	I 74.00	I 2.00	I		
I Student Name	I 34	I 12345711	I 33	98	67	97	67	97	100	59.86	I 53	82	I 72.44	I 2.00	I		
I Student Name	I 35	I 12345712	I 31	99	66	98	66	98	100	59.71	I 83	88	I 83.19	I 3.00	I		
I Student Name	I 36	I 12345713	I 29	100	65	99	65	99	100	59.57	I 40	64	I 63.03	I 1.00	I		
I Student Name	I 37	I 12345714	I 27	100	64	100	64	100	100	59.29	I 50	91	I 74.01	I 2.00	I		

AVERAGE AVERAGE 63 83. 82 82 82 100 61.200 66 82 77.19 2.55

Normally, such a template will grow with use, and will be updated and changed frequently. The typical commercial spreadsheet is a remarkably powerful tool, including many unexpected mathematical capabilities, such as Mod functions, conditional transfers, statistical functions, and, in fact, most of the operations found in most grading programs.

To use the template effectively, the user must first learn how to use SuperCalc (TM), but this is a far cry from learning BASIC. Most first-time users of this or similar spreadsheets can be creating their own templates after only a few sessions with the computer. This model is also useable with any similar spreadsheet package, such as PC-Calc (TM), VisiCalc (TM), Lotus 1,2,3 (TM) and others, with only minor modifications.

Summary

A spreadsheet template has been presented that can be quickly learned by anyone to the extent that it can be tailored to individual requirements, unlike many grading programs written in BASIC that cannot be modified by non-programmers. A complete contents

summary of this spreadsheet may be had from the author by sending a self-addressed, 9"x12" envelope to the author's address.

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**NACTA Conference
Columbia,
Missouri
June, 1987**