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MARKUP FOR PROFIT:
A SIMULATED SELF-ADMINISTERED EXPERIENCE IN RETAIL PRICING

Kathleen C. Brannen, Creighton University
William H. Brannen, Creighton University

ABSTRACT

This paper describes a classroom game which has been used in the Principles of Marketing course for teaching concepts related to retail markup, its calculation, and profit implications. The game has been played in both computer and noncomputer versions. Plans are underway to attempt the relative effectiveness of these two teaching methods. Before playing the game, students are given an extensive lecture on markup. A description of the computer version of the game follows a discussion of learning objectives.

LEARNING OBJECTIVES

The general objective in designing the MARKUP game was to increase the overall level of student understanding of the markup concept. This objective arose because in spite of diligent efforts to explain markup and the computation of markup figures, many students were unable to correctly compute simple markup calculations on an exam. One measure of the achievement of this objective is improvement in student test scores over the subject matter.

MARKUP simulates the fruit and vegetable department of a supermarket to provide a pricing game in a setting familiar to most students. Repetition of the markup calculation is used to reinforce the learning process. Many students conceptually view markup as something added to cost, even though a working knowledge of markup needed by a retailer or other marketer is markup based on selling price. At each pricing decision point in the MARKUP game, the cost is given and a selling price must be chosen. The game responds with the markup based on selling price given as a percentage.

The general objective stated above may be thought of in terms of the following specific learning objectives:

- To learn how markup percentages are calculated.
- To become familiar with markup figures as a percentage of selling price.
- To learn the effects of individual item sales and profitability on overall departmental sales and profitability (i.e., the effects of averaging).
- To understand the relationships among cost, markup, selling price, sales volume, and total profits.
- To provide student interaction with the computer via a relatively easy-to-play game.
  To gain some idea of how markups are used in practice to set selling prices.

DESCRIPTION OF MARKUP

This simulation of retailing reality is a self-administered game which can be played with or without the use of a computer.[1] The purpose of the game is to provide the student with experience in using markups on cost and on selling price in order to determine what selling prices should be to earn a desired gross profit. The game deals at both the per item level and at the total department level. Simply stated, the markup for the total department is the per item markup weighted by the sales of each item.

Each player plays against himself/herself. The game is divided into ten weeks. Each week is independent of all other weeks. Per item costs are given for each week but do often vary from week to week. For purposes of the game, costs and selling prices do not vary within a given week. This is an assumption used for simplifying the structure of the game. Limiting the number of products to twenty is another simplifying assumption. One of the twenty items is featured each week as the "weekly advertised special" or (WAS). For this item (which is different each week), the sales at regular price will be zero for that week. Expected weekly sales of each item vary according to such factors as total store sales, product quality, competition, holidays, weather, prices, etc. For purposes of the game, all factors affecting sales (except price) will be incorporated into a figure called “expected weekly sales.” The rationale for expected weekly sales will be given in the “Weekly Planning Report” which is a nonquantitative merchandising tool given to the player for each week. For the computer players, “expected weekly volume” will vary inversely with the price, but the formula for variation will not be given since the computer player may test several selling prices before setting his/her price. Unit selling prices may be in pounds or by count and are given. This does not affect the computations. The selling price of the weekly advertised special must be at or near cost for demand to exist.

The discussion prior to the actual beginning of the game gives some of the flavor of the business. The game Is a simulation of a produce department of a supermarket in a small midwestern community. Figures mentioned in the discussion are broad general guidelines.

The Appendix contains a flowchart of the MARKUP program, and the beginning and ending portions of a one week game of MARKUP. Interested users may contact the authors for the complete program.

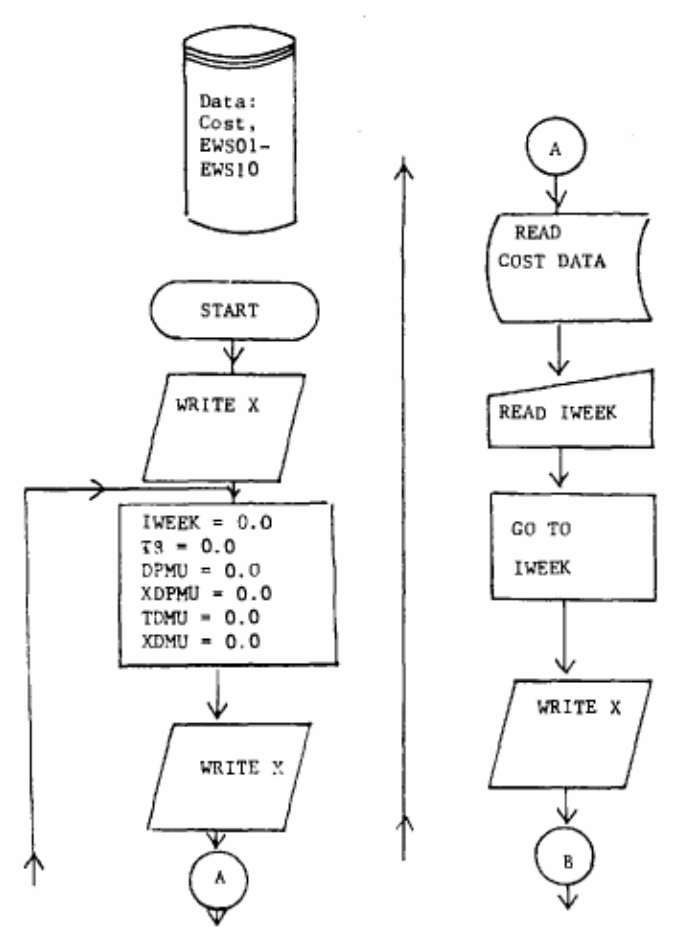
[1] Brannen, Kathleen C., and William H. Brannen, “Markup,” in Brannen, William H. Successful Marketing For Your Small Business. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1978, pp. 258-283. The noncomputer version of MARKUP appears as an appendix to Chapter 13 of this book.

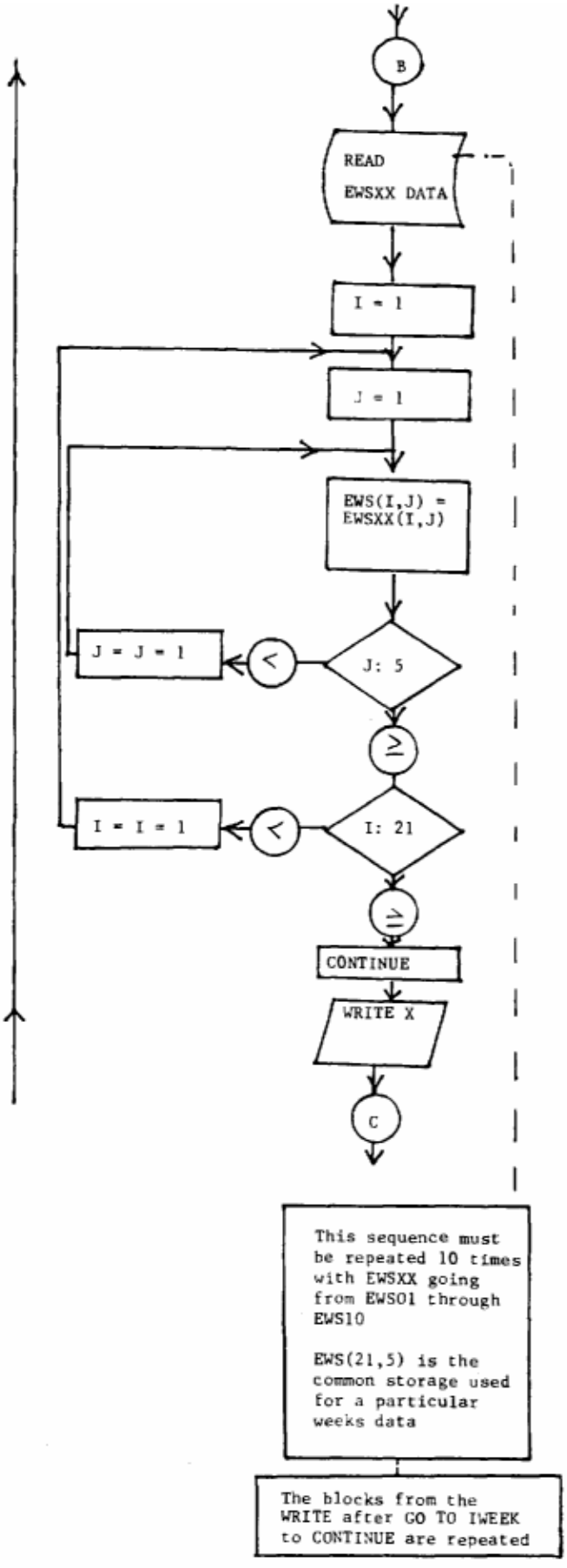
The game was originally written in FORTRAN using an IBM computer. The game has subsequently been converted for use on a CDC Cyber 1714 using FORTRAN IV and on a Univac 1100/60. Future plans of the authors include a test under controlled conditions to determine the learning effectiveness of the computer versus the noncomputer versions of MARKUP.

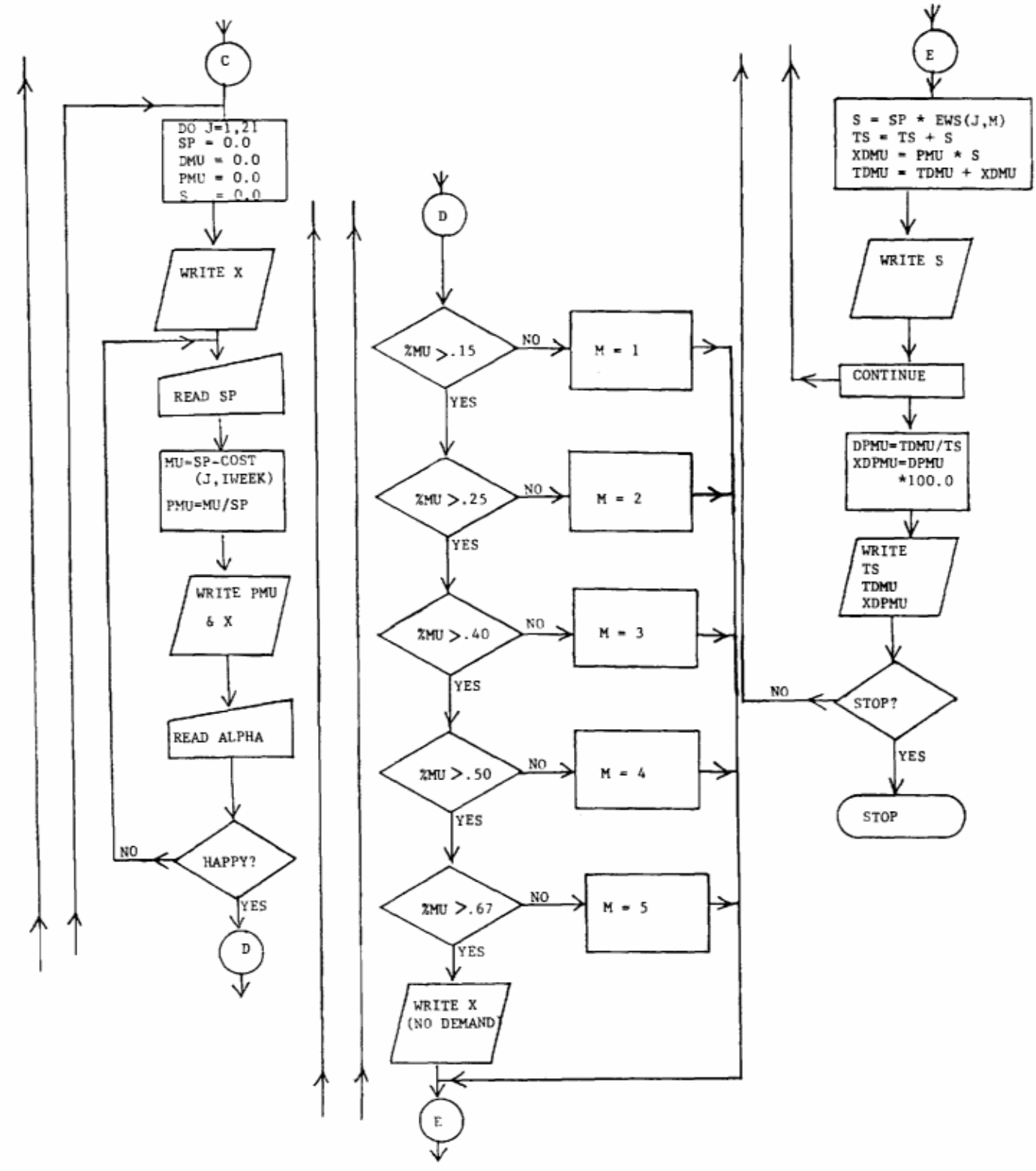
APPENDIX

FLOWCHART FOR MARKUP

TS	= total sales
DPMU	= departmental percentage markup expressed as a decimal
XDPMU	= departmental percentage markup expressed as a percent
TDMU	= total dollar markup for the department
XDMU	= product dollar markup
IWEEK	= the week currently being used in the game
SP	= selling price
DMU	= dollar markup
PMU	= percentage markup
S	= r sales in dollars
EWS	= estimated weekly sales in units
X	= explanatory data (in flowchart only)






C
DO J=1,21
SP = 0.0
DMU = 0.0
PMU = 0.0
S = 0.0
WRITE X
READ SP
MU=SP-COST (J,IWEEK)
PMU=MU/SP
WRITE PMU & X
READ ALPHA
HAPPY?
NO
YES
D
D
%MU >.15
NO
M = 1
YES
%MU >.25
NO
M = 2
YES
%MU >.40
NO
M = 3
YES
%MU >.50
NO
M = 4
YES
%MU >.67
NO
M = 5
YES
WRITE X (NO DEMAND)
E
E
S = SP * EWS(J,M)
TS = TS + S
XDMU = PMU * S
TDMU = TDMU + XDMU
WRITE S
CONTINUE
DPMU=TDMU/TS
XDPMU=DPMU *100.0
WRITE TS TDMU XDPMU
STOP?
NO
YES
STOP