*Practical Management Science*, 1e

Albright, Winston

We tried to find all the typos, bad numbers, wrong solutions, and so forth, but with so many details, we missed a few. As we (or you) find errors, we'll list them on this page by chapter. Note that if there is an error in a solution file for some problem, we will try to indicate a way to fix the error without "giving away" the solution to students who might be reading this page.

**Note:** Starting in 2/97, the date of the correction is listed.

### Chapter 1

* Page 5, 6th line from bottom: change "... are 5 customers in line ..." to "... are 4 customers in line..."
* Page 5 - although not an error, a clarification might help: The paragraph below equation 1.1 states that the arrival rate must be less than the service rate, which is *true* for the classical M/M/1 queueing model. However, the spreadsheet in Figure 1.1 uses the M/M/1 model with a *finite waiting room*, and in this case the arrival rate can be greater than the service rate. (3/6/97)

### Chapter 2

* Problem 13, page 59 - solution has an obvious error in the formula for the objective
* Page 69, last column heading in Table 2.14: 'Overhead', not 'Ovehead'
* Page 69, Table 2.13: Right under the "Direct materials" heading, there should be a "Direct labor" heading. (Stamping, Forming, Assembly, and Subtotal are then all subcategories of Direct Labor.)
* Problem 19, page 61 - solution has a couple of errors - demands in month 2 are entered incorrectly, and we forgot to deal with 1000 per month production capacity constraints - these should be easy to fix (just add some rows, e.g., below production quantities to deal with production capacities
* Problem 5, page 55 - production costs in months 2 and 3 (cells C5, D5) in solution are reversed - change them and rerun the Solver
* Problem 7, page 55 - More realistic if 'month' is replaced by 'day' (cheesecakes stored for months? - yuk!) - also, solution forgets to take into account production capacity of 65 cakes per day total (easy to incorporate) (2/10/97)
* Problem 12, page 59 - availability of pine is entered incorrectly as 200 instead of 210 - rerun Solver (comment at bottom about integer solution is no longer relevant) (2/10/97)
* Problem 18, page 61 - there are a few mistakes here: the most serious is that the production costs should be based on the *hours* used, not the numbers of units produced - also, the capacities in row 24 are entered incorrectly - finally, the problem is much more interesting if the capacities for line 1 are 800 and 400 (rather than 8000 and 4000) (2/17/97)
* Problem 21, page 62 - the labor cost should reflect the fact that each worker works 3 quarters - however, after making this change and rerunning the Solver, the same solution is still optimal (4/21/97)
* Figure 2.8, page 41 - the allowable increase for type 2 frames should be 1, not 6 (8/20/97)

### Chapter 3

* In slide 10, step 5(c) of PowerPoint file for example 4, should be: "... as available hours *divided by* labor hours per pair of shoes"
* Problem 78, page 135 - in the solution there's a reference to cell C13 in the formula in cell F19. The reference should be to cell B13. Change and rerun the Solver
* Problem 85, page 137 - the solution *looks* ok, but it doesn't make sense from a timing point of view - no short-term loan will ever be taken at *any* interest rate. A more valid solution is to change the formulation so that all short-term loans are paid back at the beginning of the *next* month (with interest), and the 6-month loan is paid back at the beginning of January, and (except for January) these paybacks must be covered by new short-term loans if necessary (i.e., the balance after loan paybacks can't be negative). Also, ending cash balances (after revenues and bills) must be nonnegative. (This is a *great* example for an extended class discussion about modeling!!!)
* Problem 13, page 85 - the duration constraint in solution (and shell) goes in the wrong direction - change it in cell E21, and rerun the Solver
* Problem 41, page 114 - the formulas in row 15 need to be fixed up (in a fairly obvious way) - they don't currently include *all* of the computers available - upon running the Solver, you'll get a substantially different solution (2/27/97)
* Problem 47, page 120 - there is a reference to Steve in the solution; it should be to Sonya - more substantially, we use a discount factor in the current solution rather than the more obvious way of using an interest rate - you might want to change rows 28-30 to show more directly how the cash grows, but you'll get the same solution (2/27/97)
* The integer solution to the backlogging version of the Shoeco example shows a slightly nonoptimal solution on page 105, although the correct solution is on the diskette accompanying the book. (We're not sure, but the problem might be that when we originally solved the problem, the Solver tolerance was such that it didn't get the exact solution. This sometimes happens in integer problems.) (2/28/97)
* Problem 47, page 120 (again) - the solution given is correct for the problem as stated, but one adopter suggested another *interpretation* of the problem that might be more realistic (and we agree) - this is to count net proceeds from initial buying and selling of bonds as "cash", so that *all* cash (the initial proceeds plus later cash payments) can grow at the 11.111% rate - then we would require that the cash position at the end of each year, *and* the cash position right after buying and selling, be nonnegative, and we would attempt to maximize final cash at the end of year 3 - these changes can be incorporated quite easily into the current spreadsheet (4/30/97)
* Problem 23, page 94 - there is a wrong reference in cell C16 (error should be obvious) - fix it and rerun the Solver (optimal solution is quite different) (9/16/97)
* Page 84, line 5 - should read "heating oil quality requirement", not "gasoline quality requirement" (9/29/97)
* Problem 18, page 88 - the nonnegativity constraint was incorrectly entered to include column C only - change it to include column B as well, then rerun Solver (2/11/99)
* Problem 45, page 120 - the input value in cell C7 should be 1.15, not 1.5 - make this change and rerun Solver to get a slightly different answer (2/22/99)

### Chapter 4

* Problem 71, page 205 - the same error appears in each sheet - there is an incorrect reference in the SUM function in the objective cell (it should be obvious how to correct it) - after rerunning the Solver on each sheet, the conclusion stated in row 36 of the "None" sheet is no longer correct (2/26/97)
* Problem 58, page 201 - the solution is correct, but to the wrong problem! - it's fine if you want the *maximum flow* from New York to LA, but this is a *shortest route* problem - very little needs to be done to fix it up - just change the labels in cells A3, A21, and A33 appropriately, change the required net outflows (as on page 195), and rerun the Solver (also, change the labels in the shell file as well if you're using it) (2/28/97)
* Problem 11, page 159 - we didn't read our own wording carefully enough! - the percentages lost refer to *inputs*, not *outputs -* e.g., 90% of *any* input used to produce RCP is retained - this is fairly easy to fix (put the input percentages in a *row* rather than a column, and change the formulas in the "Pulp remaining" row) (3/76/97)
* Problem 35, page 186 - last sentence should have "from Boston 6 P.M. ..." (not 7 P.M.) (3/10/97)
* Problem 44, page 192 - in description of model at the top of the spreadsheet, it should say that "project 3 must be completed within 2 months" (not 3 months) - also, the positive capacities in the Sink column need to be shifted down one row (they should be in the "project" rows) (3/14/97)

### Chapter 5

* Problem 42, page 240 - the interest is treated as "lost", but it should be treated as "earned" - so the objective should be to maximize interest earned minus cost of sites - rerunning the Solver will give a considerably different solution (3/6/97)
* Problem 37, page 235 - the second range reference in the formula in cell B25 is wrong (and is easy to fix, given the next to last sentence in the statement of the problem) - rerunning the Solver gives a considerably different solution - also, the label in cell A7 should be per year, not per day (2/11/98)
* Last line of problem 61, page 260, should say "five" groceries, not "four" (10/13/99)
* The first sentence of Example 5.5, page 248, should be restated (or deleted). Western doesn't know it needs three hubs; it wants to find out how many it needs to cover its cities. (10/13/99)

### Chapter 6

* Page 330, footnote: Rubinstein, not Rubenstein
* Problem 25, page 291 - this is an interesting one - everything is modeled correctly, but the solution shown is evidently a local minimum, not the global minimum - try starting from the solution (0,0) and running the Solver - you'll get a slightly better answer! (3/14/97)
* Page 289, second paragraph of Modeling Issue - change wording to "If our objective was to minimize the total *straight line* distance..." (3/23/97)
* Page 289, Real-World Application - as an astute reader informed us, Coastal Construction Company is a *fictitious* name used for the company discussed in the Love an Yerex article (3/23/97)
* Problem 59, page 328 - Sorry, I must have fallen asleep partway through the solution of this problem - it's not at all complete. A solution is now available. However, if you want to try it on your own, I've added the following note to the solution, just to help with interpretation: Part of the difficulty here is interpreting exactly what the problem statement means. We've assumed the following: (1) the "x" in the problem statement is the number of barrels of SQ added to each barrel of final product (e.g., if 5 barrels of SQ is added to 100 barrels of gasoline, then x for gasoline is .05); (2) to find the total quality points obtained for gasoline, say, we find the original quality points (without SQ), then increase this by the percentage x^1/2. These are reasonable assumptions, and they lead to the reasonable solution obtained here, but other interpretations of the problem statement are certainly possible. (4/23/97)
* Page 326, Figure 6.27 - the transaction cost for stock 1 should be $55, not $65 - that decreases the total transaction cost from $96 to $86 (11/17/98)

### Chapter 7

* Problem 6, page 347 - the Solver isn't set up correctly - the changing cells should include the "water" cell (as indicated correctly by the red borders) - when the problem is resolved, quite a different solution is obtained (4/17/97)

### Chapter 8

* (3/28/01) The reference to Howard about halfway down page 445 is the wrong reference. It should be "Decision Analysis: Practice and Promise", Management Science, Vol. 34, No. 6, pp. 679-695, June 1988 (still by Howard).

### Chapter 9

* Page 475, Figure 9.9 (and accompanying discussion): Optimal order quantity for middle region (cell B28) should be 500, not 799 (we evidently maximized, not minimized!)

### Chapter 12

* Page 632, Figure 12.39, cell A12: should be Normal distribution, not Triangular
* Page 632, Example 12.5, Figure 12.39: change the standard deviations in cells G8 and G13 to smaller values, say, 10,000 each (problem is that demands can easily become negative with the current standard deviations - you could also truncate the demand at 0 or even some positive number, but making the standard deviations smaller should fix the problem)
* Problem 15, page 622 - makes more sense if standard deviations for activities S and L are changed to .3 and .6 (then less likelihood that normal random activity times will be negative)
* Click [here](file:///C%3A%5CUsers%5Cchris%5CDropbox%5CMy%20Books%5CWeb%20Site%5CDownloads%5CPMS1e%5CQueueSim_New.xls) to download a new version of the QUEUESIM.XLS file. This version has a nicer user interface, and it fixes a bug connected with the handling of the closing time.
* Problem 27, page 641- the timing of orders in the solution is not the same as stated in the problem. (The problem states that orders are based on end-of-month inventory and are received at the beginning of the next month. The solution bases orders on beginning-of-month inventory and has them arriving immediately. It should be straightforward to change.) -- also, the fixed cost and variable cost inputs are reversed from the problem statement, and the ordering cost formulas in column H should refer (in the obvious way) to these fixed and variable cost input cells (right now, they don't) (4/8/98)
* Problem 21, page 630 - The data table in the solution should be redone (with the Data/Table command) - it currently doesn't extend down all 200 replications
* Page 594 - the equation for *n* can obviously be made more general (just replace the 16 by 4\*(Z(alpha/2))^2 - in our case, using alpha=.05, we approximated Z(alpha/2) by 2 (3/23/97)
* Page 702, 6th line of second paragraph - should be "*more*" (not "*less*") (3/27/97)
* Problem 24, page 639 - The input in cell D26 of the solution file should be 3, not 6 - it makes quite a difference in the solution (10/23/98) - actually, the previous errata statement was in error - this one is correct
* Problem 25, page 639 - The input in cell C25 of the solution file should be 0.03, not 0.3 -- also, I recommend changing the problem statement to correspond to the solution, namely, the last tax payment should be in October, not September (that way, tax payments are all 3 months apart) (4/20/98)
* Problem 27, page 641 - The fixed and variable cost inputs in cells B8 and B9 are switched - also, the input references in the ordering cost formulas (H22 down) need to be changed in the obvious way (4/20/98)

### Chapter 13

* Page 674, Example 13.3, Figure 13.22: change the standard deviations in cells H8 and H13 to smaller values, say, 10,000 each (problem is that demands can easily become negative with the current standard deviations - as they do in the figure! - you could also truncate the demand at 0 or even some positive number, but making the standard deviations smaller should fix the problem)
* Page 707, top line: exercise price should be $110 (as in spreadsheet), not $100
* Problem 13.56, page 727 - in describing the three policies, it should say "order enough to bring next *day's* ..." (not next *week's*)
* Page 655, formula in cell C21 - this formula should be =B21\*(1+B13) - it's correct in the .xls file (4/20/98)

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Send e-mail to albright@indiana.edu

Albright is retired from the [Kelley School of Business, Indiana University, Bloomington](http://www.kelley.indiana.edu/) and now works as a consultant for [Palisade Corp](http://www.palisade.com/).

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