Operations Research, Spring 2014
Case assignment 3

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Submission

The deadline of this homework is **1pm, April 14, 2014**. Please put a hard copy of the work into the instructor's mailbox on the first floor of the Management Building II by the due time. Submissions within 1pm to 2pm will get one letter grade lower as a penalty. Submissions after 2pm will not be accepted. Each team should submit just one report. The report should contain **at most six** A4 pages (including everything). Double-sided printing is certainly encouraged.

The case and tasks

Please go to CEIBA and find Case 11.3 (in "Related Files" under the section "Assignments") of the text-book. Read it thoroughly and then answer Problems (a) to (d). You do not need to answer Problem (e). When formulating models, explicitly write down any assumption you make before you start formulating your model. For Problems that ask you to solve a model, you are suggested to use AMPL instead of MS Excel solver, as AMPL (with the solver CPLEX) does much better when solving integer programs. You do not need to print out your AMPL programs to show how you solve a model. What really matter are the definitions, formulations, solutions, and suggestions. Here are some more explanations to the problem:

1. A kitchen set is considered to be stocked in the warehouse as long as all its parts are stocked in the warehouse. For example, if you stock 20 square feets of T2, 5 rolls of W1, 5 rolls of W2, one L1, one L4, one C2, one C4, one O4, one D2, one S2, one S4, and one R2, then it is said that Kitchen Sets 1 and 2 are both stocked in your warehouse. In other words, while you need to worry about which parts to stock, you do not need to worry about how many units to stock: For each part, you will store just one unit (or 20 square feets or 5 rolls).

2. Though you have spaces for 50 square feets of tile and 12 rolls of wallpaper, as each kitchen set requires 20 square feets of tile and 5 rolls of wallpaper, the spaces for 10 square feets and 2 rolls must be wasted.

3. In Problem (d), the way to stock dishwashers and ranges is exactly the same as that in Problem (c). Therefore, both styles of dishwashers and three styles of ranges can be stored.

4. The space for storing one kind of parts cannot be used to store another kind of parts.

Grading

Case assignments, including this one, are graded with letter grades. The correctness and completeness of your answers decides whether you get A, B, C, or D. The organization and format of your report then decides whether you get $X+$, X, or $X-$, where $X \in \{A, B, C, D\}$ is the grade you obtain from the correctness and completeness.

Format

For case assignments, we put a higher standard on the how formal your report is. Some general guidelines are also posted online. Please do not forget that you have a team to work on one problem: Discuss together for the whole problem instead of work individually! Then try your best to write a formal and complete report.