Tsinghua-Berkeley Shenzhen Institute
Operations Research
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Homework 8

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- **Acknowledgments:** This assignment refers to the textbook: Introduction to Operations Research(10th).
- **Collaborators:** I finish this assignment by myself.

The answers below are arranged according to the order of the following questions in the textbook: 15.1-2, 15.2-4.

8.1. 15.1-2 SOLUTION
Let the two products be A and B, and the strategies be:
1: Improvements are developed simultaneously;
2: Have a "crash program" for A;
2: Have a "crash program" for B.
Hence according to the problem, we have the following payoff table:

	1	2	3	min
1	8	10	10	8
2	4	-4	13	-4
3	4	13	-4	-4
max	8	13	13	8

Table 1: Payoff table of problem 15.1-2

, where each entry is the average increasement of the share of the total sales to manufacturer 1 from A and B.

8.2. 15.2-4 SOLUTION
Assume the payoff is for player 1 and from the table we have the max values of each column are 3, 1, 2 while the min values of each row are -1, -2, 1. Hence the maxmin value and the minmax value are both 1. Hence the best strategy for player 1 is "3" and for player 2 is "2". Note that the entry of the minmax and maxmin is the same, hence (3,2) is a saddle point and the game has a stable solution.

A Relevant Files

Relevant files can be found in my GitHub repository:
`https://github.com/OpenGHz/TBSI-MyHomework.git`.