

# The Local Grocer

## Description

One year ago, the government rolled out an incentive program for grocery stores to encourage them to buy local produce. The program rewards grocery stores with money for each unit of produce they buy from local farmers. Although the amount of money is undisclosed, it is known that it is different for each type of produce, and unchanged throughout the year. Over the past year farmers have arbitrarily set their prices from day-to-day, but now they have enlisted you to see if they can better exploit the incentive program to increase their profits.



You decide that the first step is determine how much the government pays grocery stores per unit of spinach, apple, and tomato. You manage to convince a grocery store to give you the following quantities which vary from day-to-day:

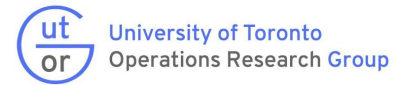
- **Demand.txt** – how much local produce the grocery store sold to customers
- **Supply.txt** – how much produce was available for the grocery store to purchase from local farmers
- **xHat.txt** – how much local produce the grocery store purchased from local farmers

For any local produce that the grocery stores purchases but cannot sell, they must pay a disposal fee. This fee is different for each type of produce and changes at the start of each week. This information is also available.

- **DisposalFee.txt** – the fee for disposing any local produce that does not sell

The rows in each txt file correspond to the value for each day of the year (52 weeks a year x 7 days a week).

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Designer: Aaron Babier



**Question**

Assume the grocery store balanced the disposal fees and incentive money to maximize profits. Also assume the store restocks produce every morning, throwing away all unsold produce from the day before. What is the money given per unit as incentive to buy each produce type?

**Sample Solution:**

Spinach Incentive = \$20/unit, Apple Incentive = \$25/unit, Tomato Incentive = \$10/unit

**Submission format:** 20 25 10 (in a txt document)