**CS 451**

**Activity 15**

**[Linear Programming]** A Diet Problem (Pages 68~70 of the textbook)

* My diet requires that all the food I get come from one of the four “basic food groups”.
* At present, the following four foods are available for consumption: brownies, chocolate ice cream, cola and pineapple cheesecake.
* Each brownie costs 50¢, each scoop of ice cream costs 20¢, each bottle of cola costs 30¢, and each piece of pineapple cheesecake costs 80¢.
* Each day, I must ingest at least 500 calories, 6 oz of chocolate, 10 oz of sugar, and 8 oz of fat.
* The nutritional content per unit of each food is given.

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| --- | --- | --- | --- | --- |
| Type of Food | Calories | Chocolate (Ounces) | Sugar (Ounces) | Fat (Ounce) |
| Brownie | 400 | 3 | 2 | 2 |
| Chocolate ice cream (1 scoop) | 200 | 2 | 2 | 4 |
| Cola (1 bottle) | 150 | 0 | 4 | 1 |
| Pineapple cheesecake (1 piece) | 500 | 0 | 4 | 5 |

* Formulate a linear programming model that can be used to satisfy my daily nutritional requirements at minimum cost.