**MATH 381 Group 6 Project 1 Proposal**

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**Title:**

Weekly Diet Preference Optimization

**Objective:**

To maximize the happiness for our group members from having meals each week.

(Note: The happiness is defined for each category of food, such as fruits, vegetables, meat, and cereal, based on a small survey within our small group.)

**Constraints:**

1. Budget constraint: cost for food needs to be lower than $x (say $150 per week)
2. Nutrients constraints: need to be sufficient for different kinds of nutrition (vitamin etc.)
3. Calories and sodium should not be above recommended values for a week
4. Diversity of food (say, cannot have more than 20% of a certain category)

**Data:**

1. Survey on happiness (preference score) in different categories of food in a Likert scale of 0 to 10.
2. Nutrients of common food around campus
3. Calories and sodium of common food around campus
4. Costs of common food around campus
5. Proportions of food to define diversity

**Method:**

Linear Programming