Minimizing the distance between relay points and clients in a city

Team Details:-

Maulik Ranadive	AU2040117
Yash Chatoliya	AU2040193
Vrutik Bavarva	AU2040236
Jainam Shah	AU2040186

INTRODUCTION:

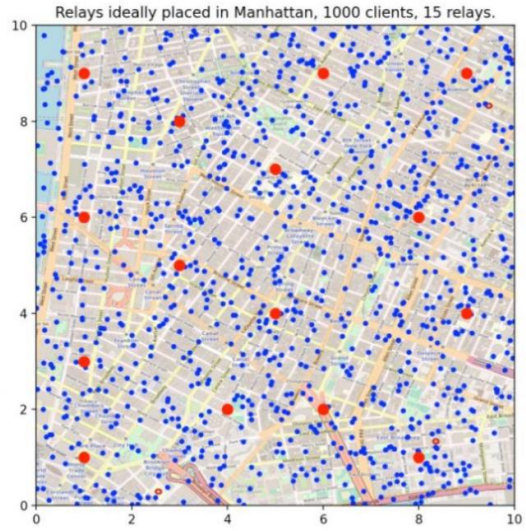
Technology is increasing at a very fast pace nowadays, and people want to acquire things as fast as possible due to the advances in technological systems. Well-known companies now want to facilitate their products at a very fast and optimized manner to get better response from customers. With the fundamental principles of linear programming and then implementation of these principals in real life can help us solve concrete daily life problems respectively.

BACKGROUND:

Using the power of Linear Programming, we can solve optimization problems in which Python's linear programming method is used effectively. Linear programming is a strong technique for solving multi - objective optimization problem, although it is pretty much unknown among developers. The process of using mathematical models to solve linear problems in order to maximize or minimize an objective function while keeping certain restrictions in mind is called Linear Programming.

MOTIVATION:

Assume we're a well-known e-commerce company looking to establish relay points throughout a city to facilitate product delivery. The position (coordinates) of all of the company's clients in that city is the only information we have. Our goal is to deploy



certain relay stations in the best possible location based on the clients' location. To put it another way, we want the distance between each relay station and each client in the city to be as short as possible.

LITERATURE SURVEY:

The first opinion on the application of the simplex method to make a decision in management in different sectors was developed by George Dantzig (American Mathematician) according to his opinion simplex method solve the business problems and economic development after World War II. During the world war, he worked on planning methods for the US Air Force. - Dantzig formulated linear inequalities inspired by Wassily Leontief. After that he planned for solving the industrial and business problems which didn’t include objectives in formulation so that huge number of feasible solution found, therefore more rules were required to choose a best solution among all feasible solution, In Mid 1947 Dantzig included objectives in his formulation. Afterwards, he developed a “Simplex Method” to solve linear programming

CONTRIBUTIONS:

- **MAULIK RANADIVE** – Designing, Formatting, motivational part, plan of action and background.
- **YASH CHATOLIYA** - Designing, Formatting, reproduced work and problem statement.
- **VRUTIK BAVARVA** - Literature survey
- **JAINAM SHAH** - Contribution part in literature survey and problem statement.

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