

## Problem

E-commerce is getting very competitive



## Relevant Literature

- Moshref-Javadi, M., & Lee, S. (2016). The Latency Location-Routing Problem. *European Journal of Operational Research*
- Rath, S., & Gutjahr, W. J. (2014). A math-heuristic for the warehouse location-routing problem in disaster relief. *Computers & Operations Research*
- Yu, V. F., Lin, S., Lee, W., & Ting, C. (2010). A simulated annealing heuristic for the capacitated location routing problem. *Computers & Industrial Engineering*

## Key Question / Hypothesis

How do we design an efficient delivery system that will result in long-term profit in today's competitive ecommerce business?



## Methodology

- Method 1: Mathematical Optimization with Gurobi and Python
- Method 2: Heuristic Algorithm with Python



## Motivation / Background

Deliverer-oriented	Customer-oriented
Minimize Distance	Minimize Latency

- Gain Competitive Advantage by Providing Better Service
- Design a Delivery System that Minimizes Total Latency



## Expected Contribution

Solving capacitated latency location-routing problem both mathematically and heuristically by minimizing total latency

