Research Topics Related to GIS:

1.) GIS in Supply Chain management?; Mapping and analyzing logistics routes for efficient supply chain management. Or Transportation Network Analysis with GIS?; Enhancing transportation efficiency and urban mobility using GIS.

Tractable data: Is possible using ArcGIS and their provided packages, obtaining warehouses and storefronts are feasible. Rather I can use postal codes if wanted. If I were to be working for a company with access to this data this would be smoother but still achievable from an outside perspective, for example amazon warehouses are obtainable, and you could pull high delivery areas and simulate where to plan out routes and/or build/acquire subsidiaries for distribution.

Data retrieval: First would have to obtain store locations and company warehouses and/or distribution centers. Would then need to establish target points, demand points and a road network to calculate then final solution.

Exploratory Data Analysis: Using the Location-Allocation model within ArcGIS geoprocessing tools, Using the P median problem, we can calculate the mid-point and most feasible location to minimize or maximize distribution capacity. Or the network analyst package offers a way to view road patterns and travel/drive time distances which would be a deeper dive into optimization.

Implications for stakeholders: Prioritizing money saving and emission contributions, maximizing one-two day shipping where companies can cover the United States in

two days. Also look at the distribution branch of the company to see if more or less

money should be allocated to enhancing or given elsewhere.

Ethical, legal, societal implications: ethically looking at carbon emissions in hopes

to lower those rates and has greener outlook on the company. Promoting more jobs

with the addition of a new warehouse.

2.) GIS in Crime Pattern Analysis?; Mapping and analyzing crime patterns to support law enforcement and public safety.

Tractable data: very obtainable and separable by area on a scale, if you were to work for law enforcement it would make this process easier. You would have access to timestamps, crime type, location, and much other needed information to create a well-founded study.

Data retrieval: You would work with a specific city and then separate the areas on a particular identity such as per square mile, clusters, etc.

Exploratory Data Analysis:

Implications for stakeholders: government can look to allocate resources and create safer areas and create safe places for living to improve population and a better community.

Ethical, legal, societal implications: Does create some bias to the area for over policing but it is the double edge sword of ethics, where you create a safer area, but petty crimes are now extrapolated.

3.) City traffic patterns when sports events are beginning and ending? Or Transportation revenue generated during peak travel times to sporting events? (Uber, subways, buses, etc) [all relative to their own city].

Tractable data: somewhat obtainable, would require spending money on special packages

Data retrieval:

Exploratory Data Analysis:

Implications for stakeholders:

Ethical, legal, societal implications: