Bachelor Thesis

Analyzing Mobility Trends for Travel Behavior, Preferences, and Sustainability Concerns

Keywords

Data Analysis, Recommender Systems, Mobility, Sustainability

Introduction

The aim of this bachelor thesis is to analyze mobility datasets in New York City (NYC) to gain insights into travel behavior, preferences, and sustainability concerns of its residents. The rapid growth of urban populations and the associated increase in transportation demands necessitate a comprehensive understanding of how people travel within the city, their preferences for different modes of transportation, and their attitudes toward sustainability. By analyzing NYC mobility datasets, this research intends to contribute to the development of sustainable transportation strategies and policies.

Objectives:

The main objectives of this thesis are as follows:

- To analyze NYC mobility datasets to understand travel behavior patterns, including mode choice, trip duration, and frequency.
- To examine the travel preferences of NYC residents, focusing on factors such as cost, convenience, and accessibility.
- To investigate sustainability concerns related to transportation, such as carbon emissions, energy consumption, and the impact on air quality.
- To identify potential areas for improvement and propose sustainable transportation strategies for NYC.

Expected Outcomes:

This research aims to provide valuable insights into NYC travel behavior, preferences, and sustainability concerns. The expected outcomes of this thesis include:

- Identification of dominant travel modes and patterns in NYC.
- Understanding of key factors influencing travel preferences.
- Assessment of sustainability concerns in NYC transportation.
- Recommendations for sustainable transportation strategies and policies.
- Possibility to publish promising results at a scientific conference

Required Experience

- Strong programming skills in Python with libraries like Pandas, NumPy, and SciPy.
- Experience with data analysis and machine learning algorithms.
- Ability to work with large and complex datasets.
- Strong problem-solving skills and ability to find creative solutions to challenging problems.
- Good data visualization skills
- Good understanding of software engineering principles and experience with version control tools like Git.
- Excellent communication and teamwork skills.

Resources

- Citywide Mobility Survey - Household Survey 2019
- Citywide Mobility Survey - Person Survey 2019
- Citywide Mobility Survey - Trip Survey 2019
- Citywide Mobility Survey - Vehicle Survey 2019

Contact/Supervisors

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