SEMINAR

BCA (505)

PROJECT INTRODUCTION

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Introduction

The Lenskart Store Feasibility Prediction System is a machine learning-powered web application designed to assist in strategic retail expansion by predicting the feasibility of opening new Lenskart stores at specific locations in India. The system utilizes geospatial data, nearby Points of Interest (POI), and urban infrastructure parameters to compute a feasibility score that helps decision-makers choose profitable store locations.

This project is built using Python 3.10.14, Flask for the backend API, and HTML/CSS/JavaScript for the frontend interface, ensuring an interactive and user-friendly experience. The core prediction model is developed using scikit-learn with a Random Forest Regressor, trained on a dataset of over 500 real-world entries including parameters such as optical stores within 1 km, traffic counts, locality type, rent, and site area. Data is sourced using OpenStreetMap APIs (Nominatim & Overpass) and enriched with manual entries.

The system workflow involves the user entering an address or coordinates, after which the Flask API performs geocoding, extracts POI features, processes the data pipeline, and predicts the feasibility score in under 2 seconds on average. Results are displayed on a clean and responsive web interface and saved for further analysis.

Key system qualities include performance (fast geocoding and prediction), scalability (modular design for dataset growth), reliability (API and model logging with graceful error handling), and usability (intuitive and responsive UI).

Future enhancements include more granular POI classification (e.g., malls vs. local markets), integration of dynamic traffic estimation, and extending the model to provide feasibility classification for better decision support. This project demonstrates how data-driven decision-making can optimize retail expansion strategies and reduce risks associated with opening new stores.