Chicago Crashes: Phase 3 Project

Overview

- Stakeholder: City of Chicago Department of Transportation (CDOT)
- Business Problem: Predict and rank environmental & behavioral factors affecting crash severity

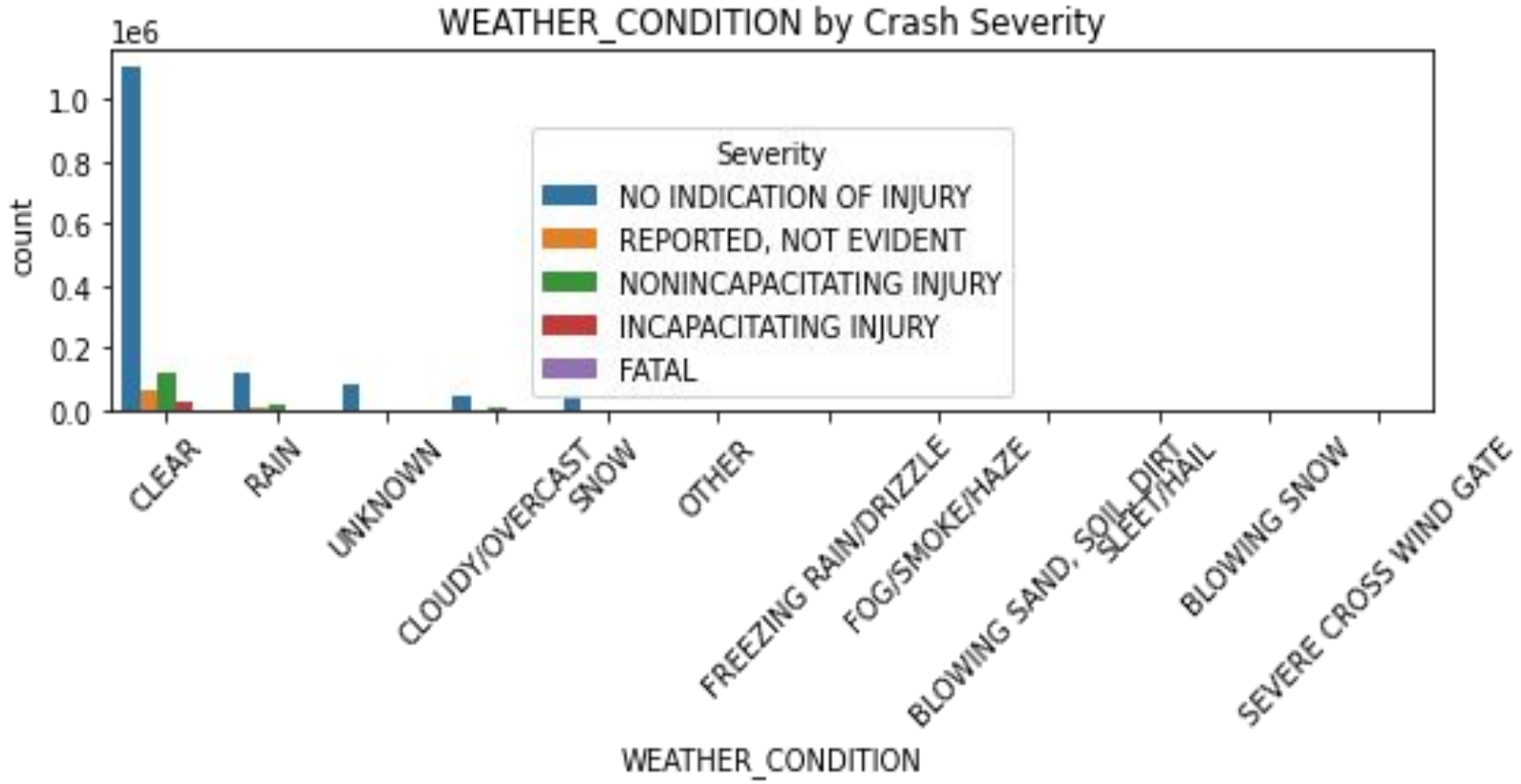
Business and Data Understanding

- Datasets:
- • Traffic_Crashes_-_Crashes_20250605.csv
- • Traffic_Crashes_-_People_20250605.csv
- Target Variable: MOST_SEVERE_INJURY

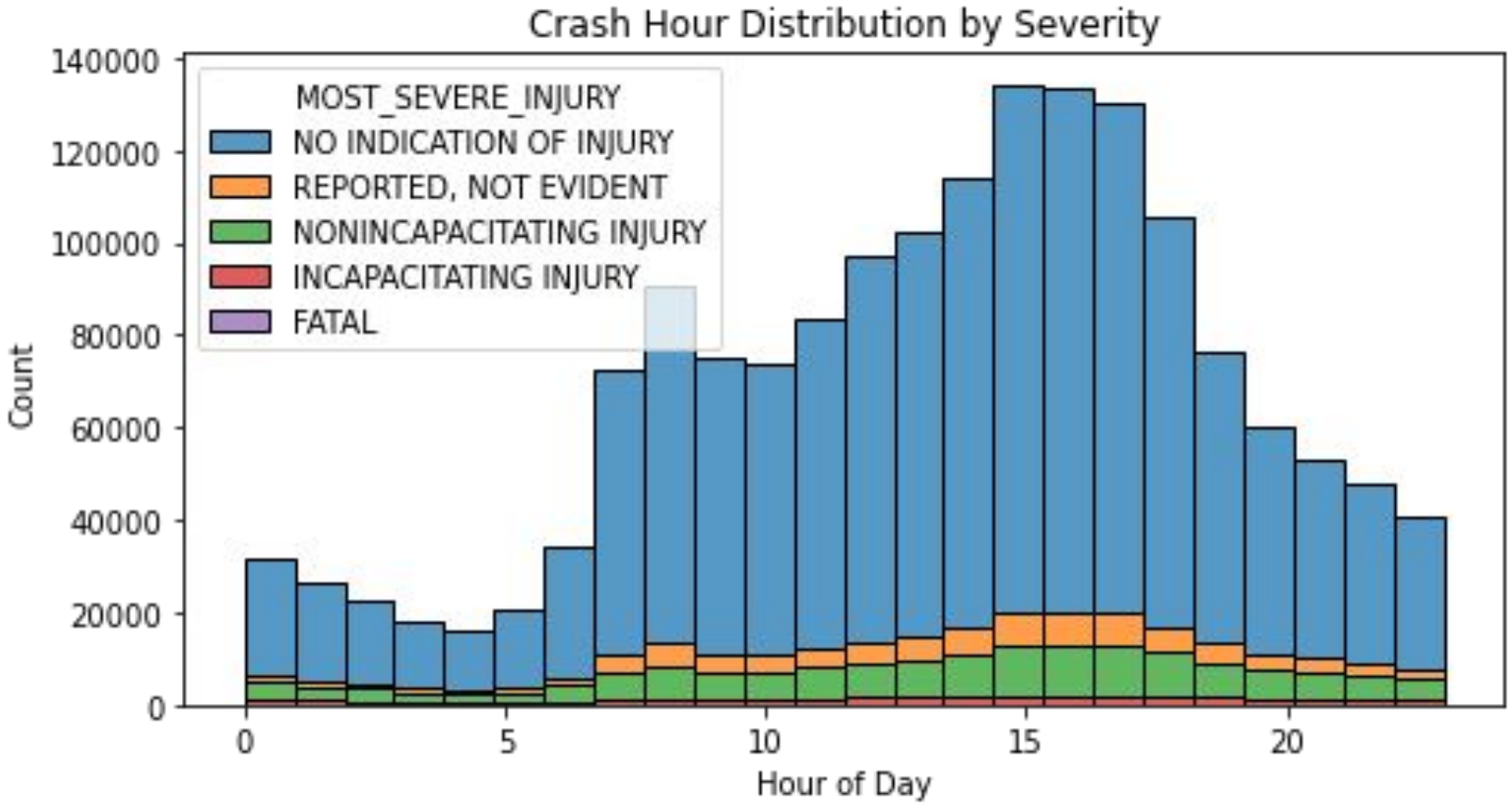
Modeling

- Approach: Feature engineering and classification models
- Key Techniques:
- • One-hot encoding of categorical variables
- • Handling missing values & normalization

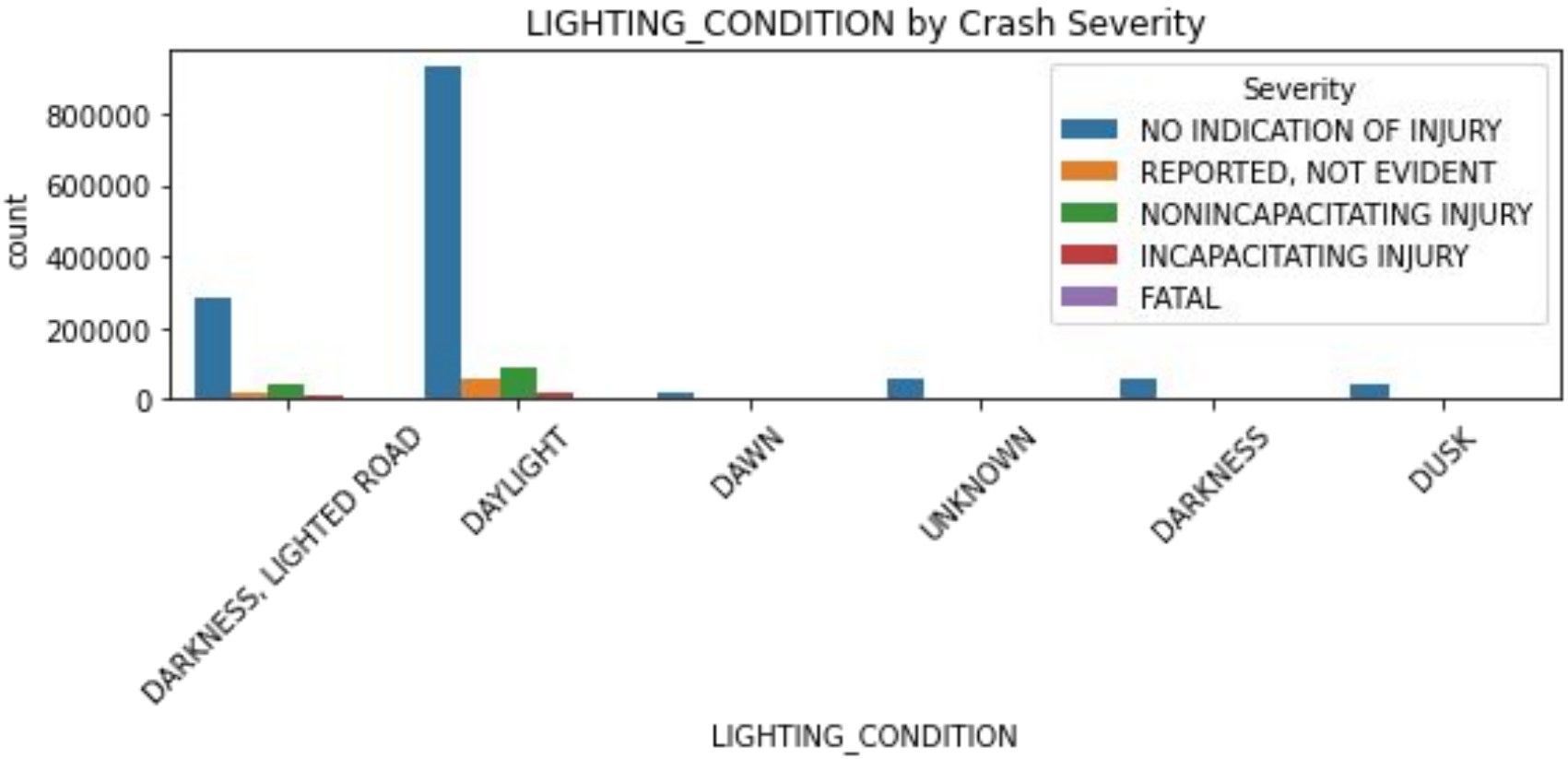
WEATHER_CONDITION by Crash Severity



Crash Hour Distribution



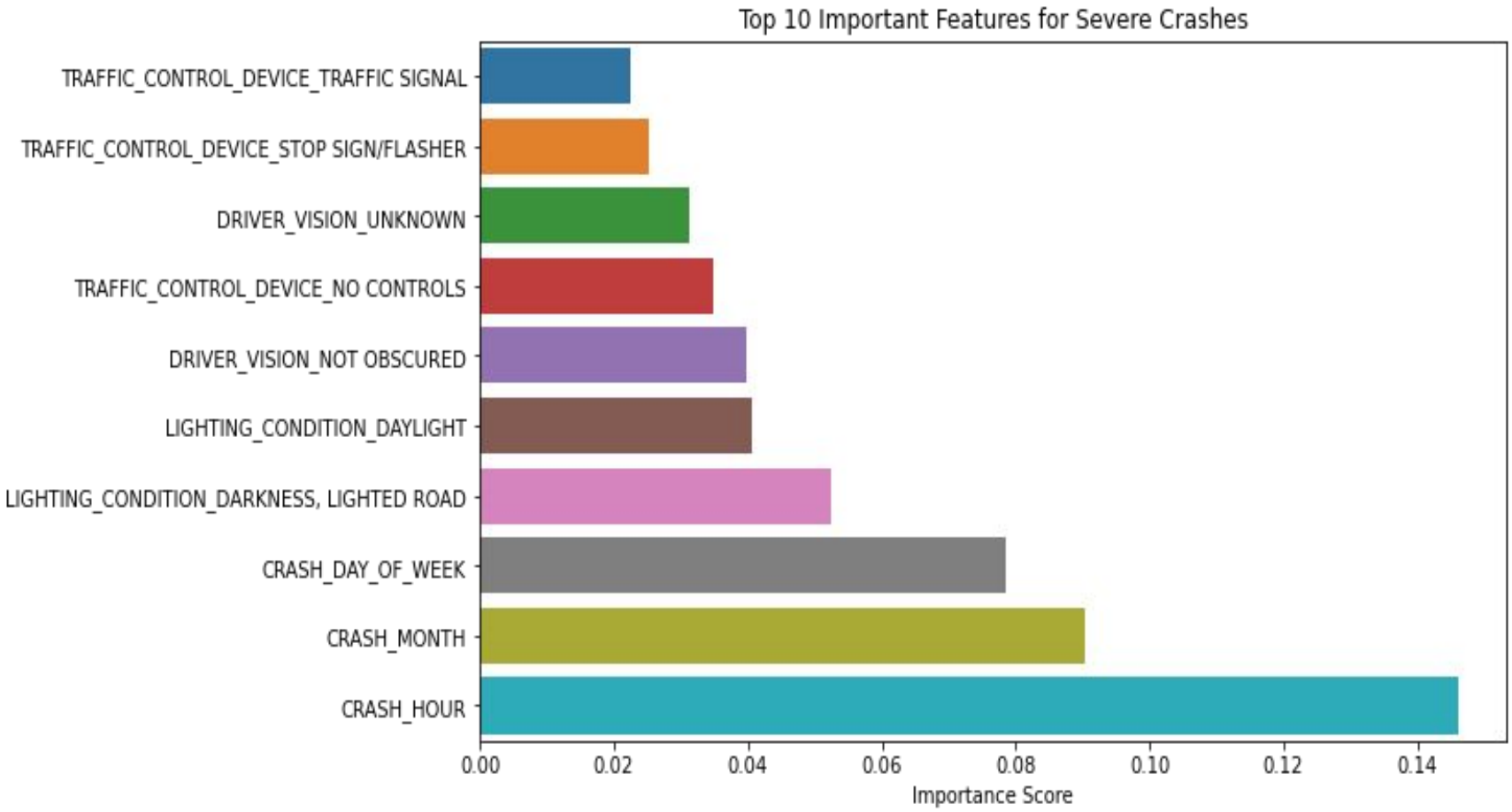
LIGHTING_CONDITION by Crash Severity



Evaluation

- Metrics: Accuracy, F1-score, ROC-AUC
- Feature Importance: Top factors influencing severity
- Visualization: Plot of top 10 features

Visualization: Plot of top 10 features



Recommendations

- 1. Target High-Risk Conditions(e.g., speed reductions during peak hours)
- 2. Behavioral Campaigns (distracted & impaired driving education)
- 3. Integrate model predictions for resource allocation

Thank You

credits : Olin Wachira

Contact Info: Olin.wachira1@student.moringaschool.com