Mini
Project

Traffic Forecasting Project

Feras Alsayigh , Abdullah Aloufi, Noura Aldawsari, Shahad Alhmoud

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Introduction

Traffic forecasting is very important for city planning and management. Accurate predictions can help plan routes and allow emergency services to respond faster. With more and more vehicles on the road, managing traffic effectively has become more crucial than ever.

Agenda Overview

01 Objectives

02 Data Collection

03 Traffic Data Analysis

04 Model Building

05 Model Evaluation

06 Conclusion

Objectives

The main goal of this project is to create a precise traffic forecasting model capable of predicting the severity of traffic accidents in real-time. By utilizing advanced deep learning techniques such as RNN, LSTM, and GRU, we aim to deliver actionable insights that can help reduce traffic accidents and by that prevent traffic jams.

Data Collection

We decided to collect our data open source from Kaggle.

Upload the data

The accident data were collected from February 2016 to March 2023, using multiple APIs that provide streaming traffic incident (or event) data.

Exploratory Data Analysis

Understanding the accident data for further processing.

Selecting Relevant Features

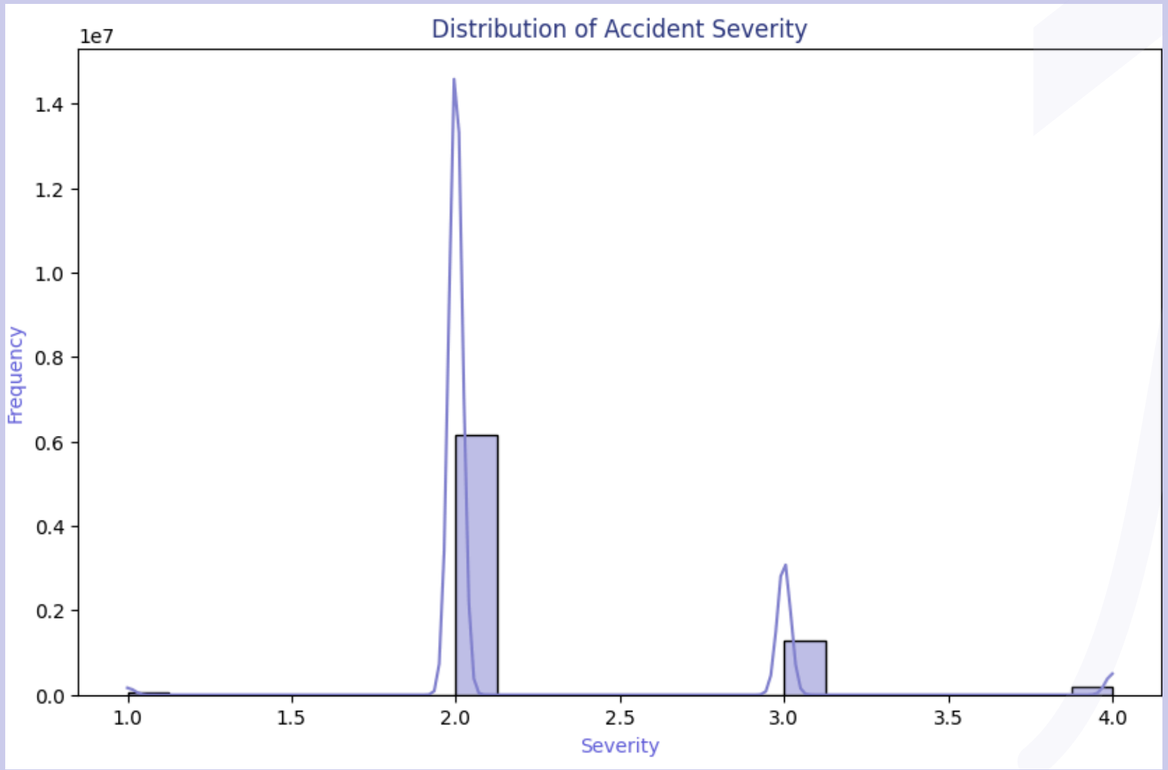
Taking the Feature that serves our goal is crucial step for accurate forecasting results.

Traffic Data Analysis

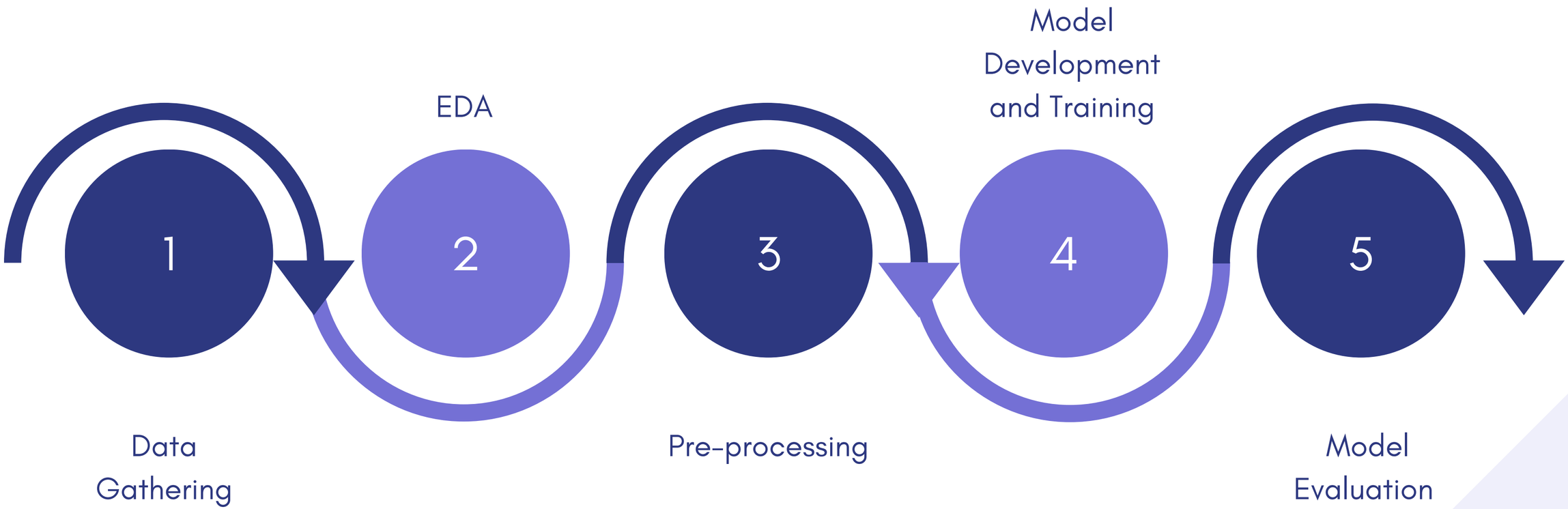
We decided to

- Take the most significant features that servers our goal.

- Severity = 2



Work Flow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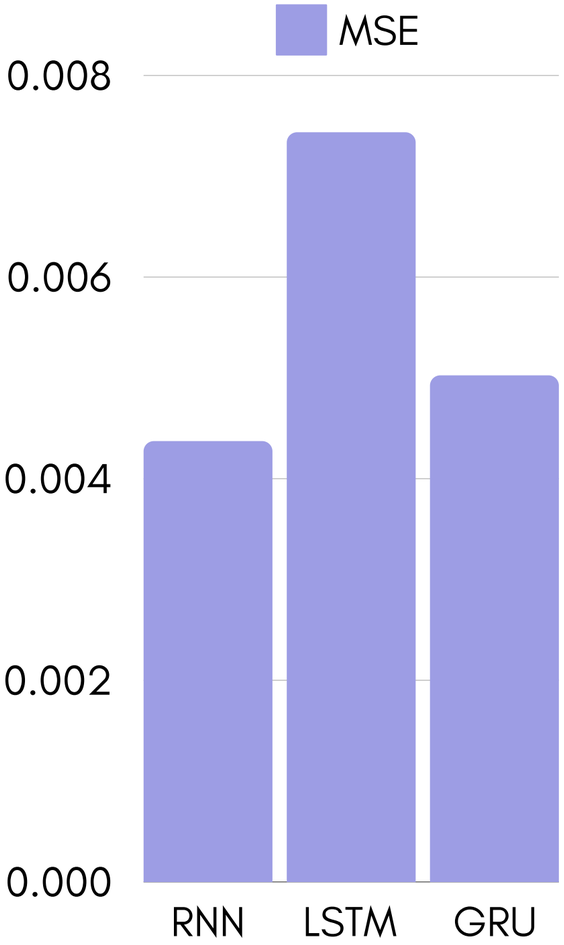
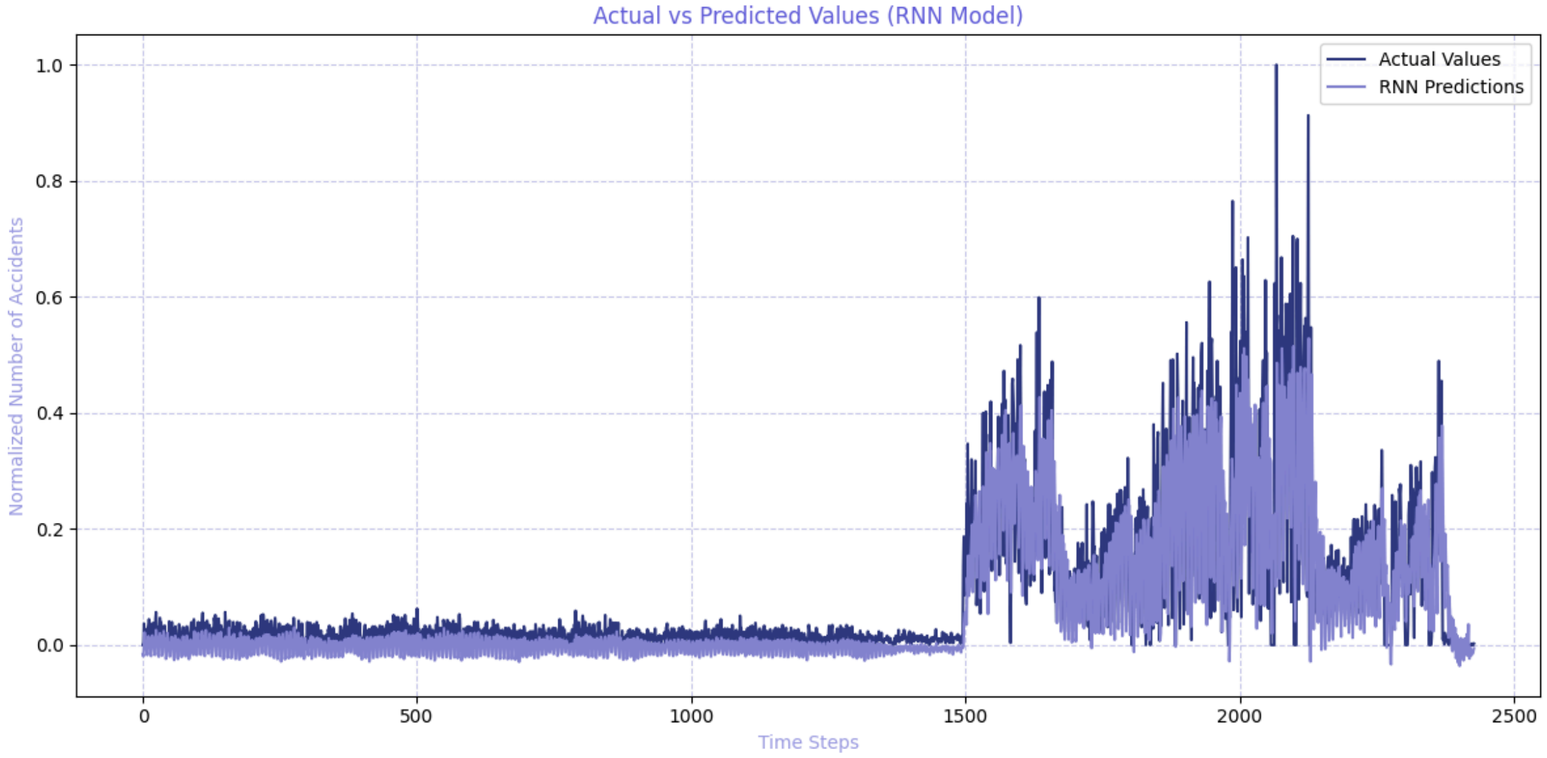
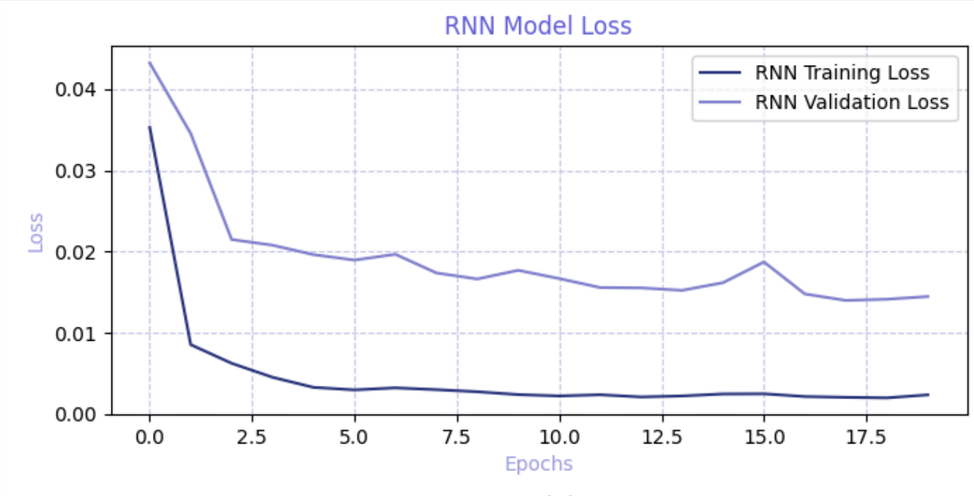
Data Gathering
2
EDA
3
Pre-processing
4
Model Development and Training
5
Model Evaluation

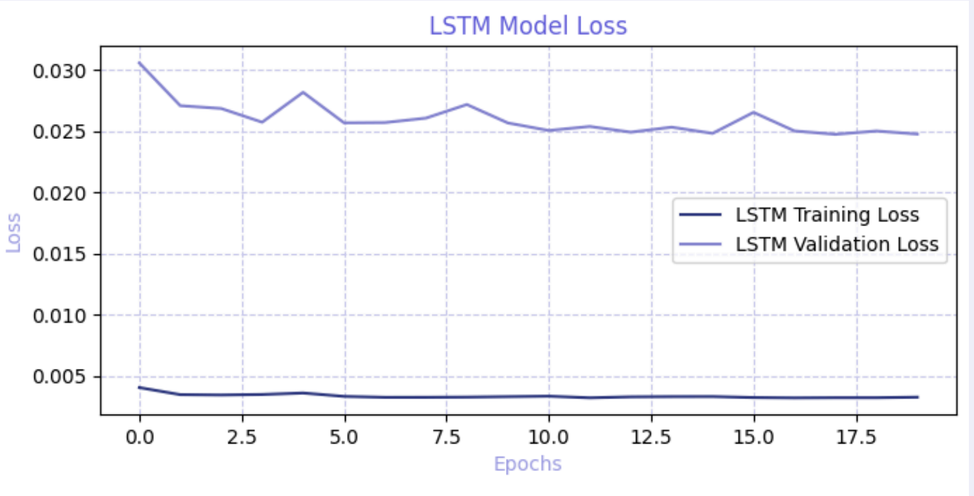
Model Evaluation (MSE)

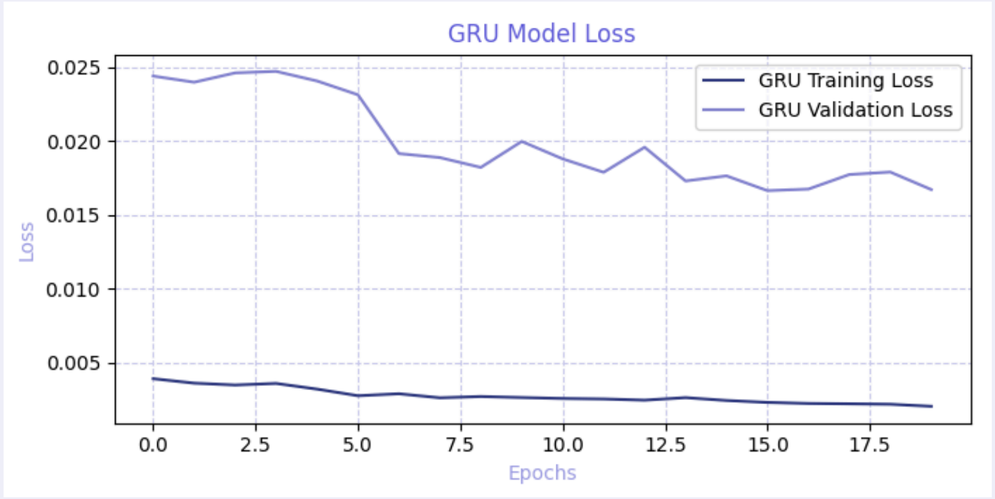




Model Evaluation (MSE)







Conclusion

In this project, we compared RNN, LSTM, and GRU models for traffic accident data prediction. The RNN model achieved the lowest Mean Squared Error (MSE), making it the most effective for this task. This result highlights the RNN's potential for accurate real-time traffic forecasting.

Q and A

Do you have any specific questions about the project?

Group Members

1| Feras Alsayigh

2| Abdullah Aloufi

3| Noura Aldawsari

4| Shahad Alhmoud

Thank You