ROAD ACCIDENT ANALYSIS

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Agenda

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INTRODUCTION

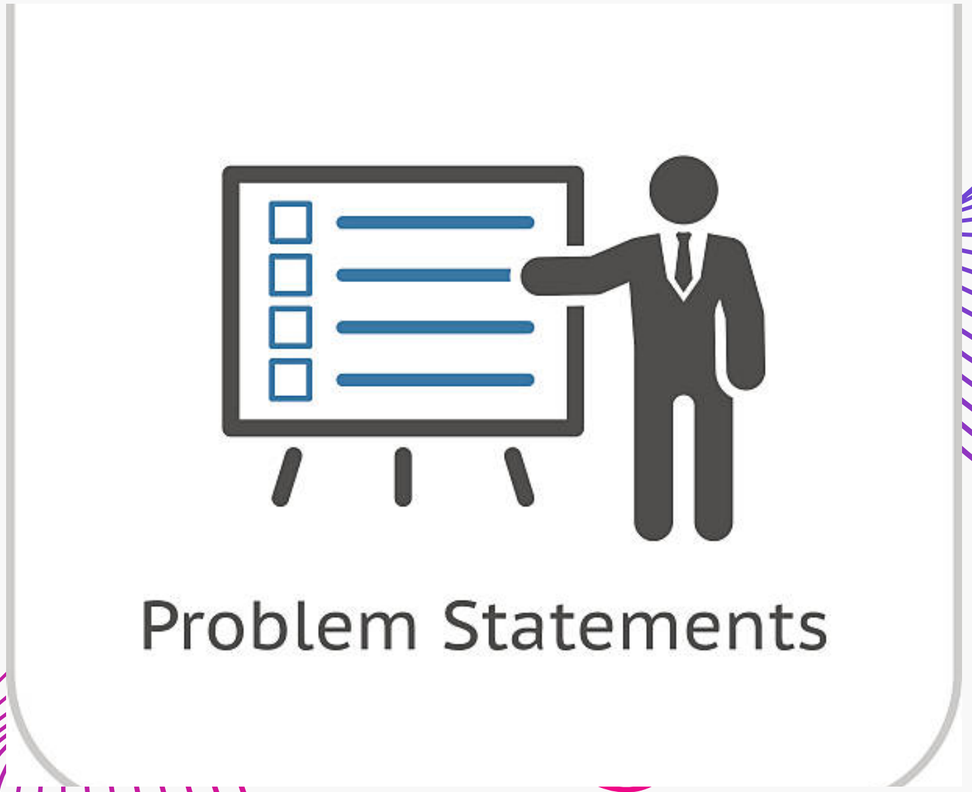
- Every year because of traffic accidents 90% of the deaths occur in the low and middle developed countries.

- There are various types of accidents , some of them include a crash between vehicles, a crash between pedestrians etc.

PROBLEM STATEMENT

The rate of deaths due to accidents is increasing day by days.

There are some factors because of which these accidents might occur.



PURPOSE

To help to reduce the number of accidents by knowing some of the reasons of these accidents.

GOALS

- Accurately analyzing accidents can help government to better the safety of their roads and highways.

- Identifying high areas of accidents and high areas of accident severity can highlight areas of concern.

Objective

The objective of this project is to investigate what causes accidents what attributes to their level of severity.

TECHNOLOGY USED

For our project we are going to use
Machine Learning .
We will use different Machine Learning
Algorithm
and then will compare there accuracy.

WHY MACHINE LEARNING?

Machine Learning is a Sub - branch of Artificial Intelligence which a takes insights from the past experience and predicts the output.

Machine Learning gives more accurate results as compared to the manual survey.

ML ALGORITHMS

The following are the machine learning algorithm we are using in our project:

- Logistic Regression
- Random Forest Classifier
- AdaBoost Classifier
- Bagging Classifier

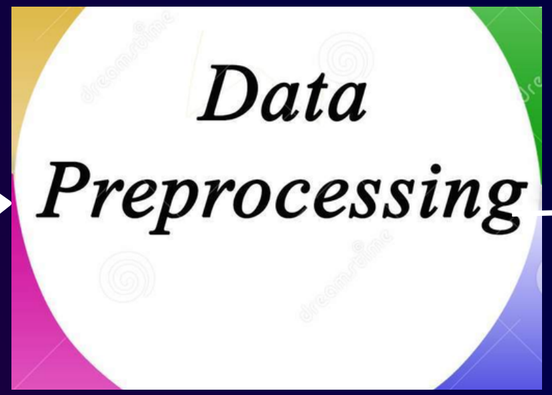
PYTHON LIBRARIES

The following are the python libraries that we are using:

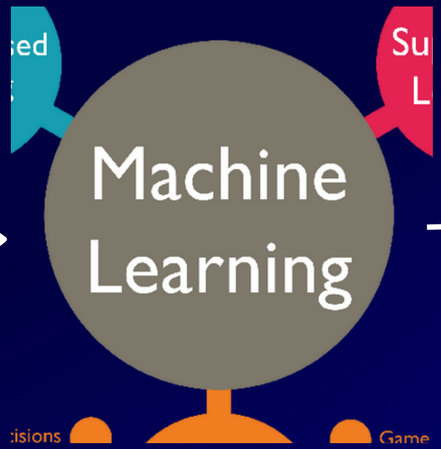
- Pandas
- Numpy
- Matpotlib
- Seaborn
- Plotly
- Streamlit
- Streamlit_option_Menu
- Sklearn
- Pickle

PROJECT PROCESS

Step1: Collecting Data



Step2: Preprocessing Data



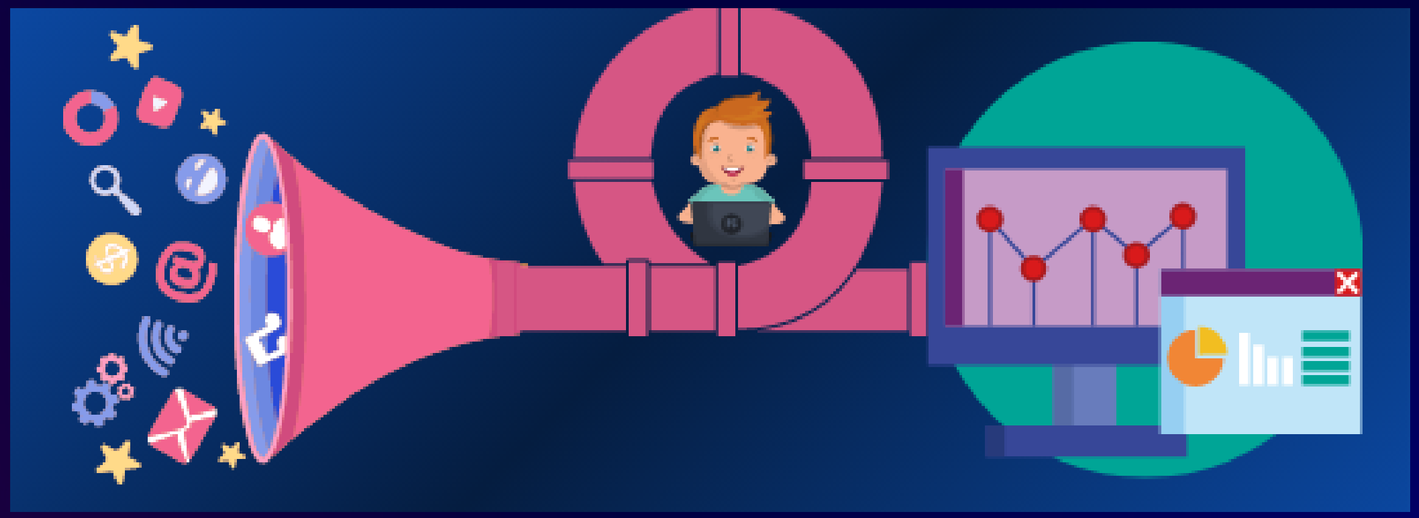
Step3: Applying ML Algorithms

Step4: Comapairing Algorithms

DATA COLLECTION

We are collecting our data from Kaggle site. Kaggle is an online community of data scientists and machine learning engineers. Kaggle allows users to find datasets they want to use in building AI models, publish datasets, work with other data scientists and machine learning engineers, and enter competitions to solve data science challenges..

DATA PREPROCESSING

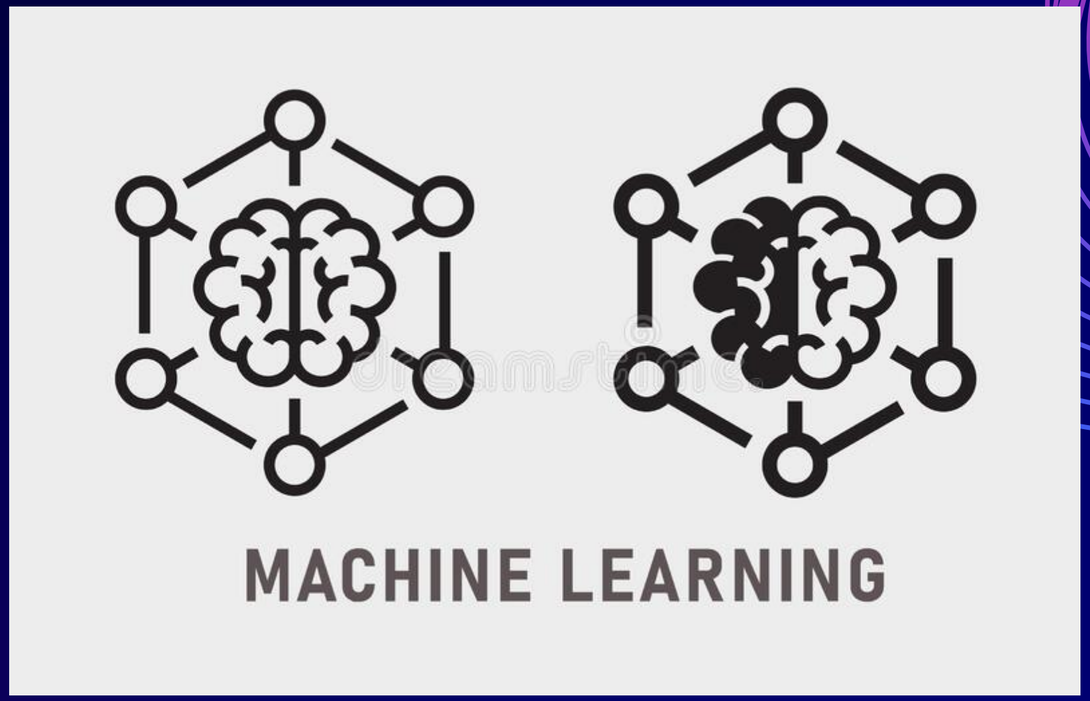


Data Processing is a step in which we preprocess our data i.e. handling missing data, handling outliers, etc.

APPLYING ML ALGORITHMS

These are following algorithms that we are going to apply in our preprocessed data:

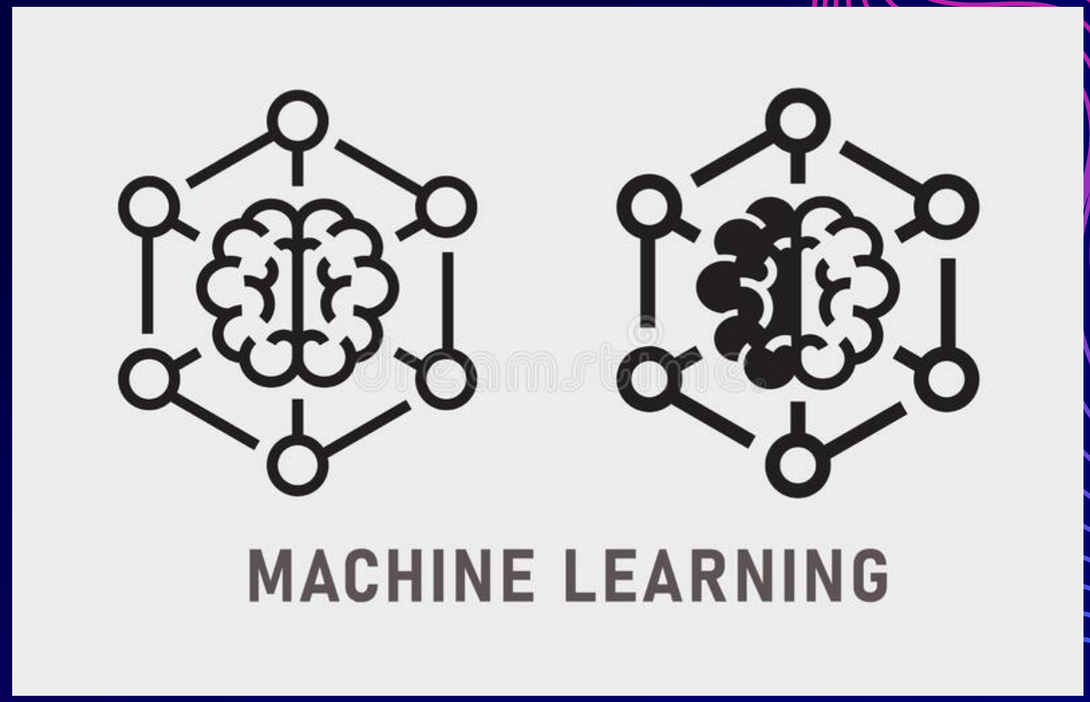
- Logistic Regression
- Random Forest Classifier
- Adaboost Classifier
- Bagging Classifier



ACCURACY OF MODELS

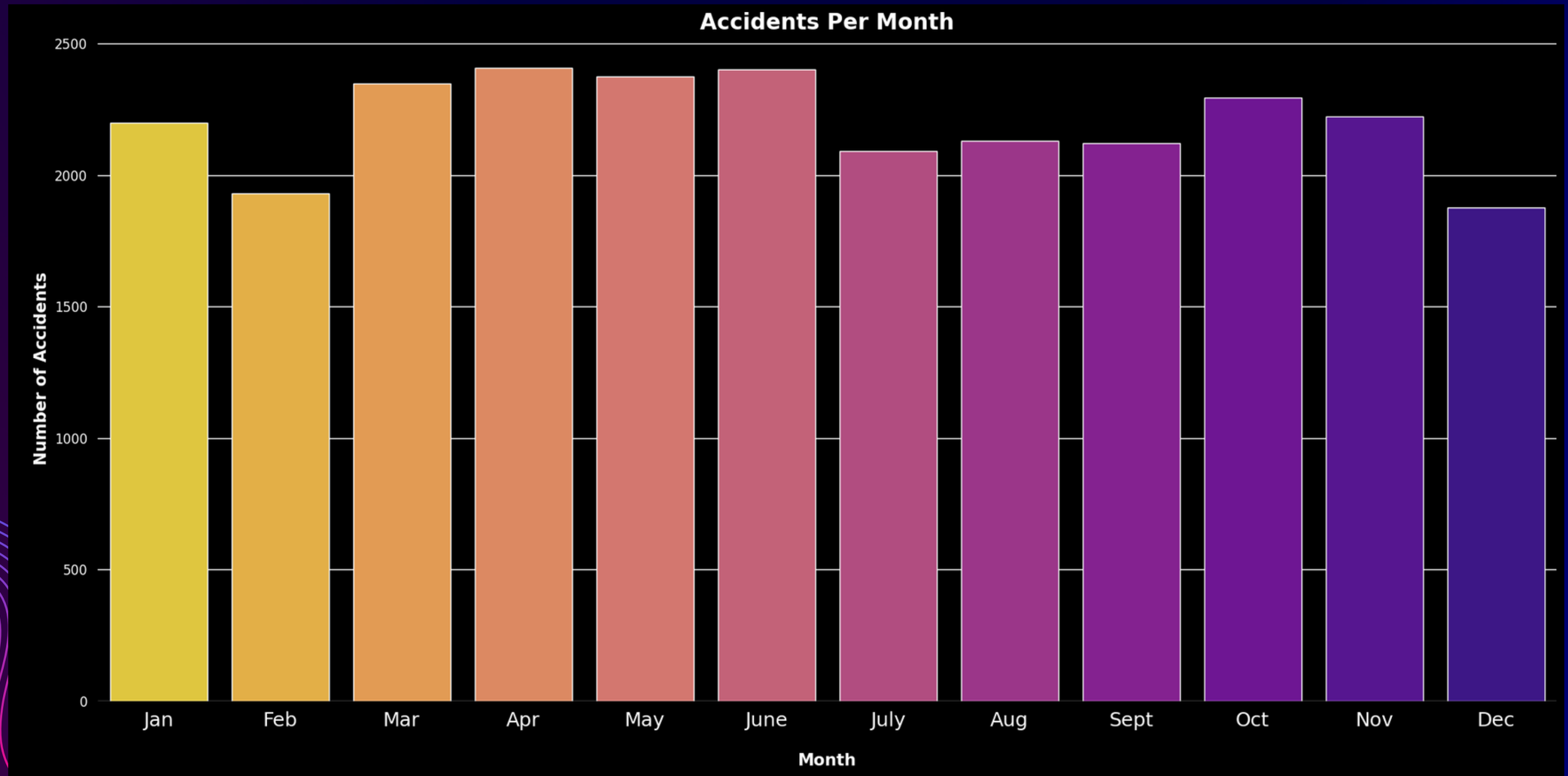
The following is the accuracy of the models:

- Logistic Regression(85.38%)
- Random Forest classifier(83.71%)
- Adaboost Classifier(85.36%)
- Bagging Classifier(85.38%)

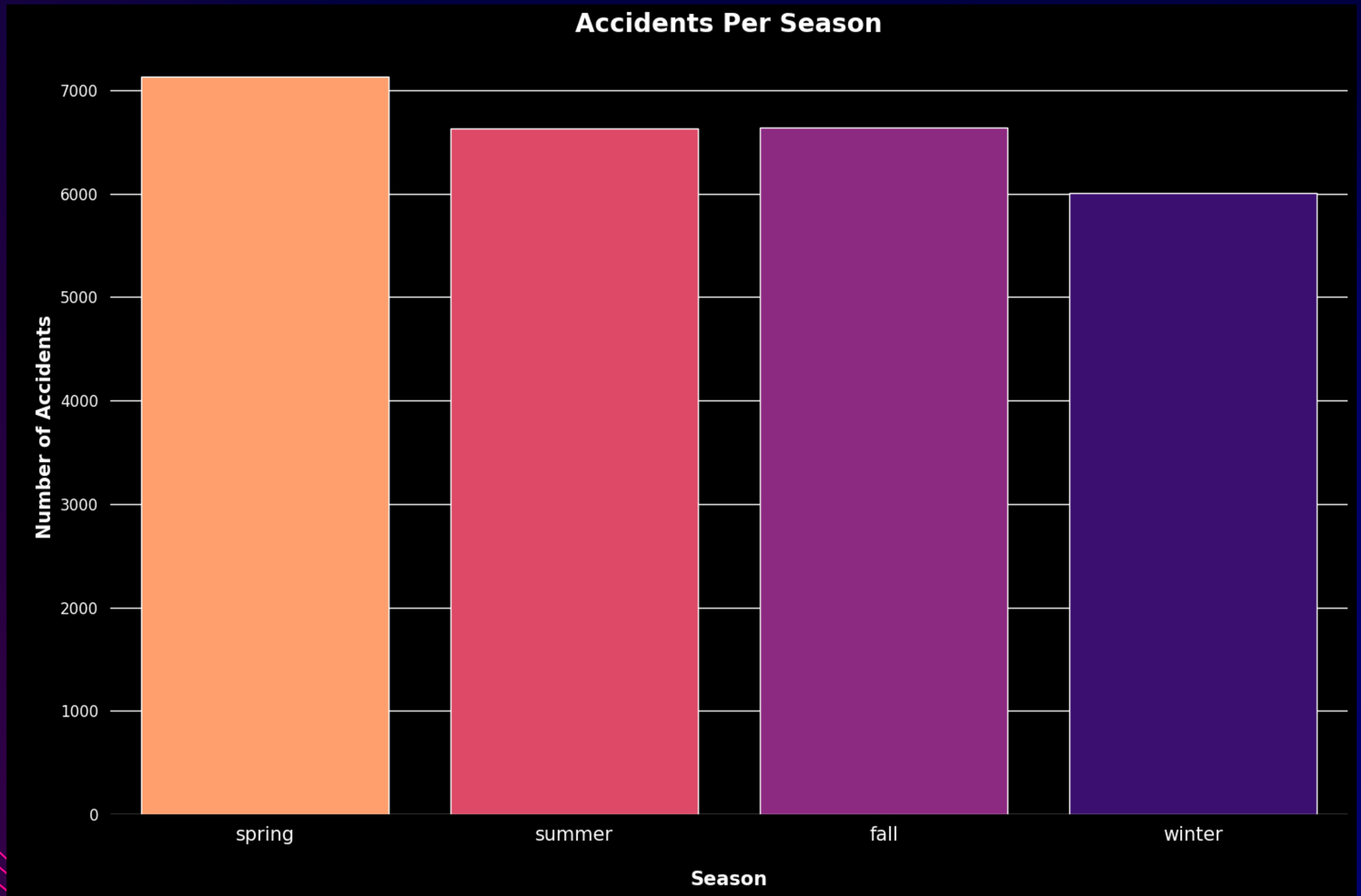


GRAPHICAL ANALYSIS

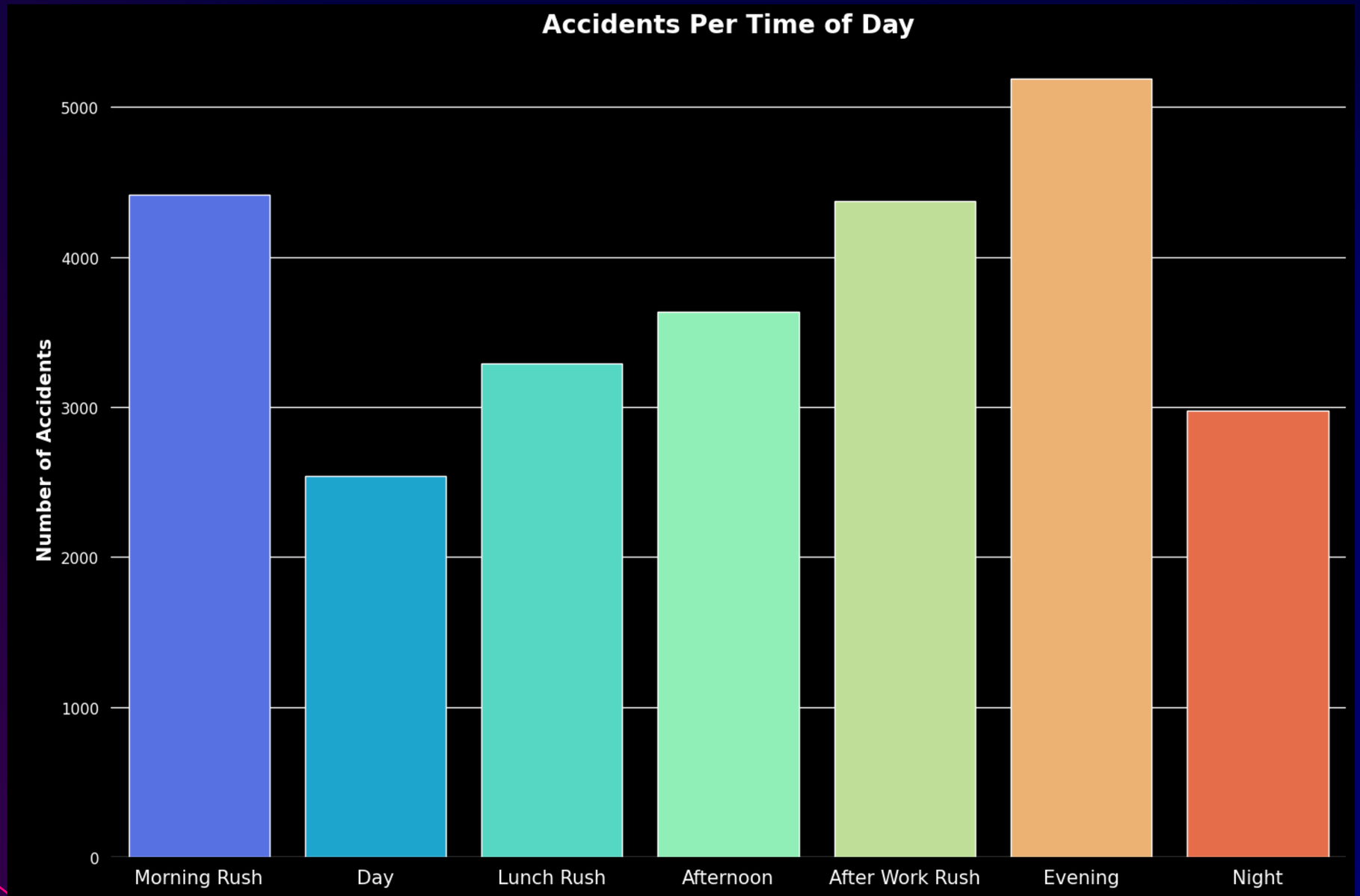
Accidents Per Month



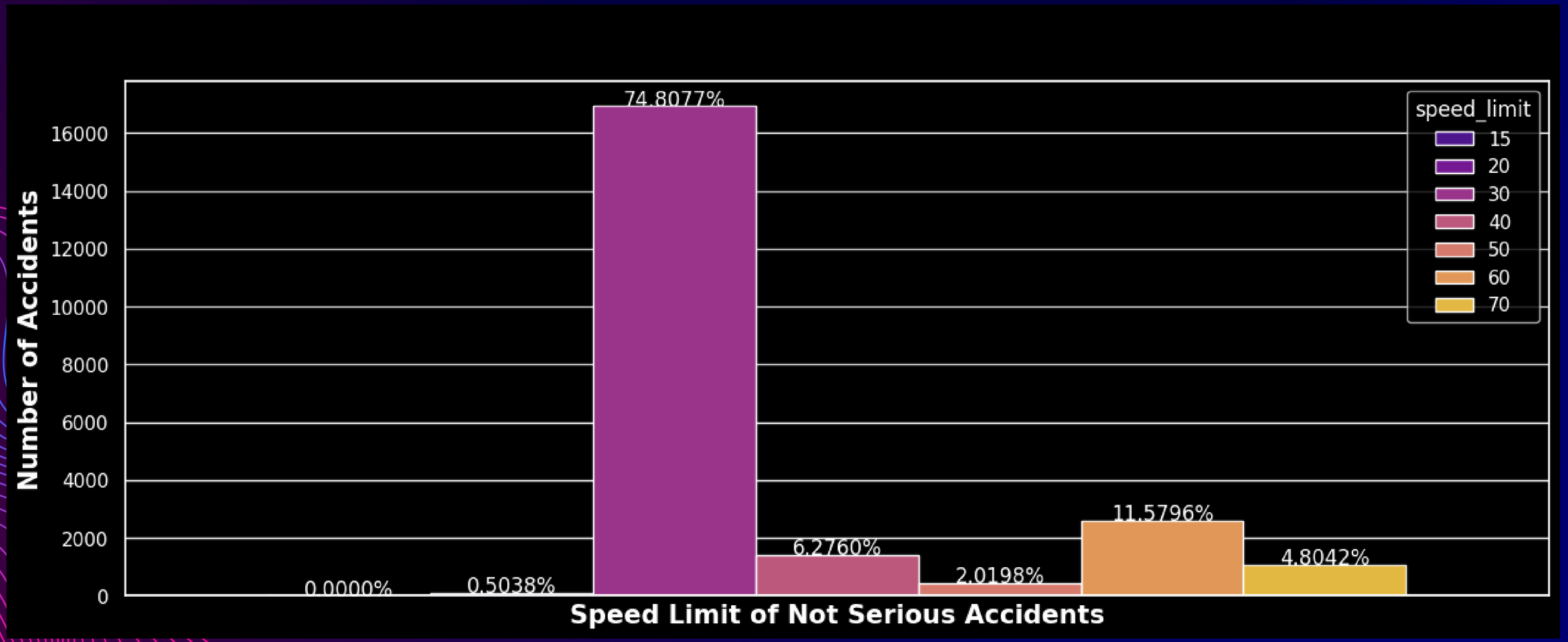
Accidents Per Season



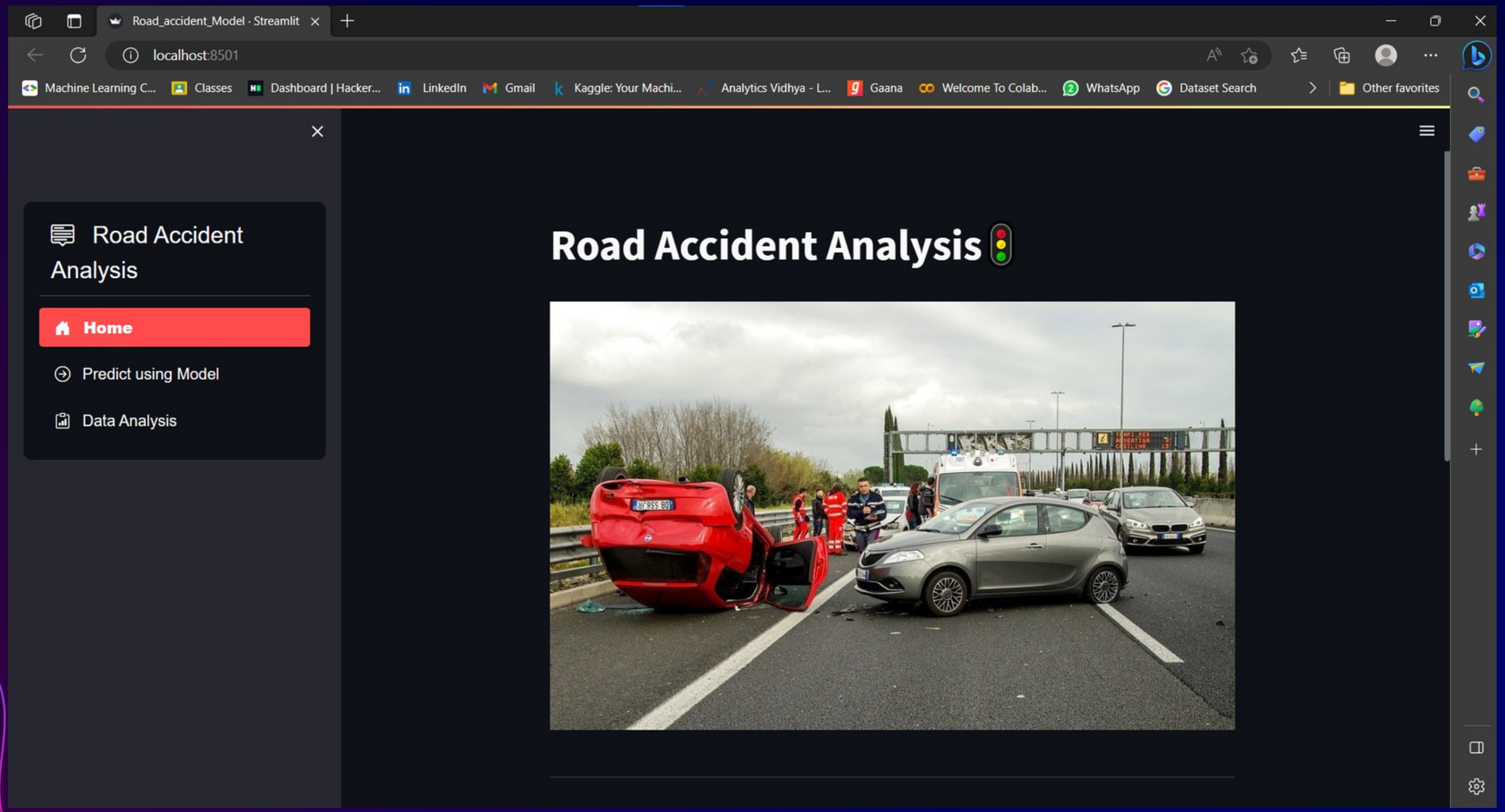
Accidents Per Time of Day



Speed Limit of Vehicles During Accident



SCREENSHOTS OF FRONTEND



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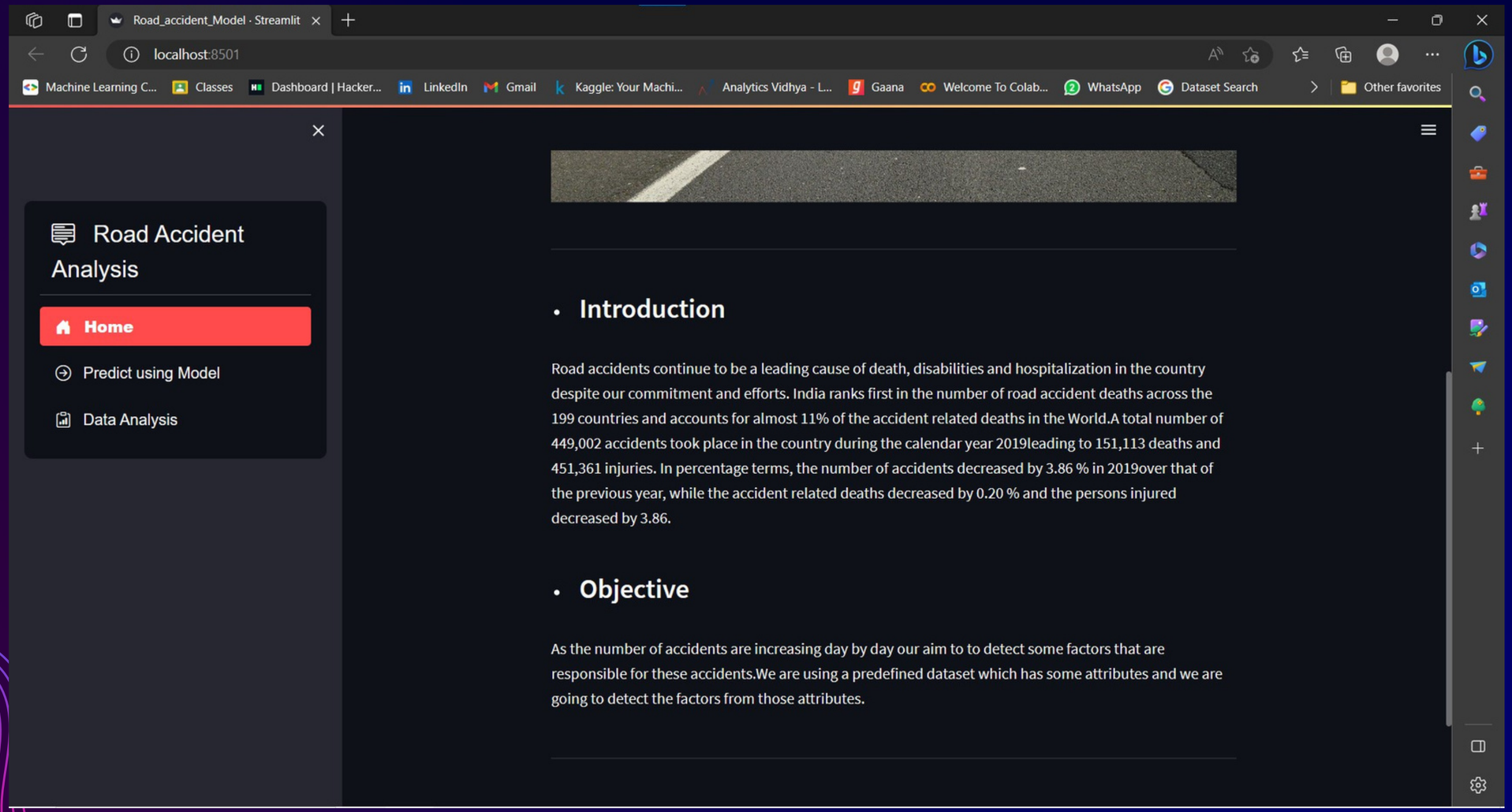

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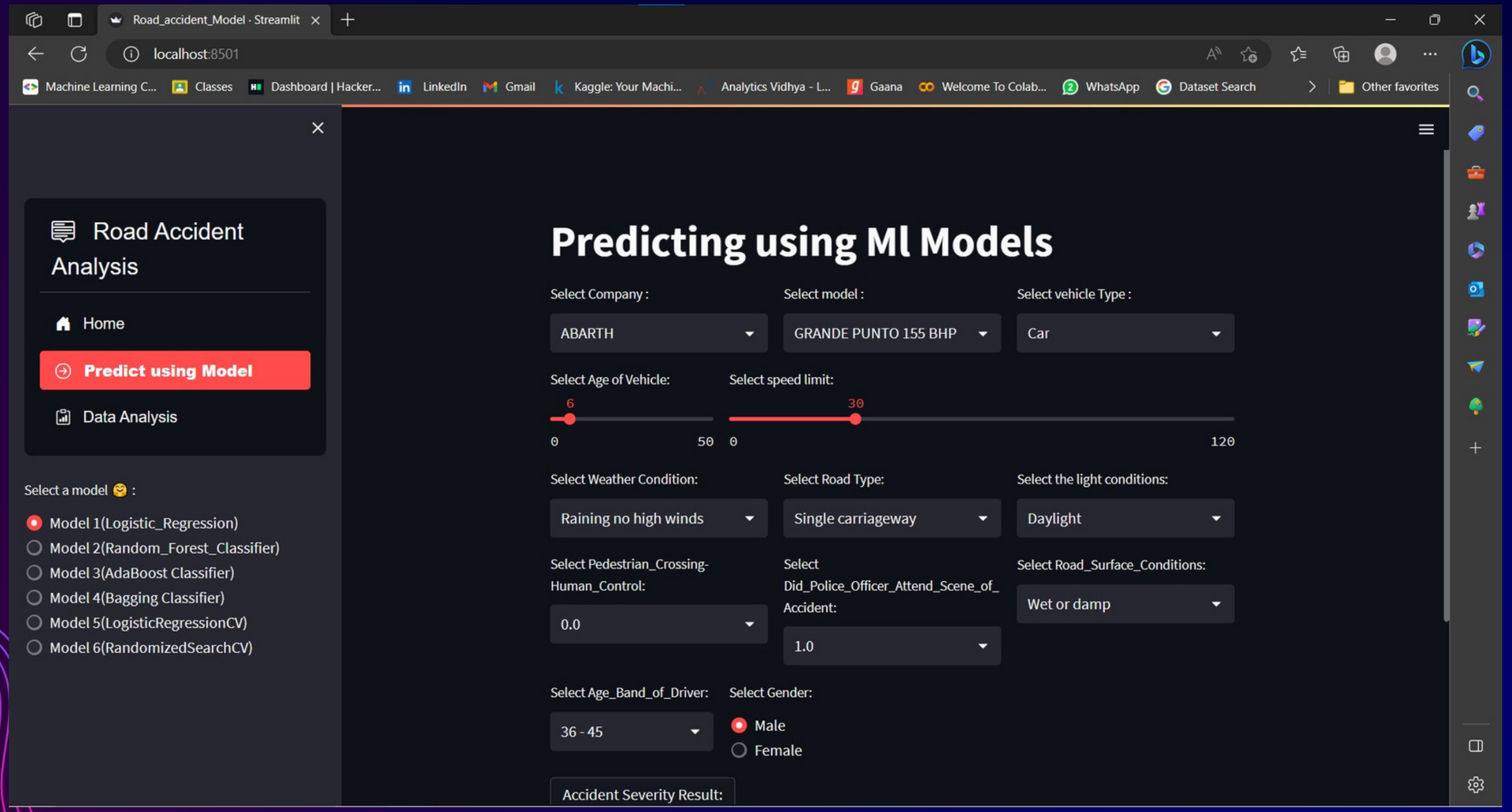

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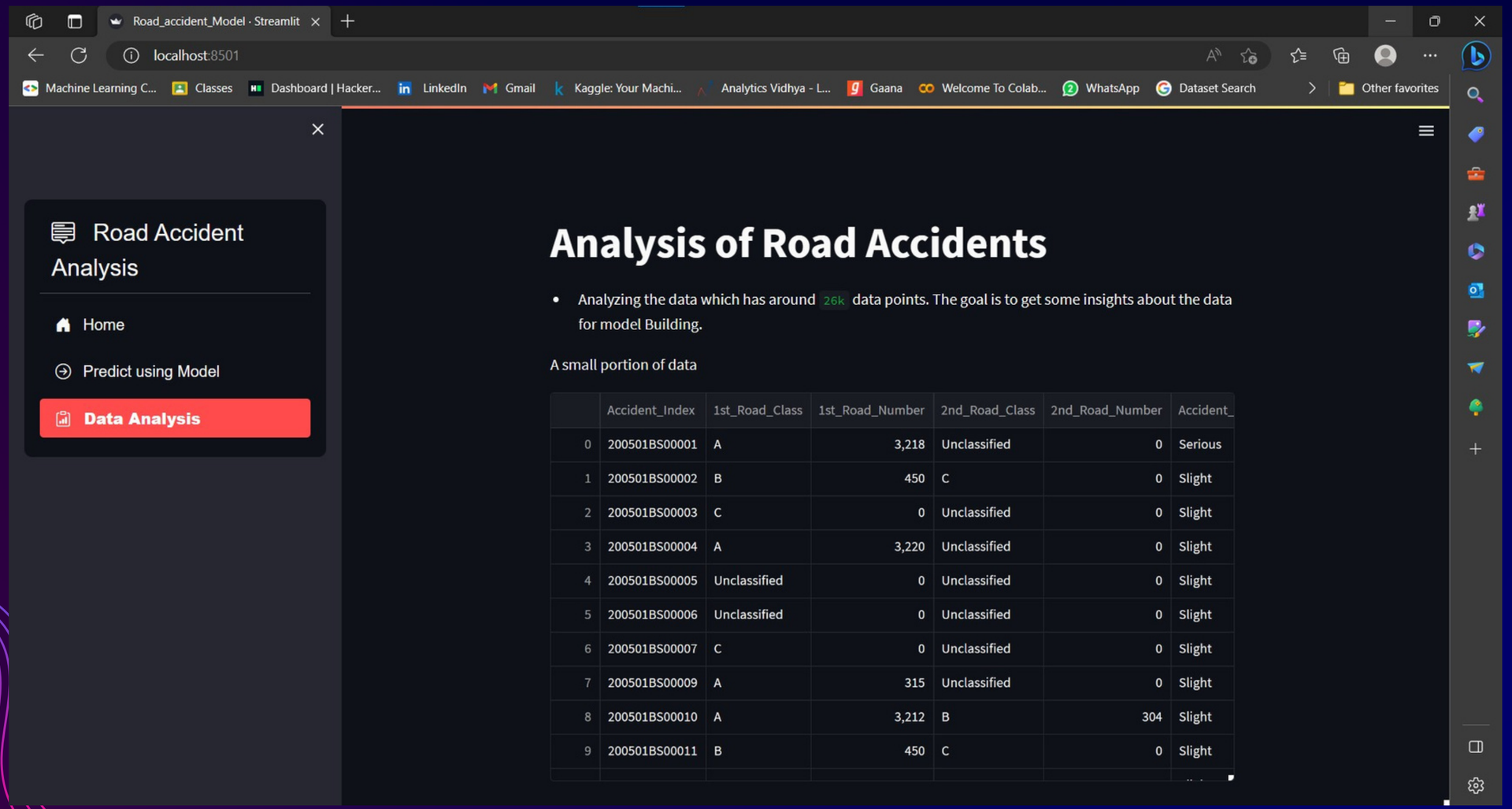
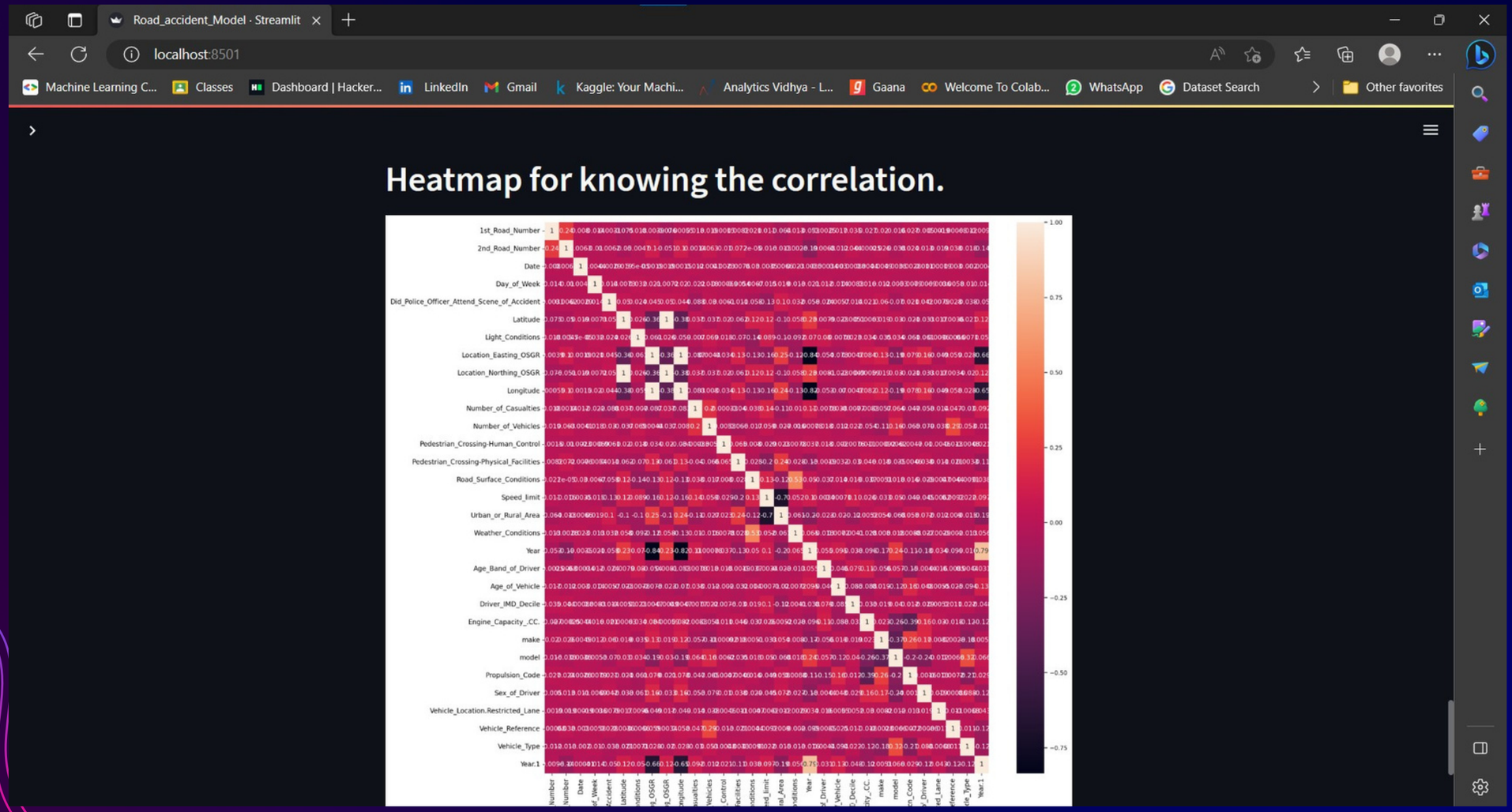


	Accident_Index	1st_Road_Class	1st_Road_Number	2nd_Road_Class	2nd_Road_Number	Accident_
0	200501BS00001	A	3,218	Unclassified	0	Serious
1	200501BS00002	B	450	C	0	Slight
2	200501BS00003	C	0	Unclassified	0	Slight
3	200501BS00004	A	3,220	Unclassified	0	Slight
4	200501BS00005	Unclassified	0	Unclassified	0	Slight
5	200501BS00006	Unclassified	0	Unclassified	0	Slight
6	200501BS00007	C	0	Unclassified	0	Slight
7	200501BS00009	A	315	Unclassified	0	Slight
8	200501BS00010	A	3,212	B	304	Slight
9	200501BS00011	B	450	C	0	Slight

SCREENSHOTS OF FRONTEND



CONCLUSION

Road traffic accidents are the key reason for serious injuries as well as the death of precious human lives. Discovering the factors that are related to the class values that are important to achieve an accurate result.

FUTURE SCOPE

- We can increase the number of rows in future.
- Currently we have worked upon only 27407 rows.
- We can increase the number of attributes also such as pothholes in road etc.

Thank you!