**Optimizing New York city’s Traffic system to reduce motor vehicle accidents**

**Business case and Project Description**

|  |  |  |
| --- | --- | --- |
| **S.No** | **Contents** | **Page** |
| 1 | Executive Business Summary | 2 |
| 2 | Problem Statement | 2 |
| 3 | Project Description | 2 |
| 3.1 | Project Goals | 2 |
| 3.2 | Project Time and Material | 2 |
| 3.3 | Project Assumptions | 3 |
| 3.4 | Dataset Metadata | 3 |

1. **Executive Business Summary:**

This Business case is a proposal to identify and understand the cause of traffic mishaps and fatalities in the city of New York. This is to be accomplished by investigating the past accidents' data with the help of team of Data Scientists from ABC IT firm. Insights and patterns gathered from the outcome of the project will help New York city's traffic police department to regulate the traffic better, identify accident-prone zones, create appropriate traffic awareness among public, impose severe traffic laws wherever necessary, improve the traffic infrastructure in city and to make the city as 'zero traffic casualty city' in the whole of USA.

1. **Problem Statement:**

New York city is the most populous city in US and number of vehicles running in its roads are obviously very high. In 2017, so far, 144 people killed and 37622 people injured in road accidents in the city which is a concern for city's traffic police and Governance. Despite having decent traffic infrastructure, traffic mortality in the city is on high side. City traffic police is aware of general causes of accidents. But there are still more obscure Causes and relationship among various factors like Alcohol involvement, poor lighting, inadequate traffic signs, improper maintenance of vehicles that needs to be investigated to curb the accident rate in the city.

1. **Project Description:**

This project is aimed at analyzing past 3 years traffic collision data given by New York traffic police department(NYPD) to uncover the hidden insights and provide viable suggestions substantiated by the proper numbers which would aid NYPD in taking mission critical decisions. Dissection of this data includes descriptive statistics of the data, visual representations of key attributes, charts for comparing and understanding the summary of data. This project is aimed at establishing below goals.

**3.1 Goals**:

1. Time of the day when the accident is more likely to happen.
2. Borough that needs better traffic regulations
3. When the next accident might happen in a borough.
4. Comparing weekday and weekend accidents
5. Season and lighting factors in vehicle accidents
6. Geographical representation of places with high number of accidents
7. Roads that needs speed tracking device and road signs to be installed
8. Relationship analysis of various factors causing accidents and number of injured or killed
   1. **Project Time and Material**

|  |  |
| --- | --- |
| **Business Owner** | New York Police department |
| **Data Owner** | New York Police department |
| **Dataset Source** | <https://data.ny.gov/Public-Safety/NYPD-Motor-Vehicle-Collisions/h9gi-nx95> |
| **IT Members** | Vinod Babu Palani |

**3.3 Assumptions:**

* Since the data given is secondary data, it is assumed that it is free from any bias.
* All collisions that has happened at any time between 2012 and 2017 is captured in the dataset.
* No redundant data
  1. **Dataset Metadata**

|  |  |
| --- | --- |
| 1 | Date of Accident |
| 2 | Time of Accident |
| 3. | Borough |
| 4 | Zip code |
| 5 | Latitude and Longitude |
| 6 | Street Name |
| 7 | Number of persons injured |
| 8 | Number of persons killed |
| 9 | Contributing Factors |
| 10 | Type of Vehicle Involved |
| 11 | Number of vehicle involved |
| 12 | Season |
| 13 | Lighting conditions |