Project Pitch

Team 1: Adrita Anika, Anantha Sai Sreelekha, Soham Sarda

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Introduction

In 2018, there were 228,047 motor vehicle accidents in New York City which killed 943 people. This includes collisions involving all motorists, bicyclists, and pedestrians. This is indeed alarming! This motivates us in exploring the motor vehicle collision data of New York City that can give us insights regarding the causes of such accidents which might lead to potential remedies for preventing road accidents. Specifically, our project targets to explore the statistical relationship of road accidents with respect to the time of accident occurrence, types of injuries of the victim, vehicle types, etc.

Dataset Review

We are interested in exploring multiple datasets which are publicly available from Open Data that is produced and used by the City government of NYC. (Link: https://opendata.cityofnewyork.us/overview/)

We are interested in the following datasets.

1. Motor Vehicle Collisions - Crashes (Details https://data.cityofnewyork.us/Public-Safety/Motor-Vehicle-Collisions-Crashes/h9gi-nx95)

The Motor Vehicle Collisions crash table contains details on the crash event. Each row represents a crash event. The Motor Vehicle Collisions data tables contain information from all police reported motor vehicle collisions in NYC. Attributes: Crash_date, Crash_time, longitude, latitude, location, on street name, cross street name, number of persons injured, number of persons killed, number of pedestrians injured, number of pedestrians killed, number of cyclists injured, number of cyclists killed, number of motorists injured, number of motorists killed, contributing factor, vehicle type.

2. Motor Vehicle Collisions - Vehicles (Details https://data.cityofnewyork.us/Public-Safety/Motor-Vehicle-Collisions-Vehicles/bm4k-52h4)

The Motor Vehicle Collisions vehicle table contains details on each vehicle involved in the crash. Each row represents a motor vehicle involved in a crash. The data in this table goes back to April 2016 when crash reporting switched to an electronic system. Attributes: Crash time, Crash Date, Vehicle type, Vehicle model, Vehicle make, vehicle year, vehicle occupants, driver sex, vehicle damage, public property damage etc.

3. Motor Vehicle Collisions - Person (Details https://data.cityofnewyork.us/Public-Safety/Motor-Vehicle-Collisions-Person/f55k-p6yu)

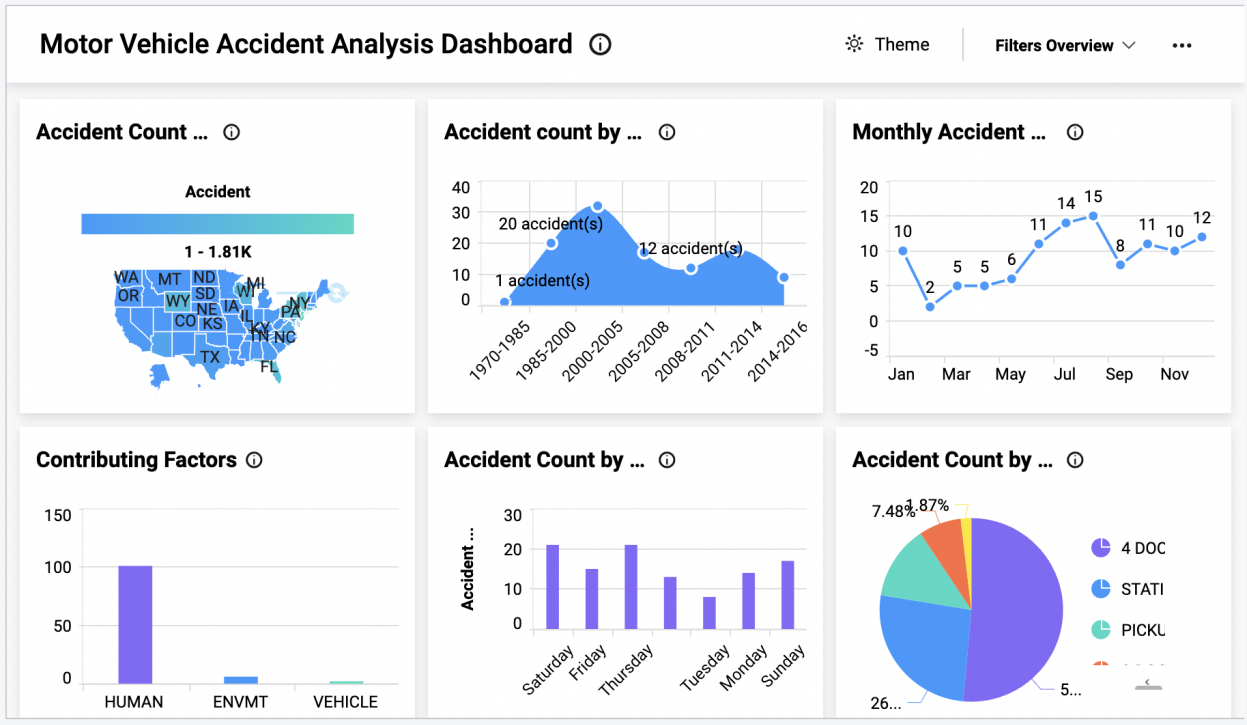
The Motor Vehicle Collisions person table contains details for people involved in the crash. Each row represents a person (driver, occupant, pedestrian, bicyclist,..) involved in a crash. Attributes: crash date, crash time, person age, person type, person sex, emotional status, ejection, safety equipment etc.

Moreover, we want to explore the relation of weather conditions with the occurence of motor vehicle collisions of NYC. So, we will be using data from National Cneters for Environmental Information. (Link: https://www.ncdc.noaa.gov/cdo-web/search)

Questions we can explore

1. What time of day or day of the week have the most collisions?: The time series analysis targets to reveal what time of day or day of week has most collisions.
2. What variables contributed to the collision and what is the relation between crashes and weather?: This analysis aims to reveal the top causes that led to collisions and fatalities.
3. Which type of people got injured or killed because of the collisions?: This analysis targets to find out who are mostly injured from the accidents, cyclists or pedestrians or motorists.
4. Which vehicle types are mostly involved in a collision?: Our analysis aims to find out whether certain vehicles are causing the majority of the accidents.
5. Where collisions occurred frequently?: The analysis targets to find out whether particular region (street/ cross street) of NYC are prone to traffic collisions.
6. What is the effect of traffic and weather characteristics on road safety?: This tells us the impact of weather conditions on the motorists/pedestrian crash severity in all the geographic areas

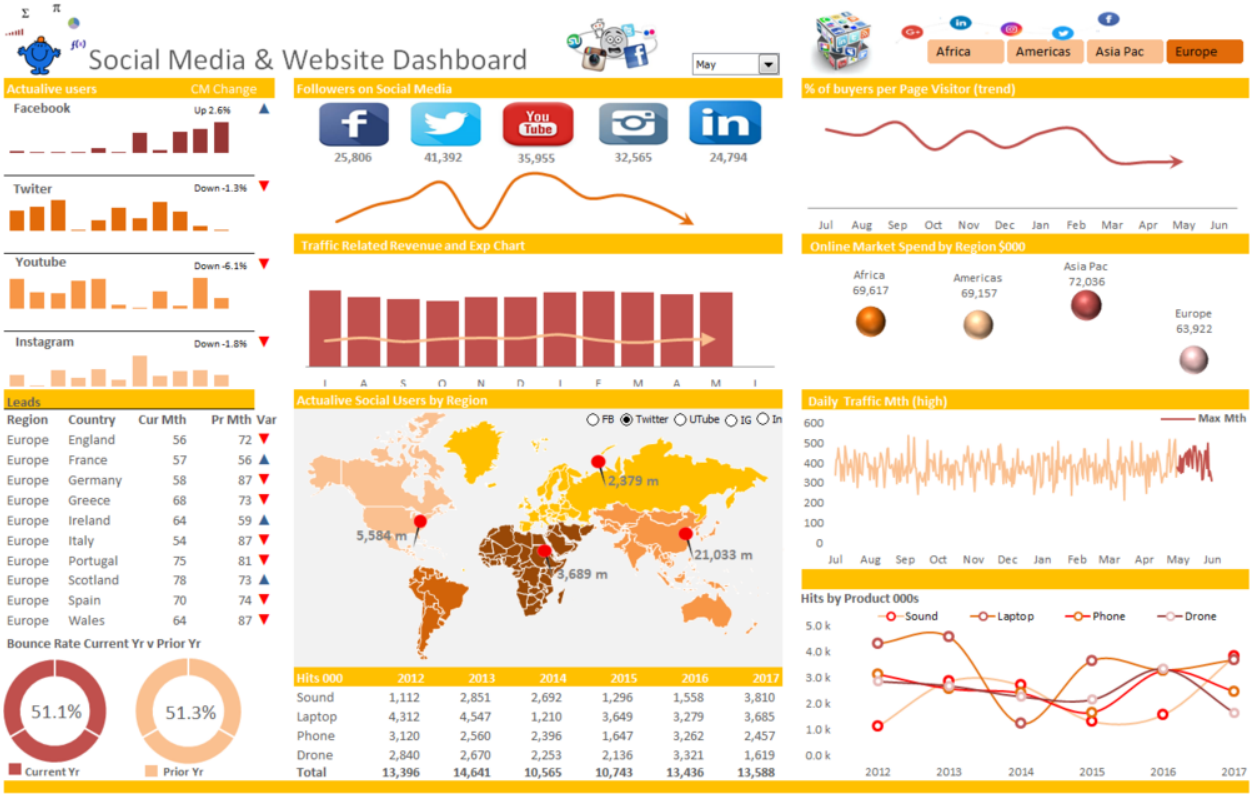
Visualization Inspiration



Example 1:

This visualization dashboard displays motor vehicle accident analysis by the day of the week, month of the year, for different years, contributing factors and vehicle type. We prefer this dashboard because it is concise and make it easy for the reader to get the message from the dashboard.

Example 2:
The Space Dashboard provides widgets that display space capacity data for a specific location. We particularly liked the visualization tools of this dashboard.



Example 3:

This is a social media and website media dashboard which represents different statistical information regarding the active users of popular social media platforms.

Sketch

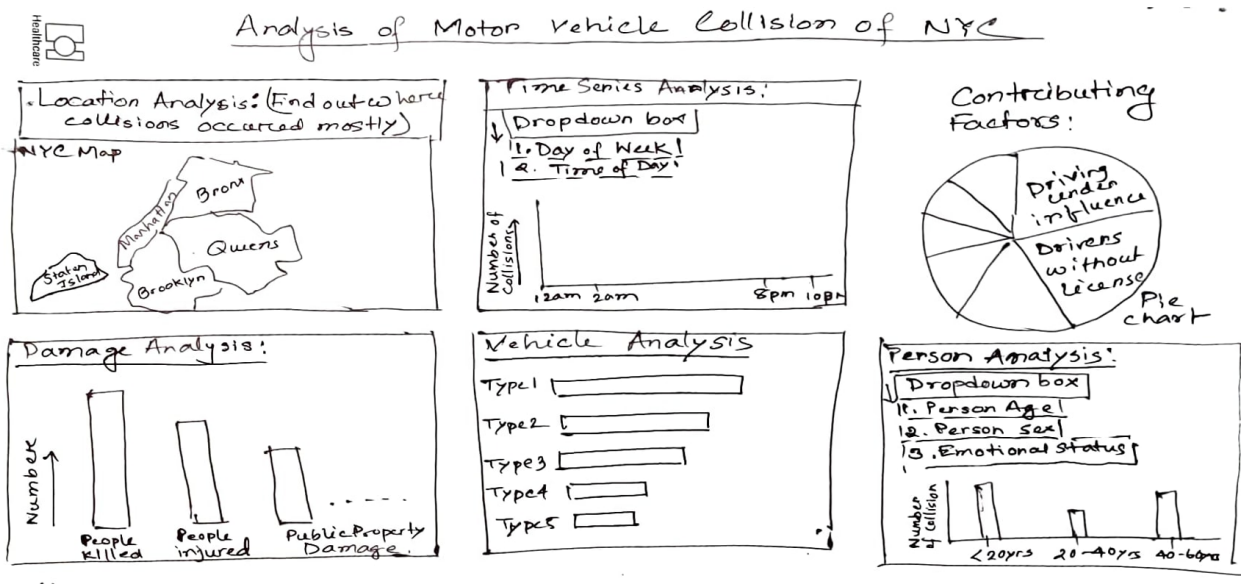


Figure 1: Sketch of Our Visualization Dashboard for Motor Vehicle Collision Analysis of NYC