Los Angeles Traffic Collision Report

Instructors: Daniel Chudnov, Ali Obaidi

Presenter: Xinrong Chen, Wade Kong, Archit Manuja, Yan Wang, Haolin Yang,

Introduction

Dataset:

- Traffic collision of LA

- From 2010 to present

- Data source: Los Angeles
  Police Department

Question:

- Which areas have a high risk of collisions?
  (Top 3)

- Which streets are of the most risk in the
  highest risky areas of LA?

- What time has the highest frequencies of
  traffic collisions?

- Is male or female more likely to get involved
  into the traffic collisions?

Schema
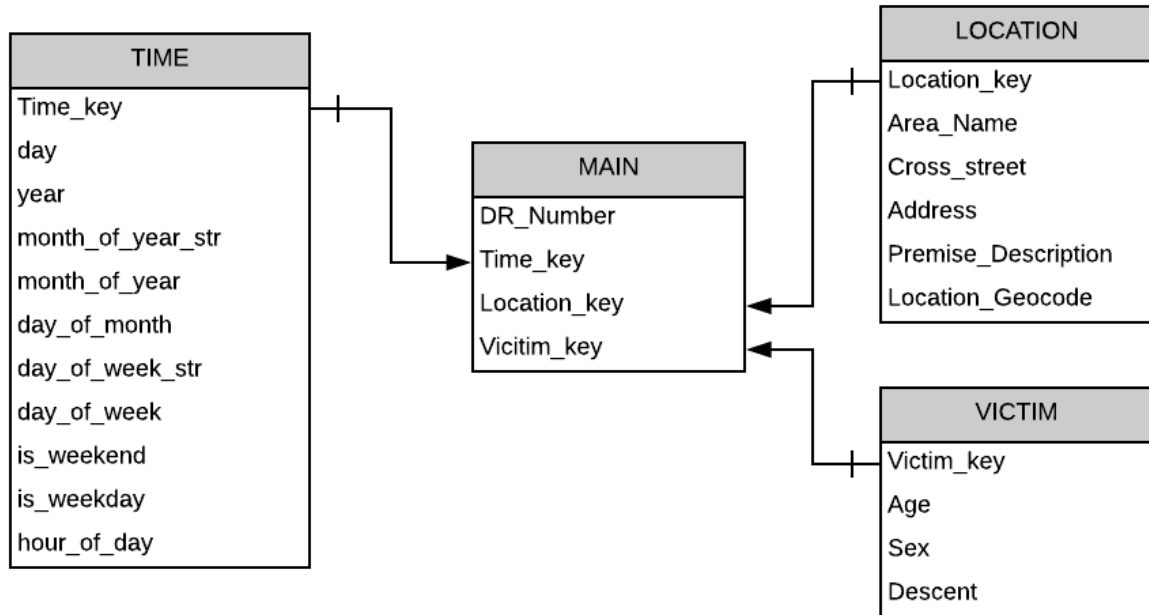
Data Wrangling and the Database Tables

1 Columns removed

- Repetitive information, e.g. Date Reported/ Occurred

2 Data type conversion

- Missing values: "Null"
- Timestamp

dr_number	location_key	victim_key	time_key
101221255	1750	1288	4978
100119684	11361	2290	6907
101115385	79891	2359	4158
101226932	5449	1250	6790
101119027	77402	162	5557

location_key	area_name	crime_code_descript	premise_descript	address	cross_street	geo
1	77th Street	TRAFFIC COLLISION	ALLEY	2ND AV	54TH ST	(33.9932, -118.3193)
2	77th Street	TRAFFIC COLLISION	ALLEY	51ST ST	DENKER AV	(33.9969, -118.3046)
3	77th Street	TRAFFIC COLLISION	ALLEY	53RD	VERMONT	(33.9941, -118.2915)
4	77th Street	TRAFFIC COLLISION	ALLEY	53RD ST	VERMONT AV	(33.9941, -118.2915)
5	77th Street	TRAFFIC COLLISION	ALLEY	58TH PL	HALLDALE AV	(33.9884, -118.3024)

victim_key	age	sex	descent
1	14	M	K
2	27	M	J
3	23	H	G
4	80	M	O
5	44	M	NULL

time_key	day	year	month_of_year_str	month_of_year	day_of_month	day_of_week_str	day_of_week	is_weekend	is_weekday	hour
1	2010-01-01	2010	January	1	1	Friday	6	False	True	0
2	2010-01-01	2010	January	1	1	Friday	6	False	True	1
3	2010-01-01	2010	January	1	1	Friday	6	False	True	2
4	2010-01-01	2010	January	1	1	Friday	6	False	True	3
5	2010-01-01	2010	January	1	1	Friday	6	False	True	4

Answering Questions with SQL

Region and Street

area	street_name	total_collisions
Hollywood	SUNSET BL	2232
West Valley	VENTURA BL	2112
Van Nuys	SEPULVEDA BL	1866
Van Nuys	VAN NUYS BL	1862
77th Street	WESTERN AV	1858
77th Street	FLORENCE AV	1858
Olympic	WESTERN AV	1714
Topanga	TOPANGA CANYON BL	1656
Olympic	VERMONT AV	1651
N Hollywood	LAUREL CANYON BL	1600

All Tables

sex	total_collisions
M	260594
F	169028
X	9487

Sex Distinction

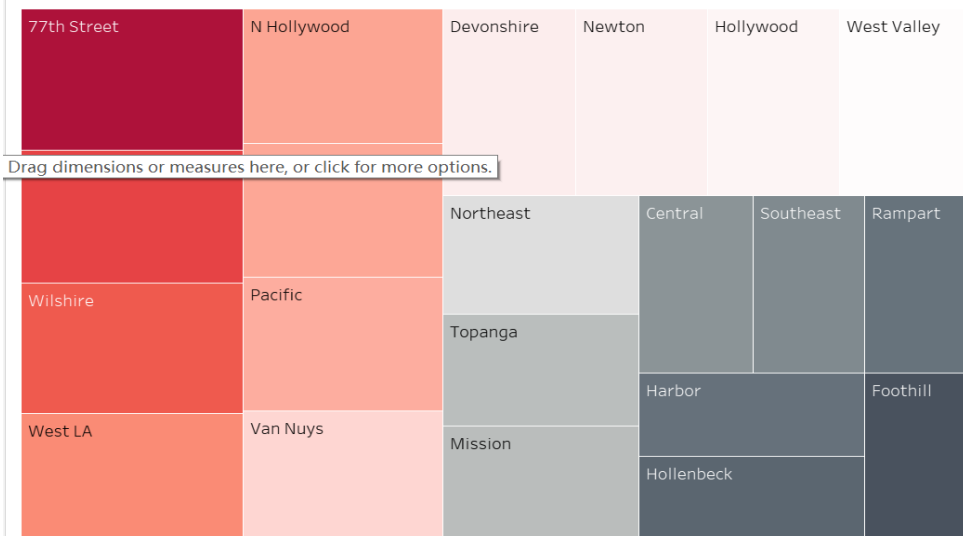| sex	areaname	dayofweek	hour	total_collisions
M	Hollywood	Saturday	2	227
M	Hollywood	Sunday	2	215
M	Southwest	Friday	18	184
M	Newton	Friday	17	176
M	Newton	Friday	18	174

Collision Report

- There is a significant increase of collisions in 2017 and in most cases males are involved in the accidents.
- The places of the highest collision rate is 77th street with 27,743 records.
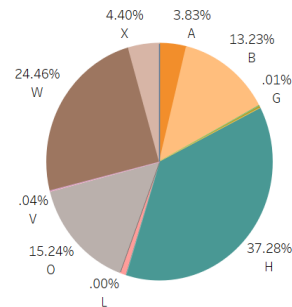

Traffic Collision Tendency
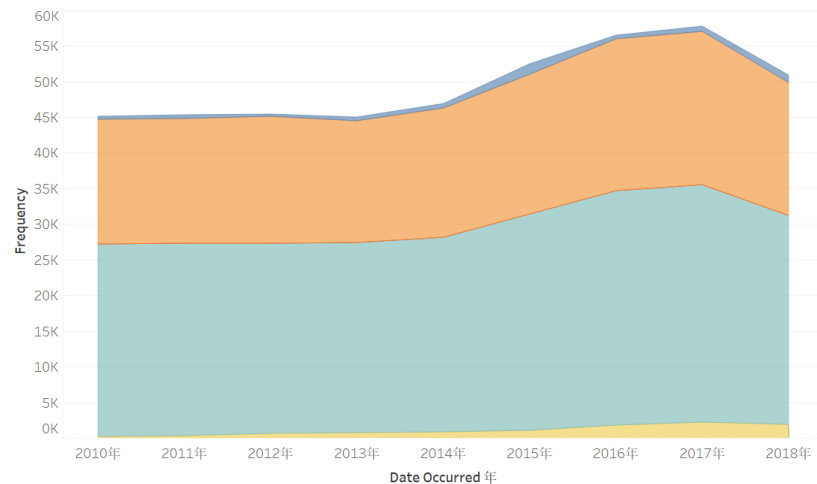
The plot of count of Date Occurred for Date Occurred Year. Color shows details about Victim Sex.
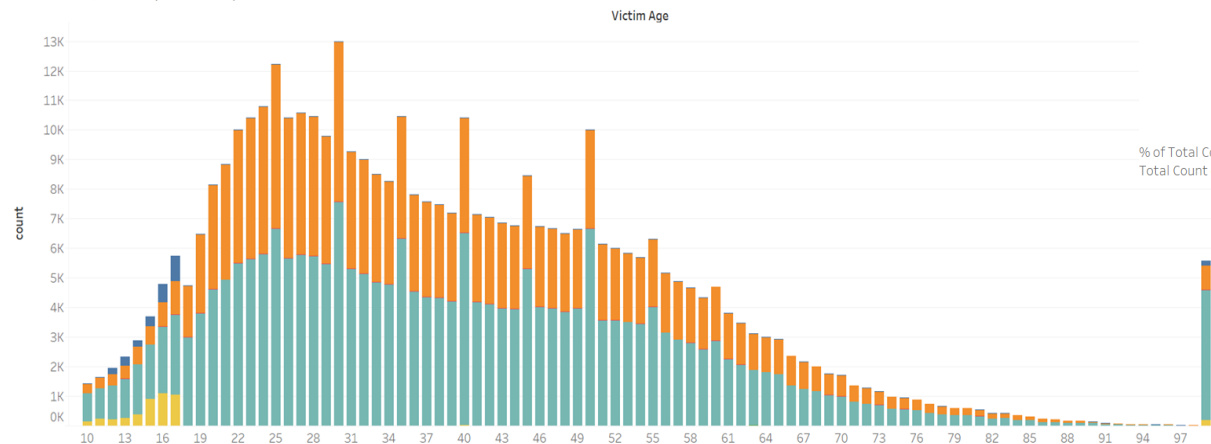

Most Dangerous Area

Drag dimensions or measures here, or click for more options.

Victim Report

4.40% X
3.83% A
13.23% B
.01% G
24.46% W
.04% V
15.24% O
.00% L
37.28% H

% of Total Count of Victim Descent and Victim Descent. Color shows details about Victim Descent. The marks are labeled by % of Total Count of Victim Descent and Victim Descent. Percents are based on each cell of each pane of the table.

Victim Report 1 (age&sex)

Victim Age

Count of Victim Age for each Victim Age. Color shows details about Victim Sex.

- People from age 20 to 50 account for the largest percent.
- The hispanic and the white are the main group of victims.

Collision Heat Map

- Overall, there is a high density of traffic accidents in Los Angeles.
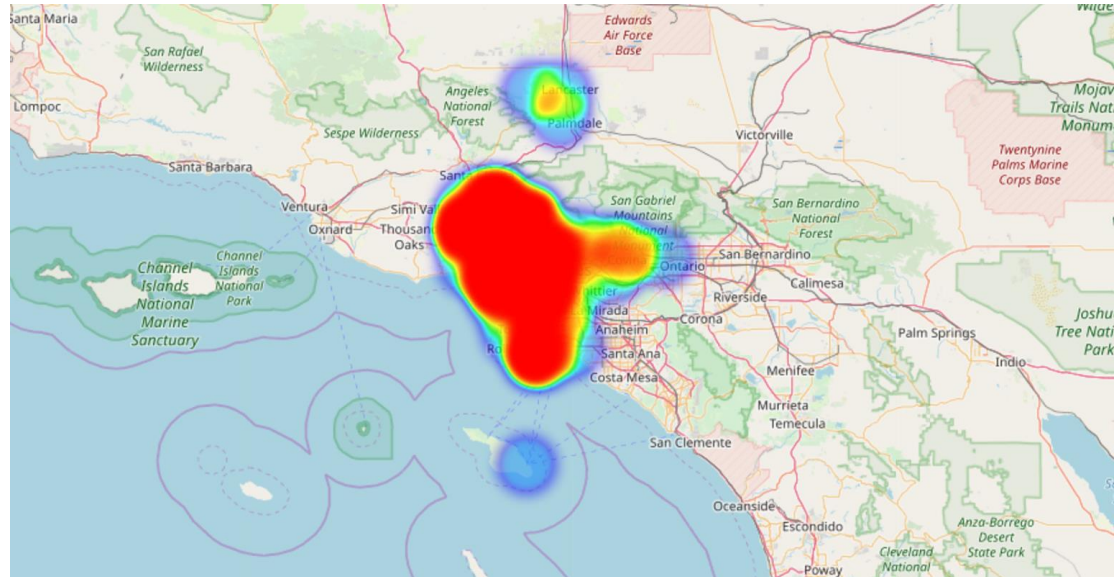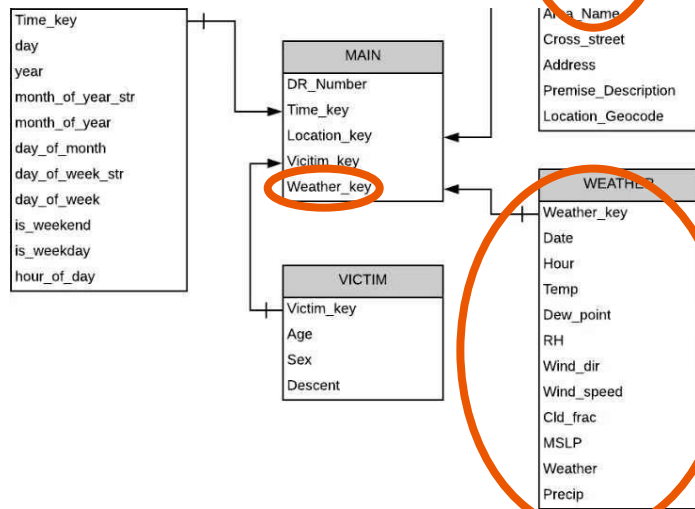
Bonus part - Weather Dataset for LA

- 82608 rows and 11 columns
- From 1993 to 2018
- Hourly interval
- The weather do not affect so much
- Made primary key for the weather

Out[99]:

dr_number	location_key	victim_key	time_key	weather_key
101221255	1758	1288	4978	10508
100119684	11361	2290	6907	12566
101115385	79891	2359	4158	9639
101226932	5449	1250	6790	12440
101119027	77402	162	5557	11135

As expected, the main table only has dr_number, and the four primary keys.

windspeed	total_collisions
0	47613
5	42579
3	41023
6	38192
10	34630

temp	total_collisions
63	25312
65	24032
64	23611
62	23226
66	22914

Time_key
day
year
month_of_year_str
month_of_year
day_of_month
day_of_week_str
day_of_week
is_weekend
is_weekday
hour_of_day

MAIN
DR_Number
Time_key
Location_key
Vicitim_key
Weather_key

Area_Name
Cross_street
Address
Premise_Description
Location_Geocode

VICTIM
Victim_key
Age
Sex
Descent

WEATHER
Weather_key
Date
Hour
Temp
Dew_point
RH
Wind_dir
Wind_speed
Cld_frac
MSLP
Weather
Precip

Conclusions

- LA Police Authorities Need To:
  - Increase Safety
    - On the weekends
    - In the evenings
    - In 77th Street, Southwest, and Hollywood Regions
  - Have more safety advertisements directed towards
    - Men
    - Hispanics/Latinos
- Weather has no significant influence in LA traffic collisions