

Car accident severity

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1- Introduction to the Problem:

Road accidents have become very common nowadays. As more and people are buying automobiles, the incidences of road accidents are just increasing day by day. Furthermore, people have also become more careless now. Not many people follow the traffic rules. Especially in big cities, there are various modes of transports. Moreover, the roads are becoming narrower and the cities have become more populated. So In this project I will use Car accidents database in Canada and python libraries to **discuss**:

- factors that causes car accidents
- losses caused by car accidents
- factors that reduce car accidents

and predict:

- if the road safe or dangerous
- roads that are safe
- how to reduce car accidents

2- Data Description:

The database that I will use: [National Collision Database 2017](#)

it contains all accidents happened in Canada in 2017 This database provides:

- accident information: date, weather condition, road condition, etc.
- vehicle information: id, type, model year
- personal information: sex, age, medical treatment, etc.

This database has 289841 case and 23 Attribute

3- Data cleaning:

First, I removed unknown and non-found data. So, the rows count became 165646

Then, I removed these columns:

- V_ID: The id of the vehicle
- P_ID: The id of the person
- C_CASE: The case number of the accident
- C_WDAY: the day of the accident
- C_TRAF: the traffic condition
- C_VEHS: Number of vehicles involved in collision
- P_PSN: Person position
- C_YEAR: Year of the accident

So, the number of columns became 15

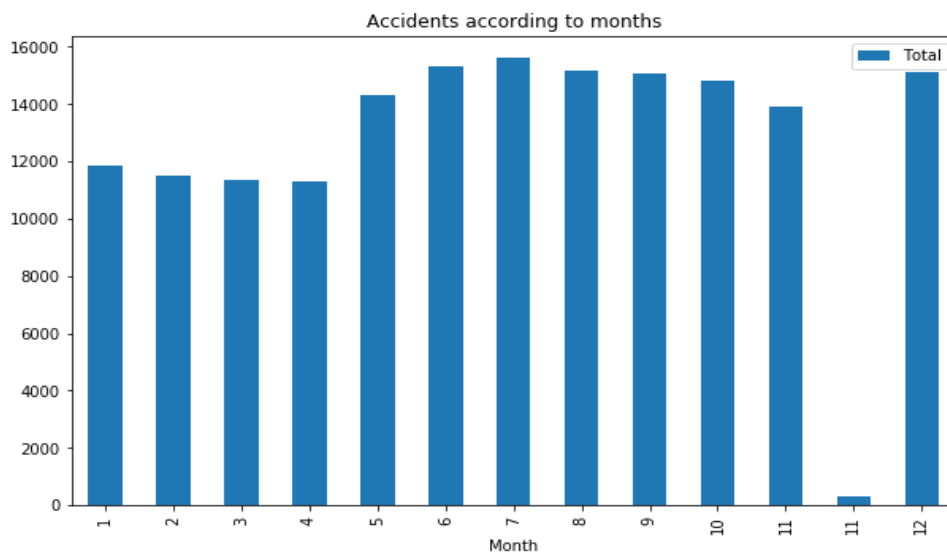
Finally, I reset the index of the dataset

So, the data became 165646 row x 15 column

4- Data Analysis:

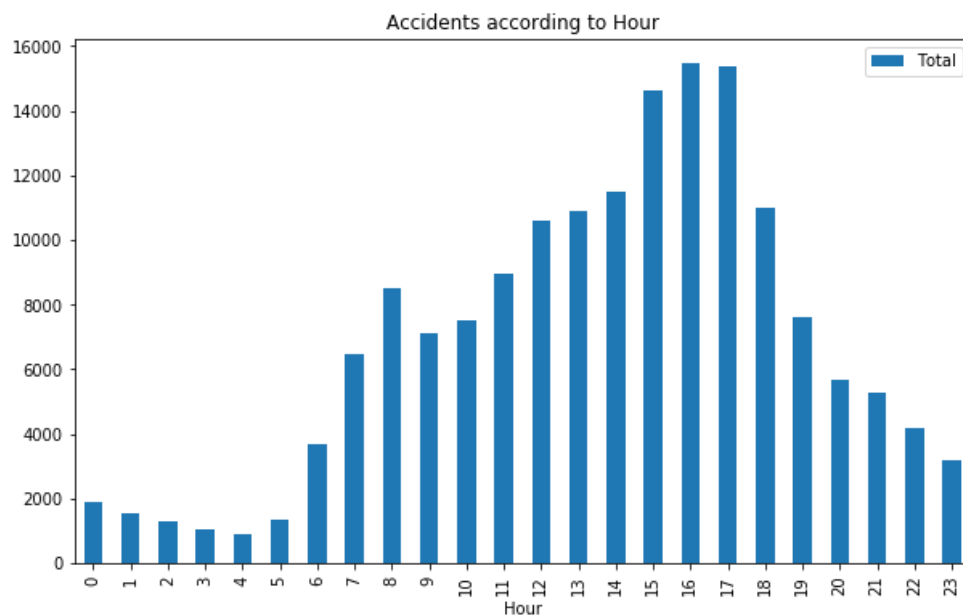
I used python modules to visualize the dataset so, I made many relationships:

- Number of accidents every Month



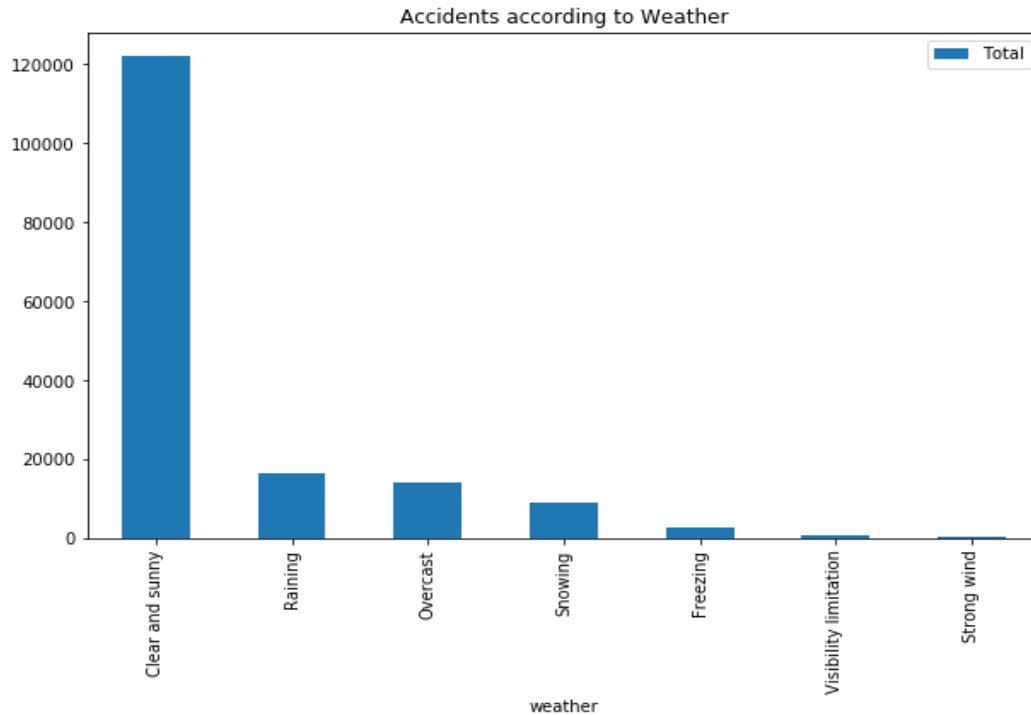
From this graph we deduce that accidents happen normally in all months, but in November number of accidents are reduced extremely and that is because the holidays in Canada

- Number of accidents every hour



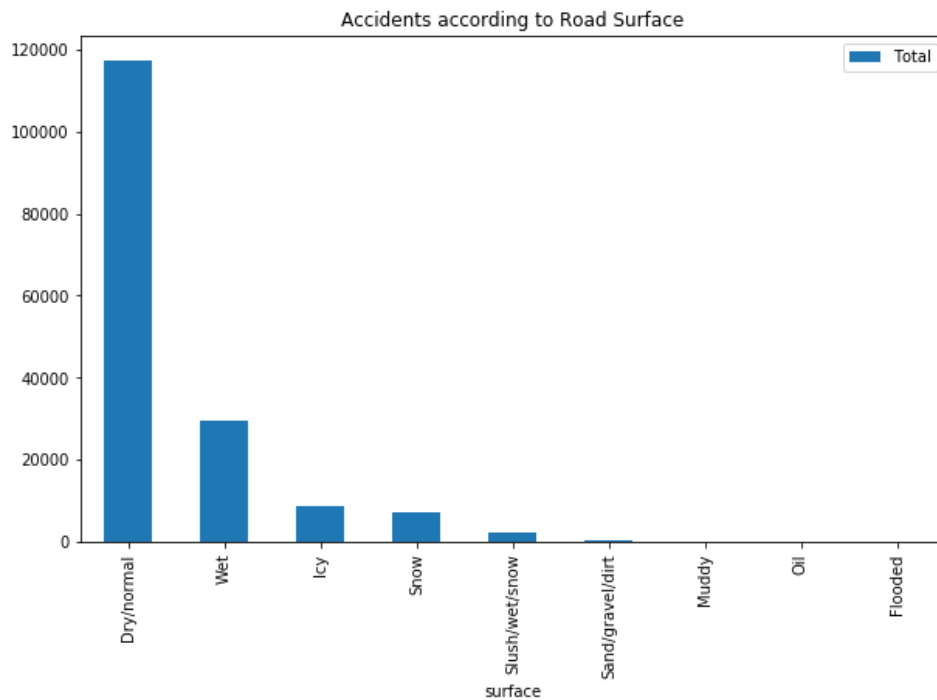
From this graph we observe that most accidents occur between 3 pm to 6 pm and accidents are less from 6pm to 6am

- Relationship between weather and accidents



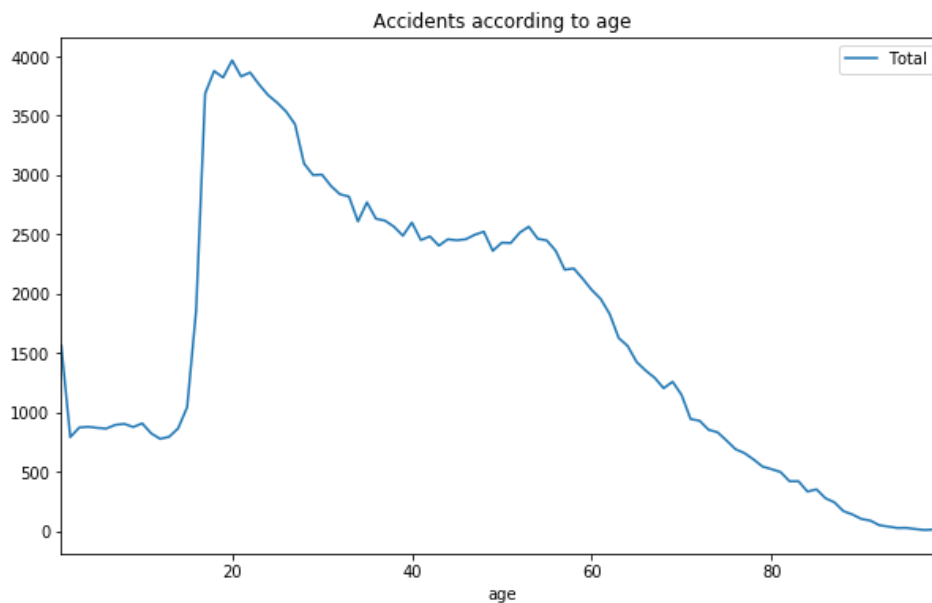
From this graph we observe that 70% of accidents didn't occur by weather effect, but weather causes 30% of accidents in Canada

- Relationship between Road Surface and accidents



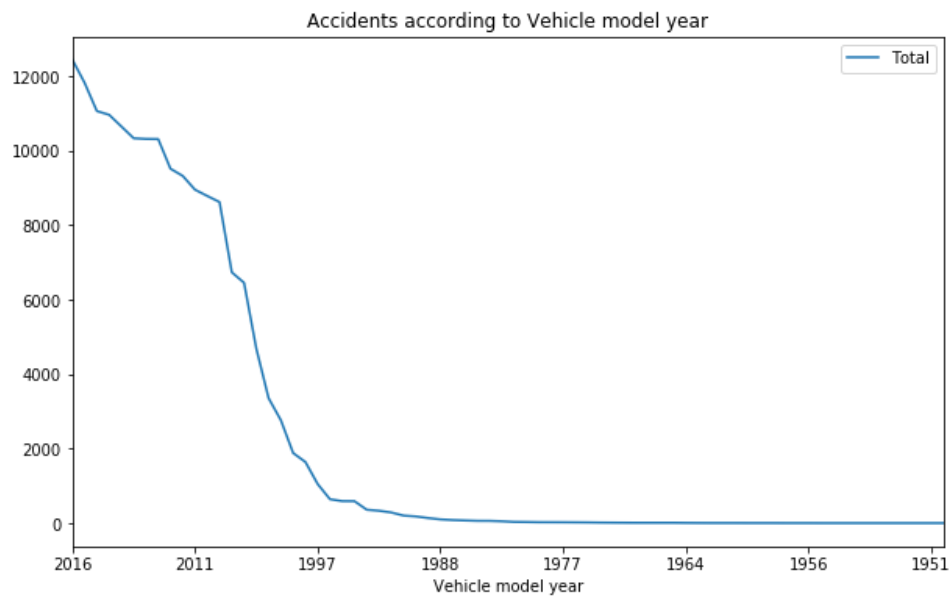
From this graph we observe that wet roads have more impact on accidents

- Relationship between age and accidents



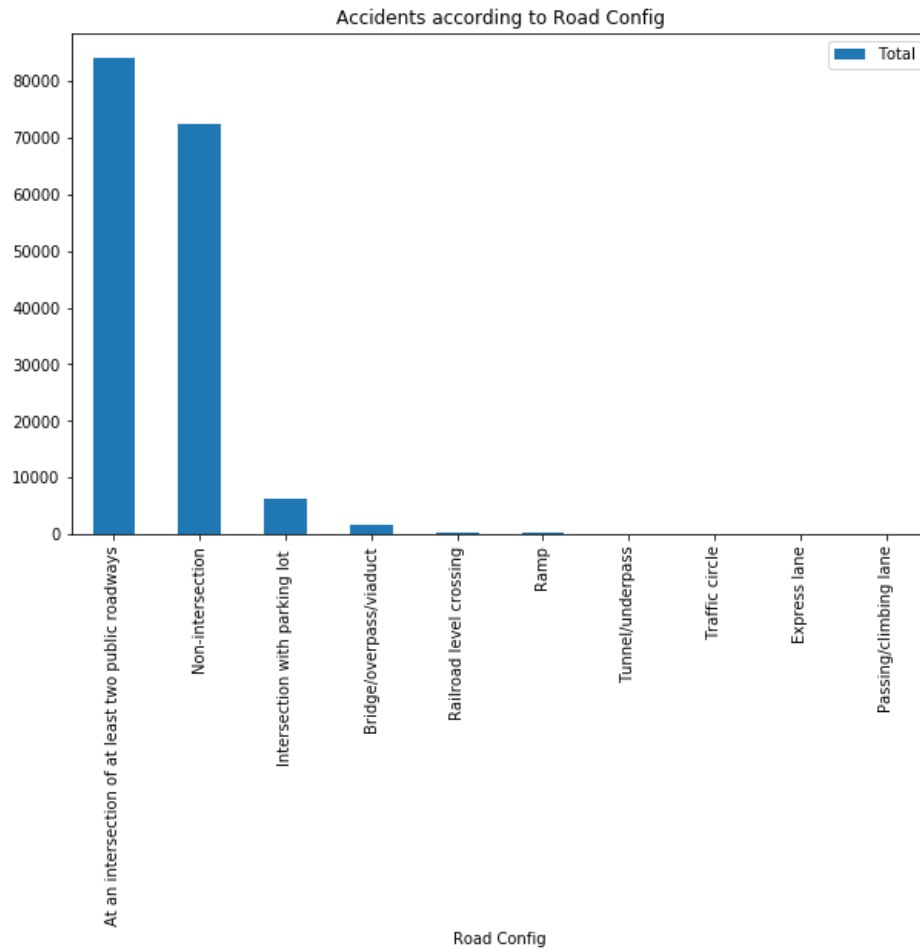
From this graph we observe that the most age that has accidents is 20s

- Relationship between Vehicle model year and accidents:



From this graph we observe that newer cars have more accidents than older cars

- Relationship between Road Config and accidents:



From this graph we deduce that the roads with intersection of two ways has more accidents