**DAB 201 Data Visualization & Reporting**

Group 6: Project, Part I

**Motor Vehicle Collisions on Canadian Roads**

**History & Context:**

Road traffic injuries cause considerable economic losses to individuals, families and to nations. 3% of most countries’ gross domestic product is spent on road traffic crashes. Every year approximately 1.3 million people die and about 20 to 50 million people suffer non-fatal injuries because of traffic accidents. [(WHO](https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries), 2022). Addressing the road transport casualties is a challenge that each country in the world faces.

In Canada around 1,800 deaths and 150,000 injuries, (approximately 10,000), due to vehicle collisions are reported each year which costs the society $40.7 billion (2.1% of Canadian GDP) annually. ([CCMTA](https://www.ccmta.ca/en/road-safety), 2021). *Making improvements to the road system of users, infrastructure and vehicles can reduce the number of Canadians that will die or be injured on the roads. Finding insights from the historical data and using them to take necessary steps to reduce the accidents on road will save 1000s of human lives.*

**Dataset Description:**

“National Collision Database (NCDB)” is a database containing all police-reported motor vehicle collisions on public roads in Canada. ([Canada](https://open.canada.ca/data/en/dataset/1eb9eba7-71d1-4b30-9fb1-30cbdab7e63a), 1999) Apart from the Data Dictionary provided in the NCDB, our projects team will extract 3 excel files from the National Collision DB corresponding to the recent years 2017, 2018 and 2019 to analyze and find patterns.

Each of the 3 Excel files contains a huge number of records which are listed below.

|  |  |  |
| --- | --- | --- |
| **Year** | **Format** | **#Count of Records** |
| 2017 | .xlsx | 289,823 |
| 2018 | .xlsx | 285,382 |
| 2019 | .xlsx | 272,301 |
| **Total** |  | **847,506** |

Variables:

|  |  |  |
| --- | --- | --- |
| **Sl#** | **Variables** | **Description** |
| 1 | C\_YEAR | Collision Year |
| 2 | C\_MNTH | Collision Month |
| 3 | C\_WDAY | Collision Day of the Week |
| 4 | C\_HOUR | Hour of Collision (24hr format) |
| 5 | C\_SEV | Collision Severity (Collision producing at least one fatality, etc.) |
| 6 | C\_VEHS | Number of Vehicles involved in collision |
| 7 | C\_CONF | Collision Configuration based on number of vehicles involved & direction of travel |
| 8 | C\_RCFG | Road Configuration where collision occurred (Non-intersection, Ramp etc.) |
| 9 | C\_WTHR | Weather at the time of collision (Dry, normal, Wet, Icy, etc.) |
| 10 | C\_RSUR | Road Surface Conditions during the time of Collision |
| 11 | C\_RALN | Road Alignment at the collision site (Straight and level, Curved with gradient, etc.) |
| 12 | C\_TRAF | Traffic Control present at the collision site (Stop sign, Police officer, etc.) |
| 13 | V\_ID | Vehicle Sequence Number |
| 14 | V\_TYPE | Type of Vehicle (Light Duty Vehicle, School bus, etc.) |
| 15 | V\_YEAR | Vehicle Model Year |
| 16 | P\_ID | Person ID from person identified in collision |
| 17 | P\_SEX | Gender of the person involved in collision |
| 18 | P\_AGE | Age of the person involved in collision |
| 19 | P\_PSN | Passenger Position (Driver, Front Row, center, etc.) |
| 20 | P\_ISEV | Passenger Injury Severity (Injury, Fatality, etc.) |
| 21 | P\_SAFE | Safety devices and measures used at the time of collision (safety device/ child restraint helmet, etc.) |
| 22 | P\_USER | Type of passenger involved in collision (Pedestrian, Bicyclist, Motor Vehicle Driver, etc.) |

**First Draft Chart:**A screenshot of a computer

Description automatically generated with medium confidence

**References:**

1. WHO, W.H.O. (2022) *Road traffic injuries*, *World Health Organization*. Available at: https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries (Accessed: 22 June 2023).
2. CCMTA, C.C. of M.T.A. (2021) *Road safety*, *CCMTA*. Available at: https://www.ccmta.ca/en/road-safety (Accessed: 22 June 2023).
3. Canada, T. (1999) *National Collision Database*, *Open Government Portal*. Available at: https://open.canada.ca/data/en/dataset/1eb9eba7-71d1-4b30-9fb1-30cbdab7e63a (Accessed: 22 June 2023).