DAMG7370 Fall 2024 – Final Project – Motor Vehicle Collision Analysis

Montgomery Dataset

Description about the data:

This dataset contains detailed information about traffic collisions on county and local roads in Montgomery County. The data is collected through the Automated Crash Reporting System (ACRS) of the Maryland State Police and is reported by the Montgomery County Police, Gaithersburg Police, Rockville Police, and the Maryland-National Capital Park Police.

Source: <https://data.montgomerycountymd.gov/Public-Safety/Crash-Reporting-Incidents-Data/bhju-22kf/about_data>

Last Updated: November 29, 2024

No. of Rows: 107003 Records

No. of Columns: 37

Description of columns (as observed in Metadata):

|  |  |
| --- | --- |
| Column Name | Description |
| ACRS Report Type | Identifies crash as property, injury, or fatal. |
| Agency Name | Name of the investigating agency. |
| At Fault | Fault by a driver or non-motorist. |
| Collision Type | Type of collision. |
| Crash Date/Time | Date and Time of crash. |
| Cross-Street Name | Name of nearest cross-street. |
| Direction | Location - Direction from mile point. |
| Distance | Location - Distance from mile point. |
| Distance Unit | Location - Unit of measurement for mile point distance. |
| Driver Substance Abuse | Substance abuse detected for all drivers involved. |
| First Harmful Event | The first event of the collision. |
| Hit/Run | Unit - Vehicle left the scene resulting in a hit and run event. |
| Intersection Type | If the collision was intersection related, this field describes the intersection characteristics. |
| Junction | The type of junction where the collision occurred. |
| Lane Direction | Road/Area - Lane direction of travel. |
| Lane Type | Road/Area - Type of roadway/area lane. |
| Latitude | Y coordinate of crash location. |
| Light | Lighting conditions. |
| Local Case Number | Case number from the local investigating agency for the incident. |
| Location |  |
| Longitude | X coordinate of crash location. |
| Municipality | Jurisdiction for crash location. |
| Non-Motorist Substance Abuse | Substance abuse detected for all non-motorists involved. |
| Number of Lanes | Road/Area - Number of lanes. |
| Off-Road Description | Description of location for off-road collisions. |
| Related Non-Motorist | Type(s) of non-motorist involved. |
| Report Number | ACRS Report Number assigned to the incident. |
| Road Alignment | The road alignment where the collision occurred. |
| Road Condition | The condition of the road when the collision occurred. |
| Road Division | The road division where the collision occurred. |
| Road Grade | Road/Area - Roadway grade. |
| Road Name | Name of road. |
| Route Type | Type of roadway at crash location. |
| Second Harmful Event | The second event of the collision (if applicable). |
| Surface Condition | Condition of roadway surface. |
| Traffic Control | Signage or traffic control devices. |
| Weather | Weather at collision location. |

Data Profiling Details:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Name | DataType | % Missing | Nulls | Unique Values | Shortest Value | Longest Value |
| ACRS Report Type | String | 0.00% | 0 | 3 | Fatal Crash | Property Damage Crash |
| Agency Name | String | 0.00% | 0 | 10 | TAKOMA | Rockville Police Departme |
| At Fault | String | 0.00% | 0 | 4 | BOTH | NONMOTORIST |
| Collision Type | V\_String | 0.00% | 0 | 29 | N/A | Sideswipe, Opposite Direction |
| Crash Date/Time | String | 0.00% | 0 | 104,371 | 3/4/2019 8:41 | 3/4/2019 8:41 |
| Cross-Street Name | V\_String | 17.40% | 18623 | 7,273 | NA | RAMP 1 FR MD 187 NB TO RAMP 8 (TO IS495) RAMP 7 FR RAMP 2 (FR IS495) TO MD 187 SB |
| Direction | V\_WString | 12.60% | 13486 | 6 | East | Unknown |
| Distance | Float | 10.90% | 11623 | 4,130 |  |  |
| Distance Unit | String | 11.50% | 12328 | 4 | FEET | UNKNOWN |
| Driver Substance Abuse | V\_String | 0.60% | 679 | 105 | N/A | Not Suspect of Alcohol Use, Not Suspect of Drug Use, Not Suspect of Alcohol Use, Not Suspect of Drug Use, Not Suspect of Alcohol Use, Not Suspect of Drug Use, Not Suspect of Alcohol Use, Not Suspect of Drug Use, Not Suspect of Alcohol Use, Not Suspect of Drug Use, Not Suspect of Alcohol Use, Not Suspect of Drug Use, Not Suspect of Alcohol Use, Not Suspect of Drug Use, Unknown, Unknown, Unknown, Unknown |
| First Harmful Event | V\_String | 0.00% | 0 | 65 | N/A | Strikes Object at Rest from Motor Vehicle In Transport |
| Hit/Run | String | 1.60% | 1765 | 3 | No | Yes |
| Intersection Type | V\_String | 17.90% | 19156 | 13 | N/A | Roundabout/Traffic Circle |
| Junction | V\_String | 12.90% | 13762 | 23 | N/A | Other Location Not Listed Above Within an Interchange Area (median, shoulder and roadside) |
| Lane Direction | V\_String | 12.60% | 13499 | 36 | West | Northbound, Not On Roadway, Southbound |
| Lane Type | V\_String | 82.20% | 87991 | 153 | N/A | Lane 1, Left Turn Lane, Not Applicable, Other |
| Latitude | Double | 0.00% | 0 | 94,371 |  |  |
| Light | V\_String | 0.00% | 0 | 17 | N/A | DARK -- UNKNOWN LIGHTING |
| Local Case Number | V\_WString | 0.00% | 0 | 106,893 | 1800 | P2000067792 |
| Location | String | 0.00% | 0 | 106,136 | (39.2, -77.4) | (39.11311333, -77.05759167) |
| Longitude | Double | 0.00% | 0 | 96,536 |  |  |
| Municipality | V\_String | 20.40% | 21864 | 22 | N/A | CHEVY CHASE VILLAGE |
| Non-Motorist Substance Abuse | V\_String | 94.40% | 101029 | 27 | N/A | Not Suspect of Alcohol Use, Not Suspect of Drug Use, Not Suspect of Alcohol Use, Not Suspect of Drug Use, Not Suspect of Alcohol Use, Not Suspect of Drug Use |
| Number of Lanes | V\_WString | 11.50% | 12340 | 75 | 2 | 0, 12, 2 |
| Off-Road Description | V\_String | 87.40% | 93528 | 12,675 | N/A | Parking Lot Way UNIT 1 STRUCK UNIT TWO WHEN REVERSING OUT OF THE THE PARKING SPACE. BOTH DRIVERS EXITED TO OBSERVE DAMAGE. UNIT 1 THEN FLED THE SCENE WITHOUT EXCHANGING INFORMATION |
| Related Non-Motorist | V\_String | 94.40% | 101029 | 29 | OTHER | Other Pedestrian (person in a building, skater, personal conveyance, etc.), Pedestrian |
| Report Number | String | 0.00% | 0 | 107,003 | DD5659000H | MCP120500004 |
| Road Alignment | V\_String | 12.60% | 13472 | 14 | N/A | Curve Left, Curve Right, Straight |
| Road Condition | V\_String | 14.40% | 15424 | 23 | N/A | OBSTRUCTION NOT SIGNALED |
| Road Division | V\_String | 12.60% | 13471 | 34 | N/A | Divided, Flush Median (greater than 4ft wide), Divided, Raised Median (curbed), Not Divided, With a Continuous Left-Turn Lane |
| Road Grade | V\_String | 12.60% | 13473 | 24 | N/A | Hillcrest, Level, Uphill |
| Road Name | V\_String | 13.70% | 14616 | 4,410 | I 95 | SPUR TO SAM EIG HWY FR N/B GREAT SENECA HWY |
| Route Type | V\_String | 13.20% | 14143 | 20 | Ramp | Maryland (State) Route |
| Second Harmful Event | V\_String | 5.70% | 6069 | 66 | N/A | Struck by Falling, Shifting Cargo Or Anything Set In Motion by Motor Vehicle |
| Surface Condition | V\_String | 12.60% | 13519 | 22 | DRY | Water (standing, moving) |
| Traffic Control | V\_String | 1.00% | 1110 | 68 | N/A | Other Pavement Marking (excluding edgelines, centerlines, or lane lines), Traffic Control Signal |
| Weather | V\_String | 0.00% | 0 | 23 | N/A | Freezing Rain Or Freezing Drizzle |

Additional Notes / Inferences:

1. There are few records that has \n in between the values, causing a record to breakdown into multiple records. This has to be addressed.