**Analyzing Road Safety in the UK**

**Business problem:**

**The UK Department of Transport provides open datasets on road safety and casualties, and one can**

**use these datasets to analyze how safe the roads in the UK are. This project will help you answer a**

**few questions using their 2015 dataset.**

**The dataset has 3 tables i.e Accident, vehicle, Vehicle\_type**

**Approach/Project Idea**

**Use aggregate functions in SQL and Python to answer the following sample questions:**

**1. Evaluate the median severity value of accidents caused by various Motorcycles.**

**2. Evaluate Accident Severity and Total Accidents per Vehicle Type**

**3. Calculate the Average Severity by vehicle type.**

**4. Calculate the Average Severity and Total Accidents by Motorcycle.**

**Github source code link:**

[**https://lnkd.in/dbEAKY2G**](https://lnkd.in/dbEAKY2G)

**#Creating Database Road\_Safety:**

**create database if not exists Road\_Safety;**

**use Road\_Safety;**

**#Creating Table Accident\_2015:**

**create table if not exists Accident\_2015(**

**Accident\_Index varchar(200),**

**Location\_Easting\_OSGR double,**

**Location\_Northing\_OSGR double,**

**Longitude double,**

**Latitude double,**

**Police\_Force int,**

**Accident\_Severity int,**

**Number\_of\_Vehicles int,**

**Number\_of\_Casualties int,**

**`Date` varchar(200),**

**Day\_of\_Week int,**

**`Time` time,**

**`Local\_Authority\_(District)` int,**

**`Local\_Authority\_(Highway)` varchar(200),**

**1st\_Road\_Class int,**

**1st\_Road\_Number int,**

**Road\_Type int,**

**Speed\_limit int,**

**Junction\_Detail int,**

**Junction\_Control int,**

**2nd\_Road\_Class int,**

**2nd\_Road\_Number int,**

**`Pedestrian\_Crossing-Human\_Control` int,**

**`Pedestrian\_Crossing-Physical\_Facilities` int,**

**Light\_Conditions int,**

**Weather\_Conditions int,**

**Road\_Surface\_Conditions int,**

**Special\_Conditions\_at\_Site int,**

**Carriageway\_Hazards int,**

**Urban\_or\_Rural\_Area int,**

**Did\_Police\_Officer\_Attend\_Scene\_of\_Accident int,**

**LSOA\_of\_Accident\_Location varchar(200)**

**);**

**select \* from accident\_2015;**

**#Bulk Upload in Table Accident\_2015 from Accident\_2015.csv file:**

**Load Data infile**

**'E:/DataAnalyst Ineuron/SQL\_SUDHANSHU/SQL\_ASSIGNMENTS/Anand Jha Assignement/Accident\_2015.csv'**

**into table accident\_2015**

**Fields terminated by ','**

**enclosed by '"'**

**Lines terminated by '\n'**

**ignore 1 rows;**

**select COUNT(\*) from accident\_2015;**

**#Creating Table Vehicle\_2015:**

**create table vehicle\_2015(**

**Accident\_Index varchar(200),**

**Vehicle\_Reference int,**

**Vehicle\_Type int,**

**Towing\_and\_Articulation int,**

**Vehicle\_Manoeuvre int,**

**`Vehicle\_Location-Restricted\_Lane` int,**

**Junction\_Location int,**

**Skidding\_and\_Overturning int,**

**Hit\_Object\_in\_Carriageway int,**

**Vehicle\_Leaving\_Carriageway int,**

**Hit\_Object\_off\_Carriageway int,**

**1st\_Point\_of\_Impact int,**

**Was\_Vehicle\_Left\_Hand\_Drive int,**

**Journey\_Purpose\_of\_Driver int,**

**Sex\_of\_Driver int,**

**Age\_of\_Driver int,**

**Age\_Band\_of\_Driver int,**

**`Engine\_Capacity\_(CC)` int,**

**Propulsion\_Code int,**

**Age\_of\_Vehicle int,**

**Driver\_IMD\_Decile int,**

**Driver\_Home\_Area\_Type int,**

**Vehicle\_IMD\_Decile int**

**);**

**select \* from vehicle\_2015;**

**#Bulk Upload in Table Vehicle\_2015 from Vehicle\_2015.csv file:**

**Load Data infile**

**'E:/DataAnalyst Ineuron/SQL\_SUDHANSHU/SQL\_ASSIGNMENTS/Anand Jha Assignement/Vehicle\_2015.csv'**

**into table vehicle\_2015**

**Fields terminated by ','**

**enclosed by '"'**

**Lines terminated by '\n'**

**ignore 1 rows;**

**select count(\*) from vehicle\_2015;**

**#Creating Table Vehicle\_types:**

**create table vehicle\_types(**

**`code` double,**

**label varchar(200));**

**#Load Data in Vehicle\_types from Vehicle\_types.csv:**

**Load Data infile**

**'E:/DataAnalyst Ineuron/SQL\_SUDHANSHU/SQL\_ASSIGNMENTS/Anand Jha Assignement/Vehicle\_types.csv'**

**into table vehicle\_types**

**Fields terminated by ','**

**enclosed by '"'**

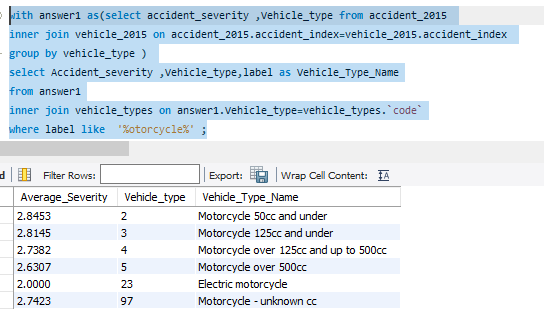
**Lines terminated by '\n'**

**ignore 1 rows;**

**select \* from vehicle\_types;**

**#2. Evaluate the median severity value of accidents caused by various Motorcycles:**

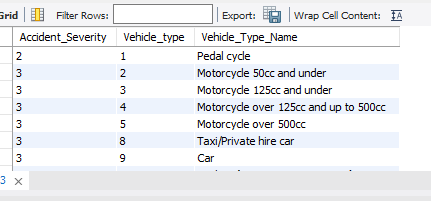
**with answer1 as(select avg(Accident\_Severity) as Average\_Severity ,Vehicle\_type from accident\_2015 inner join vehicle\_2015 on accident\_2015.accident\_index=vehicle\_2015.accident\_index group by vehicle\_type order by vehicle\_type) select Average\_Severity,Vehicle\_type,label as Vehicle\_Type\_Name from answer1 inner join vehicle\_types on answer1.Vehicle\_type=vehicle\_types.`code` where label like '%otorcycle%';**

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**#2. Evaluate Accident Severity and Total Accidents per Vehicle Type:**

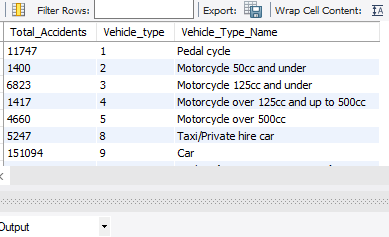
**#(i)Accident Severity per Vehicle Type:**

**with answer2 as(select Accident\_Severity,Vehicle\_type from accident\_2015 inner join vehicle\_2015 on accident\_2015.accident\_index=vehicle\_2015.accident\_index group by vehicle\_type order by vehicle\_type) select Accident\_Severity,Vehicle\_type,label as Vehicle\_Type\_Name from answer2 inner join vehicle\_types on answer2.Vehicle\_type=vehicle\_types.`code`;**

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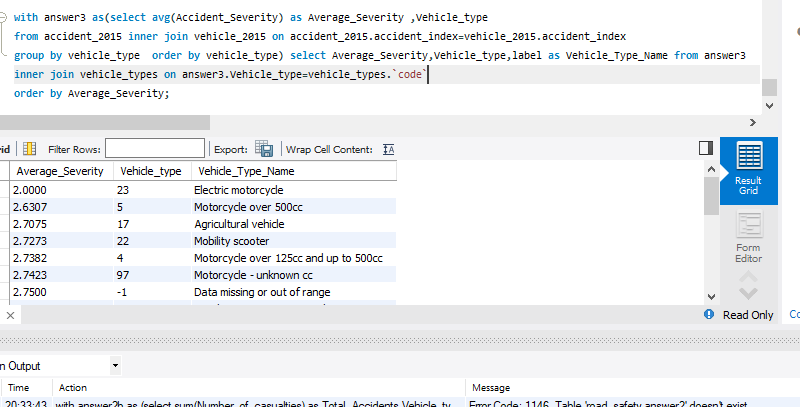
**#(ii)Total Accidents per Vehicle Type:**

**with answer2b as(select sum(Number\_of\_casualties) as Total\_Accidents,Vehicle\_type from accident\_2015 inner join vehicle\_2015 on accident\_2015.accident\_index=vehicle\_2015.accident\_index group by vehicle\_type order by Total\_Accidents) select Total\_Accidents,Vehicle\_type,label as Vehicle\_Type\_Name from answer2b inner join vehicle\_types on answer2b.Vehicle\_type=vehicle\_types.`code`;**

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**#3. Calculate the Average Severity by Vehicle Type:**

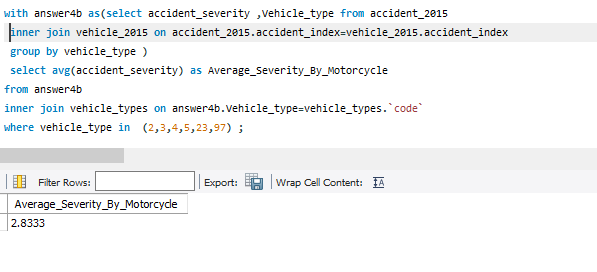
**with answer3 as(select avg(Accident\_Severity) as Average\_Severity ,Vehicle\_type from accident\_2015 inner join vehicle\_2015 on accident\_2015.accident\_index=vehicle\_2015.accident\_index group by vehicle\_type order by vehicle\_type) select Average\_Severity,Vehicle\_type,label as Vehicle\_Type\_Name from answer3 inner join vehicle\_types on answer3.Vehicle\_type=vehicle\_types.`code` order by Average\_Severity;**

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**#4. Calculate the Average Severity and Total Accidents by Motorcycle:**

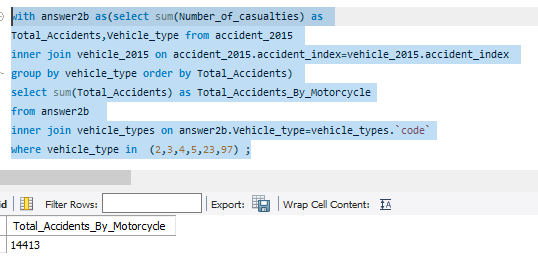
**#(i). Average Severity by Motorcycle:**

**with answer4b as(select accident\_severity ,Vehicle\_type from accident\_2015 inner join vehicle\_2015 on accident\_2015.accident\_index=vehicle\_2015.accident\_index group by vehicle\_type ) select avg(accident\_severity) as Average\_Severity\_By\_Motorcycle from answer4b inner join vehicle\_types on answer4b.Vehicle\_type=vehicle\_types.`code` where vehicle\_type in (2,3,4,5,23,97) ;**

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**#(ii). Total Accidents by Motorcycle:**

**with answer2b as(select sum(Number\_of\_casualties) as Total\_Accidents,Vehicle\_type from accident\_2015 inner join vehicle\_2015 on accident\_2015.accident\_index=vehicle\_2015.accident\_index group by vehicle\_type order by Total\_Accidents) select sum(Total\_Accidents) as Total\_Accidents\_By\_Motorcycle from answer2b inner join vehicle\_types on answer2b.Vehicle\_type=vehicle\_types.`code` where vehicle\_type in (2,3,4,5,23,97) ;**

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