# QUERIES

1. **According to the crash data of New York state, what is the percentage of severe injuries for different Vehicle Body Types?**

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX dt: <https://www.data.gov#>

SELECT ?Body_Type (ROUND(?Severe_Injury_Count * 100 / ?Total_Injury_Count) AS
?Severe_Injury_Percentage) ?Severe_Injury_Count ?Total_Injury_Count
WHERE  {
 {
   SELECT ?Body_Type (COUNT(?Injury_Severity) AS ?Severe_Injury_Count)
   WHERE {
    ?Crash dt:involves ?Vehicle .
    ?Vehicle dt:hasBodyType ?Body_Type .
    ?Vehicle dt:isOccupiedBy ?Victim .
    ?Victim dt:hasInjurySeverity ?Injury_Severity .
    FILTER (?Injury_Severity = "Severe" || ?Injury_Severity = "Killed")
    }
   GROUP BY ?Body_Type
 }
 {
   SELECT ?Body_Type (COUNT(?Body_Type) AS ?Total_Injury_Count)
   WHERE {
      ?Crash dt:involves ?Vehicle .
      ?Vehicle dt:hasBodyType ?Body_Type  .
    }
   GROUP BY (?Body_Type)
   HAVING (?Total_Injury_Count > 10)
 }
}
ORDER BY DESC(?Severe_Injury_Percentage)
```

2. **In New York State, what percentage of male and female drivers involved in a crash, violated traffic laws in the year 2018?**

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
```

```
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX dt: <https://www.data.gov#>

SELECT ?Female_Defaulter_Count ?Male_Defaulter_Count ?Total_Defaulter_Count
?Male_Defaulter_Percentage ?Female_Defaulter_Percentage
WHERE  {
{
SELECT (COUNT(?Gender) AS ?Female_Defaulter_Count)
 WHERE {
  ?Crash dt:hasContributingFactorDesc ?Contributing_Factor_Desc .
  VALUES  ?Contributing_Factor_Desc  {
"Unsafe Speed" "Failure to Yield Right-of-Way" "Failure to Keep Right" "Passing or Lane
Usage Improper" "Unsafe Lane Changing" "Alcohol Involvement"
  }
  ?Crash dt:involves ?Vehicle .
  ?Vehicle dt:isOccupiedBy ?Victim .
  ?Victim dt:hasSex ?Gender .
  ?Victim dt:hasRoleType ?Role_Type .
  FILTER (?Gender = "F")
  FILTER contains(?Role_Type, "Driver")
  }
}
 {
  SELECT (COUNT(?Gender) AS ?Male_Defaulter_Count)
  WHERE {
  ?Crash dt:hasContributingFactorDesc ?Contributing_Factor_Desc .
  VALUES ?Contributing_Factor_Desc {
  "Unsafe Speed" "Failure to Yield Right-of-Way" "Failure to Keep Right" "Passing or Lane
Usage Improper" "Unsafe Lane Changing" "Alcohol Involvement"
  }
  ?Crash dt:involves ?Vehicle .
  ?Vehicle dt:isOccupiedBy ?Victim .
  ?Victim dt:hasSex ?Gender .
  ?Victim dt:hasRoleType ?Role_Type .
  FILTER (?Gender = "M")
  FILTER contains(?Role_Type, "Driver")
  }
}
  BIND (?Male_Defaulter_Count + ?Female_Defaulter_Count AS ?Total_Defaulter_Count)
  BIND (ROUND(?Female_Defaulter_Count * 100 / ?Total_Defaulter_Count) AS
?Female_Defaulter_Percentage)
  BIND (ROUND(100 - ?Female_Defaulter_Percentage) AS ?Male_Defaulter_Percentage)
}
```

3. **What are the 5 major contributing factors in the state of New York that resulted in crashes among the younger population within the age group 20-25?**

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX dt: <https://www.data.gov#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
SELECT ?Contributing_Factor (COUNT(?Contributing_Factor) as ?Total_Count)
WHERE {
?Crash dt:hasContributingFactorDesc ?Contributing_Factor .
?Crash dt:involves ?Vehicle .
?Vehicle dt:isOccupiedBy ?Victim .
?Victim dt:hasAge ?Age .
FILTER (?Age >= "20" && ?Age <= "25")
}
GROUP BY ?Contributing_Factor
ORDER BY desc(?Total_Count)
LIMIT 5
```

4. **Based on the vehicle manufacturing year, what shift has been noticed in the ratio of Minor to Severe injuries when individuals were wearing a seat belt?**

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX dt: <https://www.data.gov#>

SELECT ?Vehicle_Year (?Minor_Injury_Count / ?Severe_Injury_Count AS
?Minor_To_Severe_Injury_Ratio) ?Minor_Injury_Count ?Severe_Injury_Count
WHERE {
{
SELECT ?Vehicle_Year (COUNT(?Injury_Severity) AS ?Minor_Injury_Count)
  WHERE {
    ?Crash dt:involves ?Vehicle .
    ?Vehicle dt:hasVehicleYear ?Vehicle_Year .
    ?Vehicle dt:isOccupiedBy ?Victim .
    ?Victim dt:safetyEquipmentInPlace ?Safety_Equipment .
    ?Victim dt:hasInjurySeverity ?Injury_Severity .
    FILTER (?Safety_Equipment = "Lap Belt" || ?Safety_Equipment = "Lap Belt/Harness")
    FILTER (?Injury_Severity = "Minor")
  }
```

```
  GROUP BY ?Vehicle_Year
  HAVING (?Minor_Injury_Count > 20)
 }
 {
SELECT ?Vehicle_Year (COUNT(?Injury_Severity) AS ?Severe_Injury_Count)
  WHERE {
    ?Crash dt:involves ?Vehicle .
    ?Vehicle dt:hasVehicleYear ?Vehicle_Year .
    ?Vehicle dt:isOccupiedBy ?Victim .
    ?Victim dt:safetyEquipmentInPlace ?Safety_Equipment .
    FILTER (?Safety_Equipment = "Lap Belt" || ?Safety_Equipment = "Lap Belt/Harness")
    ?Victim dt:hasInjurySeverity ?Injury_Severity .
    FILTER (?Injury_Severity = "Moderate" || ?Injury_Severity = "Severe" || ?Injury_Severity
= "Killed")
  }
  GROUP BY ?Vehicle_Year
 }
}
ORDER BY desc(?Vehicle_Year)
```