David Smith
STAT 4260
Assignment 7

1.

```
SELECT t.vtype Vehicle_Type, AVG(a.Accident_severity) Accident_Severity_Average,
COUNT(a.Accident_severity) Accident_Count
FROM accidents_2015 a INNER JOIN vehicles_2015 v
ON a.Accident_index = v.Accident_index
INNER JOIN vehicle_type t
ON v.vehicle_type = t.vcode
WHERE t.vtype LIKE '%motorcycle%'
GROUP BY t.vtype;
```

2.

We have a chart where, for each type of motorcycle, the name of that type of motorcycle, the average severity of the accidents for that type of motorcycle, and the number of accidents for that type of motorcycle are displayed.

3.

```
SELECT county `Year: 2014`,
SUM(CASE
WHEN gender = 'Male' THEN population
ELSE 0
END) Male,
SUM(CASE
WHEN gender = 'Female' THEN population
ELSE 0
END) Female
FROM pop_proj
GROUP BY county;
```

4.

The demographics table calculates a coefficient for each education level in each age range. For each age range, this coefficient measures the proportion of the population size in each level of education to the total population size in that age range. I use these values to predict future educational demand by multiplying these coefficients, for the appropriate age range, by the total population size for each age range in each year, and summing the results for each education level in each year. This is done simply with the line SUM(p.population * d.coefficent), as I have grouped the data by education level and year, and so each appropriate coefficient will be

multiplied by each individual population number, with the results summed for each education level in each year. This results in the same answer, by the distributive law.

```
SELECT p.date_year Year, d.education Education,
SUM(p.population * d.coefficent) Demand
FROM demographics d INNER JOIN
(SELECT date_year, population,
CASE
WHEN age BETWEEN 0 AND 17 THEN ‘00 to 17’
WHEN age BETWEEN 18 AND 64 THEN ‘18 to 64’
WHEN age > 64 THEN ‘65 to 80+’
END AS age_range
FROM pop_proj) p
ON d.age = p.age_range
GROUP BY p.date_year, d.education;
```