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1. COMPULSORY STUDENT DECLARATION DETAILS: ASSIGNMENT 1 INFO20003

Plagiarism

Plagiarism is the act of representing as one's own original work the creative works of another, without appropriate acknowledgment of the author or source.

Collusion

Collusion is the presentation by a student of an assignment as his or her own which is in fact the result in whole or in part of unauthorised collaboration with another person or persons. Collusion involves the cooperation of two or more students in plagiarism or other forms of academic misconduct.

Both collusion and plagiarism can occur in group work. For examples of plagiarism, collusion and academic misconduct in group work please see the University's policy on Academic Honesty and Plagiarism: <https://academichonesty.unimelb.edu.au>

Plagiarism and collusion constitute cheating. Disciplinary action will be taken against students who engage in plagiarism and collusion as outlined in University policy. Proven involvement in plagiarism or collusion may be recorded on my academic file in accordance with Statute 13.1.18.

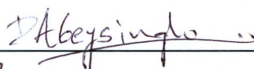
STUDENT DECLARATION

Please tick to indicate that you understand the following statements:
I declare that:

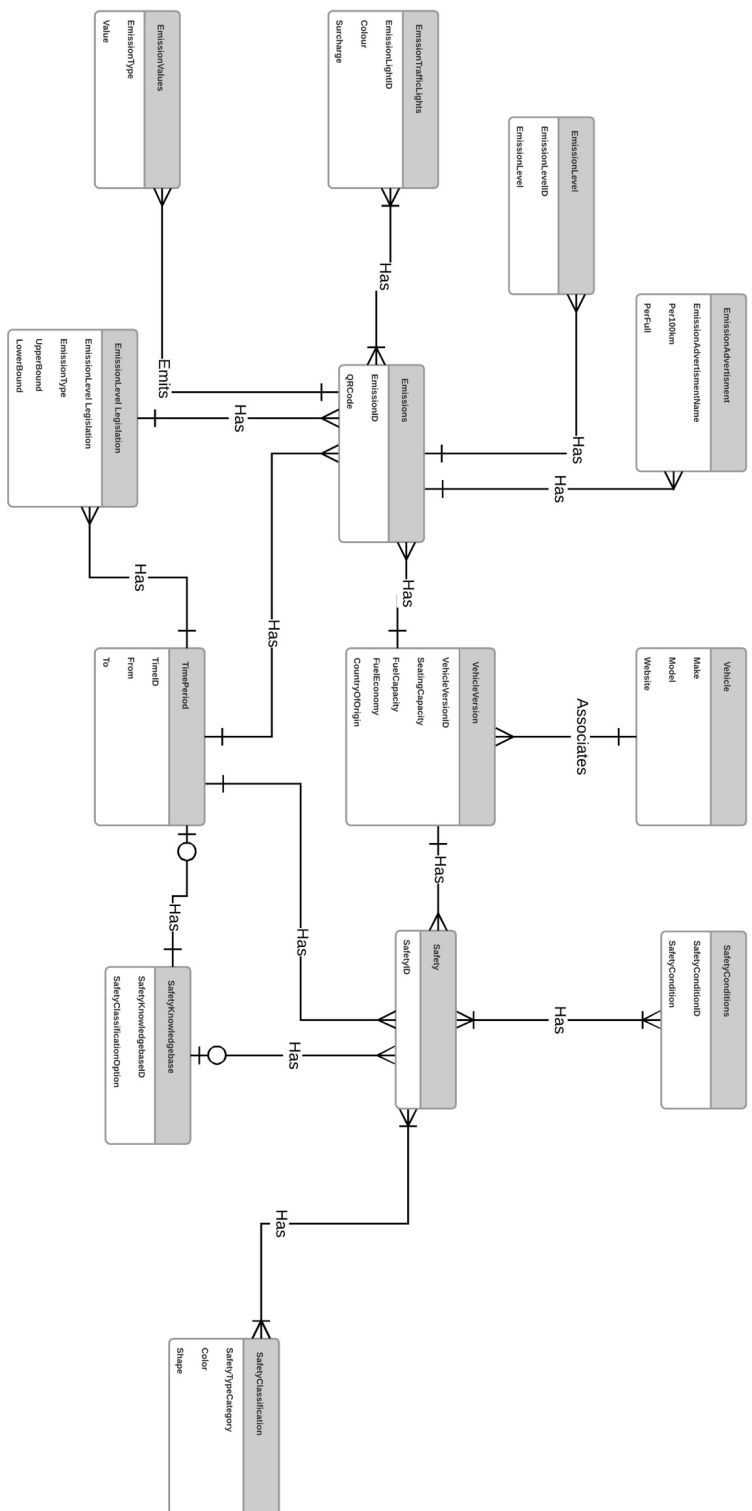
- ☒ This assignment is my own original work, except where I have appropriately cited the original source (Appropriate citation of original work will vary from discipline to discipline).
- ☒ This assignment has not previously been submitted for assessment in this or any other subject.

For the purposes of assessment, I give the assessor of this assignment the permission to:

- ☒ Reproduce this assignment and provide a copy to another member of staff; and
- ☒ Take steps to authenticate the assignment, including communicating a copy of this assignment to a checking service (which may retain a copy of the assignment on its database for future plagiarism checking).

Student signature 
Date 31/08/2017

Conceptual Model



Physical Model-



Assumptions:

1. I created a knowledgebase("SafetyKnowledgebase") for the safety features, I'm assuming that an algorithm would take care of the safety certification shapes/colors using the data in this knowledge base. – Derived attribute
2. I created a knowledgebase("EmissionLegislation") which can be used by an algorithm to classify the level of emission for the 3 emission types (NOx, CO, THC), assuming that only upper bound and lower bound are needed to classify. – Derived attribute
3. I am assuming that an algorithm is taking care of selecting the "traffic light color" for the emissions based on the emission values. – Derived attribute – did not create a knowledgebase since we don't know how its derived.
4. I assumed that the recommended THC/km value is printed on advertisements since it's not changing.
5. I assume that a specific vehicle version can be manufactured only from one country. (therefore, the CountryOfOrigin attribute is not a primary key, if there are many countries for one version, only change needed to be done is to make CountryOfOrigin attribute a primary key)
6. Only the safety features present are saved. (use of Boolean unnecessary since we already have the list of features needed to be present for a specific standard, can compare with this list and find out what's missing)

If space matters, the advertisement data doesn't need to be saved as it can be derived from the rest of the data.

Design Decisions:

Vehicle- Contains information about the model, make and the website of each vehicle.

VehicleVersions- Each vehicle may contain different version e.g. – 2010 version or 2017 version of the same model, so details about these versions and the country of origin.

Emissions- Table which connects the legislations used, traffic lights obtained, emission values recorded, emission information used for advertisement and the emission levels for a specific version of vehicle in different time periods of certification.

Safety- Table which connects the safety knowledgebase used, safety standards obtained and the safety classification for a specific version of vehicle in different time periods of certification.

TimePeriod- Table which stores all the time periods for the Emissions and Safety Standards. Saves space if periods repeated.

- **EmissionTrafficLights:** Available colors and their surcharges
- **EmissionTypes:** Available emission types
- **EmissionLevelTypes:** Available emission types which will be categorized to levels
- **EmissionLevelValues:** Available levels for the emissions
- **SafetyClassificationOptions:** Available Safety colors and respective shapes
- **SafetyTypeCategory:** Available safety categories (Child Occupant, Adult Occupant)
- **SafetyConditions:** Available safety conditions (Frontal Airbag, Knee Airbag)
- **SafetyAdvertisementNames:** Available names for advertising (Total Emission, THC emissions)

The above 8 entities are entered at the start to make sure integrity of the data entered later is maintained. Eg 1 – EmissionTrafficLights table will contain data on the colors available and the surcharge. E.g. 2 –EmissionLevelTypes will contain only the emission types which needs to be categorized(High,Moderate,Nothing) unlike EmissionTypes which will contain all the emission types. We referenced to these tables to maintain integrity. In this case, it's very easy to add a new safety feature of new emission type etc. by adding a row to these tables. Furthermore, this will decrease the space used. Alternatively, we could remove these tables and have the tables connected to them hold the data but the user will be able to enter anything.
