MONASH University
Information Technology

FIT9132 Introduction to Databases

2019 Semester 2

Assignment 1 - Conceptual Model - Traffic Demerit System (TDS)

Assignment weighting 10% - Lecturer in Charge: Lindsay Smith

The local state government wishes to develop a database to record the details of "on-the-spot" traffic offences incurred by drivers. When a driver commits an offence they are stopped and booked "on the spot" by a police officer and provided with an offence notice. Offences cause drivers to incur demerit points which accumulate against the drivers licence.

The system needs to record details of all registered vehicles driven in the local government area. A vehicle is identified by a Vehicle Identification Number (VIN). Background reading on a VIN is available from several sites such as AutoCheck. The government wishes to record the type of vehicle, such as motorbike, car, truck etc, the year the vehicle was manufactured and the model such as CX3, as vehicle attributes. Vehicles are produced by manufacturers such as Ford, Mazda etc. Each manufacturer is to be assigned a unique manufacture code, in addition the system must record the manufacturers name and the country in which the manufacturer is based (for example Ford is based in America, Mazda is based in Japan).

Drivers are identified by their licence number. The attributes which are to be recorded for a driver are the driver's first name, last name, residential address and date of birth. The government also wish to have recorded the expiry date for a driver's licence and the total number of demerit points the driver has accumulated.

Each demerit (potential driving offence) is identified by a demerit code. A description of the demerit and the number of points incurred for that demerit are to be stored. For example the demerit with code 05, has a description of "Failing to give way" and results in 3 demerit points being incurred by the driver.

Each traffic offence by a driver is identified by an offence number.The location of the offence and the date and time at which the offence occurred are to be stored. In some circumstances when a driver is stopped by a police officer for say, a speeding offence, the police officer may also identify other offences such as "Driving contrary to a major defect notice". Each offence recorded has a unique offence number and is for a particular (ie one) demerit. The police officer who issued the offence must also be recorded.

Once a driver has accumulated 12 demerit points over a period of three years the driver's licence is suspended for a period of 6 months. When this occurs the driver's licence is suspended from the date recorded for the offence which caused the points to equal or exceed the permitted maximum. The local state government informs the driver of their suspension via a letter sent through the post to the drivers registered address. The date at which the suspension began and the date at which it ends are to be stored in the system.

Police officers are identified by an officer id. The system should record the officer's first name, last name and rank e.g. constable, sergeant etc. Police officers are based in Police Stations, each station has one officer who is in charge of the station (a station is required to always have an officer in charge). Officers are assigned, from a particular date, to a station for a minimum of two years, after this time they may apply to move to a different station. Within these allocations some officers may return to a station they were previously allocated to. Police stations are identified by a station number. In addition the government wishes to record the stations' address, direct contact phone number and if the station is open 24 hours a day or not.

REMEMBER you must keep up to date with the Moodle assignment 1 forum where further clarifications may be posted (this forum is to be treated as your client). Please be careful to ensure you do not post anything which includes your reasoning, logic or any part of your work to this forum, doing so violates Monash plagiarism/collusion rules.
You are free to make assumptions if needed however they must align with the details here and in the assignment forums and must be clearly documented (see the required submission files).

TASKS

Please **ENSURE** your **name and ID are shown on every page of any document you submit**. If a document is a multipage document, please also make sure you include page numbers on every page.

GIT STORAGE

All working files, as you work on this assignment task, *must be stored in GIT and must show a clear history of development*. Your work for this task **MUST** be saved in your local repo in your Assignment 1 folder and *regularly pushed to the FIT GitLab server* to build this history of development. Any submission with less than two pushes to the FITGitLab server will incur a grade penalty of 10 marks (a 10 mark deduction).

Students should regularly check that their pushes have been successful by log in to the web interface of the FIT Git Lab server, you must not simply *assume* they are working. Before submission via Moodle you **must** log into the web interface of the GitLab server and ensure your submission files are present on the GitLab server.

Task to complete:

Using LucidChart, prepare a **FULL conceptual model** (Entity Relationship Diagram) using crows foot notation for the Traffic Demerit System (TDS) described above.

- For this FULL conceptual model, include:

    - identifiers (keys) for each entity
    - all required attributes, and
    - all relationships. Participation (min and max) and connectivity for all relationships must be shown on the diagram.

- **Surrogate keys must not be added to this model**.

Your model must conform to the FIT9132 ERD standards listed in lab 3.

Submission Requirements

Assignment 1:

Due: Friday 30th August 2019 (Week 5) 6 PM

The following files are to be submitted and **must exist** in your FITGitLab server repo:

- A **single page pdf file** containing your full final conceptual model. Name the file **tds_conceptual.pdf**. This file must be created via File - Export (or Download As) - PDF from LucidChart (**do not use screen capture**) and must be able to be accessed with a development history via GIT. You can create this development history by downloading your PDFs and committing/pushing to GIT as you work on your model.

- A PDF document containing any assumptions you wish to make your marker aware of (create the document in MS Word, Pages or Google Docs and save it as PDF).

These files must be zipped into a single zip file named a1-<yourauthcateid>.zip e.g., a1-xyz123.zip before the assignment due date/time. Submit the a1-xyz123.zip to Moodle before the due date.

Late submission will incur penalties as outlined in the unit guide (5 marks deduction per day or part thereof).

Please note we **cannot mark any work on the Git Server**, you need to ensure that you submit correctly via Moodle since it is only in this process that you complete the required student declaration without which work **cannot be assessed**.

It is your responsibility to **ENSURE** that the files you submit are the correct files - we strongly recommend after uploading a submission, and prior to actually submitting in Moodle, that you download the submission and double check its contents.

Your assignment **MUST** show a status of "Submitted for grading" before it will be marked.

If your submission shows a status of "Draft (not submitted)" it will not be assessed and **will incur late penalties after the due date/time**.

Please *carefully* read the documentation under "Assignment Submission" on the Moodle Assessments page.

Marking Rubric

	Outstanding (HD)	Adequate (Range P - D)	Not Adequate (N)
Identified the required Entities [30 marks]	- All/most entities identified. - All/most keys are correctly identified. - No "extra" entities included	- Majority of entities identified. - Majority of keys are correctly identified.	- None or few of entities identified. - None or few of keys are correctly identified
Identified the correct attributes for each Entity [30 marks]	- All/most required attributes identified and placed in correct entities. - No "extra" attributes included	Majority of required attributes identified and placed in correct entities.	None/few required attributes identified and placed in correct entities.
Identified the required Relationships [10 marks]	- All/most required relationships identified. - No "extra" relationships included	Majority of required relationships identified.	None/few required relationships identified. .
Identified correct Connectivity and Participation for each relationship [20 marks]	All/Most of depicted relationships Connectivity and Participation correctly identified.	Majority of depicted relationships Connectivity and Participation correctly identified.	None/few of depicted relationships Connectivity and Participation correctly identified.
Able to correctly use the required notation convention and be consistent in its usage. [10 marks]	All notations in the model are consistent and follow FIT9132 ERD standards.	Most notations in the model are consistent and follow FIT9132 ERD standards.	Few notations in the model are consistent or follow FIT9132 ERD standards.
Able to correctly push model to FITGitLab server with a development history of at least two pushes.			If less than two pushes showing a clear development history a ***grade deduction of 10 marks applied***.