



MONASH University

# Assessment

Faculty of Information Technology

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Assignment 1: Conceptual Model

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# 1. Assumptions for Entities and Attributes

No.	Entities	Attributes	ID	Assumptions
1.	Vehicles	1. VIN (Vehicle Entity Number - 17 characters) 2. Registration plate (7 characters) 3. Car makes (Peugeot) 4. Odometer Reading 5. Passenger capacity	1. veh_vin [Primary key] 2. veh_plate 3. veh_make 4. veh_read 5. veh_passengers	<ul style="list-style-type: none"> <li>Vehicle is an entity because it helps Paris Arrow Transit (PAT) to track the and identifies its' vehicle operation during Olympic competition</li> <li>VIN is a unique identifier for each vehicle.</li> </ul>
2.	National Olympic Committee (NOC)	1. IOC Code 2. Country Name 3. Region Name 4. Population 5. Chef De Mission ID	1. noc_ioc [Primary key] 2. noc_team 3. noc_region 4. noc_ppl 5. noc_manager	<ul style="list-style-type: none"> <li>NOC is an entity because each NOC comes from different country and they will enter their team into the competition.</li> <li>IOC Code is a unique identifier for each NOC.</li> </ul>
3.	NOC Officials	1. Olympic ID 2. NOC name 3. NOC role 4. NOC IOC	1. off_id [Primary key] 2. off_fname 3. off_lname 4. off_role 5. noc_ioc	<ul style="list-style-type: none"> <li>NOC Officials is an entity because each officials have their own role in the NOC and they will be booking and using the official vehicles throughout Olympic competition period</li> <li>Official Olympic ID is a unique identifier for each official.</li> </ul>
4.	Trip	1. Vehicle Vin 2. Driver ID 3. Olympic ID 4. Trip ID 5. Preferred language 6. Pick up date and time. 7. Drop off date and time. 8. Number of passengers	1. veh_vin 2. dri_id 3. off_id 4. trip_id [Primary key] 5. trip_lang 6. trip_putime 7. trip_dotime 8. trip_passengers	<ul style="list-style-type: none"> <li>Trip is an entity because it tracks the number of trip and passengers that were using the services of PAT throughout Olympic competition</li> </ul>
5.	Driver	1. Driver id 2. Drive's name (Given and Family) 3. Driver's license 4. Driver's date of birth 5. Driver's security clearance level 6. Driver's spoken language 7. Driver's suspension status	1. dri_id [Primary key] 2. dri_fname 3. dri_lname 4. dri_licno 5. dri_birth 6. dri_level 7. dri_lang 8. dri_susp (yes/no)	<ul style="list-style-type: none"> <li>Driver is an entity, because it will link to the officials who uses their services during Olympic competition</li> <li>Driver ID is a unique identifier for each driver.</li> <li>Licence Number is a unique identifier for each driver.</li> </ul>
6.	Training module	1. Training Module Code 2. Training Module name 3. Training description	1. train_code [Primary key] 2. train_name 3. train_descrip	<ul style="list-style-type: none"> <li>The training module is an entity because it is associated with the driver's right to drive for PAT.</li> <li>Training Module Code is a unique identifier for each training module.</li> </ul>

7.	Training Record	1. Driver's ID 2. Drive's language 3. Training Module Code 4. Training Module completion date 5. Training Module Expiry	1. dri_id 2. dri_lang 3. train_code 4. tr_comp 5. tr_expiry	<ul style="list-style-type: none"> <li>Driver's training is an entity as it allows PAT to monitor the number of drivers who have completed the module or whose training is approaching expiration.</li> </ul>
8.	Language	1. ISO639-1 Code (Language Code) 2. Language Name	1. lang_code [primary key] 2. lang_name	<ul style="list-style-type: none"> <li>Language is an entity as it is linked to several entities.</li> <li>ISO639-1 Code (language code) is a unique identifier for each language.</li> </ul>
9.	Particular Trip	3. Driver's ID 4. Driver's Language 5. Vehicle Vin	1. dri_id 2. dri_lang 3. veh_vin	<ul style="list-style-type: none"> <li>Particular entity is a a bridging entity to link with the drivers and vehicle for specific trip</li> </ul>

## 2. Determination of Relationship

No.	Relationship	Entities	Description	Crow's Foot Notation	Assumptions
1.	Vehicle Booking (One-to-Many)	1. Vehicle (One) 2. Trip (Many)	1. A single trip is booked for one specific vehicle 2. A vehicle can be associated with many trips throughout its service life	Vehicle --< Trip	1. Trip entity will be referencing the Vehicle Vin (Primary Key) of the Vehicle entity. This establishes the entity's relationship. 2. We assume that the vehicle will not be double booked for different trips at the same time.
2.	NOC Official's Entity relationship (One-to-Many)	1. NOC (One) 2. Official (Many)	1. An official belongs to a single NOC 2. An NOC has several/multiple officials affiliated with it	NOC --< Official	1. There's a primary key in the NOC Official entity (likely Off_ID) will be referencing with the IOC Code (primary key) from NOC 2. Officials can't have several relationship with multiple NOCs IOC Code
3.	Trips Booking (One-to-Many)	1. Official (One) 2. Trip (Many)	1. A trip is booked by NOC Official 2. An official can book multiple trips	Official --< Trip	1. The trip ID will be references as an attribute to the official ID
4.	Driver to Trip (One-to-Many)	1. Driver (One) 2. Trip (Many)	1. A drive can drive on multiple trips but only one driver per booking's trip	Driver --< Trip	1. This require an additional junction table to represent the relationship. It will link to both the trip and driver's entities.
5.	Driver's Training (One-to-Many)	1. Driver (One) 2. Training Module (Many)	1. A driver can complete multiple training modules. 2. A training module can be completed by multiple drivers.	Driver --< Training Module	1. A driver can complete multiple training modules. 2. A driver's ID
6.	Training Module to Driver's Training Record (Many-to-Many)	1. Driver (Many) 2. Training Record (Many)	1. A training module can be completed by multiple drivers	Driver >--< Training Record	1. A training module can be completed by multiple drivers.
		2.	3.		4.