**Database Dev. & Use**

**Assignment 9.1**

**Group 3**

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**Business Rules**

1. A customer can sign up for multiple excursions
2. A customer can have zero or many vaccinations
3. A trip can require zero or many vaccinations
4. A trip can require zero or many types of equipment
5. A customer can either rent or buy units of types of equipment
6. An excursion has many customers, there is a minimum required number of customers on a trip for the excursion to be feasible
7. A sale or rental of equipment is a separate transaction for each equipment type
8. An equipment unit that is over five years old is a problem (safety reasons)

\*\* Note on language:

* Excursion is one instance of a trip. A trip may be of type “Camping in the Australian Outback” and an excursion is a specific instance of that trip on a specific date range – there could be many excursions of type “Camping in the Outback” in a year.
* Equipment is like “snowshoes” and an equipment unit is “this particular pair of snowshoes.”

**Assumptions**

1. A customer will not sign up for overlapping excursions as it is impossible for them to be in two places at once
2. A customer will either rent or buy equipment, they cannot provide their own equipment (safety reasons?)
3. Two excursions of the same trip type can happen simultaneously
4. Dates of customer bookings will be used for analysis of most popular trip types
5. Transactions types (sale/rental) will be used to determine popularity of renting vs. purchasing.
6. Purchase date of equipment units for inventory will be used to determine equipment unit age

Table customers {

id integer [primary key]

firstName string

lastName string

excursionId integer

bookingDate datetime

// bookingDate can be used for later

// analysis of frequency of bookings for a trip

}

Table vaccinations {

id integer [primary key]

vaccinationName string

}

// tracks which vaccinations a customer has

Table customer\_vaccionations {

customerId integer

vaccinationId integer

}

Table trip\_type {

id integer [primary key]

tripName string

}

Table excursions {

id integer [primary key]

tripTypeId integer

excursionDate datetime

visaRequired boolean

aireFarePerPerson integer

minimumNumCustomers integer

}

// to track which customers are on which trip

Table customer\_excursion {

excursionId integer

customerId integer

}

// To track which vaccinations are required for which trip

Table required\_trip\_vaccinations {

tripId integer

vaccinationId integer

}

// To track which equipment is required for which trip

Table equipment\_trip {

equipmentId integer

tripId integer

}

// to track types of equipment

Table equipment {

id integer [primary key]

equipmentName string

equipmentRentalPrice integer

equipmentSalePrice integer

}

Table equipment\_sales {

id integer [primary key]

equipmentId integer

wasRented boolean

unitsRequisitioned integer

customerId integer

}

// to track equipment inventory

Table equipment\_units {

id integer [primary key]

equipmentId integer

purchasedDate datetime

// purchasedDate can be used to derive age of unit

}

Ref: equipment\_units.equipmentId > equipment.id // There can be many units of a an equipment type

Ref: equipment\_trip.equipmentId - equipment.id

Ref: equipment\_trip.tripId - trip\_type.id

Ref: required\_trip\_vaccinations.tripId - trip\_type.id

Ref: required\_trip\_vaccinations.vaccinationId - vaccinations.id

Ref: customer\_excursion.customerId - customers.id

Ref: customer\_excursion.excursionId - excursions.id

Ref: excursions.tripTypeId > trip\_type.id // There can be multiple excursions of the same trip type

Ref: customer\_vaccionations.customerId - customers.id

Ref: customer\_vaccionations.vaccinationId - vaccinations.id

Ref: customers.excursionId > excursions.id // A customer can sign up for multiple excursions

Ref: equipment\_sales.equipmentId - equipment.id

Ref: equipment\_sales.customerId > customers.id // A customer can make multiple transactions

