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<u>Project 1: Database Design and Data Modelling</u>

Assumptions

- A person's health insurance number is unique
- The description attribute in the Category entity set represents a single category of a certain priority level. For example, a sample description might be "Health Care Workers", not "Health Care Workers, Elderly (>= 65), Immunologically Compromised)
- A person can only register in the COVID vaccination system once, and all of their data is maintained forever, they would never "unregister", but their personal information or priority level can be changed at any time
- A person cannot be registered without knowing their category and priority level
- The "slot code" attribute in the Slot entity set is unique at a particular vaccination location on a particular day
- A nurse's Canadian nurse license number is unique
- The "assignmentID" attribute in the Assignment entity set is unique for every shift that a nurse works at a particular hospital
- All of the information stored for a person must be stored for a nurse as well (i.e. phone number, date of birth, postal code, city, street address, gender)

Restrictions

- There is no way to track how long it has been since a person took their first dose, meaning we cannot tell if the necessary time between doses has elapsed. Therefore, based on the ER, a person can potentially make a subsequent vaccination appointment at an improper time. There should be a way to track how long it has been since a person's previous dose.

- There is no way of guaranteeing that if a person receives multiple shots, that those shots have the same vaccine contained (i.e., a person could get a Moderna shot followed by a Pfizer-BioNTech shot)

- A Nurse working a particular Assignment must show up for work, there is no way to track if a Nurse is not present at their Assignment

- The ER does not capture the possibility of a Nurse being a Person; if a Nurse were to get vaccinated, they would have to call RAMQ and register as a person, the model is unable to use the information already stored for Nurses to make them a regular Person

- There is no way to see information about specific vials within a batch until the shot has been administered to a person in a particular time slot, but this is stated in the assignment

- There is no way to see batch information until it reaches its shipment location, so we cannot see batch information during production of the batch, but this is stated in the assignment

<u>Relational Translation</u>
- Person(<u>hinsurnum</u>, name, postalCode, streetAddr, dateOfBirth, phone, city, gender, description): description foreign key referencing Category

- Category(<u>description</u>, priorityLevel)

- Slot (<u>slotNumber, slotDate, locationName</u>, date, time): locationName foreign key referencing Location

- Location (<u>locationName</u>, postalCode, city, streetAddr)

- Assignment (<u>assignmentID,</u> date, locationName, cnurlicensenum): locationName foreign key referencing Location, cnurlicensenum foreign key referencing Nurse

- Nurse (<u>cnurlicensecumber</u>, name, employer)

- Vaccine (<u>manufacturer</u>, timeBetweenDoses, dosesNeeded)

- Batch (<u>batchNumber, manufacturer</u>, manufacturingDate, expiryDate, locationName): manufacturer foreign key referencing vaccine, locationName foreign key referencing Location

- Shot (<u>shotNumber, batchNumber, manufacturer</u>): (batchNumber, manufacturer) foreign key referencing Batch

- Usage (<u>slotCode, slotDate, locationName, shotNumber, batchNumber, manufacturer</u>):

(slotCode, slotDate, locationName) foreign key referencing Slot, (shotNumber, batchNumber, manufacturer) foreign key referencing Shot

- SlotFilling (<u>slotCode, slotDate, locationName, hinsurnum</u>, allocation date): (slotCode, slotDate, locationName) foreign key referencing Slot, hinsurnum foreign key referencing Person

- Shipment (<u>locationName, batchNumber, manufacturer</u>): locationName foreign key referencing Location, (batchNumber, manufacturer) foreign key referencing Batch