DATABASE CONCEPTS (ISYS1055)

COVID VACCINATION DATABASE PROJECT

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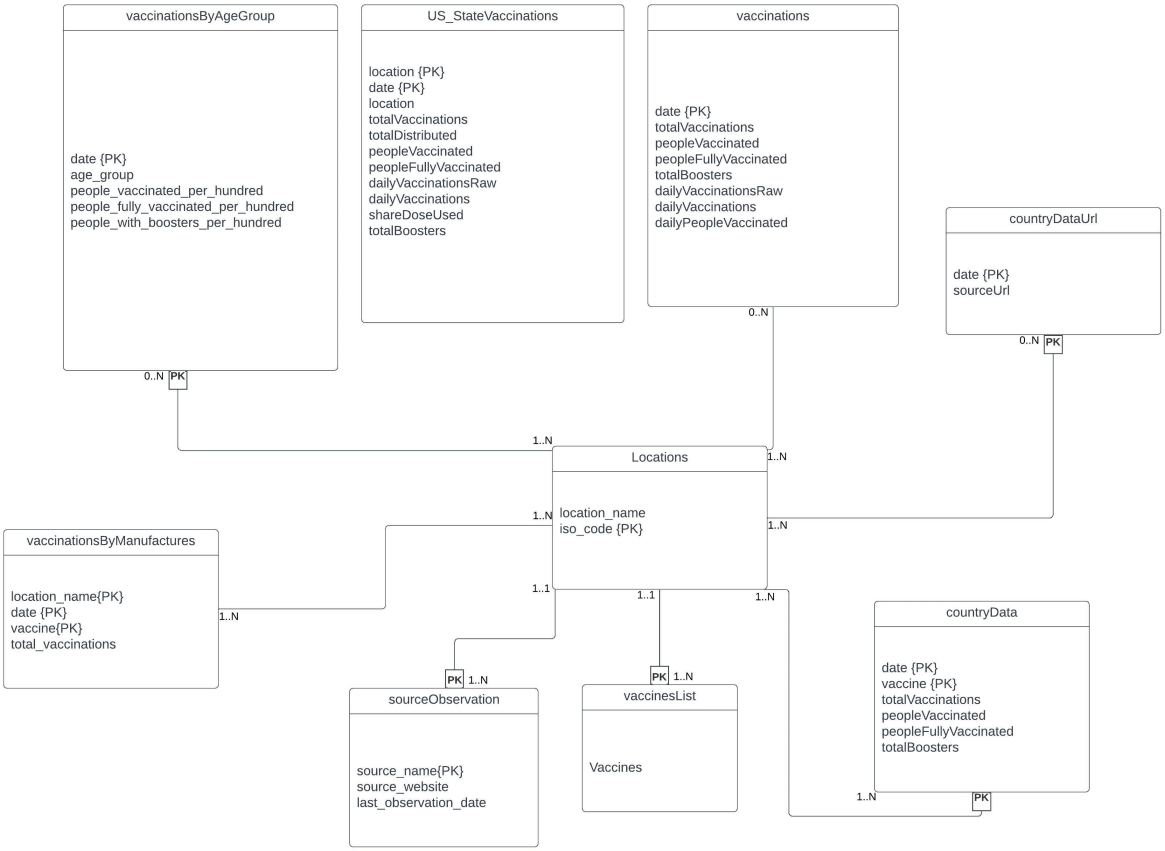
TASK 4 –PART B (IMPLEMENTATION MODEL)



A. Assumptions.

1. A location may have minimum of one vaccine, one source, one vaccine manufacturer, and one country data.
2. A location can have many vaccines, many sources, so many countries related data and many vaccine manufacturers.
3. A location may have no vaccinations by age group, no vaccinations, and no country URLs.
4. A country may have many vaccinations by age group, many vaccinations, and many country URLs.

B. Normalisation Process.

Functional Dependencies:

1. isoCode, locationName → vaccines, lastObservationDate sourceName, sourceWebsite

2. location, date → totalVaccinations, peopleVaccinated, peopleFullyVaccinated, totalBoosters, dailyVaccinationsRaw, dailyVaccinations, dailyPeopleVaccinated

3. location, date → vaccine, totalVaccinations

4. location, date, ageGroup → peopleVaccinatedPerHundred, peopleFullyVaccinatedPerHundred, peopleWithBoosterPerHundred

5. date, location → totalVaccinations, totalDistributed, peopleVaccinated, peopleFullyVaccinated, dailyVaccinationsRaw, dailyVaccinations, shareDoseUsed, totalBoosters

6. location, date → vaccine, totalVaccinations, peopleVaccinated, peopleFullyVaccinated, totalBoosters, sourceUrl

7. location, date, vaccine →totalVaccination

Decomposing the relations from original table.

1. Locations (locationName, isoCode, vaccines, lastObservationDate, sourceName, sourceWebsite)

   The table have partial dependencies, so eliminated the partial dependency and brought it to 3NF.

   locations (locationName, isoCode)

   vaccinesList (isoCode*, vaccines, lastObservationDate)

   sourceObservation (isoCode*, sourceName, sourceWebsite)

2. vaccinations (location*, date, totalVaccinations, peopleVaccinated, peopleFullyVaccinated, totalBoosters, dailyVaccinationsRaw, dailyVaccinations, dailyPeopleVaccinated)

3. vaccinationsByManufactures (location*, date, vaccine, totalVaccinations)

4. vaccinationsByManufactures (location*, date, vaccine, totalVaccinations)

5. vaccinationsByAgeGroup (location*, date, ageGroup, peopleVaccinatedPerHundred, peopleFullyVaccinatedPerHundred, peopleWithBoosterPerHundred)

6. usStateVaccinations (date, location, totalVaccinations, totalDistributed, peopleVaccinated, peopleFullyVaccinated, dailyVaccinationsRaw, dailyVaccinations, shareDoseUsed, totalBoosters)

7. CountryData (location*, date, vaccine, totalVaccinations, peopleVaccinated, peopleFullyVaccinated, totalBoosters, sourceUrl)

CountryData (location*, date, vaccine, totalVaccinations, peopleVaccinated, peopleFullyVaccinated, totalBoosters)

CountryDataUrl (location*, date*, sourceUrl)

C. DATABASE SCHEMA

locations (locationName, isoCode)

vaccinesList (isoCode*, vaccines, lastObservationDate)

sourceObservation (isoCode*, sourceName, sourceWebsite,)

vaccinations (location*, date, totalVaccinations, peopleVaccinated, peopleFullyVaccinated, totalBoosters, dailyVaccinationsRaw, dailyVaccinations, dailyPeopleVaccinated)

vaccinationsByManufactures (location*, date, vaccine, totalVaccinations)

vaccinationsByAgeGroup (location*, date, ageGroup, peopleVaccinatedPerHundred, peopleFullyVaccinatedPerHundred, peopleWithBoosterPerHundred)

usStateVaccinations (date, location, totalVaccinations, totalDistributed, peopleVaccinated, peopleFullyVaccinated, dailyVaccinationsRaw, dailyVaccinations, shareDoseUsed, totalBoosters)

CountryData (location*, date, vaccine, totalVaccinations, peopleVaccinated, peopleFullyVaccinated, totalBoosters)

CountryDataUrl (location*, date*, sourceUrl)

REFERENCES:

1) Jenny's Lectures CS IT [DBMS (Database Management System)] - YouTube Channel (https://www.youtube.com/playlist?list=PLdo5W4Nhv31b33kF46f9aFjoJPOkdlsRc)

2) Studytoonight (Database Normalization - 1NF, 2NF, 3NF, BCNF, 4NF and 5NF) -YouTube (https://www.youtube.com/playlist?list=PLLGlmW7jT-nTr1ory9o2MgsOmmx2w8FB3)