Assignment–1

Covid-19 Information Tracking System

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Details of Entities

1. Case: This entity denotes a confirmed Covid case (also known as patient). It has relations with the Person, Doctor and Hospital entities.
2. Doctor: This entity is self-descriptive. It has connections to the Case entity (supervisingDoctor), Hospital entity (worksAt).
3. Hospital: This entity is self-descriptive. It has admittedAt, worksAt and hospitalInventory relations.
4. VaccinationCenters: This entity is self-descriptive. It has vaccinationCenterInventory, vaccinationInfo relations. The vaccinationInfo itself has attributes like vaccinationDate and vaccineName.
5. TestingLab: This entity has labInventory and covidInfo relations. The covidInfo has attributes like hasCovid and testingDate.
6. Person: This entity is self-descriptive. It has vaccinationInfo, covidInfo and isPatient.
7. Inventory: This entity is self-descriptive. It has hospitalInventory, labInventory and vaccinationCenterInventory.

Details of Relationships

1. admittedAt: admitDate and releaseDate(optional) attributes.
2. supervisingDoctor
3. worksAt
4. hospitalInventory
5. labInventory
6. vaccinationCenterInventory
7. covidInfo: hasCovid and testingDate attributes.
8. vaccinationInfo: vaccineName and vaccinationDate attributes.
9. isPatient

Implementation of Features:

1. **Reporting the prevalence and progress of pandemic with time, among various patient profiles, geographical units like districts and states**:

   The user can make queries to the Case entity to get the patient count based on Districts, States, Age, Gender. The count based on time can be obtained by the infectionDate attribute.

2. **Tracking symptoms and variants that are currently common**:

   The case entity has symptop and variants attributes for this.

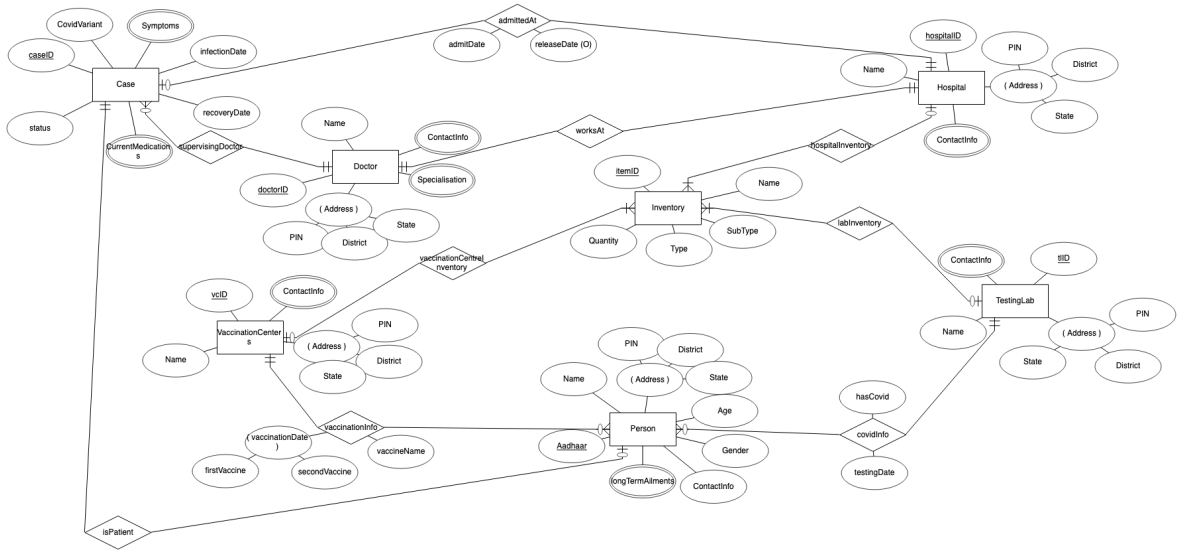
3. **Use of healthcare resources and inventory management for future readiness:**

   The healthcare resources used by each entity like Hospital, VaccinationCenter and TestingLab is stored in the inventory. It can be accessed to get the relevant info.

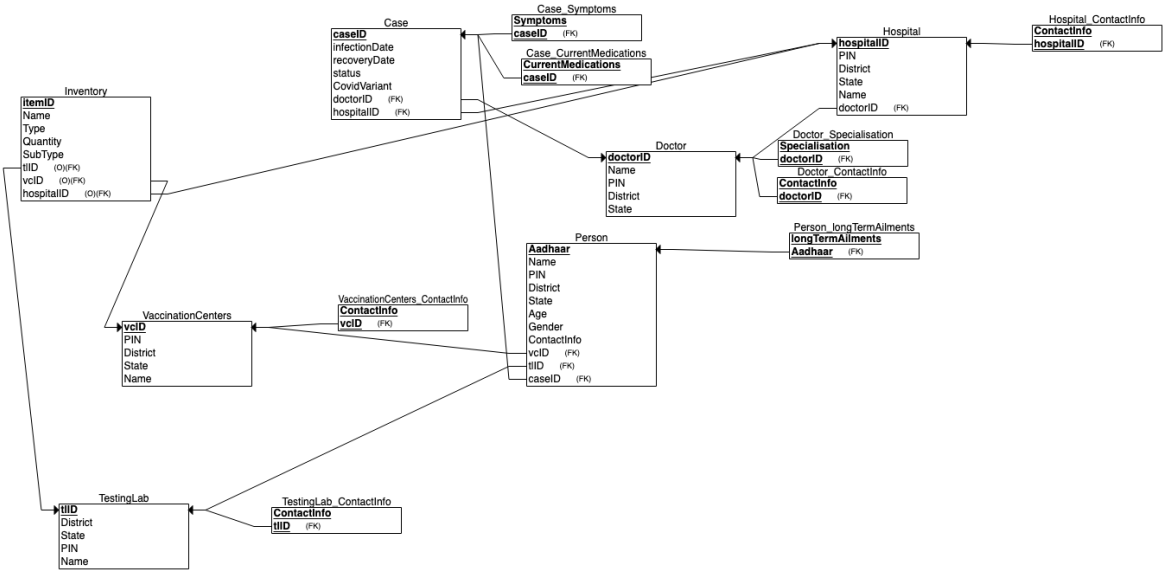
4. **Contact tracing:**

   Contact tracing can be done by finding the PIN code, district of the patient and then using their phone number and aadhar data along with the Aarogya Setu to perform contact tracing.

ER Diagram


CovidVariant
Symptoms
caseID
infectionDate
Case
recoveryDate
status
currentMedications
supervisingDoctor
admittedAt
admitDate
releaseDate (O)
Name
ContactInfo
Doctor
Specialisation
doctorID
(Address)
PIN
District
State
worksAt
hospitalID
PIN
District
Name
Hospital
(Address)
State
ContactInfo
hospitalInventory
itemID
Name
Inventory
Quantity
Type
SubType
labInventory
vaccinationCentreInventory
ContactInfo
labID
TestingLab
Name
(Address)
PIN
State
District
vcID
ContactInfo
VaccinationCenters
Name
(Address)
PIN
State
District
vaccinationInfo
(vaccinationDate)
vaccineName
firstVaccine
secondVaccine
PIN
District
Name
(Address)
State
Age
Person
Aadhaar
Gender
(longTermAilments)
ContactInfo
hasCovid
covidInfo
testingDate
isPatient

Schema


Case
caseID
infectionDate
recoveryDate
status
CovidVariant
doctorID (FK)
hospitalID (FK)
Case_Symptoms
Symptoms
caseID (FK)
Case_CurrentMedications
CurrentMedications
caseID (FK)
Hospital
hospitalID
PIN
District
State
Name
doctorID (FK)
Hospital_ContactInfo
ContactInfo
hospitalID (FK)
Inventory
itemID
Name
Type
Quantity
SubType
tlID (O)(FK)
vcID (O)(FK)
hospitalID (O)(FK)
Doctor
doctorID
Name
PIN
District
State
Doctor_Specialisation
Specialisation
doctorID (FK)
Doctor_ContactInfo
ContactInfo
doctorID (FK)
Person
Aadhaar
Name
PIN
District
State
Age
Gender
ContactInfo
vcID (FK)
tlID (FK)
caseID (FK)
Person_longTermAilments
longTermAilments
Aadhaar (FK)
VaccinationCenters
vcID
PIN
District
State
Name
VaccinationCenters_ContactInfo
ContactInfo
vcID (FK)
TestingLab
tlID
District
State
PIN
Name
TestingLab_ContactInfo
ContactInfo
tlID (FK)