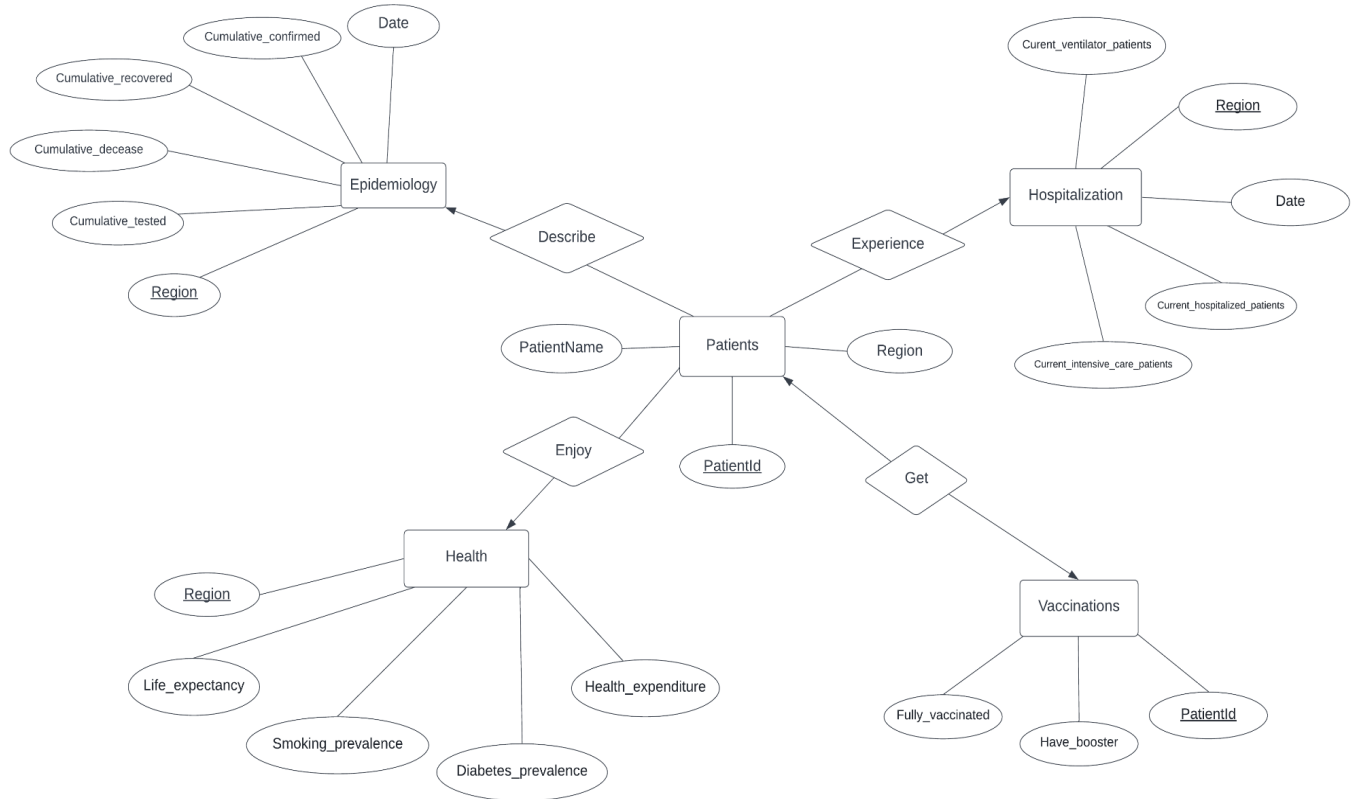# CS 411: Stage 2 Submission

The ER Diagram:

The Description and assumptions of the entities and relationships:

Patients: Information about the patients who have tested positive with Covid-19.

Region (VARCHAR(25)): Unique strings identifying the region where the epidemic occurred
PatientId (INT): Unique integer identifying the patient
PatientName (VARCHAR(255)): Strings that represent the name of each patient

```
Patients(
     Region: VARCHAR(25)[PK],
     PatientId: INT,
     PatientName: VARCHAR(255),
     );
```

Epidemiology:Information related to the COVID-19 infections for each date-region pair.

Region(VARCHAR(25)):Unique string identifying the region where the epidemic occurred
Date(VARCHAR(20)):(YYYY-MM-DD) of the time point of epidemic data statistics
Cumulative_tested(INT) : Cumulative sum of COVID-19 tests performed to date
Cumulative_confirmed(INT) : Cumulative sum of cases confirmed after positive test to date
Cumulative_recovered(INT) : Cumulative sum of recoveries from a positive COVID-19 case to date
Cumulative_deceased(INT) : Cumulative sum of deaths from a positive COVID-19 case to date

```
Epidemiology (
     Region: VARCHAR(25)[PK],
     Date: VARCHAR(20),
     Cumulative_tested: INT,
     Cumulative_confirmed: INT,
     Cumulative_recovered: INT,
     Cumulative_deceased: INT,

     );
```

Assumptions:
- **We think there are many patients corresponding to 1 region**

Describe: Reflect the overall epidemic situation in the region where the patient is located.
Region: string identifying the region where the patient comes from.

PatientId(VARCHAR(25)):Unique integer identifying the patient
Cumulative_tested(INT) : Cumulative sum of COVID-19 tests performed to date

```
Describe(
    PatientId: INT[PK][FK to Patients.PatientId],
    Region: VARCHAR(25)[FK to Epidemiology.Region],
    );
```

Health: Some indicators related to health issues for specific regions.

Region (VARCHAR(25)):Unique string identifying the region where the epidemic occurred.
Life_expectancy (REAL): Average years that an individual is expected to live.
Smoking_prevalence (REAL): Percentage of smokers in population.
Diabetes_prevalence (REAL): Percentage of persons with diabetes in the population.
Health_expenditure (REAL): Health expenditure per capita.

```
Health(
    Region: VARCHAR(25)[PK],
    Life_expectancy: REAL,
    Smoking_prevalence: REAL,
    Diabetes_prevalence: REAL,
    Health_expenditure: REAL,
    );
```

Assumptions:

- **We think that one health record refers to multiple patients (one-many).**

Enjoy: Reflect the patient's situation in the region where the patient is located.

Region (VARCHAR(25)): string identifying the region where the patient comes from.
PatientId (INT): Unique integer identifying the patient.

```
Enjoy (
    Region: VARCHAR(25)[FK to Health.Region],
    PatientId: INT[PK][FK to Patients.PatientId],
    );
```

Hospitalizations: Information related to patients of COVID-19 and hospitals.

Region (VARCHAR(25)):Unique string identifying the region where the epidemic occurred
Date(VARCHAR(20)):ISO 8601 date (YYYY-MM-DD) of the datapoint
Curent_ventilator_patients(INT):Count of current (active) COVID-19 positive cases which
require a ventilator to date
Current_hospitalized_patients:(INT):Count of current (active) cases hospitalized after positive
test to date
Current_intensive_care_patients:(INT):Count of current (active) cases admitted into ICU after a
positive COVID-19 test to date

```
Hospitalizations(
     Region: VARCHAR(25)[PK],
     Date: VARCHAR(20),
     Current_ventilator_patients: INT,
     Current_hospitalized_patients: INT,
     Current_intensive_care_patients: INT,
     );
```

Assumptions:
- **We think there are many patients corresponding to 1 region**

Experience: Reflect the health-related situation in the region where the patient is located.

Region (VARCHAR(25)): string identifying the region where the patient comes from.
PatientId (INT): Unique integer identifying the patient.

```
Experience (
     PatientId: INT[PK][FK to Patients.PatientId],
     Region: VARCHAR(25)[FK to Hospitalizations.Region],
     );
```

Vaccinations: Provides information about the vaccination statuses of COVID-19 patients in the area, including whether or not they've received a booster shot

PatientId (INT): Unique integer identifying the patient.
Fully_vaccinated (INT): Cumulative number of patients that are fully vaccinated in the area
Have_booster (BOOLEAN): Data about whether the patient has gotten a booster shot

```
Vaccinations (
     PatientId: INT[PK],
     Fully_vaccinated: INT,
     Have_booster: BOOLEAN,
     );
```

Assumption:

- **We assume that each patient only goes through one COVID-19 vaccination series (one-to-one relationship).**

Get: Reflects COVID-19 patients' vaccination statuses of each region.

PatientId (INT): Unique integer identifying the patient.

```
Get(
     PatientId: INT[PK]
     [FK to Patients.PatientId and Vaccinations.PatientId]
     );
```