FunSQL
A library for compositional construction of SQL queries

https://github.com/MechanicalRabbit/FunSQL.jl

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Find all patients born in or after 1970.

```
function find_patients(conn)
    sql = """
    SELECT p.person_id
    FROM person p
    WHERE p.year_of_birth >= 1970
    """
    DBInterface.execute(conn, sql)
end
```

Find all patients born between `1970` *and* `          `

```julia
function find_patients(conn; start_year = nothing, end_year = nothing)
    sql = """
    SELECT p.person_id
    FROM person p
    """

    predicates = String[]
    if start_year !== nothing
        push!(predicates, "p.year_of_birth >= $start_year")
    end
    if end_year !== nothing
        push!(predicates, "p.year_of_birth <= $end_year")
    end
    if !isempty(predicates)
        sql *=  "\nWHERE " * join(predicates, " AND ")
    end
    DBInterface.execute(conn, sql)
end
```
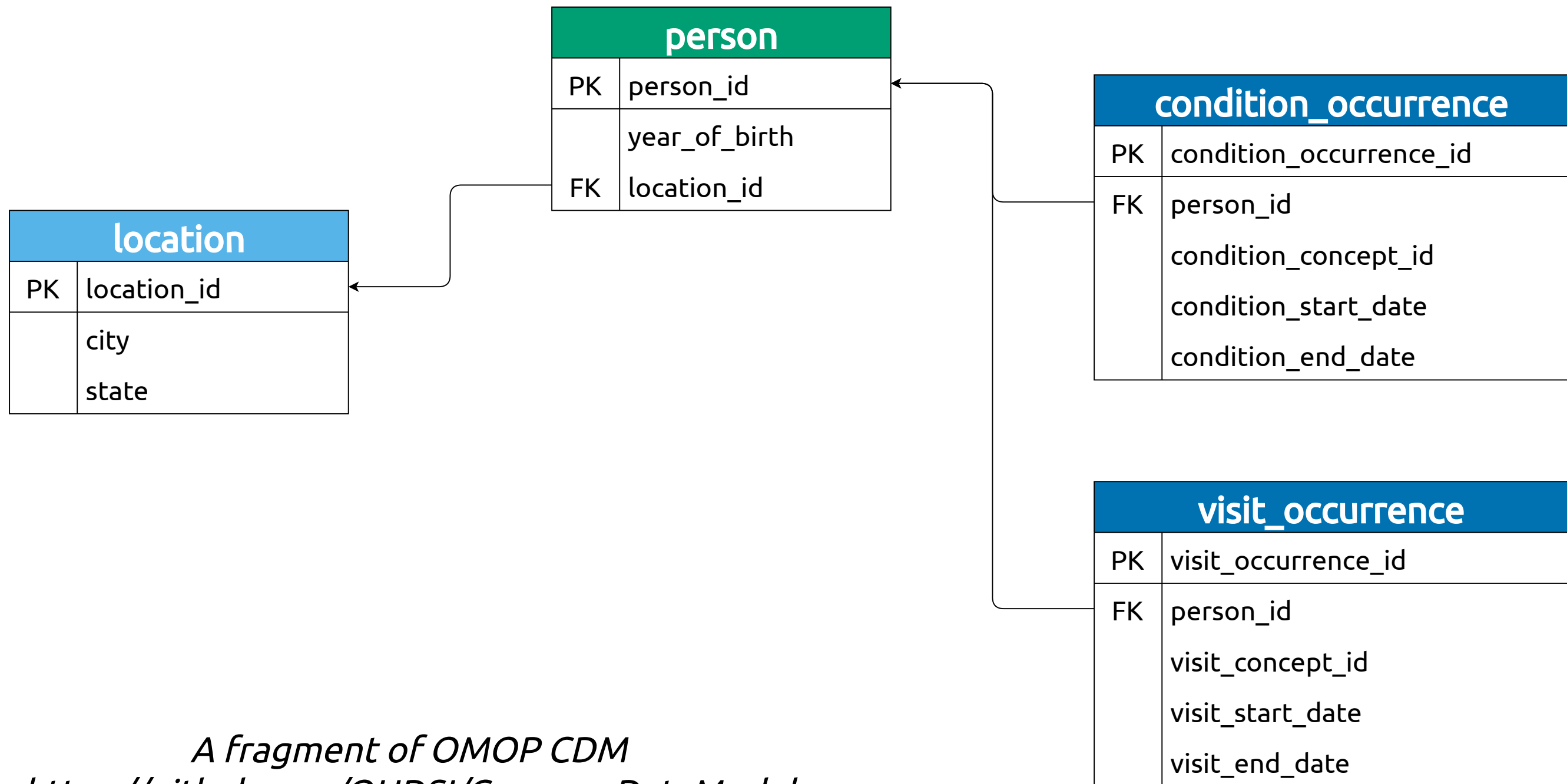
Find all patients born between `1970`

and

living in `IL`

with conditions `Hypertension` `Arrhythmia`

who visited a doctor `within last 12 months`

```julia
function find_patients(conn; start_year = nothing,
                             end_year = nothing,
                             state = nothing,
                             conditions = [],
                             latest_visit = nothing)

    sql = ???

    DBInterface.execute(conn, sql)
end
```

A fragment of OMOP CDM
https://github.com/OHDSI/CommonDataModel

```
using FunSQL: SQLTable

const person =
    SQLTable(name = :person,
             columns = [:person_id, :year_of_birth, :location_id])

const location =
    SQLTable(name = :location,
             columns = [:location_id, :city, :state, :zip])

const condition_occurrence =
    SQLTable(name = :condition_occurrence,
             columns = [:condition_occurrence_id, :person_id, :condition_concept_id,
                        :condition_start_date, :condition_end_date])

const visit_occurrence =
    SQLTable(name = :visit_occurrence,
             columns = [:visit_occurrence_id, :person_id, :visit_concept_id,
                        :visit_start_date, :visit_end_date])
```