# **2- E/R to Relations Conversion**

Persons (medicareNumber, medicareExpiryDate, firstName, lastName, dateOfBirth, phone, citizenship, email)

Employees (employeeID, medicareNumber)

**PERSON-EMPLOYEE IS 1:1**

Students (studentID, medicareNumber)

**PERSON-STUDENT IS 1:1**

Vaccinations (doseNumber, medicareNumber, date, type)

**VACCINATIONS-PERSON IS N:1**

Infections (infectionNumber, medicareNumber, date, type)

**INFECTIONS-PERSON IS N:1**

Ministries (ministryID, sector)

Facilities (facilityID, name, phone, webAddress, capacity)

**MINISTRIES-FACILITIES IS 1:N**

Operation (facilityID, ministryID)

EducationalFacility (educationalFacilityID, facilityID, schoolType)

**FACILITIES-EDUCATIONALFACILITY IS 1:1**

ManagementFacility (managementFacilityID, facilityID, president)

**FACILITIES-MANAGEMENTFACILITY IS 1:1**

HeadOffice (managementFacilityID, ministryID, headOfficeID)

**MANAGEMENTFACILITY-HEADOFFICE IS 1:1**

GeneralManagementFacility (generalManagementFacilityID, managementFacilityID)

**MANAGEMENTFACILITY-GENERALMANAGEMENTFACILITY IS 1:1**

Employment (shiftID, employeeID, facilityID, startDate, endDate, date, startTime, endTime, role)

**EMPLOYMENT-EMPLOYEE IS N:1**

Registration (studentID, facilityID, startDate, endDate, level)

**REGISTRATION-STUDENT IS N:1**

Teachers (teacherID, employeeID, educationalFacilityID)

**TEACHERS-EMPLOYEE IS 1:1**

SecondaryTeacher (secondaryTeacherID, teacherID, specialization, role)

**SECONDARYTEACHER-TEACHERS IS 1:1**

ElementaryTeacher (elementaryTeacherID, teacherID)

**ELEMENTARYTEACHER-TEACHERS IS 1:1**

Location (addressID, address, city, province, postalCode)

Residence (medicareNumber, addressID)

**RESIDENCE-LOCATION IS N:1**

Situated (facilityID, addressID)

**SITUATED-LOCATION IS 1:1**

Need triggers to add constraints:

-if duplicate employeeID entries, startTime – endTime interval must not overlap and be separated by 1 hour

-if teacher is infected by COVID-19, drop all from EmployeeSchedule with teacher’s employeeID for two weeks from date of infection

-for entries in EmployeeSchedule, check if employeeID is vaccinated

-for entries in EmployeeSchedule, check if employeeID is vaccinated for COVID-19 is past six months from first schedule (min startDate)

Email system:

-if teacher is infected, find principal of school where the teacher has been infected

-for all employees, send employeeschedule where Employee.employeeID = EmployeeSchedule.employeeID

EmailLog (emailID, facilityID, employeeID, date, subject, body)

**EMPLOYEE-EMAILLOG IS 1:N**

# **-- DDL Statements**

CREATE TABLE Persons (

medicareNumber INT PRIMARY KEY,

medicareExpiryDate DATE NOT NULL,

firstName VARCHAR(255) NOT NULL,

lastName VARCHAR(255) NOT NULL,

dateOfBirth DATE NOT NULL,

phone BIGINT UNSIGNED NOT NULL,

citizenship VARCHAR(255) NOT NULL,

email VARCHAR(255) NOT NULL

);

CREATE TABLE Employees (

employeeID INT PRIMARY KEY,

medicareNumber INT,

FOREIGN KEY (medicareNumber) REFERENCES Persons(medicareNumber) ON DELETE CASCADE

);

CREATE TABLE Students (

studentID INT PRIMARY KEY,

medicareNumber INT,

FOREIGN KEY (medicareNumber) REFERENCES Persons(medicareNumber) ON DELETE CASCADE

);

CREATE TABLE Vaccinations (

doseNumber INT NOT NULL,

medicareNumber INT,

date DATE NOT NULL,

type VARCHAR(255) NOT NULL,

FOREIGN KEY (medicareNumber) REFERENCES Persons(medicareNumber) ON DELETE CASCADE,

PRIMARY KEY (doseNumber, medicareNumber)

);

CREATE TABLE Infections (

infectionNumber INT NOT NULL,

medicareNumber INT,

date DATE NOT NULL,

type VARCHAR(255) NOT NULL,

FOREIGN KEY (medicareNumber) REFERENCES Persons(medicareNumber) ON DELETE CASCADE,

PRIMARY KEY (infectionNumber, medicareNumber)

);

CREATE TABLE Ministries (

ministryID INT PRIMARY KEY,

sector VARCHAR(255)

);

CREATE TABLE Facilities (

facilityID INT AUTO\_INCREMENT PRIMARY KEY,

name VARCHAR(255) NOT NULL,

phone BIGINT UNSIGNED NOT NULL,

webAddress VARCHAR(255) NOT NULL,

capacity INT UNSIGNED NOT NULL

);

CREATE TABLE Operation (

ministryID INT,

facilityID INT,

FOREIGN KEY (facilityID) REFERENCES Facilities(facilityID) ON DELETE CASCADE,

FOREIGN KEY (ministryID) REFERENCES Ministries(ministryID) ON DELETE CASCADE,

PRIMARY KEY (facilityID)

);

CREATE TABLE ManagementFacility (

managementFacilityID INT AUTO\_INCREMENT PRIMARY KEY,

facilityID INT,

president INT NOT NULL,

FOREIGN KEY (facilityID) REFERENCES Facilities(facilityID) ON DELETE CASCADE,

FOREIGN KEY (president) REFERENCES Employees(employeeID) ON DELETE CASCADE

);

CREATE TABLE GeneralManagementFacility (

generalManagementFacilityID INT AUTO\_INCREMENT PRIMARY KEY,

managementFacilityID INT,

FOREIGN KEY (managementFacilityID) REFERENCES ManagementFacility(managementFacilityID) ON DELETE CASCADE

);

CREATE TABLE HeadOffice (

headOfficeID INT UNIQUE NOT NULL,

managementFacilityID INT PRIMARY KEY,

ministryID INT,

FOREIGN KEY (managementFacilityID) REFERENCES ManagementFacility(managementFacilityID) ON DELETE CASCADE,

FOREIGN KEY (ministryID) REFERENCES Ministries(ministryID) ON DELETE CASCADE

);

CREATE TABLE EducationalFacility (

educationalFacilityID INT AUTO\_INCREMENT PRIMARY KEY,

facilityID INT,

schoolType ENUM ('Primary', 'Middle', 'High', 'Combo'),

FOREIGN KEY (facilityID) REFERENCES Facilities(facilityID) ON DELETE CASCADE

);

CREATE TABLE Registration (

studentID INT,

facilityID INT,

startDate DATE NOT NULL,

endDate DATE,

level VARCHAR(255) NOT NULL,

FOREIGN KEY (studentID) REFERENCES Students(studentID) ON DELETE CASCADE,

FOREIGN KEY (facilityID) REFERENCES Facilities(facilityID) ON DELETE CASCADE,

PRIMARY KEY (studentID, facilityID, startDate)

);

CREATE TABLE Employment (

shiftID INT AUTO\_INCREMENT PRIMARY KEY,

employeeID INT,

facilityID INT,

startDate DATE NOT NULL,

endDate DATE,

shiftDate DATE,

startTime TIME,

endTime TIME,

role VARCHAR(255) NOT NULL,

FOREIGN KEY (employeeID) REFERENCES Employees(employeeID) ON DELETE CASCADE,

FOREIGN KEY (facilityID) REFERENCES Facilities(facilityID) ON DELETE CASCADE

);

CREATE TABLE Teachers (

teacherID INT AUTO\_INCREMENT PRIMARY KEY,

employeeID INT,

educationalFacilityID INT,

FOREIGN KEY (employeeID) REFERENCES Employees(employeeID) ON DELETE CASCADE,

FOREIGN KEY (educationalFacilityID) REFERENCES EducationalFacility(educationalFacilityID) ON DELETE CASCADE

);

CREATE TABLE ElementaryTeacher (

elementaryTeacherID INT AUTO\_INCREMENT PRIMARY KEY,

teacherID INT,

FOREIGN KEY (teacherID) REFERENCES Teachers(teacherID) ON DELETE CASCADE

);

CREATE TABLE SecondaryTeacher (

secondaryTeacherID INT AUTO\_INCREMENT PRIMARY KEY,

teacherID INT,

specialization VARCHAR(255) NOT NULL,

role ENUM('Counselor', 'Director', 'Administrator'),

FOREIGN KEY (teacherID) REFERENCES Teachers(teacherID) ON DELETE CASCADE

);

CREATE TABLE Location (

addressID INT AUTO\_INCREMENT PRIMARY KEY,

address VARCHAR(255) NOT NULL,

city VARCHAR(255) NOT NULL,

province VARCHAR(255) NOT NULL,

postalCode VARCHAR(255) NOT NULL

);

CREATE TABLE Residence (

medicareNumber INT PRIMARY KEY,

addressID INT,

FOREIGN KEY (medicareNumber) REFERENCES Persons (medicareNumber) ON DELETE CASCADE,

FOREIGN KEY (addressID) REFERENCES Location (addressID) ON DELETE CASCADE

);

CREATE TABLE Situated (

facilityID INT PRIMARY KEY,

addressID INT,

FOREIGN KEY (facilityID) REFERENCES Facilities (facilityID) ON DELETE CASCADE,

FOREIGN KEY (addressID) REFERENCES Location (addressID) ON DELETE CASCADE

);

# **-- DML Statements (Transactions)**

INSERT INTO Persons (medicareNumber, medicareExpiryDate, firstName, lastName, dateOfBirth, phone, citizenship, email)

VALUES

(5048, '2023-09-26', 'Tom', 'Phillips', '2002-11-04', 218038875, 'Canadian', 'person1@example.com'),

(7633, '2022-10-07', 'Nayeli', 'Harris', '1976-05-07', 914546857, 'German', 'person2@example.com'),

(3792, '2022-01-26', 'Steven', 'James', '1995-10-23', 417204837, 'American', 'person3@example.com'),

(3295, '2025-06-12', 'Natali', 'White', '1990-10-16', 303711351, 'French', 'person4@example.com'),

(9508, '2022-07-15', 'Michael', 'Martin', '2003-06-11', 856895891, 'Australian', 'person5@example.com'),

(1805, '2022-09-19', 'Maria', 'Evans', '1962-06-19', 958736466, 'French', 'person6@example.com'),

(6349, '2024-11-05', 'Nicole', 'Jackson', '1988-09-14', 777745522, 'Canadian', 'person7@example.com'),

(2068, '2023-03-24', 'Natalya', 'Baker', '1967-07-05', 962355955, 'German', 'person8@example.com'),

(6013, '2024-08-22', 'Joe', 'Miller', '1988-09-16', 295279935, 'Canadian', 'person9@example.com'),

(9671, '2022-08-22', 'John', 'Wright', '1976-01-11', 164511484, 'French', 'person10@example.com'),

(5721, '2023-03-23', 'Tom', 'Martinez', '1974-09-01', 639881652, 'German', 'person11@example.com'),

(2941, '2023-09-28', 'Steven', 'Murphy', '1960-09-22', 736149025, 'French', 'person12@example.com'),

(6736, '2025-06-12', 'Joe', 'Flores', '1991-07-11', 626373293, 'French', 'person13@example.com'),

(6185, '2025-07-08', 'Nancy', 'Cook', '1998-04-11', 335217668, 'Australian', 'person14@example.com'),

(6760, '2022-06-04', 'Steven', 'Bell', '2002-02-14', 751558232, 'Australian', 'person15@example.com'),

(3837, '2023-07-03', 'Maria', 'Russell', '1996-08-23', 957211208, 'Canadian', 'person16@example.com'),

(4997, '2023-06-26', 'Jack', 'Robinson', '1992-01-08', 581147180, 'French', 'person17@example.com'),

(2165, '2024-08-14', 'Jack', 'Roberts', '1998-04-14', 648481342, 'American', 'person18@example.com'),

(6560, '2023-10-08', 'John', 'Gonzalez', '1962-03-18', 143748391, 'Australian', 'person19@example.com'),

(6661, '2025-04-17', 'Nia', 'Murphy', '1967-02-27', 912851240, 'German', 'person20@example.com'),

(4874, '2024-07-21', 'Nathalie', 'Walker', '1998-06-18', 783500106, 'German', 'person21@example.com'),

(4233, '2025-09-09', 'Nora', 'White', '1994-01-09', 785019153, 'British', 'person22@example.com'),

(2506, '2023-02-10', 'Nathaly', 'Howard', '1977-02-19', 945519013, 'Canadian', 'person23@example.com'),

(2515, '2022-03-05', 'Nathan', 'Kelly', '1976-03-09', 278047016, 'American', 'person24@example.com'),

(4628, '2023-02-02', 'Nancy', 'Rogers', '1984-06-22', 720769265, 'French', 'person25@example.com'),

(9388, '2022-11-25', 'Steven', 'Washington', '1998-09-11', 127109103, 'French', 'person26@example.com'),

(6706, '2022-09-13', 'Nora', 'Scott', '1971-07-06', 426885138, 'German', 'person27@example.com'),

(9830, '2024-03-06', 'Nathalia', 'Sanders', '1976-10-13', 412807743, 'Canadian', 'person28@example.com'),

(1799, '2025-11-19', 'Natalya', 'Carter', '1964-11-20', 859210472, 'German', 'person29@example.com'),

(3667, '2024-06-15', 'Julia', 'Kelly', '1979-07-19', 122821961, 'Australian', 'person30@example.com'),

(9801, '2024-10-03', 'Natalya', 'Adams', '1972-12-20', 100886725, 'French', 'person31@example.com'),

(1132, '2024-10-27', 'Jack', 'Alexander', '2001-02-07', 997905683, 'American', 'person32@example.com'),

(1556, '2023-05-28', 'Mary', 'Rogers', '1985-05-14', 581046349, 'American', 'person33@example.com'),

(5728, '2024-07-11', 'Nia', 'Cook', '1975-04-26', 681659378, 'American', 'person34@example.com'),

(3682, '2024-11-13', 'Nevaeh', 'Johnson', '1995-06-11', 938775297, 'Canadian', 'person35@example.com'),

(5860, '2022-03-07', 'Nathan', 'Diaz', '2003-08-12', 692850501, 'British', 'person36@example.com'),

(6640, '2024-12-27', 'Natalia', 'Lewis', '2003-04-05', 373676914, 'French', 'person37@example.com'),

(8456, '2025-12-14', 'Joe', 'Phillips', '1978-10-11', 496423866, 'Canadian', 'person38@example.com'),

(8179, '2025-03-28', 'Noah', 'Powell', '1961-09-18', 341125934, 'Canadian', 'person39@example.com'),

(1947, '2024-03-13', 'Natalie', 'Williams', '1978-04-25', 821922687, 'Australian', 'person40@example.com'),

(9620, '2022-01-01', 'Natali', 'Carter', '1986-04-23', 101158407, 'Australian', 'person41@example.com'),

(5400, '2024-02-20', 'Nathan', 'Carter', '1996-05-12', 781192683, 'Canadian', 'person42@example.com'),

(6011, '2025-11-24', 'Tom', 'Price', '2000-11-27', 596009224, 'Australian', 'person43@example.com'),

(8280, '2023-10-11', 'Nina', 'Williams', '1996-05-05', 274731623, 'British', 'person44@example.com'),

(5905, '2023-04-10', 'Nathalie', 'Cooper', '1964-02-18', 974005556, 'Canadian', 'person45@example.com');

INSERT INTO Employees (employeeID, medicareNumber)

VALUES

(1001, 1132),

(1002, 1556),

(1003, 1799),

(1004, 1805),

(1005, 1947),

(1006, 2068),

(1007, 2165),

(1008, 2506),

(1009, 2515),

(1010, 2941),

(1011, 3295),

(1012, 3667),

(1013, 3682),

(1014, 3792),

(1015, 3837),

(1016, 4233),

(1017, 4628),

(1018, 4874),

(1019, 4997),

(1020, 5048),

(1021, 5400),

(1022, 5721),

(1023, 5728),

(1024, 5860),

(1025, 5905),

(1026, 6011),

(1027, 6013),

(1028, 6185);

INSERT INTO Students (studentID, medicareNumber)

VALUES

(2001, 6349),

(2002, 6560),

(2003, 6640),

(2004, 6661),

(2005, 6706),

(2006, 6736),

(2007, 6760),

(2008, 7633),

(2009, 8179),

(2010, 8280),

(2011, 8456),

(2012, 9388),

(2013, 9508),

(2014, 9620),

(2015, 9671),

(2016, 9801),

(2017, 9830);

INSERT INTO Infections (infectionNumber, medicareNumber, date, type)

VALUES

(1, 9830, '2022-12-17', 'Other'),

(1, 9801, '2023-01-28', 'SARS-Cov-2 Variant'),

(1, 5400, '2021-11-08', 'Other'),

(1, 5860, '2023-03-26', 'Other'),

(3, 4874, '2023-07-14', 'COVID-19'),

(1, 6349, '2023-03-09', 'COVID-19'),

(1, 1947, '2023-01-04', 'COVID-19'),

(1, 4233, '2022-11-17', 'COVID-19'),

(1, 6706, '2022-03-22', 'COVID-19'),

(1, 6736, '2022-08-15', 'SARS-Cov-2 Variant'),

(3, 6011, '2023-06-24', 'Other'),

(2, 8179, '2023-01-03', 'SARS-Cov-2 Variant'),

(1, 4874, '2022-05-03', 'COVID-19'),

(2, 1947, '2023-05-26', 'SARS-Cov-2 Variant'),

(1, 8179, '2022-08-22', 'SARS-Cov-2 Variant'),

(2, 1799, '2023-05-26', 'Other'),

(1, 8280, '2022-06-19', 'SARS-Cov-2 Variant'),

(1, 9508, '2021-03-04', 'COVID-19'),

(2, 2506, '2023-06-10', 'SARS-Cov-2 Variant'),

(2, 2515, '2023-01-22', 'COVID-19'),

(1, 2506, '2022-08-14', 'SARS-Cov-2 Variant'),

(1, 1805, '2022-05-21', 'SARS-Cov-2 Variant'),

(3, 8280, '2023-07-17', 'SARS-Cov-2 Variant'),

(1, 3295, '2023-01-21', 'SARS-Cov-2 Variant'),

(1, 4628, '2023-02-17', 'SARS-Cov-2 Variant'),

(1, 6011, '2022-01-13', 'Other'),

(2, 4874, '2023-06-19', 'COVID-19'),

(1, 3667, '2023-03-02', 'SARS-Cov-2 Variant'),

(1, 9671, '2022-08-05', 'Other'),

(2, 6736, '2023-03-06', 'COVID-19'),

(1, 1556, '2022-07-09', 'COVID-19'),

(2, 1556, '2023-01-01', 'COVID-19'),

(3, 1556, '2023-03-09', 'COVID-19'),

(2, 9508, '2022-01-27', 'Other'),

(1, 6013, '2022-01-01', 'SARS-Cov-2 Variant'),

(1, 8456, '2023-03-19', 'SARS-Cov-2 Variant'),

(1, 1799, '2023-08-01', 'COVID-19'),

(3, 9508, '2023-01-12', 'Other'),

(1, 6640, '2022-01-24', 'SARS-Cov-2 Variant'),

(2, 6013, '2023-03-07', 'COVID-19'),

(1, 5728, '2023-04-13', 'Other'),

(1, 2515, '2022-11-24', 'SARS-Cov-2 Variant'),

(1, 3792, '2022-11-01', 'Other'),

(1, 9620, '2023-07-13', 'SARS-Cov-2 Variant'),

(1, 7633, '2022-09-02', 'Other'),

(1, 1132, '2023-04-13', 'Other'),

(2, 6011, '2023-05-17', 'COVID-19'),

(2, 9671, '2022-12-22', 'COVID-19'),

(2, 6640, '2023-03-28', 'Other'),

(2, 5400, '2023-05-21', 'COVID-19'),

(2, 8280, '2023-02-03', 'Other'),

(2, 4233, '2023-01-09', 'SARS-Cov-2 Variant'),

(2, 4628, '2023-06-17', 'Other'),

(1, 5721, '2022-02-05', 'COVID-19'),

(2, 5721, '2023-06-24', 'Other'),

(1, 3837, '2022-02-18', 'SARS-Cov-2 Variant'),

(2, 1132, '2023-08-01', 'COVID-19'),

(2, 3792, '2023-01-09', 'COVID-19'),

(3, 5721, '2023-08-02', 'Other'),

(3, 9671, '2023-07-25', 'COVID-19');

INSERT INTO Vaccinations (doseNumber, medicareNumber, date, type)

VALUES

(1, 6013, '2021-10-14', 'AstraZeneca'),

(1, 3667, '2022-02-18', 'Sinovac'),

(1, 3682, '2021-04-22', 'Novavax'),

(1, 9671, '2022-08-05', 'Novavax'),

(1, 1556, '2023-01-13', 'Sinovac'),

(1, 9830, '2022-10-28', 'AstraZeneca'),

(1, 6560, '2022-05-22', 'Novavax'),

(2, 6560, '2023-01-05', 'Johnson & Johnson'),

(1, 4628, '2023-10-18', 'Sinovac'),

(1, 8456, '2022-03-26', 'Pfizer'),

(1, 9801, '2022-04-01', 'Sinovac'),

(1, 6011, '2022-02-12', 'Johnson & Johnson'),

(1, 6736, '2022-11-03', 'Moderna'),

(1, 6640, '2022-07-11', 'Johnson & Johnson'),

(1, 6661, '2022-09-17', 'Novavax'),

(1, 2515, '2021-09-13', 'Johnson & Johnson'),

(1, 9508, '2022-02-26', 'Johnson & Johnson'),

(1, 2941, '2021-01-03', 'Novavax'),

(1, 2068, '2022-09-03', 'Novavax'),

(2, 6640, '2023-07-24', 'Pfizer'),

(1, 7633, '2022-01-07', 'Johnson & Johnson'),

(1, 3837, '2022-10-17', 'AstraZeneca'),

(1, 1805, '2022-10-08', 'Moderna'),

(1, 6760, '2021-02-03', 'Novavax'),

(1, 5048, '2022-11-03', 'Novavax'),

(2, 5728, '2022-10-02', 'Moderna'),

(1, 3295, '2021-03-12', 'Moderna'),

(1, 6349, '2021-12-03', 'Johnson & Johnson'),

(2, 9830, '2022-08-26', 'AstraZeneca'),

(1, 5721, '2022-09-27', 'Moderna'),

(2, 8179, '2023-02-26', 'AstraZeneca'),

(3, 6560, '2023-03-22', 'Moderna'),

(2, 6011, '2023-01-25', 'Moderna'),

(2, 2515, '2022-07-07', 'Novavax'),

(2, 2068, '2023-05-06', 'Moderna'),

(3, 6011, '2022-08-28', 'Sinovac'),

(2, 9671, '2022-05-03', 'AstraZeneca'),

(2, 3837, '2022-11-10', 'Moderna'),

(2, 3295, '2023-07-24', 'Sinovac'),

(3, 3837, '2022-11-21', 'Moderna'),

(2, 6013, '2023-07-18', 'Pfizer'),

(2, 5905, '2022-11-22', 'Novavax'),

(1, 2506, '2022-11-10', 'Sinovac'),

(4, 3837, '2023-02-26', 'Sinovac'),

(2, 6760, '2023-02-10', 'Novavax'),

(1, 6185, '2022-04-03', 'Johnson & Johnson'),

(2, 9801, '2023-06-28', 'AstraZeneca'),

(1, 5905, '2022-01-17', 'Sinovac'),

(1, 8280, '2022-04-02', 'Pfizer'),

(1, 4874, '2023-02-27', 'Moderna'),

(1, 8179, '2023-08-02', 'Johnson & Johnson'),

(1, 5728, '2022-09-24', 'Moderna'),

(1, 4997, '2022-10-09', 'Sinovac'),

(2, 3682, '2022-11-17', 'Novavax'),

(2, 6349, '2023-07-09', 'Sinovac'),

(2, 5048, '2023-07-13', 'Sinovac'),

(2, 3667, '2023-05-21', 'Johnson & Johnson'),

(1, 1799, '2023-07-15', 'Johnson & Johnson'),

(1, 4233, '2022-03-02', 'AstraZeneca'),

(3, 6013, '2023-06-15', 'Pfizer');

INSERT INTO Ministries (ministryID, sector)

VALUES

(1, 'Agriculture'),

(2, 'Health'),

(3, 'Energy');

INSERT INTO Facilities (facilityID, name, phone, webAddress, capacity)

VALUES

(1, 'Base', 930727010, 'www.facility1.com', 152),

(2, 'Head', 542731214, 'www.facility2.com', 108),

(3, 'Knox', 699068911, 'www.facility3.com', 185),

(4, 'Jackson', 306677544, 'www.facility4.com', 462),

(5, 'Levi', 510938734, 'www.facility5.com', 72),

(6, 'Home', 456290238, 'www.facility6.com', 38),

(7, 'Tree', 497364493, 'www.facility7.com', 49),

(8, 'Sea', 585972116, 'www.facility8.com', 310),

(9, 'Ship', 513477902, 'www.facility9.com', 163);

INSERT INTO Operation (ministryID, facilityID)

VALUES

(1, 1),

(1, 4),

(1, 5),

(2, 2),

(2, 6),

(2, 7),

(3, 3),

(3, 8),

(3, 9);

INSERT INTO ManagementFacility (managementFacilityID, facilityID, president)

VALUES

(1, 4, 1004),

(2, 5, 1005),

(3, 6, 1006),

(4, 7, 1007),

(5, 8, 1008),

(6, 9, 1009);

INSERT INTO GeneralManagementFacility (generalManagementFacilityID, managementFacilityID)

VALUES

(1, 4),

(2, 5),

(3, 6);

INSERT INTO HeadOffice (headOfficeID, managementFacilityID, ministryID)

VALUES

(1, 1, 1),

(2, 2, 2),

(3, 3, 3);

INSERT INTO Employment (shiftID, employeeID, facilityID, startDate, endDate, shiftDate, startTime, endTime, role)

VALUES

(1, 1001, 1, '2023-01-01', NULL, '2023-09-02', '13:00:00', '15:00:00', 'Teacher'),

(2, 1001, 1, '2023-01-01', NULL, '2023-09-02', '16:00:00', '17:00:00', 'Teacher'),

(3, 1002, 2, '2023-01-01', NULL, '2023-10-02', '08:00:00', '09:00:00', 'Teacher'),

(4, 1002, 3, '2023-01-01', NULL, '2023-10-02', '11:00:00', '13:00:00', 'Teacher'),

(5, 1003, 3, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Teacher'),

(6, 1004, 4, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'President'),

(7, 1005, 5, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'President'),

(8, 1006, 6, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'President'),

(9, 1007, 7, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'President'),

(10, 1008, 8, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'President'),

(11, 1009, 9, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'President'),

(12, 1010, 1, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Principal'),

(13, 1011, 2, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Principal'),

(14, 1012, 3, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Principal'),

(15, 1013, 4, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Secretary'),

(16, 1014, 4, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Secretary'),

(17, 1015, 5, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Secretary'),

(18, 1016, 5, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Secretary'),

(19, 1017, 6, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Secretary'),

(20, 1018, 7, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Secretary'),

(21, 1019, 8, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Secretary'),

(22, 1020, 9, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Secretary'),

(23, 1021, 4, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Security'),

(24, 1022, 5, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Security'),

(25, 1023, 6, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Security'),

(26, 1024, 7, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Security'),

(27, 1025, 8, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Security'),

(28, 1026, 9, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'Security'),

(29, 1027, 9, '2023-01-01', '2023-03-01', NULL, NULL, NULL, 'other'),

(30, 1028, 9, '2023-01-01', '2023-03-01', '2023-08-01' , NULL, NULL, 'other');

-- Edge/Test cases:

-- Employee 1001 works at facility 1 on same day (two shifts) one hour apart

-- Employee 1002 works at facility 1 and 2 on same day (two shifts) one hour apart

INSERT INTO EducationalFacility (educationalFacilityID, facilityID, schoolType)

VALUES

(1, 1, 'Primary'),

(2, 2, 'Middle'),

(3, 3, 'High');

INSERT INTO Teachers (teacherID, employeeID, educationalFacilityID)

VALUES

(1, 1001, 1),

(2, 1002, 2),

(3, 1003, 3);

INSERT INTO ElementaryTeacher (elementaryTeacherID, teacherID)

VALUES

(1, 1);

INSERT INTO SecondaryTeacher (secondaryTeacherID, teacherID, specialization, role)

VALUES

(2, 2, 'Math', 'Counselor'),

(3, 3, 'Geography', 'Director');

INSERT INTO Registration (studentID, facilityID, startDate, endDate, level)

VALUES

(2001, 1, '2023-11-23', '2024-12-15', 5),

(2002, 1, '2022-07-16', NULL, 12),

(2003, 3, '2022-12-28', NULL, 6),

(2004, 1, '2023-05-14', NULL, 10),

(2005, 3, '2022-10-06', '2024-01-27', 2),

(2006, 3, '2022-01-17', '2024-04-23', 8),

(2007, 1, '2022-02-14', '2023-05-01', 6),

(2008, 1, '2022-04-08', '2024-09-15', 9),

(2009, 2, '2022-08-21', '2023-05-05', 5),

(2010, 2, '2023-08-06', '2023-07-24', 2),

(2011, 2, '2023-09-09', '2023-05-16', 12),

(2012, 3, '2023-03-17', '2023-04-23', 1),

(2013, 2, '2023-06-03', '2024-07-11', 8),

(2014, 1, '2022-11-03', '2023-08-01', 1),

(2015, 2, '2022-11-21', '2024-06-06', 4),

(2016, 1, '2022-04-05', NULL, 1),

(2017, 1, '2022-11-10', '2024-05-05', 12);

INSERT INTO Location (addressID, address, city, province, postalCode)

VALUES

(1, 301, 'Montreal', 'Quebec', 'H0KG0L'),

(2, 659, 'Laval', 'Quebec', 'H2KG3L'),

(3, 772, 'Laval', 'Quebec', 'H4KG6L'),

(4, 374, 'Toronto', 'Ontario', 'H5KG2L'),

(5, 659, 'Toronto', 'Ontario', 'H3KG4L'),

(6, 611, 'Montreal', 'Quebec', 'H1KG3L'),

(7, 124, 'Montreal', 'Quebec', 'H8KG0L'),

(8, 973, 'Toronto', 'Ontario', 'H4KG8L'),

(9, 228, 'Toronto', 'Ontario', 'H7KG5L'),

(10, 842, 'Montreal', 'Quebec', 'H6KG8L'),

(11, 717, 'Laval', 'Quebec', 'H8KG0L'),

(12, 852, 'Ottawa', 'Ontario', 'H4KG4L'),

(13, 462, 'Montreal', 'Quebec', 'H2KG2L'),

(14, 753, 'Montreal', 'Quebec', 'H5KG6L'),

(15, 369, 'Montreal', 'Quebec', 'H1KG7L'),

(16, 959, 'Montreal', 'Quebec', 'H1KG9L'),

(17, 411, 'Laval', 'Quebec', 'H8KG3L'),

(18, 587, 'Toronto', 'Ontario', 'H1KG1L'),

(19, 228, 'Toronto', 'Ontario', 'H4KG5L'),

(20, 395, 'Toronto', 'Ontario', 'H5KG0L'),

(21, 920, 'Montreal', 'Quebec', 'H7KG2L'),

(22, 299, 'Laval', 'Quebec', 'H3KG3L'),

(23, 588, 'Laval', 'Quebec', 'H1KG4L'),

(24, 284, 'Toronto', 'Ontario', 'H2KG4L'),

(25, 736, 'Laval', 'Quebec', 'H4KG6L'),

(26, 585, 'Montreal', 'Quebec', 'H9KG8L'),

(27, 825, 'Ottawa', 'Ontario', 'H8KG3L'),

(28, 341, 'Montreal', 'Quebec', 'H8KG6L'),

(29, 930, 'Montreal', 'Quebec', 'H1KG1L'),

(30, 233, 'Montreal', 'Quebec', 'H5KG8L'),

(31, 106, 'Ottawa', 'Ontario', 'H3KG9L'),

(32, 228, 'Ottawa', 'Ontario', 'H4KG8L'),

(33, 514, 'Laval', 'Quebec', 'H0KG4L'),

(34, 246, 'Ottawa', 'Ontario', 'H3KG7L'),

(35, 707, 'Montreal', 'Quebec', 'H7KG1L'),

(36, 904, 'Montreal', 'Quebec', 'H9KG8L'),

(37, 327, 'Laval', 'Quebec', 'H3KG5L'),

(38, 905, 'Laval', 'Quebec', 'H8KG7L'),

(39, 876, 'Ottawa', 'Ontario', 'H9KG7L'),

(40, 673, 'Laval', 'Quebec', 'H4KG3L'),

(41, 970, 'Montreal', 'Quebec', 'H3KG8L'),

(42, 943, 'Montreal', 'Quebec', 'H9KG5L'),

(43, 829, 'Ottawa', 'Ontario', 'H7KG4L'),

(44, 349, 'Montreal', 'Quebec', 'H0KG7L'),

(45, 452, 'Montreal', 'Quebec', 'H6KG5L'),

(46, 462, 'Laval', 'Quebec', 'H3K9L4'),

(47, 714, 'Laval', 'Quebec', 'H2K5L1'),

(48, 937, 'Toronto', 'Ontario', 'H2K8L7'),

(49, 118, 'Laval', 'Quebec', 'H1K5L1'),

(50, 253, 'Laval', 'Quebec', 'H1K3L1'),

(51, 424, 'Montreal', 'Quebec', 'H9K9L2'),

(52, 429, 'Toronto', 'Ontario', 'H0K0L2'),

(53, 391, 'Montreal', 'Quebec', 'H5K5L9'),

(54, 216, 'Ottawa', 'Ontario', 'H7K6L9');

INSERT INTO Situated (facilityID, addressID)

VALUES

(1, 46),

(2, 47),

(3, 48),

(4, 49),

(5, 50),

(6, 51),

(7, 52),

(8, 53),

(9, 54);

INSERT INTO Residence (medicareNumber, addressID)

VALUES

(5048, 1),

(7633, 2),

(3792, 3),

(3295, 4),

(9508, 5),

(1805, 6),

(6349, 7),

(2068, 8),

(6013, 9),

(9671, 10),

(5721, 11),

(2941, 12),

(6736, 13),

(6185, 14),

(6760, 15),

(3837, 16),

(4997, 17),

(2165, 18),

(6560, 19),

(6661, 20),

(4874, 21),

(4233, 22),

(2506, 23),

(2515, 24),

(4628, 25),

(9388, 26),

(6706, 27),

(9830, 28),

(1799, 29),

(3667, 30),

(9801, 31),

(1132, 32),

(1556, 33),

(5728, 34),

(3682, 35),

(5860, 36),

(6640, 37),

(8456, 38),

(8179, 39),

(1947, 40),

(9620, 41),

(5400, 42),

(6011, 43),

(8280, 44),

(5905, 45);

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