

EXPECTATIONS OF ORIGINALITY & STANDARDS OF ACADEMIC INTEGRITY

ALL SUBMISSIONS must meet the following requirements:

1. The decision on whether a submission is a group or individual submission is determined by the instructor. Individual submissions are done alone and should not be identical to the submission made by any other student. In the case of group submissions, all individuals in the group must be listed on and must sign this form prior to its submission to the instructor.
2. All individual and group submissions constitute original work by the individual(s) signing this form.
3. Direct quotations make up a very small proportion of the text, i.e., not exceeding 5% of the word count.
4. Material paraphrased from a source (e.g., print sources, multimedia sources, web-based sources, course notes or personal interviews) has been identified by a numerical reference citation.
5. All of the sources consulted and/or included in the report have been listed in the Reference section of the document.
6. All drawings, diagrams, photos, maps or other visual items derived from other sources have been identified by numerical reference citations in the caption.
7. No part of the document has been submitted for any other course.
8. Any exception to these requirements are indicated on an attached page for the

instructor's review **REPORTS and ASSIGNMENTS must also meet the following**

additional requirements:

1. A report or assignment consists entirely of ideas, observations, information and conclusions composed by the student(s), except for statements contained within quotation marks and attributed to the best of the student's/students' knowledge to their proper source in footnotes or references.
2. An assignment may not use solutions to assignments of other past or present students/instructors of this course or of any other course.
3. The document has not been revised or edited by another student who is not an author.
4. For reports, the guidelines found in Form and Style, by Patrick MacDonagh and Jack Borden (Fourth Edition: May 2000, available at <http://www.encls.concordia.ca/scs/Forms/Form&Style.pdf>) have been used for this submission.

LAB REPORTS must also meet the following requirements:

1. The data in a lab report represents the results of the experimental work by the student(s), derived only from the experiment itself. There are no additions or modifications derived from any outside source.
2. In preparing and completing the attached lab report, the labs of other past or present students of this course or any other course have not been consulted, used, copied, paraphrased or relied upon in any manner whatsoever.

SOFTWARE must also meet the following requirements:

1. The software represents independent work of the student(s).
2. No other past or present student work (in this course or any other course) has been used in writing this software, except as explicitly documented.
3. The software consists entirely of code written by the undersigned, except for the use of functions and libraries in the public domain, all of which have been documented on an attached page.
4. No part of the software has been used in previous submissions except as identified in the documentation.
5. The documentation of the software includes a reference to any component that the student(s) did not write.
6. All of the sources consulted while writing this code are listed in the documentation.

Main Project

A Report
Presented to
The Department of Computer Science
and Software Engineering

Concordia University

In Partial Fulfillment
of the Requirements
Of COMP 353

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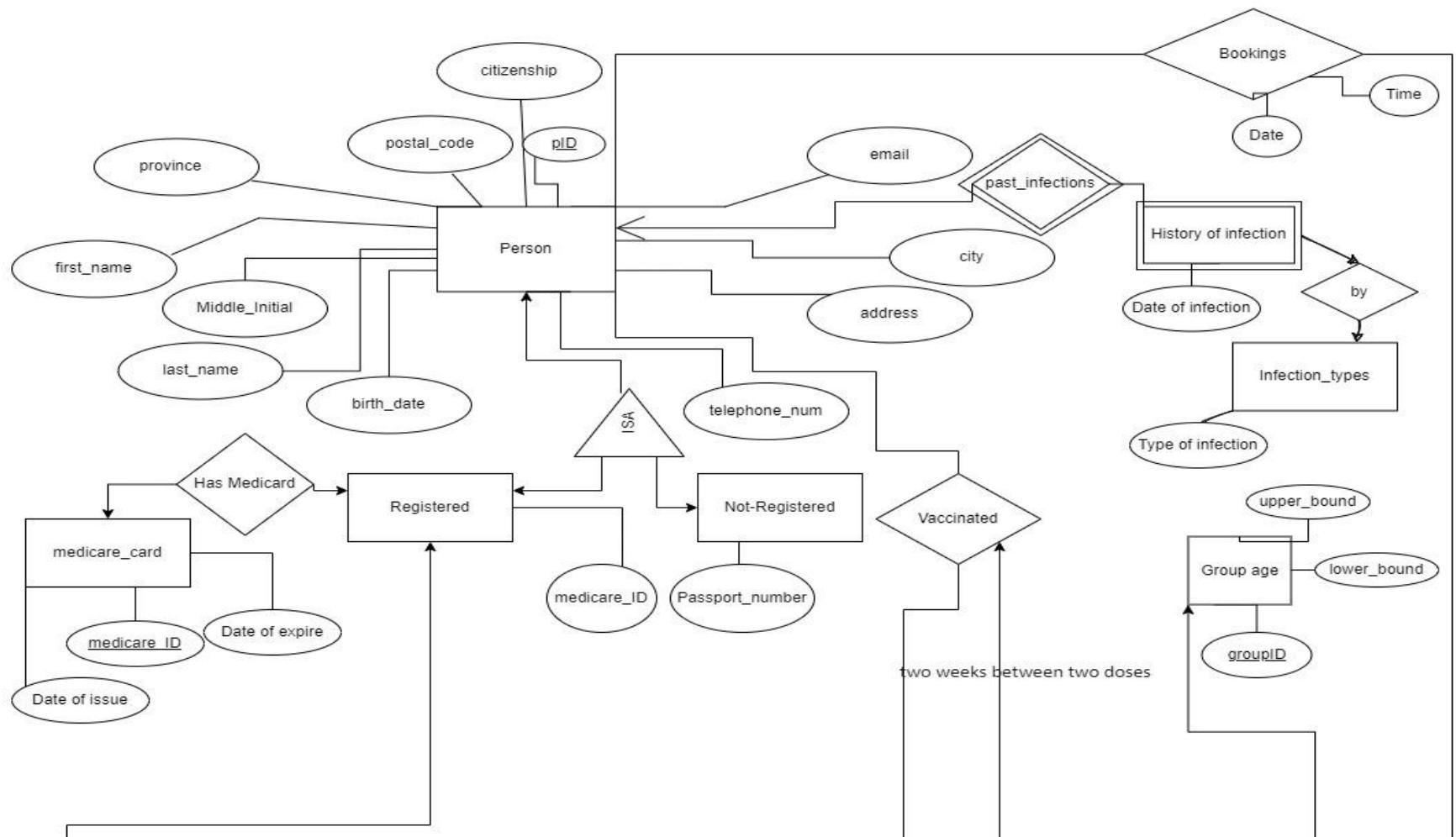
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1. Design

COVID-19 Population Vaccination System (C19PVS)



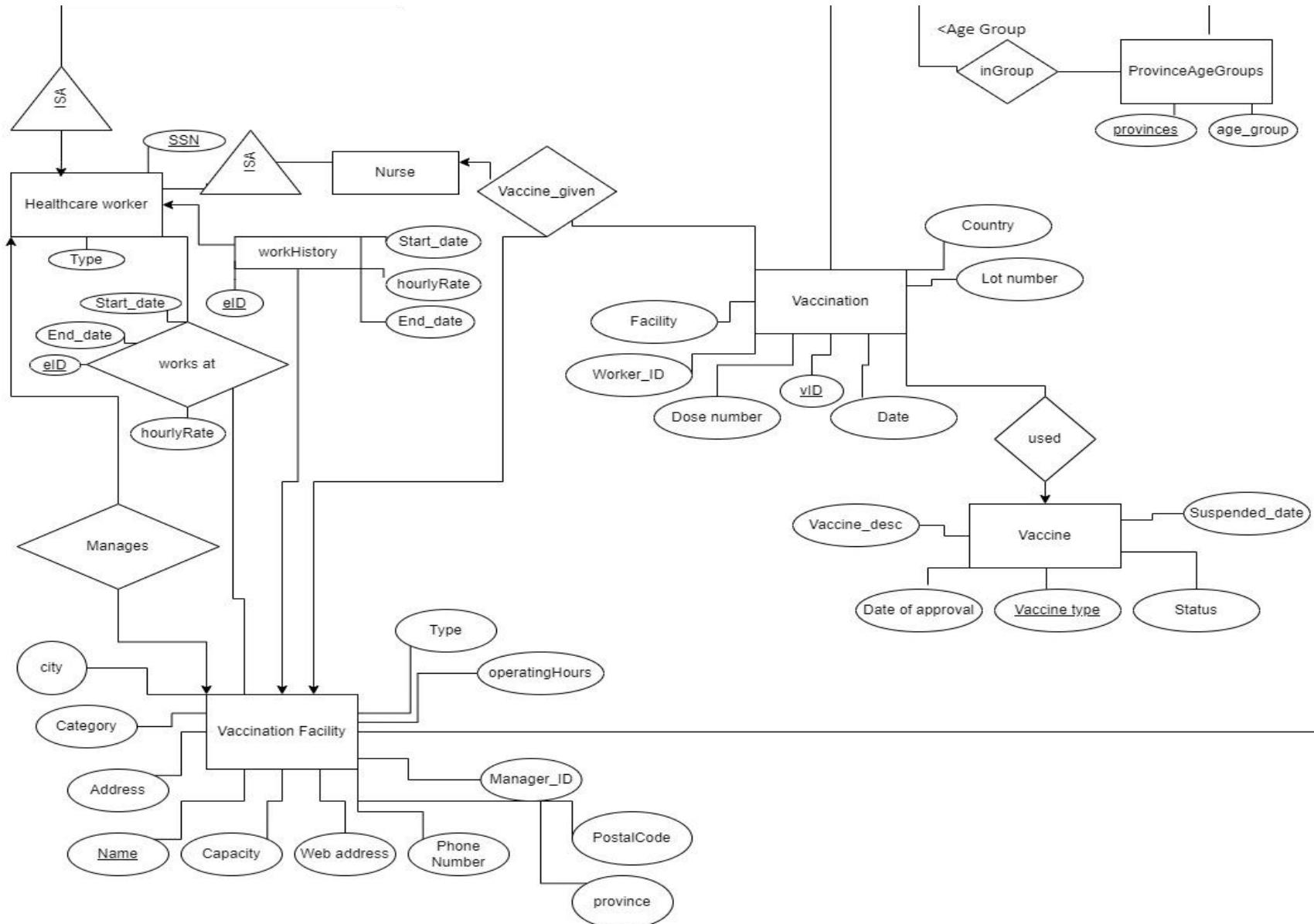


Figure 1: ER Diagram of C19PVS (Landscape)

COVID-19 Population Vaccination System (C19PVS)

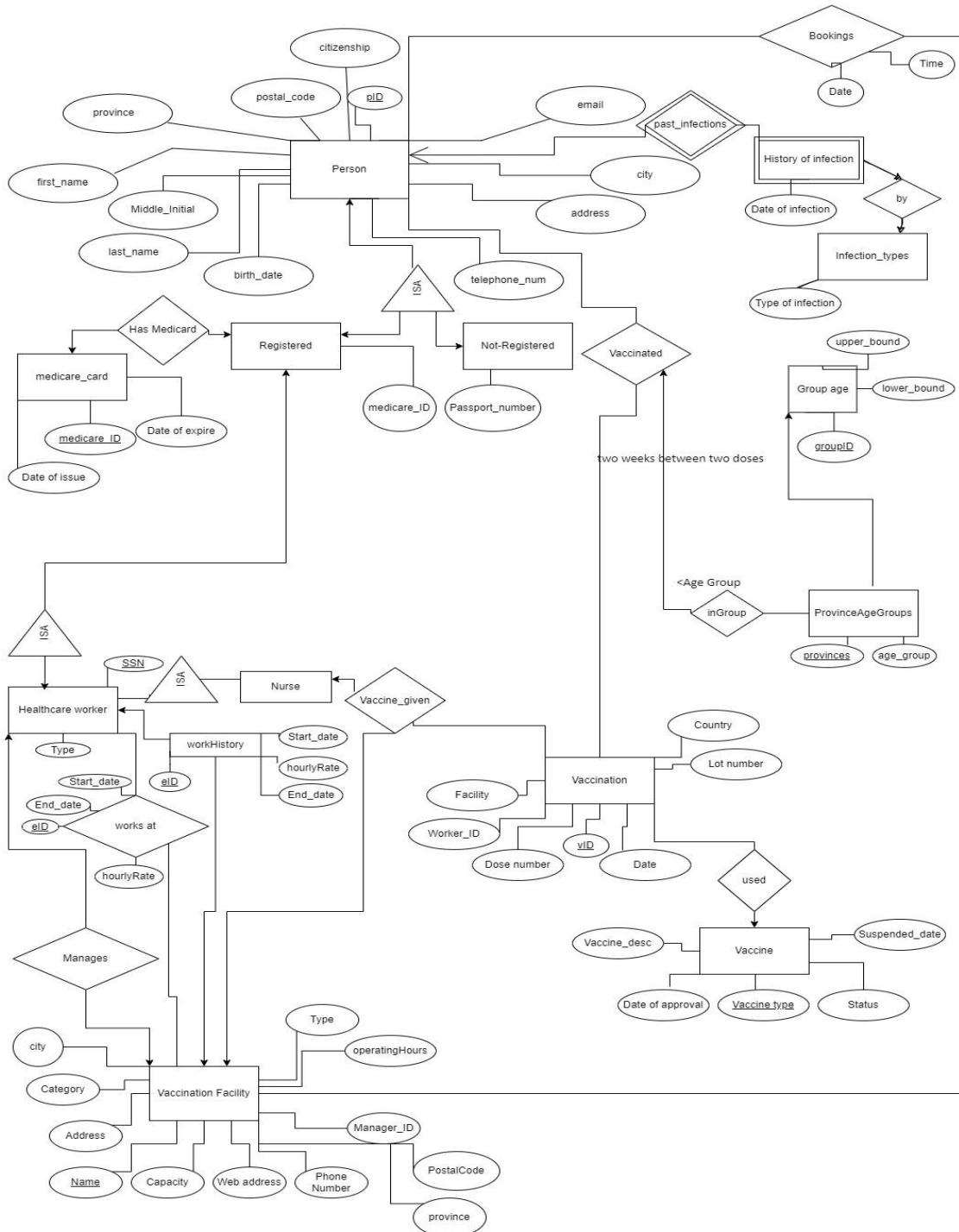


Figure 2: ER Diagram of C19PVS (portrait)

2. ER to Relation conversions and Functional Dependencies, Primary key and alternates

C19PVS = {Person, Registered-Person, Unregistered-Person, Public Health Worker, Medicare_Card, Vaccination, Vaccination_Facility, Works_At, Approved_Vaccines, Group_Age, ProvincesAgeGroup, Infection_History, infectionVariant, Bookings}

2.1 Person

Person(pID, first_name, middle_initial, last_name, dob, telNum, address, city, province, postalCode, citizenship, email)

Primary Key: pID

F = {PID → first_name, middle_initial, last_name, dob, telNum, address, city, province, postalCode, citizenship, email}

```
CREATE TABLE IF NOT EXISTS Person(
    pID          INT          NOT NULL      AUTO_INCREMENT,
    firstName    VARCHAR(100)  NOT NULL      UNIQUE,
    middleInitial VARCHAR(100)  NOT NULL      UNIQUE,
    lastName     VARCHAR(100)  NOT NULL      UNIQUE,
    dob          Date         NOT NULL,
    telNum       VARCHAR(14)   NOT NULL,
    address      VARCHAR(100)  NOT NULL,
    city         VARCHAR(100)  NOT NULL,
    province     ENUM('AB', 'BC', 'MB', 'NB', 'NL', 'NT', 'NS', 'NU', 'ON',
                      'PE', 'QC', 'SK', 'YT') NOT NULL,
    postalCode   VARCHAR(6)    NOT NULL,
    citizenship  VARCHAR(100)  NOT NULL,
    email        VARCHAR(100)  NOT NULL,
    PRIMARY KEY (pID),
);
```

2.2 Registered-Person

Registered(pID, medicareID)

Primary Key: medicareID

Foreign keys: pID, medicareID

F = {medicareID → pID}

```
CREATE TABLE IF NOT EXISTS Registered(
    pID      INT NOT NULL,
    medicareID  INT,
    PRIMARY KEY (medicareID),
    FOREIGN KEY (pID) REFERENCES Person(pID)
        ON DELETE CASCADE ON UPDATE CASCADE,
    FOREIGN KEY (medicareID) REFERENCES MedicareCard(medicardID)
        ON DELETE CASCADE ON UPDATE CASCADE
);
```

2.3 Unregistered-Person

NotRegistered(pID, passNum)

Primary Key: passNum

Foreign keys: pID

F = {passNum → pID}

```
CREATE TABLE IF NOT EXISTS NotRegistered (
    pID      INT      NOT NULL,
    passNum  VARCHAR(255),
    PRIMARY KEY (passNum),
    FOREIGN KEY (pID) REFERENCES Person(pID)
        ON DELETE CASCADE ON UPDATE CASCADE
);
```

2.4 Public Health Worker

PublicHealthWorker(SSN, medicardID, Type)

Primary Key: SSN

Foreign keys: medicardID

F = {SSN → medicardID, Type}

```
CREATE TABLE IF NOT EXISTS PublicHealthWorker(
    SSN      INT      NOT NULL,
    medicardID  INT      NOT NULL,
    type      ENUM('nurse', 'secretary', 'manager', 'security', 'regular')
              NOT NULL,
    PRIMARY KEY (SSN),
    FOREIGN KEY (medicardID) REFERENCES MedicareCard(medicardID)
        ON DELETE CASCADE ON UPDATE CASCADE
);
```

2.5 Medicare_Card

MedicareCard(medicardID, doissue, doexpire)

Primary Key: medicardID

F = {medicardID → doissue, doexpire}

```
CREATE TABLE IF NOT EXISTS MedicareCard(
    medicardID  INT,
    doissue     DATE  NOT NULL,
    doexpire    DATE  NOT NULL,
    PRIMARY KEY (medicardID)
);
```

2.6 Vaccination

Vaccination(vID, pID, facility, eID, type, country, lotNum, doseNumber, date)

Primary Key: vID

Foreign keys: pID, eID, type

F = {vID → pID, facility, eID, type, country, lotNum, doseNumber, date
, facility → country}

```
CREATE TABLE IF NOT EXISTS Vaccination (
    vID      INT          NOT NULL AUTO_INCREMENT,
    pID      INT          NOT NULL,
    facility VARCHAR(100) NOT NULL,
    eID      INT          NULL,
    type    VARCHAR(50)  NOT NULL,
    country CHAR(3)      NOT NULL DEFAULT 'CAN',
    lotNum   INT          NOT NULL,
    doseNumber INT         NOT NULL,
    date     DATE         NOT NULL,
    PRIMARY KEY (vID),
    FOREIGN KEY (pID) REFERENCES Person(pID)
        ON DELETE CASCADE ON UPDATE CASCADE,
    FOREIGN KEY (eID) REFERENCES WorksAt(eID)
        ON DELETE SET NULL ON UPDATE CASCADE,
    FOREIGN KEY (type) REFERENCES Vaccine(name)
        ON DELETE RESTRICT ON UPDATE CASCADE
);
```

2.7 Vaccination_Facility

Facility(name, address, city, province, postalCode, phone, web, operatingHours, type, category, capacity, managerID)

Primary Key: name

Foreign keys: managerID

F = {name → address, city, province, postalCode, phone, web, operatingHours, type, category, capacity, managerID}

```
CREATE TABLE IF NOT EXISTS Facility (
    name      VARCHAR(100)          NOT NULL,
    address   MEDIUMTEXT           NOT NULL,
    city      VARCHAR(100)           NOT NULL,
    province  ENUM('AB', 'BC', 'MB', 'NB', 'NL', 'NT', 'NS', 'NU', 'ON',
                  'PE', 'QC', 'SK', 'YT') NOT NULL,
    postalCode VARCHAR(6)           NOT NULL,
    phone     VARCHAR(14)           NOT NULL,
    web       VARCHAR(100)           NOT NULL,
    openingtime TIME,
    closingtime TIME,
    type      ENUM('hospital', 'clinic', 'special') NOT NULL,
    category  ENUM('appointment', 'walkIN-Appointment') NOT NULL,
    capacity   INT                 NOT NULL,
    managerID  INT                 NULL,
    PRIMARY KEY (name),
    FOREIGN KEY (managerID) REFERENCES WorksAt(eID)
        ON DELETE SET NULL ON UPDATE CASCADE
);
```

2.8 Works_At

WorksAt(SSN, eID, facilityName, startDate, endDate, hourlyRate)

Primary Key: SSN, facilityName

Foreign keys: SSN, facilityName

F = {SSN, facilityName → eID, startDate, endDate, hourlyRate}

```
CREATE TABLE IF NOT EXISTS WorksAt (
    SSN          INT          NOT NULL,
    eID          INT          NOT NULL,
    facilityName VARCHAR(50) NOT NULL,
    startDate    DATETIME    NOT NULL,
    endDate      DATETIME    NULL,
    hourlyWage   DECIMAL(10,2) NOT NULL,
    FOREIGN KEY (SSN) REFERENCES PublicHealthWorker(SSN)
        ON DELETE CASCADE ON UPDATE CASCADE,
    FOREIGN KEY (facilityName ) REFERENCES Facility(name)
        ON DELETE CASCADE ON UPDATE CASCADE,
    PRIMARY KEY (SSN, facilityName)
);
```

2.9 Approved_Vaccines

Vaccine(name, status, approvalDate, suspendedDate, description)

Primary Key: name

F = {name → status, approvalDate, suspendedDate, description}

```
CREATE TABLE IF NOT EXISTS Vaccine (
    name          VARCHAR(50) NOT NULL,
    status        ENUM('SAFE', 'SUSPENDED') NOT NULL,
    approvalDate DATE        NOT NULL,
    suspendedDate DATE        NULL,
    description   MEDIUMTEXT NOT NULL,
    PRIMARY KEY (name)
);
```

2.10 Group_Age

GroupAge(groupId, lowerBound, upperBound)

Primary Key: groupId

F = {groupId → lowerBound, upperBound}

```
CREATE TABLE IF NOT EXISTS GroupAge (
    groupId      INT          NOT NULL,
    lowerBound   INT          NOT NULL,
    upperBound   INT          NOT NULL,
    PRIMARY KEY (groupId)
);
```

2.11 ProvincesAgeGroup

ProvinceAgeGroup(province, groupId)

Primary Key: province

Foreign keys: groupId

F = {province → groupId}

```
CREATE TABLE IF NOT EXISTS ProvinceAgeGroup(
    province     VARCHAR(50) NOT NULL,
    groupId      INT          NOT NULL DEFAULT 0,
    FOREIGN KEY (groupId) REFERENCES GroupAge(groupId)
        ON DELETE SET NULL ON UPDATE CASCADE,
    PRIMARY KEY (province)
);
```

2.12 Infection_History

covidhistory(personID, dateOfInfection, type)

Primary Key: personID, dateOfInfection

Foreign keys: personID

F = {personID, dateOfInfection → type}

```
CREATE TABLE IF NOT EXISTS covidhistory (
    personID      INT      NOT NULL,
    dateOfInfection  DATE    NOT NULL,
    type        VARCHAR(50)  NOT NULL  DEFAULT 'UNKNOWN',
    PRIMARY KEY (personID, dateOfInfection),
    FOREIGN KEY (personID ) REFERENCES Person(pID)
        ON DELETE CASCADE ON UPDATE CASCADE,
    FOREIGN KEY (type) REFERENCES infectionVariant(type)
        ON DELETE CASCADE ON UPDATE CASCADE

);
```

2.13 Infection_Variant

infectionVariant(type)

Primary key : type

F = {}

```
CREATE TABLE IF NOT EXISTS infectionVariant (
    type        VARCHAR(50)  NOT NULL  DEFAULT 'UNKNOWN',
    PRIMARY KEY (type)
);
```

2.14 Bookings

bookings(pID, facility, date, time)

Primary Key: pID, facility

Foreign keys: pID, facilityName

F = {pID, facility → date, time}

```
CREATE TABLE IF NOT EXISTS bookings(
    pID      INT      NOT NULL,
    facility  VARCHAR(100) NOT NULL,
    date     DATE     NOT NULL,
    time     TIME     NOT NULL,
    PRIMARY KEY (pID, facility),
    FOREIGN KEY (pID ) REFERENCES Person(pID)
        ON DELETE CASCADE ON UPDATE CASCADE,
    FOREIGN KEY (facility) REFERENCES Facility(name)
        ON DELETE CASCADE ON UPDATE CASCADE
);
```

3. Normalization

- BCNF?

Yes, all the relations in the database are in BCNF with respect to their functional dependencies. This condition is true for every relation in the database.

- 3NF?

Yes, all the relations in the database are in 3NF with respect to their functional dependencies. This condition is true for every relation in the database.

Indeed, we designed our database system with respect to the third normal form. We did our best to eliminate any attributes that do not depend on the key and created separate tables for them. For instance, we can take a look at our ProvinceAgeGroup table. We have a FOREIGN KEY groupID that references our GroupAge table. The same is done with other tables. We respected this form throughout the whole design to make everything less coupled and avoid redundant data.

4. Implementation Code

1.

Have a waiting period of at least two weeks between two doses, correct age group, correct health worker

```
CREATE DEFINER=`bnc353_2`@`132.205.%.%` TRIGGER `before_vaccination_insert`
BEFORE INSERT ON `Vaccination` FOR EACH ROW BEGIN
If exists(
    SELECT ag.groupID
    FROM GroupAge ag, Facility f, Person p, ProvinceAgeGroup pv
    Where NEW.facility = f.name
        AND pv.province = f.province
        AND p.pID = NEW.pID
        AND ((DATEDIFF(CURDATE(), p.dob) / 365.25)
            BETWEEN ag.lowerBound AND ag.upperBound)
        AND ag.groupID > pv.groupID
) THEN
    If NEW.pID NOT IN(
        SELECT pID
        FROM person
        Where pID IN(
            (
                SELECT pID
                FROM Registered
                WHERE medicareID =
                    (
                        SELECT medicardID
                        FROM PublicHealthWorker
                    )
            )
        )
    ) THEN
        SIGNAL SQLSTATE '45000'
        SET MESSAGE_TEXT = 'THE PERSON AGE IS NOT ELIGIBLE';
    END IF;
elseif NEW.eID IS NOT NULL THEN
    IF NEW.eID NOT IN (
        SELECT wa.eID
        FROM WorksAt wa
        WHERE wa.facilityName = NEW.facility
            AND (
                (NEW.date BETWEEN
                    wa.startDate AND wa.endDate)
                OR (NEW.date > wa.startDate

```

```

        AND wa.endDate IS NULL)
    )) THEN
    SIGNAL sqlstate '45000'
    SET MESSAGE_TEXT = 'THE EMPLOYEE ID IS NOT CORRECT ';
    END IF;
elseif NEW.type IN (
    SELECT name
    FROM Vaccine
    WHERE status = 'SUSPENDED'
    ) THEN
    SIGNAL sqlstate '45000'
    SET MESSAGE_TEXT = 'THE VACCINE IS IN SUSPEND STATUS ';
elseif (SELECT DATEDIFF(NEW.date,
(SELECT MAX(date)
    FROM Vaccination
    WHERE pID =NEW.pID)
)) < 14
THEN
    SIGNAL sqlstate '45000'
    SET MESSAGE_TEXT = 'Person needs to wait at least 2 weeks
before next vaccine';
END IF;
END

```

2.

A public health worker cannot be scheduled to work at two different facilities at the same time.

```
CREATE DEFINER=`bnc353_2`@`132.205.%.%` TRIGGER `before_worksAt_insert`
BEFORE INSERT ON `WorksAt` FOR EACH ROW BEGIN
If exists(
    SELECT facilityName
    FROM WorksAt
    Where SSN = NEW.SSN
    AND startDate < NEW.endDate
    AND endDate > NEW.startDate
) THEN
    SIGNAL SQLSTATE '45000'
    SET MESSAGE_TEXT = 'Employee already working at another facility';
END IF;
END
```

3.

A person needs to be in the correct age group to make a booking, public health workers are exempt.

```
CREATE DEFINER=`bnc353_2`@`132.205.%.%` TRIGGER `before_bookings_insert`
BEFORE INSERT ON `bookings` FOR EACH ROW BEGIN
If exists(
    SELECT ag.groupID
    FROM GroupAge ag, Facility f, Person p, ProvinceAgeGroup pv
    Where NEW.facility = f.name
        AND pv.province = f.province
        AND p.pID = NEW.pID
        AND ((DATEDIFF(CURDATE(), p.dob) / 365.25)
            BETWEEN ag.lowerBound AND ag.upperBound)
        AND ag.groupID > pv.groupID
) THEN
    If NEW.pID NOT IN(
        SELECT pID
        FROM person
        Where pID IN
        (
            SELECT pID
            FROM Registered
            WHERE medicareID =
            (
                SELECT medicardID
                FROM PublicHealthWorker
            )
        )
    ) THEN
        SIGNAL SQLSTATE '45000'
        SET MESSAGE_TEXT = 'THE PERSON AGE IS NOT ELIGIBLE';
    END IF;
END IF;
END
```

5. SQL Queries

5.1 Query 1 - Philippe

-- Create

```
INSERT INTO Person (firstName, middleInitial, lastName, dob, telNum,
address, city, province, postalCode, citizenship, email)
VALUES ('John', 'T', 'Doe', '1999-01-01', '8091234567', '1234 York Street',
'Toronto', 'ON', 'L4G9D9', 'Canadian', 'jd@email.com');
```

-- update/edit

```
UPDATE Person SET telNum = '15141231234' WHERE pID = 130;
```

-- display

```
SELECT * FROM Person p WHERE pID = 130;
```

pID	firstName	middleInitial	lastName	dob	telNum	address	city	province	postalCode	citizenship	email
130	John	T	Doe	1999-01-01	15141231234	1234 York Street	Toronto	ON	L4G9D9	Canadian	jd@email.com

-- display all

```
SELECT * FROM Person;
```

pID	firstName	middleInitial	lastName	dob	telNum	address	city	province	postalCode	citizenship	email
67	Jay	J	Jameson	1948-02-12	9012839591	8123 Big street	Edmonton	AB	K1H2F3	Canadian	jj@gmail.com
69	Eric	E	Book	1945-12-25	9123461232	1920 Jay Street	Quebec	QC	G1O2P3	Canadian	eb@gmail.com
70	Neik	N	Haley	1993-01-01	869123665	8961 Kay Street	Vancouver	BC	K1L8K2	Canadian	nh@gmail.com
76	Amelia	S	Hunt	1990-11-25	9691930011	7659 Short Street	Vancouver	BC	T4E3S9	Canadian	ah@gmail.com
78	Karen	X	Vine	1998-05-12	8129120123	1723 York Street	Toronto	ON	L7O1J2	Canadian	pp@gmail.com
79	Carlos	C	Vans	1999-07-22	8123771787	1283 Henry Street	Vancouver	BC	M2M4K1	Canadian	cv@gmail.com
82	Ben	Z	Twelve	2005-02-12	8612356788	7563 Gen Street	Montreal	QC	H7O1J2	Canadian	be@gmail.com
83	Alice	A	Chickenn	1997-02-23	5247851452	75144 rue jean	Montreal	QC	H2N2T2	Canadian	jasenratnam@hotmail.com
84	Kay	B	Bac	1995-11-07	123-123-1223	beaubian	montreal	QC	E2E2E2	Canadian	kay@gmail.ca
91	John	D	Doe	1980-01-01	1234567890	1234 Street	City	NB	G1L2W3	Canadian	test@test.com
112	Dayfdd	U	Douglas	1995-01-01	12331233	0001 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	douglas@gmail.com
113	Lee	V	Ayers	1995-02-01	12331234	0012 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	ayers@gmail.com
114	Fariha	W	Stevenson	1995-01-01	1234563	0031 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	stevenson@gmail.com
117	Sukhmani	F	Dickson	1995-01-01	161233	0543 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	dickson@gmail.com
118	Amanda Dunn	G	Dunn	1995-01-01	12654233	0234 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	dunn@gmail.com
119	Leopold	H	Barry	1995-01-01	12531233	0466 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	barry@gmail.com
120	Essa	I	Lynn	1995-01-01	14431233	0424 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	lynn@gmail.com
121	Kristie	Y	Bruce	1995-01-01	18761233	0222 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	bruce@gmail.com
122	Simona	L	Newman	1995-01-01	1551233	0521 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	newman@gmail.com
123	Liam	M	Bob	1995-01-01	12311233	4201 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	bob@gmail.com
124	Skye	O	Shah	1995-01-01	1231233	0432 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	shah@gmail.com
125	Alishia	P	Colon	1995-01-01	1252533	0221 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	colon@gmail.com
126	Kelvin	Q	Wilkinson	1995-01-01	166233	0611 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	wilkinson@gmail.com
128	Antony	A	Molloy	1995-01-01	142333	1231 Henri Bourassa	Montreal	QC	E2E2E2	Canadian	molloy@gmail.com
129	Bane	B	Parking	1990-05-12	8129120123	1723 York Street	Toronto	ON	L7O1J2	Canadian	pp@gmail.com
130	John	T	Doe	1999-01-01	15141231234	1234 York Street	Toronto	ON	L4G9D9	Canadian	jd@email.com

-- delete

```
DELETE FROM Person WHERE pID = 63;
```

-- Create Record of infection?

```
INSERT INTO covidhistory (personID, dateOfInfection, type)
VALUES (67, '2020-09-01', 'Alpha (B.1.1.7)');
```

-- update/edit record of infection ?

```
UPDATE covidhistory
SET type = 'Delta (B.1.617.2)'
WHERE personID = 67 AND dateOfInfection = '2020-09-01';
```

```
-- display records of infection
```

```
SELECT * FROM covidhistory c  
WHERE personID = 67  
ORDER BY dateOfInfection ASC;
```

personID	dateOfInfection	type
67	2020-10-01	Beta (B.1.351)
67	2020-11-01	Delta (B.1.617.2)
67	2020-12-01	Epsilon
67	2021-02-01	Omicron Sigma Virus
67	2021-11-02	Alpha (B.1.1.7)

```
-- delete record of infection
```

```
DELETE FROM covidhistory  
WHERE personID = 67 and dateOfInfection ='2020-09-01';
```

5.2 Query 2 - Jasen

```
-- Create health_worker
```

```
INSERT INTO bnc353_2.Person
(firstName, middleInitial, lastName, dob, telNum, address,
city, province, postalCode, citizenship, email)
VALUES ('Bane', 'B', 'Parking', '1990-05-12', '8129120123',
'1723 York Street', 'Toronto', 'ON', 'L7O1J2',
'Canadian', 'pp@gmail.com');

INSERT INTO bnc353_2.MedicareCard
(medicardID, doIssue, doExpire)
VALUES ('514', '2019-06-24', '2023-06-24');

INSERT INTO bnc353_2.Registered
(pID, medicareID)
VALUES(( SELECT pID
        FROM bnc353_2.Person AS p
       WHERE p.firstName = 'Bane'
          AND p.middleInitial = 'B'
          AND p.lastName = 'Parking'), '514');

INSERT INTO bnc353_2.PublicHealthWorker
(SSN, medicardID, type)
VALUES ('1542', '514', 'nurse');
```

```
-- update/edit health_woker
```

```
UPDATE PublicHealthWorker SET `type` = 'secretary' WHERE `SSN` = 1542;
```

```
-- display chosen health_worker
```

```
SELECT * FROM PublicHealthWorker WHERE SSN= 1542;
```

SSN	medicardID	type
1542	514	nurse

```
-- display all health_worker
```

```
SELECT * FROM PublicHealthWorker ;
```

SSN	medicardID	type
555	54	nurse
666	154	nurse
754	512	nurse
757	17	nurse
1542	514	nurse

```
-- delete health_worker
```

```
DELETE FROM PublicHealthWorker WHERE SSN= 1542;
```

5.3 Query 3 - Carlo

```
-- Create a public health facility
```

```
INSERT INTO Facility (name, address, city, province, postalCode, phone, web, openingtime, closingtime, `type`, category, capacity, managerID)
VALUES('Pharmaprix 3', 'Blvd. Jean-Talon', 'Montreal', 'QC', 'o2k2j1', '512-231-1234', 'www.pharmaprix3.com', '08:00:00', '20:00:00', 'clinic', 'walkIN-Appointment', 10, 1);
```

```
-- Delete a public health facility
```

```
DELETE FROM Facility WHERE name = 'Pharmaprix 3';
```

```
-- Edit a public health facility
```

```
UPDATE Facility
SET name = 'Jean-Coutou'
WHERE name = 'Pharmaprix 3';
```

```
-- Display a public health facility
```

```
SELECT * FROM Facility WHERE name = 'Bank Hospital';
```

name	address	city	province	postalCode	phone	web	openingTime	closingTime	type	category	capacity	managerID
Bank Hospital	Tin Street	Laval	AB	m6n5b1	8812391238	www.bankho...	08:00:00	20:00:00	hospital	appointment	24	[NULL]

5.4 Query 4 - Philippe

```
-- Create Vaccination Type
```

```
INSERT INTO Vaccine (name, status, approvalDate, suspendedDate,
description)
VALUES ("VaccineZ", "SAFE", "2021-12-25", null, "A safe Vaccine");
```

```
-- update/edit Vaccination Type
```

```
UPDATE Vaccine SET status="SUSPENDED", suspendedDate= "2021-11-11" WHERE
name="VaccineZ";
```

```
-- display chosen Vaccination Type
```

```
SELECT * FROM Vaccine WHERE name="VaccineZ";
```

name	status	approvalDate	suspendedDate	description
VaccineZ	SUSPENDED	2021-12-25	2021-11-11	A safe Vaccine

```
-- display all Vaccination Type
```

```
SELECT * FROM Vaccine;
```

name	status	approvalDate	suspendedDate	description
AstraZeneca	SUSPENDED	2020-06-18	2021-11-13	AstraZeneca Oxford
Hersey	SUSPENDED	2021-11-01	2021-11-30	Hersey is a super vaccine
JohnsonJohnson	SAFE	2021-11-17	2021-11-10	Johnson & Johnson
Moderna	SAFE	2020-12-18		The Moderna vaccine is a vaccine that aims to protect against COVID-19.
Pfizer	SAFE	2021-04-12		pfizer_desc
type21	SAFE	2021-11-23		type 21 is cool
VaccineA	SUSPENDED	2021-05-20	2021-07-08	vaccine_a_desc: this is bad
VaccineB	SUSPENDED	2021-05-20	2021-06-21	vaccine_b_desc
VaccineC	SUSPENDED	2021-05-20	2021-06-21	vaccine_c_desc
VaccineZ	SUSPENDED	2021-12-25	2021-11-11	A safe Vaccine

```
-- delete Vaccination Type
```

```
DELETE FROM Vaccine WHERE name = "VaccineZ";
```

5.5 Query 5 - Ali

-- Create infection variant

```
INSERT INTO infectionVariant (type) VALUES ('Alpha (B.1.1.7)');
```

-- Update/edit infection variant

```
UPDATE infectionVariant SET type = 'Beta (B.1.351)' WHERE type = 'Alpha (B.1.1.7)';
```

-- Display all infection variants

```
SELECT * FROM infectionVariant iv ;
```

	type
1	Alpha (B.1.1.7)
2	Beta (B.1.351)
3	Delta (B.1.617.2)
4	Epsilon
5	Eta (B.1.525)
6	Gamma (P1)
7	Iota (B.1.526)
8	Kappa (B.1.617.1)
9	MU (B.1.621)
10	Omicron Sigma Virus
11	varient 3.0
12	Zeta (P.2)

-- Delete infection variant

```
DELETE FROM infectionVariant WHERE type = 'Beta (B.1.351)';
```

5.6 Query 6 - Carlo

-- Create an Age Group

```
INSERT INTO GroupAge(groupID, lowerBound, upperBound)
VALUES (1, 80, 100);
```

-- Delete an Age Group

```
DELETE FROM GroupAge WHERE groupID = 1;
```

-- Edit an Age Group

```
UPDATE GroupAge
SET groupID = 2
WHERE groupID = 1;
```

-- Display an Age Group

```
SELECT * FROM GroupAge WHERE groupID = 1;
```

groupID	lowerBound	upperBound
1	80	100

5.7 Query 7 - Ali

```
-- Add province
```

```
INSERT INTO ProvinceAgeGroup (Province, groupID )
VALUES ('British Columbia', 0);
```

```
-- Delete province
```

```
DELETE FROM ProvinceAgeGroup WHERE Province = 'British Columbia' ;
```

```
-- Update/edit province
```

```
UPDATE ProvinceAgeGroup SET Province = 'Ontario' WHERE Province = 'British Columbia' ;
```

```
-- Display all provinces
```

```
SELECT Province FROM ProvinceAgeGroup pag;
```

	Province	groupID
1	Quebec	4
2	Alberta	5
3	Saskatchewan	5
4	Yukon	5
5	British Colombia	6
6	Manitoba	6
7	Nunavut	6
8	Ontario	6
9	Newfoundland and Labrador	7
10	Northwest Territories	7
11	Prince Edward Island	7
12	Nova Scotia	8
13	New Brunswick	10

5.8 Query 8 - Carlo

```
UPDATE ProvinceAgeGroup
SET groupID = 5
WHERE province = 'Quebec';
```

5.9 Query 9 - Jasen

-- Create an appointment

```
INSERT INTO bnc353_2.bookings
VALUES('76', 'Bank Hospital', '2021-11-30', '10:00')
```

--Note: Age group requirements is taken care of by the Triggers

-- update/edit appointment

```
UPDATE bnc353_2.bookings SET
    time = '12:00:00'
WHERE pID = '76' AND facility = 'Bank Hospital';
```

-- display chosen appointment

```
SELECT * FROM bookings
WHERE pID = '76' AND facility = 'Bank Hospital';
```

pID	facility	date	time
76	Bank Hospital	2022-03-23	12:35:00

-- display all appointment

```
SELECT * FROM bookings;
```

pID	facility	date	time
67	BayCamp	2021-12-16	05:59:00
69	Bank Hospital	2021-11-20	11:12:00
76	Bank Hospital	2022-03-23	12:35:00
76	BayCamp	2021-11-20	11:14:20
83	General Hospital	2021-12-22	11:27:00
83	General Hospital	2022-03-15	13:27:00
114	General Hospital	2022-04-01	16:24:00

-- delete appointment

```
DELETE FROM bookings WHERE pID = '76' AND facility = 'Bank Hospital';
```

5.10 Query 10 - Philippe

```
-- Create a Public Health Worker Assignment
```

** The SSN must have been created before. Here we are assuming that the employee is already in the system and we have his SSN. The facility is also created and known beforehand.

```
INSERT INTO WorksAt (SSN, eID, facilityName, startDate, endDate,  
hourlyWage)  
VALUES (1542, 1098, 'BayCamp', Date('2021-04-15'), Date('2021-04-30'),  
40.00);
```

```
-- update/edit a Public Health Worker Assignment
```

```
UPDATE WorksAt SET endDate = Date('2021-05-31')  
WHERE eID = 1098 AND facilityName = 'BayCamp';
```

```
-- display chosen Public Health Worker Assignment
```

```
SELECT * FROM WorksAt wa WHERE wa.SSN = 1542;
```

SSN	eID	facilityName	startDate	endDate	hourlyWage
1542	1098	BayCamp	2021-04-15 00:00:00	2021-05-31 00:00:00	40.00
1542	5	General Hospital	2021-07-10 02:07:00	2022-03-31 15:03:00	51.25

```
-- delete Public Health Worker Assignment
```

```
DELETE FROM WorksAt  
WHERE eID = 1098  
AND facilityName = 'BayCamp';
```

5.11 Query 11 - Jasen

-- display all bookings

```
SELECT * FROM bookings;
```

pID	facility	date	time
67	BayCamp	2021-12-16	05:59:00
69	Bank Hospital	2021-11-20	11:12:00
76	Bank Hospital	2022-03-23	12:35:00
76	BayCamp	2021-11-20	11:14:20
83	General Hospital	2021-12-22	11:27:00
83	J General Hospital	2022-03-15	13:27:00
114	General Hospital	2022-04-01	16:24:00

-- display all availability of spots for a given facility from a given period of time to a given period of time.

```
SELECT * FROM
(SELECT date, startTime, 'FREE' AS status
FROM (WITH RECURSIVE cte3 AS
(
    SELECT CAST('2021-12-15' AS Date) AS date
    UNION ALL
    SELECT ADDDATE(date, 1)
    FROM cte3
    WHERE ADDDATE(date, 1) <= CAST('2021-12-17' AS Date)
)
select * from cte3) dates,
(WITH RECURSIVE cte AS
(
    SELECT f.openingTime AS startTime
    FROM Facility f
    WHERE name = 'BayCamp'
    UNION ALL
    SELECT ADDTIME(startTime, '00:20:00')
    FROM cte
    WHERE ADDTIME(startTime, '00:20:00') < (SELECT closingTime FROM Facility f3 WHERE
name = 'BayCamp')
) SELECT * FROM cte
) schedule
WHERE (date, startTime) NOT IN (SELECT date, time
                                FROM bookings
                                WHERE facility = 'BayCamp')
UNION
SELECT date, time as startTime, 'BOOKED' as Status
FROM bookings b2
WHERE facility = 'BayCamp' AND date BETWEEN CAST('2021-12-15' AS Date) AND CAST('2021-12-17'
AS Date)) fullSchedule
ORDER BY date, startTime;
```

🔒	⌚ date ↕	⌚ startTime ↕	⚠️ status ↕
32	2021-12-15	18:20:00	FREE
33	2021-12-15	18:40:00	FREE
34	2021-12-15	19:00:00	FREE
35	2021-12-15	19:20:00	FREE
36	2021-12-15	19:40:00	FREE
37	2021-12-16	08:00:00	FREE
38	2021-12-16	08:20:00	FREE
39	2021-12-16	08:40:00	FREE
40	2021-12-16	09:00:00	FREE
41	2021-12-16	09:20:00	FREE
42	2021-12-16	09:40:00	FREE
43	2021-12-16	10:00:00	FREE
44	2021-12-16	10:20:00	FREE
45	2021-12-16	10:40:00	FREE
46	2021-12-16	11:00:00	FREE
47	2021-12-16	11:20:00	FREE
48	2021-12-16	11:40:00	FREE
49	2021-12-16	12:00:00	FREE
50	2021-12-16	12:20:00	FREE
51	2021-12-16	12:40:00	BOOKED
52	2021-12-16	13:00:00	FREE
53	2021-12-16	13:20:00	FREE
54	2021-12-16	13:40:00	FREE
55	2021-12-16	14:00:00	BOOKED
56	2021-12-16	14:20:00	FREE

5.12 Query 12 - Ali

```
SELECT date, startTime FROM
(SELECT date, startTime, 'FREE' AS status
FROM (WITH RECURSIVE cte3 AS
(
    SELECT CAST('2021-12-01' AS Date) AS date
UNION ALL
    SELECT ADDDATE(date, 1)
    FROM cte3
    WHERE ADDDATE(date, 1) <= CAST('2021-12-20' AS Date)
)
select * from cte3) dates,
(WITH RECURSIVE cte AS
(
    SELECT f.openingTime AS startTime
    FROM Facility f
    WHERE name = 'BayCamp'
    UNION ALL
    SELECT ADDTIME(startTime, '00:20:00')
    FROM cte
    WHERE ADDTIME(startTime, '00:20:00') < (SELECT closingTime FROM
Facility f3 WHERE name = 'BayCamp')
) SELECT * FROM cte
) schedule
WHERE (date, startTime) NOT IN (SELECT date, time
                                FROM bookings
                                WHERE facility = 'BayCamp')
UNION
SELECT date, time as startTime, 'BOOKED' as Status
FROM bookings b2
WHERE facility = 'BayCamp' AND date BETWEEN CAST('2021-12-01' AS Date) AND
ADDDATE(CAST('2021-12-01' AS Date), 20)) fullSchedule
WHERE status = 'FREE'
ORDER BY date, startTime
LIMIT 1;
```

⌚ date ↕	⌚ startTime ↕
2021-12-01	08:00:00

5.13 Query 13 - Ali

```

SELECT DISTINCT firstName , lastName, email, hourlyWage
FROM Registered re, Person p, PublicHealthWorker phw, WorksAt wa
WHERE p.pID = re.pID AND re.medicareID = phw.medicardID AND phw.type =
'nurse' AND phw.SSN = wa.SSN
AND (DATE('2030-01-01') NOT BETWEEN wa.startDate AND wa.endDate)
ORDER BY hourlyWage ASC;
    
```

	firstName	lastName	email	hourlyWage
1	Amelia	Hunt	ah@gmail.com	11.15
2	Fariha	Stevenson	stevenson@gmail.com	12.31
3	Eric	Book	eb@gmail.com	25.2
4	Liam	Bob	bob@gmail.com	31
5	Carlos	Vans	cv@gmail.com	36.24
6	Sukhmani	Dickson	dickson@gmail.com	41.23
7	Bane	Parking	pp@gmail.com	51.25
8	Essa	Lynn	lynn@gmail.com	56
9	Alice	Chickenn	jasenratnam@hotmail.com	100.25
10	Dayfdd	Douglas	douglas@gmail.com	123.12

5.14 Query 14 - Philippe

```

SELECT name, address, phone, capacity, openingTime, closingTime
FROM Facility f
WHERE name NOT IN (SELECT wa.facilityName
                    FROM WorksAt wa, PublicHealthWorker phw
                    WHERE wa.SSN = phw.SSN
                    AND phw.type = 'nurse'
                    AND ((Date('2021-05-20') BETWEEN wa.startDate AND
wa.endDate)
                          OR ((Date('2021-05-20') >= wa.startDate) AND (wa.endDate IS
NULL))));
```

name	address	phone	capacity	openingTime	closingTime
BayCamp	Green Street	8612367321	24	08:00:00	20:00:00
General Hospital	1234 St-Catherine	5867094321	323	07:00:00	23:00:00
Hospital	1234 Hospital Street	431098765	12345	08:00:00	22:30:00
J General Hospital	Blvd. St. Laurent	8672316641	50	08:00:00	20:00:00

5.15 Query 15 - Carlo

-- Public Health Worker schedules and duties for a given facility and date(Bank Hospital facility and 2022-02-02 date in this case)

```
SELECT P.firstName, P.lastName, WA.startDate, WA.endDate, PH.type AS duty
FROM WorksAt WA, PublicHealthWorker PH, Facility F, Person P, Registered R
WHERE WA.facilityName = 'Bank Hospital'
    AND WA.startDate <= '2022-02-02 08:00:00'
    AND WA.endDate >= '2022-02-02 08:00:00'
    AND F.name = WA.facilityName
    AND PH.SSN = WA.SSN
    AND PH.medicardID = R.medicareID
    AND R.pID = P.pID;
```

	firstName	lastName	startDate	endDate	duty
1	Dayfdd	Douglas	2020-01-01 00:00:00	2023-01-01 00:00:00	nurse
2	Fariha	Stevenson	2020-01-01 00:00:00	2023-01-01 00:00:00	nurse
3	Sukhmani	Dickson	2020-01-01 00:00:00	2023-01-01 00:00:00	nurse
4	Essa	Lynn	2020-01-01 00:00:00	2023-01-01 00:00:00	nurse
5	Liam	Bob	2020-01-01 00:00:00	2023-01-01 00:00:00	nurse
6	Eric	Book	2021-11-29 06:33:00	2023-01-01 00:00:00	nurse

-- Appointment schedules

```
SELECT P.firstName, P.lastname, B.date, B.time
FROM Facility F, Person P, bookings B
WHERE F.name = B.facility AND P.pID = B.pID AND F.name = 'Bank Hospital'
AND B.`date` = '2019-12-12';
```

	firstName	lastname	date	time
1	Dayfdd	Douglas	2019-12-12	10:00:00
2	Lee	Ayers	2019-12-12	10:00:00
3	Fariha	Stevenson	2019-12-12	10:00:00
4	Sukhmani	Dickson	2019-12-12	10:00:00
5	Leopold	Barry	2019-12-12	10:00:00

5.16 Query 16 - Ali

```
INSERT INTO Vaccination(pID, facility, eID, type, country, lotNum,
doseNumber, date) VALUES ((SELECT Person.pID FROM Person, bookings WHERE
firstName = 'Alice' AND lastName = 'Chickenn' AND middleInitial = 'A' AND
Person.pID IN (bookings.pID) AND bookings.facility = 'BayCamp'), 'BayCamp',
(SELECT DISTINCT eID FROM WorksAt wa, bookings b WHERE (SELECT
bookings.date FROM bookings, Person WHERE bookings.pID=Person.pID AND
Person.firstName = 'Alice') BETWEEN startDate AND endDate AND
wa.facilityName = 'BayCamp'), 'Pfizer', 'CAN', 2, 4, (SELECT bookings.date
FROM bookings, Person where bookings.pID=Person.pID AND Person.firstName =
'Alice'));
```

	vID	pID	facility	eID	type	country	lotNum	doseNumber	date
18	55	83	J General Hospital	[NULL]	Moderna	Can	50	2	2021-
19	56	69	Bank Hospital	1	Pfizer	CAN	1	2	2022-
20	57	70	Bank Hospital	1	Pfizer	CAN	1	2	2022-
21	58	120	Bank Hospital	1	Pfizer	CAN	1	2	2022-
22	59	79	Bank Hospital	1	Pfizer	CAN	1	2	2022-
23	60	112	Bank Hospital	1	Pfizer	CAN	1	2	2022-
24	61	113	Bank Hospital	1	Pfizer	CAN	1	2	2022-
25	62	114	Bank Hospital	1	Pfizer	CAN	1	2	2022-
26	63	117	Bank Hospital	1	Pfizer	CAN	1	2	2022-
27	64	118	Bank Hospital	1	Pfizer	CAN	1	2	2022-
28	65	119	Bank Hospital	1	Pfizer	CAN	1	2	2022-
29	66	83	BayCamp	2	Pfizer	CAN	2	4	2022-

5.17 Query 17 Jasen

```
INSERT INTO Vaccination(pID, facility, eID, type, country, lotNum,
doseNumber, date)
VALUES (
(
    SELECT pID
    FROM Person
    WHERE firstName = 'Dayfdd'
        AND lastName = 'Douglas'
        AND middleInitial = 'U'
),
'J General Hospital', 6, 'Pfizer', 'CAN', 12, 1, '2021-06-15');
```

5.18 Query 18 - Carlo

```
SELECT name, phone, number_of_vaccinations
FROM (SELECT CONCAT(P.firstName, ' ', P.lastName) AS name,
    P.telNum AS phone, (SELECT Count(*) From Vaccination V WHERE
WA1.eID = V.eID)
    AS number_of_vaccinations
    FROM Person P, PublicHealthWorker PH, WorksAt WA1, Registered R
    WHERE PH.medicardID = R.medicareID AND R.pID = P.pID AND PH.SSN =
WA1.SSN AND
    PH.type = 'nurse') AS B
GROUP BY name
HAVING number_of_vaccinations >= 20
ORDER BY number_of_vaccinations DESC;
```

	ABC name	ABC phone	123 number_of_vaccinations
1	Eric Book	9123461232	23

5.19 Query 19 - Jasen

```
SELECT f.name, f.address, f.type, f.phone, f.capacity,
(
    SELECT COUNT(vID) as DosesGiven
    FROM Vaccination v
    WHERE f.name = v.facility
) AS DosesGiven ,
(
    SELECT COUNT(SSN)
    FROM WorksAt wa
    WHERE f.name = wa.facilityName
) AS NumbOfPHW ,
(
    SELECT COUNT(*)
    FROM bookings b
    WHERE f.name = b.facility
) AS Bookings

FROM Facility f
WHERE f.city = 'Montreal'
Group by f.name
ORDER BY DosesGiven ASC;
```

name	address	type	phone	capacity	DosesGiven	NumbOfPHW	Bookings
J General Hospital	Blvd. St. Laurent	hospital	8672316641	50	2	1	1
General Hospital	1234 St-Catherine	hospital	5867094321	323	3	1	2

5.20 Query 20 - Philippe

-- Display bookings

```
SELECT date, time, f.name as location, CONCAT(f.address, ', ', f.city, ', ', f.province, ', ', f.postalCode) as address
FROM bookings b, Facility f
WHERE f.name = b.facility
AND b.pID = 76;
```

date	time	location	address
2022-03-23	12:35:00	Bank Hospital	Tin Street, Laval, AB, m6n5b1
2021-11-20	11:14:20	BayCamp	Green Street, Vancouver, BC, h4g1f2

-- History of vaccination

```
SELECT type, doseNumber, lotNum, date, facility AS location
FROM Vaccination v
WHERE pID = 76
ORDER BY date;
```

type	doseNumber	lotNum	date	location
Pfizer	1	12	2021-09-09	Bank Hospital
Pfizer	2	20	2021-11-30	Bank Hospital

-- History of infection

```
SELECT dateOfInfection, type
FROM covidhistory c
WHERE personID = 38
ORDER BY dateOfInfection;
```

dateOfInfection	type
2021-11-03	Alpha (B.1.1.7)
2021-11-16	Gamma (P1)
2021-11-25	Alpha (B.1.1.7)

6. User Interface Snapshots

Query 1:

Person														
Registered Person														
pID	First Name	Middle Initial	Last Name	Date of Birth	Telephone Number	Address	City	Province	Postal Code	Citizenship	Email	Medicare ID	Number of Infections	Actions
69	Eric	E	Book	1945-12-25	9123461232	1920 Jay Street	Quebec	QC	o1o2p3	Canadian	eb@gmail.com	17	0	Show Edit Add infection Delete
76	Amelia	S	Hunt	1990-11-25	7659 9691930011	Short Street	Vancouver	BC	t4e3s9	Canadian	ah@gmail.com	54	3	Show Edit Add infection Delete
79	Carlos	C	Vans	1999-07-22	1283 8123771787	Henry Street	Vancouver	BC	m2m4k1	Canadian	cv@gmail.com	154	2	Show Edit Add infection Delete
83	Alice	A	Chickenn	1997-02-23	75144 5247851452	rue jean	Montreal	QC	H2n2t2	Canadian	jasenratnam@hotmail.com	512	0	Show Edit Add infection Delete
84	Kay	B	Bac	1995-11-07	123-123-1223	beaubien montreal	QC	e2e2e2	Canadian	kay@gmail.ca		3	0	Show Edit Add

Query 2:

Public Health Worker																
pID	First Name	Middle Initial	Last Name	Date of Birth	Telephone Number	Address	City	Province	Postal Code	Citizenship	Email	SSN	Medicare ID	Type	Number of Infections	Actions
76	Amelia	S	Hunt	1990-11-25	7659 9691930011	Short Street	Vancouver	BC	t4e3s9	Canadian	ah@gmail.com	555	54	nurse 3	Show Edit Add infection Delete	
112	Dayfdd	U	Douglas	1995-01-01	0001 12331233		Henri Bourassa	Montreal	QC	e2e2e2	Canadian	douglas@gmail.com	556	4	nurse 0	Show Edit Add infection Delete
114	Fariha	W	Stevenson	1995-01-01	0031 1234563		Henri Bourassa	Montreal	QC	e2e2e2	Canadian	stevenson@gmail.com	557	6	nurse 0	Show Edit Add infection Delete
117	Sukhmani	F	Dickson	1995-01-01	0543 161233		Henri Bourassa	Montreal	QC	e2e2e2	Canadian	dickson@gmail.com	558	9	nurse 0	Show Edit Add infection Delete
120	Essa	I	Lynn	1995-01-01	0424 14431233		Henri Bourassa	Montreal	QC	e2e2e2	Canadian	lynn@gmail.com	561	12	nurse 0	Show Edit Add infection Delete

Query 3:

Home	Person	Vaccination	Vaccine	Public Health Facilities	Bookings	COVID-19 Types	Provinces	Employee Work Assignment					
Public Health Facilities					Query 15: Workers and Appointments in a Facility Query 18: Nurses with at least 20 vaccinations Query 19: Facilities in Montreal								
Public Health Facilities					Create a new Facility								
Name	Address	City	Province	Postal Code	Phone number	Website	Opening time	Closing time	Facility type	Category	Capacity	Manager ID	Actions
Bank Hospital	Tin Street	Laval	AB	m6n5b1	8812391238	www.bankhospital.com	08:00:00	20:00:00	hospital appointment	24			Show Edit Delete
BayCamp	Green Street	Vancouver	BC	h4g1f2	8612367321	www.baycamp.com	08:00:00	20:00:00	special appointment	24			Show Edit Delete
CamperClinic	Lonely Street	Calgary	YT	h4d2k7	8234823122	www.camperclinic.com	08:00:00	20:00:00	hospital appointment	12			Show Edit Delete
General Hospital	1234 St-Catherine	Montreal	QC	q1w2e3	5867094321	generalHospital.com	07:00:00	23:00:00	hospital appointment	323			Show Edit Delete
Hospital	1234 Hospital Street	Hospital City	AB	q1w2e3	431098765	hospitalwebsite.ca	08:00:00	22:30:00	hospital appointment	12345			Show Edit Delete
J General Hospital	Blvd. St-Laurent	Montreal	QC	g1v4b7	8672316641	www.jgeneralhospital.com	08:00:00	20:00:00	hospital appointment	50			Show Edit Delete

Query 4:

Home	Person	Vaccination	Vaccine	Public Health Facilities	Bookings	COVID-19 Types	Provinces	Employee Work Assignment
Vaccine								
Create a Vaccine								
Name	Status	Approved Date	Suspended Date	Description			Actions	
AstraZeneca	SUSPENDED	2020-06-18	2021-11-13	AstraZeneca Oxford			Show Edit Delete	
Hersey	SUSPENDED	2021-11-01	2021-11-30	Hersey is a super vaccine			Show Edit Delete	
JohnsonJohnson	SAFE	2021-11-17	2021-11-10	Johnson & Johnson			Show Edit Delete	
Moderna	SAFE	2020-12-18		The Moderna vaccine is a vaccine that aims to protect against COVID-19.			Show Edit Delete	
Pfizer	SAFE	2021-04-12		pfizer_desc			Show Edit Delete	
type21	SAFE	2021-11-23		type 21 is cool			Show Edit Delete	
VaccineA	SUSPENDED	2021-05-20	2021-07-08	vaccine_a_desc: this is bad			Show Edit Delete	
VaccineB	SUSPENDED	2021-05-20	2021-06-21	vaccine_b_desc			Show Edit Delete	
VaccineC	SUSPENDED	2021-05-20	2021-06-21	vaccine_c_desc			Show Edit Delete	

Query 5:

Home Person Vaccination Vaccine Public Health Facilities Bookings COVID-19 Types Provinces Employee Work Assignment

COVID-19 Types

[Add A New COVID-19 Type](#)

Type

Alpha (B.1.1.7)	Show Edit Delete
Beta (B.1.351)	Show Edit Delete
Delta (B.1.617.2)	Show Edit Delete
Epsilon	Show Edit Delete
Eta (B.1.525)	Show Edit Delete
Gamma (P1)	Show Edit Delete
Iota (B.1.526)	Show Edit Delete
Kappa (B.1.617.1)	Show Edit Delete
MU (B.1.621)	Show Edit Delete
Omicron Sigma Virus	Show Edit Delete
variant 3.0	Show Edit Delete
Zeta (P2)	Show Edit Delete

Courtesy of Team BNC353_2

Jasen Ratnam 40094237
Ali Turkman 40111059
John Carlo Estoesta 40112372
Philippe Carrier 40153985

Query 6:

Home Person Vaccination Vaccine Public Health Facilities Bookings COVID-19 Types Provinces Age Groups Employee Work Assignment

Age Group

Group ID Lower Bound Upper Bound

1	80	100	Show Edit
2	70	79	Show Edit
3	60	69	Show Edit
4	50	59	Show Edit
5	40	49	Show Edit
6	39	39	Show Edit
7	18	29	Show Edit
8	12	17	Show Edit
9	5	11	Show Edit
10	0	4	Show Edit

Courtesy of Team BNC353_2

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Query 7:

Home Person Vaccination Vaccine Public Health Facilities Bookings COVID-19 Types Provinces Employee Work Assignment

Province

Province	Group ID	
Quebec	4	Show Edit
Alberta	5	Show Edit
Saskatchewan	5	Show Edit
Yukon	5	Show Edit
British Columbia	6	Show Edit
Manitoba	6	Show Edit
Nunavut	6	Show Edit
Ontario	6	Show Edit
Newfoundland and Labrador	7	Show Edit
Northwest Territories	7	Show Edit
Prince Edward Island	7	Show Edit
Nova Scotia	8	Show Edit
New Brunswick	10	Show Edit

Courtesy of Team BNC353_2

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Ali Turkman 40111059
John Carlo Estoesta 40112372
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Query 8:

Home Person Vaccination Vaccine Public Health Facilities Bookings COVID-19 Types Provinces Employee Work Assignment

Edit Province

Province

Group ID

Courtesy of Team BNC353_2

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Ali Turkman 40111059
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Query 9:

Home Person Vaccination Vaccine Public Health Facilities Bookings COVID-19 Types Provinces Employee Work Assignment

Bookings

[Add A Booking](#)

Person ID	Facility	Date	Time	
69	BayCamp	2022-04-01	12:40:00	Show Edit Delete
83	BayCamp	2022-01-14	10:20:00	Show Edit Delete
112	Bank Hospital	2019-12-12	10:00:00	Show Edit Delete
112	BayCamp	2021-12-16	12:40:00	Show Edit Delete
113	Bank Hospital	2019-12-12	10:00:00	Show Edit Delete
114	Bank Hospital	2019-12-12	10:00:00	Show Edit Delete
117	Bank Hospital	2019-12-12	10:00:00	Show Edit Delete
119	Bank Hospital	2019-12-12	10:00:00	Show Edit Delete
131	BayCamp	2021-12-16	14:00:00	Show Edit Delete

Courtesy of Team BNC353_2

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Ali Turkman 40111059
John Carlo Esteesta 40112372
Philippe Carrier 40153985

Query 10:

Home Person Vaccination Vaccine Public Health Facilities Bookings COVID-19 Types Provinces Employee Work Assignment

Work Assignment

[Add A New Assignment](#)

SSN	Employee ID	Facility Name	Start Date	End Date	Hourly Wage	Actions
555	2	BayCamp	2021-12-04 03:16:00	2022-03-05 03:17:00	11.15	Show Edit Delete
556	7	Bank Hospital	2020-01-01 00:00:00	2023-01-01 00:00:00	123.12	Show Edit Delete
557	8	Bank Hospital	2020-01-01 00:00:00	2023-01-01 00:00:00	12.31	Show Edit Delete
558	9	Bank Hospital	2020-01-01 00:00:00	2023-01-01 00:00:00	41.23	Show Edit Delete
561	10	Bank Hospital	2020-01-01 00:00:00	2023-01-01 00:00:00	56.00	Show Edit Delete
571	11	Bank Hospital	2020-01-01 00:00:00	2023-01-01 00:00:00	31.00	Show Edit Delete
666	3	CamperClinic	2020-06-30 20:59:00	2021-12-02 17:02:00	36.24	Show Edit Delete
754	6	J General Hospital	2021-06-10 09:20:00	2022-11-30 18:20:00	100.25	Show Edit Delete
757	1	Bank Hospital	2021-11-29 06:33:00	2023-01-01 00:00:00	25.20	Show Edit Delete
1542	5	General Hospital	2021-07-10 02:07:00	2022-03-31 15:03:00	51.25	Show Edit Delete

Courtesy of Team BNC353_2

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Ali Turkman 40111059
John Carlo Esteesta 40112372
Philippe Carrier 40153985

Query 11:

Home	Person	Vaccination	Vaccine	Public Health Facilities	Bookings	COVID-19 Types	Provinces	Employee Work Assignment																																																																														
Booking Schedule from December 16th, 2021 to December 17th, 2021																																																																																						
<table><thead><tr><th>Date</th><th>Appointment Time</th><th>Status</th></tr></thead><tbody><tr><td>2021-12-16</td><td>08:00:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>08:20:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>08:40:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>09:00:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>09:20:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>09:40:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>10:00:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>10:20:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>10:40:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>11:00:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>11:20:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>11:40:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>12:00:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>12:20:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>12:40:00</td><td>BOOKED</td></tr><tr><td>2021-12-16</td><td>13:00:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>13:20:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>13:40:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>14:00:00</td><td>BOOKED</td></tr><tr><td>2021-12-16</td><td>14:20:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>14:40:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>15:00:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>15:20:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>15:40:00</td><td>FREE</td></tr><tr><td>2021-12-16</td><td>16:00:00</td><td>FREE</td></tr></tbody></table>									Date	Appointment Time	Status	2021-12-16	08:00:00	FREE	2021-12-16	08:20:00	FREE	2021-12-16	08:40:00	FREE	2021-12-16	09:00:00	FREE	2021-12-16	09:20:00	FREE	2021-12-16	09:40:00	FREE	2021-12-16	10:00:00	FREE	2021-12-16	10:20:00	FREE	2021-12-16	10:40:00	FREE	2021-12-16	11:00:00	FREE	2021-12-16	11:20:00	FREE	2021-12-16	11:40:00	FREE	2021-12-16	12:00:00	FREE	2021-12-16	12:20:00	FREE	2021-12-16	12:40:00	BOOKED	2021-12-16	13:00:00	FREE	2021-12-16	13:20:00	FREE	2021-12-16	13:40:00	FREE	2021-12-16	14:00:00	BOOKED	2021-12-16	14:20:00	FREE	2021-12-16	14:40:00	FREE	2021-12-16	15:00:00	FREE	2021-12-16	15:20:00	FREE	2021-12-16	15:40:00	FREE	2021-12-16	16:00:00	FREE
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Query 12:

Home	Person	Vaccination	Vaccine	Public Health Facilities	Bookings	COVID-19 Types	Provinces	Employee Work Assignment				
First available booking starting on December 16th, 2021												
<table><thead><tr><th>Date</th><th>Appointment Time</th></tr></thead><tbody><tr><td>2021-12-16</td><td>08:00:00</td></tr></tbody></table>									Date	Appointment Time	2021-12-16	08:00:00
Date	Appointment Time											
2021-12-16	08:00:00											

Courtesy of Team BNC353_2

Jasen Ratnam 40094237
All Turkman 40111059
John Carlo Estoesta 40112372
Phillippe Carrier 40153985

Query 13:

Home	Person	Vaccination	Vaccine	Public Health Facilities	Bookings	COVID-19 Types	Provinces	Employee Work Assignment
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Nurse not Working on December 16th, 2021

First Name	Last NAmes	Email	Hourly Wage
Amelia	Hunt	ah@gmail.com	11.15
Fariha	Stevenson	stevenson@gmail.com	12.31
Eric	Book	eb@gmail.com	25.20
Liam	Bob	bob@gmail.com	31.00
Carlos	Vans	cv@gmail.com	36.24
Sukhmani	Dickson	dickson@gmail.com	41.23
Bane	Parking	pp@gmail.com	51.25
Essa	Lynn	lynn@gmail.com	56.00
Alice	Chickenn	jasenratnam@hotmail.com	100.25
Dayfd	Douglas	douglas@gmail.com	123.12

Courtesy of Team BNC353_2

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Ali Turkman 40111059
John Carlo Estoesta 40112372
Philippe Carrier 40153985

Query 14:

Home	Person	Vaccination	Vaccine	Public Health Facilities	Bookings	COVID-19 Types	Provinces	Employee Work Assignment
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Nurse not Working on December 14th, 2021

First Name	Last NAmes	Email	Hourly Wage
Amelia	Hunt	ah@gmail.com	11.15
Fariha	Stevenson	stevenson@gmail.com	12.31
Eric	Book	eb@gmail.com	25.20
Liam	Bob	bob@gmail.com	31.00
Carlos	Vans	cv@gmail.com	36.24
Sukhmani	Dickson	dickson@gmail.com	41.23
Bane	Parking	pp@gmail.com	51.25
Essa	Lynn	lynn@gmail.com	56.00
Alice	Chickenn	jasenratnam@hotmail.com	100.25
Dayfd	Douglas	douglas@gmail.com	123.12

Courtesy of Team BNC353_2

Jasen Ratnam 40094237
Ali Turkman 40111059
John Carlo Estoesta 40112372
Philippe Carrier 40153985

Query 15:

Home	Person	Vaccination	Vaccine	Public Health Facilities	Bookings	COVID-19 Types	Provinces	Employee Work Assignment
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Workers in Bank Hospital on 2021-11-17

First Name	Last Name	Start Date	End Date	Duty
Dayidd	Douglas	2020-01-01 00:00:00	2023-01-01 00:00:00	nurse
Fariha	Stevenson	2020-01-01 00:00:00	2023-01-01 00:00:00	nurse
Sukhmani	Dickson	2020-01-01 00:00:00	2023-01-01 00:00:00	nurse
Essa	Lynn	2020-01-01 00:00:00	2023-01-01 00:00:00	nurse
Liam	Bob	2020-01-01 00:00:00	2023-01-01 00:00:00	nurse

Appointments in Bank Hospital on 2021-11-17

First Name Last Name Date Time

Courtesy of Team BNC353_2

Jasen Ratnam 40094237
Ali Turkman 40111059
John Carlo Estoesta 40112372
Philippe Carrier 40153985

Query 16 - 17:

Home	Person	Vaccination	Vaccine	Public Health Facilities	Bookings	COVID-19 Types	Provinces	Employee Work Assignment
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Create Vaccination

Patient ID
83

Facility

Employee ID

Type
JohnsonJohnson

Country

Lot Number

Dose Number

Date of Vaccination
yyyy-mm-dd

Query 18:

Home	Person	Vaccination	Vaccine	Public Health Facilities	Bookings	COVID-19 Types	Provinces	Employee Work Assignment
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Nurses with at least 20 vaccinations

Name	Phone	Number of Vaccinations
Eric Book	9123461232	23

Courtesy of Team BNC353_2

Jasen Ratnam 40094237
Ali Turkman 40111059
John Carlo Estoesta 40112372
Philippe Carrier 40153985

Query 19:

Home	Person	Vaccination	Vaccine	Public Health Facilities	Bookings	COVID-19 Types	Provinces	Employee Work Assignment
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Facilities in Montreal

Facility Name	Address	Type	Phone Number	Capacity	Number of Public Health Worker Doses Given Doses Scheduled
J General Hospital	Bvd. St. Laurent	hospital	8672316641	1	2 1
General Hospital	1234 St-Catherine	hospital	5867094321	1	3 2

Courtesy of Team BNC353_2

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Ali Turkman 40111059
John Carlo Estoesta 40112372
Philippe Carrier 40153985

Query 20:

Home Person Vaccination Vaccine Public Health Facilities Bookings COVID-19 Types Provinces Employee Work Assignment

Person Information

Health and Social Services	Proof of Vaccination against COVID-19
User Information	
Name Eric Book	
DOB 1945-12-25	
Vaccine Administered Dose # 1	
Name Moderna	
Code Moderna	
Lot 1	
Date 2021-11-11	
Location Bank Hospital	
Vaccine Administered Dose # 2	
Name Moderna	
Code Moderna	
Lot 20	
Date 2021-11-30	
Location Bank Hospital	
Positive COVID-19 Diagnostic	

Courtesy of Team BNC353_2

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