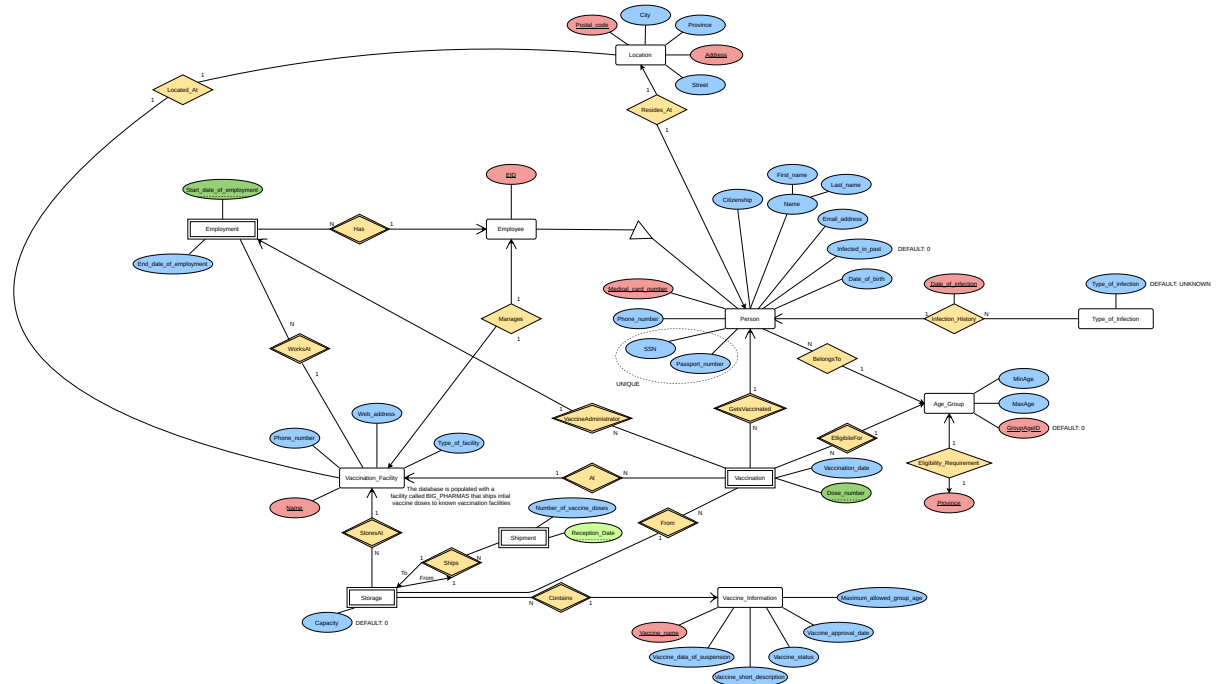


Project

- Code files are on this pdf document (no need to open any folder)
- Zoom into the attached svg files (without loss of resolution)

Part I

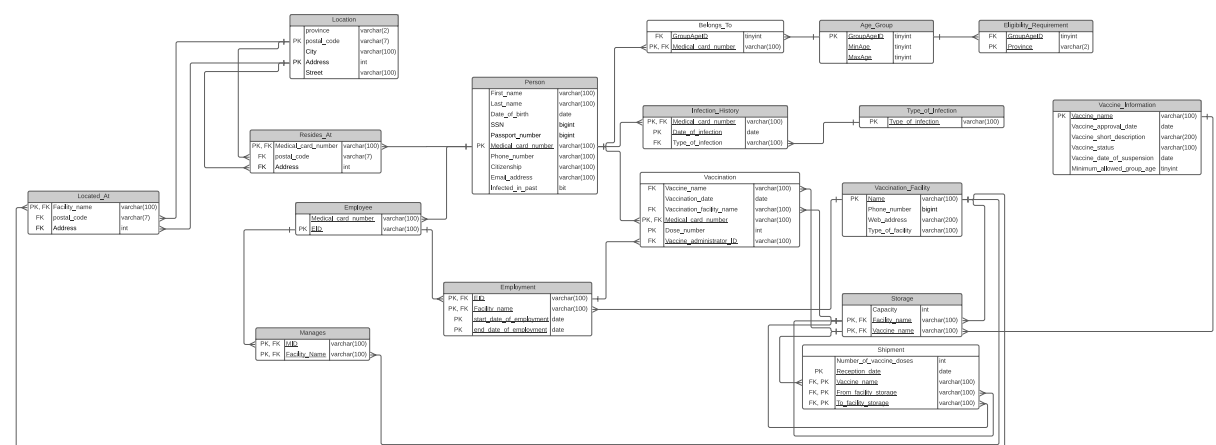
1.



2.

see diagram above

3.



4 & 5.

Recap:

3NF requirements:

- (1) no partial dependencies; e.g. no {part of prime -> non-prime},
- (2) no transitive dependencies; e.g. no {non-Pprime -> non-prime},

BCNF requirements:

- (1) in 3NF
- (2) no LHS superkey {non-prime -> prime}

```
Person(First_name, Last_name, Date_of_birth, SSN, Passport_number, Medical_card_number, Phone_number, Citizenship, Email_address, Infected_in_p
Person(A, B, C, D, E, F, G, H, I, J, K)
Prime-attribute: {F}
non-prime attributes: Person-{F}
F->ABCDEFGHIJK (in 3NF)
DE->F (not in BCNF)
```

```
Age_Group(GroupAgeID, MinAge, MaxAge);
Age_Group(M, N, O);
Prime-attribute(s): {M}
M->NO (in 3NF)
NO->M (not in BCNF)
```

```
Belongs_To(Medical_card_number, GroupAgeID);
Age_Group(F, M);
Prime-attribute(s): {F}
F->M (in BCNF, 3NF)
```

```
Infection_History(Medical_card_number, Date_of_infection, Type_of_infection);
Infection_History(F, P, L);
Prime-attribute(s): {F}
F->PL (in BCNF, 3NF)
```

```
Type_of_Infection(Type_of_infection);
Type_of_Infection(L);
Prime-attribute(s): {L}
L->L
no non-trivial relationships because count of non-prime attributes = 0
thus, in BCNF, 3NF
```

```
Location(Address, Street, City, Province, Postal_code);
Location(Q, R, S, T, U);
Prime-attribute(s): {Q, U}
QU->RST
```

```
Resides_At(Address, Postal_code, Medical_card_number);
Resides_At(Q, U, F);
Prime-attribute(s): {F}
F->QU (in BCNF, 3NF)
```

```
Vaccination_Facility(Name, Phone_number, Web_address, Type_of_facility);
Vaccination_Facility(V, W, X, Z);
Prime-attribute(s): {V}
V->WXZ (in BCNF, 3NF)
```

```
Located_At(Address, Postal_code, Facility_name);
Located_At(Q, U, V);
Prime-attribute(s): {V}
V->QU (in BCNF, 3NF)
```

```
Vaccine_Information(Vaccine_name, Vaccine_approval_date, Vaccine_short_description, Vaccine_status, Vaccine_date_of_suspension, Minimum_all
Vaccine_Information(a, b, c, d, e, f);
```

```
Prime-attribute(s): {a}
a->bcdef (in BCNF, 3NF)
```

```
Storage(Capacity, Facility_name, Vaccine_name);
Storage(g, V, a);
Prime-attribute(s): {Va}
Va->g (in BCNF, 3NF)
```

```
Shipment(NumberOf_vaccine_doses, Reception_date, Vaccine_name, From_facility_storage, To_facility_storage);
Shipment(h, i, a, v-, v+);
Prime-attribute(s): {i, a, v+, v-}
{i, a, v-, v+} -> H (in BCNF, 3NF)
```

```
Employee(EID, Medical_card_number);
Employee(j, F);
Prime-attribute(s): {j}
j->F (in BCNF, 3NF)
```

```
Manages(EID, Facility_name);
Manages(j+, V);
Prime-attribute(s): {j+}
j+ -> V (in BCNF, 3NF)
```

```
Employment(start_date_of_employment, end_date_of_employment, Facility_name, EID);
Employment(k, l, V, j);
Prime-attribute(s): {K, j, V}
KjV->l (in BCNF, 3NF)
```

```
Eligibility_Requirement(Province, GroupAgeID);
Eligibility_Requirement(k, M);
Prime-attribute(s): {k}
k->M (in BCNF, 3NF)
```

```
Vaccination(Vaccine_name, Vaccination_date, Facility_name, Medical_card_number, Dose_number, Vaccine_administrator_ID);
Vaccination(a, l, V, F, m, j);
Prime-attribute(s): {F, m}
Fm->alVj (in BCNF, 3NF)
```



Final conclusion: Our database is in 3NF, but not in BCNF

Part II

SQL

https://s3-us-west-2.amazonaws.com/secure.notion-static.com/9ed1851b-6a44-464e-93fe-35a07981c85d/Create_table_s__Routines.sql

https://s3-us-west-2.amazonaws.com/secure.notion-static.com/bbd9f7dd-1e6b-4fd6-8bdd-f0355013894f/Populate__Update_db.sql

<https://s3-us-west-2.amazonaws.com/secure.notion-static.com/25cb5650-6d00-4ed1-ae3b-9228c5c56e8c/Routines.sql>

https://s3-us-west-2.amazonaws.com/secure.notion-static.com/946d4a2d-feba-435d-9311-72243486af25/Specific_queries.sql



if links don't work, access the files from here:

<https://aquatic-chestnut-f1c.notion.site/Project-b42d0321f5ba491ea3e3627e1ce26f9f>



the zip folder has the same code files

Code implementation (PHP/JS)

<https://s3-us-west-2.amazonaws.com/secure.notion-static.com/9b843671-fb84-403b-9b01-9f35f56e7207/index.php>

https://s3-us-west-2.amazonaws.com/secure.notion-static.com/c75f2e43-0048-4b67-b7cf-12820313fc87/insert_db.php

https://s3-us-west-2.amazonaws.com/secure.notion-static.com/d40297da-d913-4f4a-9aba-95dbda59e37b/sql_connection.php

<https://s3-us-west-2.amazonaws.com/secure.notion-static.com/64cc1299-1d74-4955-8f91-738fd96d341f/InputFields.java>



replace .javascript with .js



if links don't work, access the files from here:

<https://aquatic-chestnut-f1c.notion.site/Project-b42d0321f5ba491ea3e3627e1ce26f9f>



the zip folder has the same code files

Web Interface

Person

CREATE NEW!																
First_name	Last_name	SSN	Passport_number	Phone_number	Date_of_birth	Email_address	Infected_in_past	Citizenship	Medical_card_number	Date_of_infection	Type_of_infection	Postal_code	Address	Province	City	
i_am_manager4	ng12w	34677	435435	1149039283	1900-07-09	erterhbigkpl	0	Canadian	med10	null	null	H1M 3D2	10	QC	Montreal	EDIT!
Lewis	Johnson	3425243	null	8317592935	1960-12-31	nicolette.torp@yahoo.com	1	Canadian	JwJKKCynB1	null	null	QVH 80L	1138	QC	Laval	EDIT!
i_am_manager6	ng524w	436994	12	5149034483	1900-07-09	erhbaiklpfpf	0	Canadian	med12	null	null	H1M 3D2	12	QC	Montreal	EDIT!
i_am_manager7	ngrvsw	80090	6163	5149559283	1900-07-09	erhbaiklpfpf	0	Canadian	med13	null	null	H1M 3D2	13	QC	Montreal	EDIT!
i_am_manager8	ngvbw	347828	7642	5166039283	1900-07-09	emahhbigkplpn	0	Canadian	med14	null	null	H1M 3D2	14	QC	Montreal	EDIT!
i_am_manager9	nggfdw	22223	41554	6449039283	1900-07-09	eklpalfdh3h3	0	Canadian	med15	null	null	H1M 3D2	15	QC	Montreal	EDIT!
i_am_manager10	ngvcbw	3228899	153718	5149345383	1900-07-09	emkplpfdh3h	0	Canadian	med16	null	null	H1M 3D2	16	QC	Montreal	EDIT!
i_am_manager11	sdggw	156164654	818818	5179039283	1900-07-09	emfdh3hffj37	0	Canadian	med17	null	null	H1M 3D2	17	QC	Montreal	EDIT!
Gordon	Divine	null	94524923	6508819649	1962-01-04	jody1973@gmail.com	1	American	IG6Kck_erZ	2020-04-01	Gamma variant	RSK MOO	1795	QC	Laval	EDIT!
Gordon	Divine	null	94524923	6508819649	1962-01-04	jody1973@gmail.com	1	American	IG6Kck_erZ	2020-12-08	Gamma variant	RSK MOO	1795	QC	Laval	EDIT!
i_am_manager12	ngfcvw	562652	13455	5148787883	1900-07-09	fdh3hffj3779	0	Canadian	med18	null	null	H1M 3D2	18	QC	Montreal	EDIT!
i_am_manager13	ngsfw	26782	2343	5149888888	1900-07-09	emafdh3hffj3	0	Canadian	med19	null	null	H1M 3D2	19	QC	Montreal	EDIT!
Roger	McDonald	6475	25	5149039223	1900-07-09	wdwq@ee	0	Canadian	med2	null	null	H1M 3D2	2	QC	Montreal	EDIT!
i_am_manager14	ngpew	223822	415661	5145555553	1900-07-09	emewnhbjdh337	0	Canadian	med20	null	null	H1M 3D2	20	QC	Montreal	EDIT!
i_am_manager15	ngbvw2w	25222	1678181	5141111111	1900-07-09	emewnhbjdh337	0	Canadian	med21	null	null	H1M 3D2	21	QC	Montreal	EDIT!
i_am_manager17	ngdggw	99999999	199466565	5222222222	1900-07-09	eeewnhbjdh3377	0	Canadian	med22	null	null	H1M 3D2	22	QC	Montreal	EDIT!
i_am_manager18	ng5yyw	296753	55645	5154454543	1900-07-09	emaiewnhbjdh3	0	Canadian	med23	null	null	H1M 3D2	23	QC	Montreal	EDIT!
Mark	Chatman	92378753	21391412	8476922614	1977-01-31	laria.gutkows@yahoo.com	0	Canadian	w42ZkHMA9	null	null	Z7M 6H6	2382	QC	Longueuil	EDIT!

Person

Employee

Facility

Vaccination Type

COVID Variants

Query Twelve

Query Thirteen

Query Fourteen

Query Fifteen

Query Sixteen

Query Seventeen

Query Eighteen

Query Nineteen

Query Twenty

Age Group

Eligibility Requirement

Vaccination

Shipment

CREATE NEW!																
First_name	Last_name	SSN	Passport_number	Phone_number	Date_of_birth	Email_address	Infected_in_past	Citizenship	Medical_card_number	Date_of_infection	Type_of_infection	Postal_code	Address	Province	City	
i_am_manager4	ng12w	34677	435435	1149039283	1900-07-09	erterhbigkpl	0	Canadian	med10	null	null	H1M 3D2	10	QC	Montreal	EDIT!
Lewis	Johnson	3425243	null	8317592935	1960-12-31	nicolette.torp@yahoo.com	1	Canadian	JwJKKCynB1	null	null	QVH 80L	1138	QC	Laval	EDIT!
i_am_manager6	ng524w	436994	12	5149034483	1900-07-09	erhbaiklpfpf	0	Canadian	med12	null	null	H1M 3D2	12	QC	Montreal	EDIT!
i_am_manager7	ngrvsw	80090	6163	5149559283	1900-07-09	erhbaiklpfpf	0	Canadian	med13	null	null	H1M 3D2	13	QC	Montreal	EDIT!
i_am_manager8	ngvbw	347828	7642	5166039283	1900-07-09	emahhbigkplpn	0	Canadian	med14	null	null	H1M 3D2	14	QC	Montreal	EDIT!
i_am_manager9	nggfdw	22223	41554	6449039283	1900-07-09	eklpalfdh3h3	0	Canadian	med15	null	null	H1M 3D2	15	QC	Montreal	EDIT!
i_am_manager10	ngvcbw	3228899	153718	5149345383	1900-07-09	emkplpfdh3h	0	Canadian	med16	null	null	H1M 3D2	16	QC	Montreal	EDIT!
i_am_manager11	sdggw	156164654	818818	5179039283	1900-07-09	emfdh3hffj37	0	Canadian	med17	null	null	H1M 3D2	17	QC	Montreal	EDIT!
Gordon	Divine	null	94524923	6508819649	1962-01-04	jody1973@gmail.com	1	American	IG6Kck_erZ	2020-04-01	Gamma variant	RSK MOO	1795	QC	Laval	EDIT!
Gordon	Divine	null	94524923	6508819649	1962-01-04	jody1973@gmail.com	1	American	IG6Kck_erZ	2020-12-08	Gamma variant	RSK MOO	1795	QC	Laval	EDIT!
i_am_manager12	ngfcvw	562652	13455	5148787883	1900-07-09	fdh3hffj3779	0	Canadian	med18	null	null	H1M 3D2	18	QC	Montreal	EDIT!
i_am_manager13	ngsfw	26782	2343	5149888888	1900-07-09	emafdh3hffj3	0	Canadian	med19	null	null	H1M 3D2	19	QC	Montreal	EDIT!
Roger	McDonald	6475	25	5149039223	1900-07-09	wdwq@ee	0	Canadian	med2	null	null	H1M 3D2	2	QC	Montreal	EDIT!
i_am_manager14	ngpew	223822	415661	5145555553	1900-07-09	emewnhbjdh337	0	Canadian	med20	null	null	H1M 3D2	20	QC	Montreal	EDIT!
i_am_manager15	ngbvw2w	25222	1678181	5141111111	1900-07-09	emewnhbjdh337	0	Canadian	med21	null	null	H1M 3D2	21	QC	Montreal	EDIT!
i_am_manager17	ngdggw	99999999	199466565	5222222222	1900-07-09	eeewnhbjdh3377	0	Canadian	med22	null	null	H1M 3D2	22	QC	Montreal	EDIT!
i_am_manager18	ng5yyw	296753	55645	5154454543	1900-07-09	emaiewnhbjdh3	0	Canadian	med23	null	null	H1M 3D2	23	QC	Montreal	EDIT!
Mark	Chatman	92378753	21391412	8476922614	1977-01-31	laria.gutkows@yahoo.com	0	Canadian	w42ZkHMA9	null	null	Z7M 6H6	2382	QC	Longueuil	EDIT!

Person

Employee

Facility

Vaccination Type

COVID Variants

Query Twelve

Query Thirteen

Query Fourteen

Query Fifteen

Query Sixteen

Query Seventeen

Query Eighteen

Query Nineteen

Query Twenty

Age Group

Eligibility Requirement

Vaccination

Shipment

= Query Eighteen							
Name	Phone_number	Web_address	Type_of_facility	Total_Employees	Shipments_Received	Total_Received_Doses	Shipments_Sent
Aréna Bill-Durand	5146444545	https://www.ciasswestcentral.ca/programs-and-services/lifestyle-habits-and-prevention/Vaccination/covid-19-Vaccination/	special installment	1	1	3	1
Aréna Bob Birmie	5146444545	https://ciass-ouestmtl.gouv.qc.ca/en/users-info/covid-19-care-and-services/covid-19-Vaccination/	special installment	1	1	3	1
Aréna Martin-Brodeur	5146444545	https://ciass-ouestmtl.gouv.qc.ca/covid-19/Vaccination-contre-la-covid-19/clinique-de-Vaccination-de-larena-martin-brodeur	special installment	4	3	36	12
Centre civique de Dollard-des-Ormeaux	5146444545	https://ciass-ouestmtl.gouv.qc.ca/en/users-info/covid-19-care-and-services/covid-19-Vaccination/	special installment	1	1	3	1
Centre communautaire Gerry-Robertson	5146444545	https://ciass-ouestmtl.gouv.qc.ca/en/users-info/covid-19-care-and-services/covid-19-Vaccination/	special installment	1	1	3	1
Centre de Vaccination CAE	5146444545	https://www.cae.com/fr/cae-Vaccination-centre-fr/	special installment	1	1	3	1
Centre sportif Dollard-St-Laurent	5146444545	https://ciass-ouestmtl.gouv.qc.ca/en/users-info/covid-19-care-and-services/covid-19-Vaccination/	special installment	1	1	3	1
Clinique de Vaccination Christophe-Colomb	5146444545	https://www.ciassnordmtl.ca/soins-et-services/coronavirus-covid-19/Vaccination-contre-la-covid-19/	clinic	1	2	5	2
Clinique de Vaccination d'Athénas	5146444545	https://www.ciassnordmtl.ca/soins-et-services/coronavirus-covid-19/Vaccination-contre-la-covid-19/	clinic	1	2	6	2
Clinique de Vaccination de Montréal-Nord	5146444545	https://www.ciassnordmtl.ca/soins-et-services/coronavirus-covid-19/Vaccination-contre-la-covid-19/	clinic	1	1	3	1
Clinique de Vaccination de Saint-Laurent	5146444545	https://www.ciassnordmtl.ca/soins-et-services/coronavirus-covid-19/Vaccination-contre-la-covid-19/	clinic	1	1	3	1
CLSC de la Visitation	5146444545	https://ciass-centresudmtl.gouv.qc.ca/etablissement/clsc-de-la-visitation-et-gmfu-des-faubourgs	clinic	1	1	3	1
Palais des congrès	5146444545	https://ciass-ouestmtl.gouv.qc.ca/language/en/covid19-en/covid-19-Vaccination/	special installment	1	1	3	1
Pôle de Vaccination Rivière-des-Prairies Transcontinental – Énergie	5146444545	https://ciass-ouestmtl.gouv.qc.ca/covid-19/Vaccination-contre-la-covid-19/pole-de-Vaccination-transcontinental-energie-riviere-des-prairies	special installment	3	1	9	3
Pôle de Vaccination Saint-Michel	5146444545	https://ciass-ouestmtl.gouv.qc.ca/covid-19/Vaccination-contre-la-covid-19/pole-de-Vaccination-de-saint-michel	special installment	1	1	3	1
Site de Vaccination de Pointe-Saint-Charles	5146444545	https://ccpsc.qc.ca/en/	special installment	1	1	3	1
Stade Olympique/SAQ	5146444545	https://ciass-ouestmtl.gouv.qc.ca/covid-19/Vaccination-contre-la-covid-19/clinique-de-Vaccination-du-stade-olympiquesaq	special installment	2	6	32	16
Université de Montréal, MIL Campus	5146444545	https://infocovid19.umontreal.ca/toutes-les-communications/nouvelle/news/detail/News/site-de-Vaccination-au-campus-mil/	special installment	1	1	3	1
Vaccination center Edmonton	9871912929	https://www.cae.com/Vaccination_center_Edmonton/	Hospital	1	1	3	1
Vaccination center Ottawa	9871912929	https://www.cae.com/Vaccination_center_Ottawa/	Hospital	1	2	4	2
Vaccination center Winnipeg	9871912929	https://www.cae.com/Vaccination_center_Winnipeg/	Hospital	1	1	3	1