Week 10: Portfolio Assignment

For Master of Science ICT

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[Business Case]

Seth's Apothecary is a disabled, veteran owned, medical marijuana dispensary collective in and around Attleboro, Massachusetts. This center group has been in operation for five years and specializes in medical grade cannabis cultivation and sales across their four locations with the main goal of helping the sick and disabled of Bristol and Norfolk counties with pain management, medical treatment side effects & end of life care. A percentage of monthly profit is donated to disabled veteran charities in and around Attleboro, MA (the location of the first and main dispensary). Seth's Apothecary is more community-focused than canna-corporation and wishes to stay that way regardless of legislation and technology.
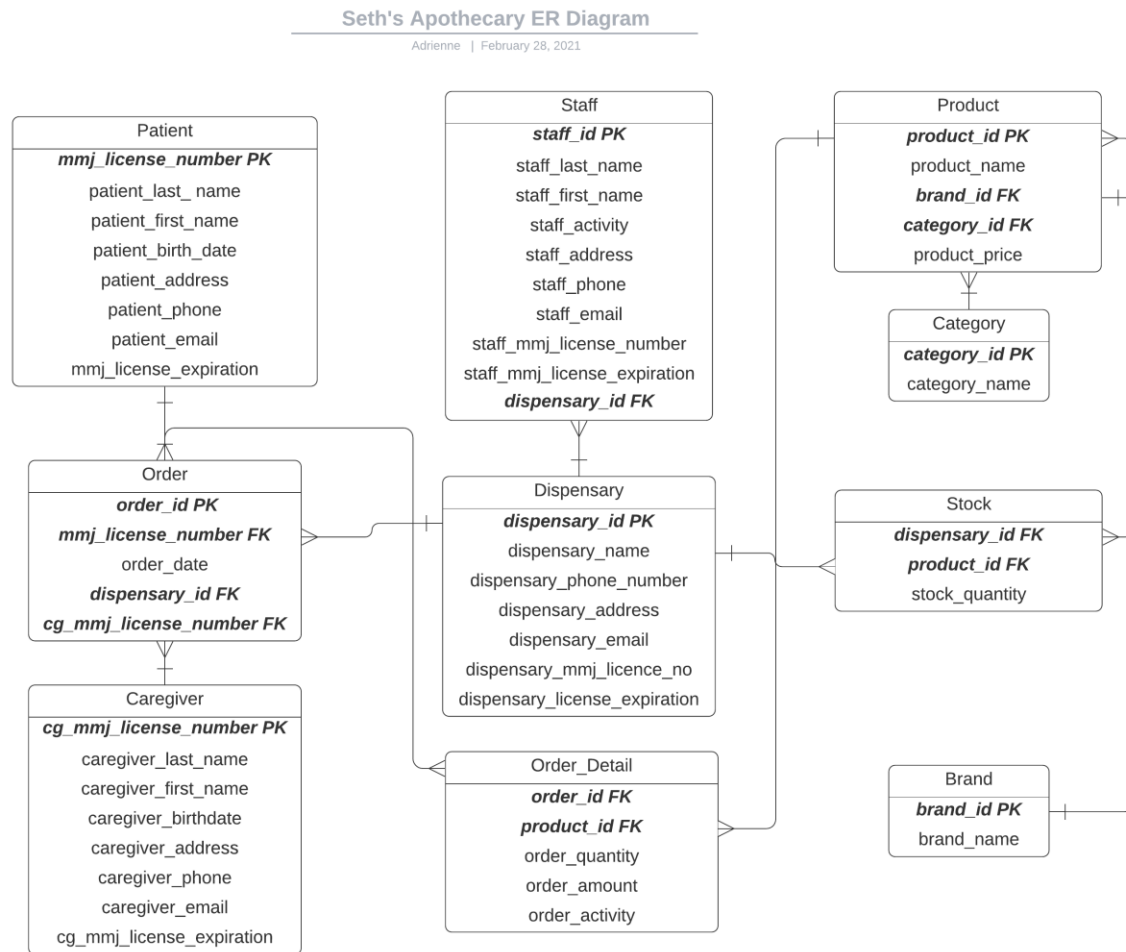
Recently, this dispensary collective upgraded their database system from separate databases at each location (with very little to no access to other location information when that could be crucial to patient and caregiver sales) to an Oracle ERP Cloud service that includes a connected Enterprise Cloud Database that can be accessed at any of the four locations. The third party payment system, that also includes state government sales restriction monitoring, feeds into the ERP service and the database. Having the connection between all locations is meant to improve accessibility and improve sales. The cloud service is also meant to improve and evolve the care center group's cultivation processing and product monitoring. Improving the database model and redesigning to fit all of these changes is the main point of this project.

[Reporting Requirements]

- How many employees are listed as active?

- Which categories are listed as indica concentrates?

- How many registered patients are there?

- Which caregivers were born on August 5th (Business Anniversary)?

- What is the license expiration for Dispensary #3 (7713)?

- How many orders has Caregiver 131775 made this month?

[ER Diagram]

Seth's Apothecary ER Diagram
Adrienne | February 28, 2021

Patient
mmj_license_number PK
patient_last_ name
patient_first_name
patient_birth_date
patient_address
patient_phone
patient_email
mmj_license_expiration

Staff
staff_id PK
staff_last_name
staff_first_name
staff_activity
staff_address
staff_phone
staff_email
staff_mmj_license_number
staff_mmj_license_expiration
dispensary_id FK

Product
product_id PK
product_name
brand_id FK
category_id FK
product_price

Category
category_id PK
category_name

Order
order_id PK
mmj_license_number FK
order_date
dispensary_id FK
cg_mmj_license_number FK

Dispensary
dispensary_id PK
dispensary_name
dispensary_phone_number
dispensary_address
dispensary_email
dispensary_mmj_licence_no
dispensary_license_expiration

Stock
dispensary_id FK
product_id FK
stock_quantity

Caregiver
cg_mmj_license_number PK
caregiver_last_name
caregiver_first_name
caregiver_birthdate
caregiver_address
caregiver_phone
caregiver_email
cg_mmj_license_expiration

Order_Detail
order_id FK
product_id FK
order_quantity
order_amount
order_activity

Brand
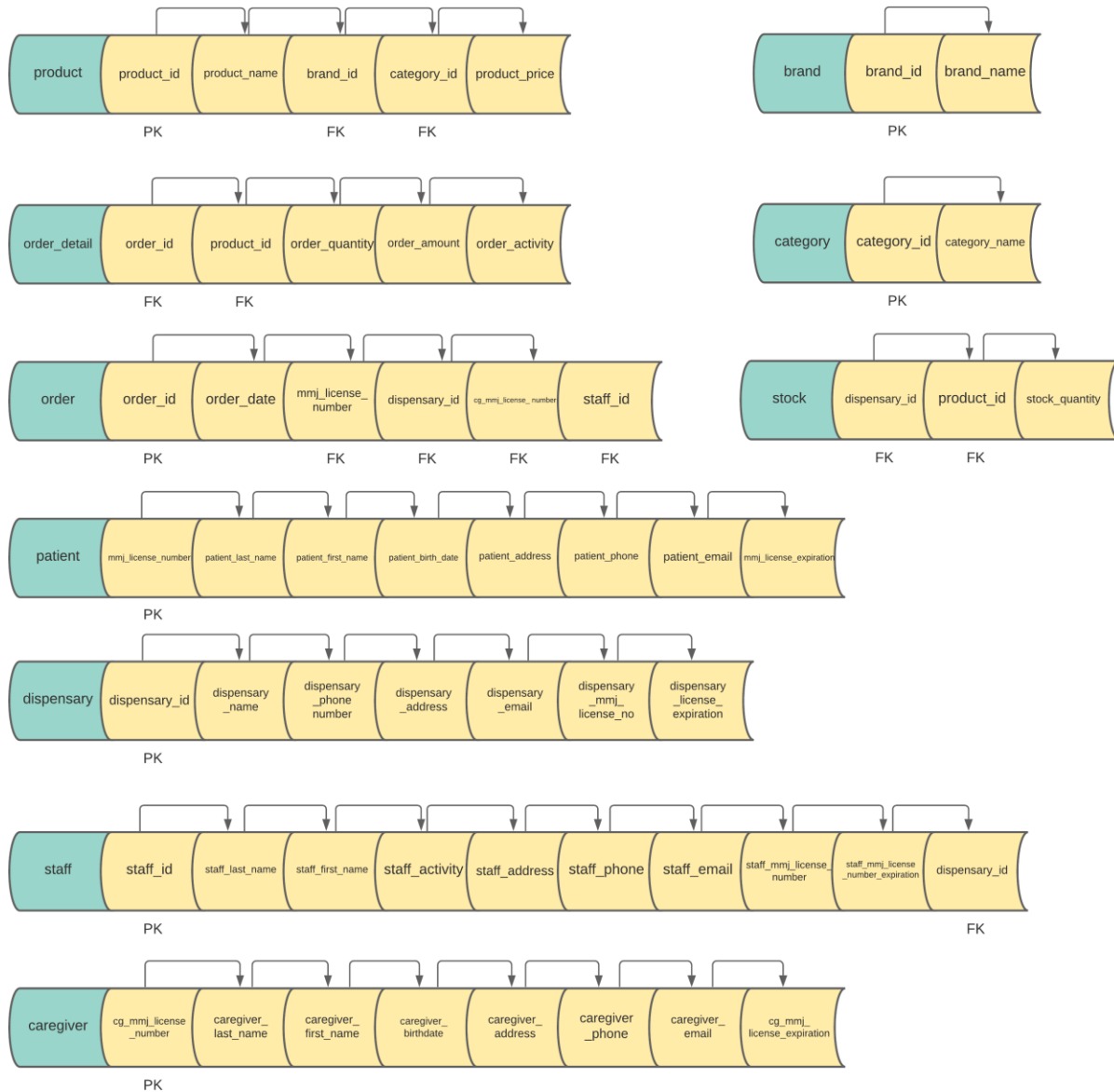*brand_id PK*
brand_name

[Business Rules]

- One patient or one caregiver can have one or more orders. Multiple orders can only be by that specific one patient or caregiver (state law).

- One dispensary can have one or more orders.

- One dispensary can have multiple staff members.

- A single category can include a multitude of products.

[Normalization Diagrams]

[SQL]

create database seths_apothecary;

create table patient (

mmj_license_number int PRIMARY KEY NOT NULL,

patient_last_name varchar(100) NOT NULL,

patient_first_name varchar(100) NOT NULL,

patient_birth_date varchar(100) NOT NULL,

patient_address varchar(100) NOT NULL,

patient_phone int NOT NULL,

patient_email varchar(100) NOT NULL,

mmj_license_expiration varchar(100) NOT NULL

);

insert into patient (mmj_license_number, patient_last_name, patient_first_name,

patient_birth_date, patient_address, patient_email, mmj_license_expiration)

values('88845689225', 'Latch', 'Patty', 'April 5th 1946', '231 South St Attleboro MA 02703',

'patty_latch@gmail.com', 'April 5th 2022'),

('888456689227', 'Irvin', 'Mitchell', 'January 18th 1976', '13 Bryan Ave Attleboro MA 02703',

'imconsulting@aol.com', 'January 18th 2023'),

('888456689200', 'Lawson', 'Shirley', 'May 7th 1958', '1435 Baldwin St Plymouth MA 02360',

'didiask4youropinionjan@gmail.com', 'May 7th 2021'),

('888456689334', 'Beverly', 'Alastair', 'October 9th 1999', '614 Albany St Cambridge MA 02139',

'abeverly@mit.edu', 'October 9th 2022'),

('888456689300', 'Masters', 'Jasmine', 'May 1st 1969', '777 Tremont St Boston MA 02118',

'andioop@gmail.com', 'May 1st 2021'),

('888456689200', 'Heron', 'Cady', 'June 8th 1986', '654 Orange St Framingham MA 01702',

'shedoesntevengohere@hotmail.com', 'June 8th 2021'),

('888456689225', 'Monsoon', 'Jinxx', 'May 12th 1985', '756 S Main St Boston MA 02118',

'contact@jinxmonsoon.com', 'May 12th 2022'),

('888456689223', 'Gummer', 'MaryLouise', 'June 22 1949', '32 Stearn St Malden MA 02148',

'khuvane@caa.com', 'June 22 2021'),

('888456689201', 'Waits', 'Thomas', 'December 7th 1946', '101 Lucinda SQ Brockton MA 02301',

'leaveamessagelucille@gmail.com', 'December 7th 2021'),

('888456689148', 'Belli', 'Willam', 'January 8th 1981', '1237 Arbor St Boston MA 02118',

'trade@willambelli.com', 'January 8th 2020');

create table caregiver (

cg_mmj_license_number int PRIMARY KEY NOT NULL,

caregiver_last_name varchar(100) NOT NULL,

caregiver_first_name varchar(100) NOT NULL,

caregiver_birthdate varchar(100) NOT NULL,

caregiver_phone int NOT NULL,

caregiver_email varchar(100) NOT NULL,

cg_mmj_license_expiration varchar(100) NOT NULL

);

insert into caregiver (cg_mmj_license_number, caregiver_last_name, caregiver_first_name,

caregiver_birthdate, caregiver_phone, caregiver_email, cg_mmj_license_expiration)

values ('51588698778', 'Hill', 'Lauryn', 'October 12th 1979', '3518049783',

'freebritney@gmail.com', 'October 12th 2023'),

('51588699856', 'Earl', 'Duke', 'November 14th 1968', '4155887645', 'earlduke@simons.com',

'November 14th 2021'),

('51588699489', 'Taylor', 'Teyana', 'April 12th 1991', '4125786211', 'reps@defjam.com', 'April

12th 2021'),

('51588610059', 'Mason', 'Vernon', 'June 15th 1998', '4158875645', 'mvpstyle@gmail.com', 'June

15th 2020'),

('51588692959', 'Fortner', 'Kieran', 'November 21st 1989', '5125789666',

'kieran.fortner@goldmansachs.com', 'November 21st 2022'),

('51588685956', 'Danbridge', 'Eloise', 'July 4th 1966', '4158867755', 'eloise@suicidegirls.com',

'July 4th 2021'),

('51588699786', 'Farthing', 'Benjamin', 'August 12th 1976, '4121152575', 'benfarth@gmail.com',

'August 12th 2020'),

('51588699999', 'Darby', 'Rhys', 'October 22nd 1971', '3595561411', 'contact@caa.com', 'October

22nd 2021'),

('51588697979', 'Hurtle', 'Shawna', 'February 8th 1970', '3126563030',

'shawnastop@shawnastop.com', 'February 8th 2020'),

('51588685955', 'Placido', 'Jaime', 'July 11th 1963', '4155512517',

'jaimeplacido@inkstainedtattoos.com', 'July 11th 2021');

create table dispensary (

dispensary_id int PRIMARY KEY NOT NULL,

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dispensary_name varchar(100) NOT NULL,

dispensary_phone_number int NOT NULL,

dispensary_address varchar(100) NOT NULL,

dispensary_email varchar(100) NOT NULL,

dispensary_mmj_license_no int NOT NULL,

dispensary_license_expiration varchar(100) NOT NULL

);


insert into dispensary (dispensary_id, dispensary_name, dispensary_phone_number,

dispensary_address, dispensary_mmj_license_no, dispensary_license_expiration)

values ('100', 'Seth's Apothecary #1', '5082265784', '318 Elm St North Attleboro MA 02760',

'31815', 'December 16th 2021'),

('101', 'Seth's Apothecary #2', '5082216594', '107 Park St Attleboro MA 02703', '31825',

'December 16th 2021'),

('102', 'Seth's Apothecary #3', '5082265151', '2134 Sanford St Attleboro MA 02703', '31836',

'December 16th 2021'),

('103', 'Seth's Apothecary #4', '5082215346', '1276 West St Attleboro MA 02703', '31837',

'December 16th 2021');


create table brand (

brand_id int PRIMARY KEY,

brand_name varchar(100) NOT NULL

);
```

```
insert into brand (brand_id, brand_name)

values ('', 'Complemetary'),

('89', 'Stiizy'),

('65', 'Cresco'),

('35', 'Grizzly Peak'),

('110', 'West Coast Cure'),

('115', 'Peak'),

('710', 'Sira Naturals'),

('91', 'Berkshire Roots'),

('75', 'Theory Wellness'),

('46', 'SA Brand');


create table category (

category_id int PRIMARY KEY NOT NULL,

category_name varchar(100) NOT NULL

);


insert into category (category_id, category_name)

values ('VH', 'vape hybrid'),

('VI', 'vape indica'),

('VS', 'vape sativa'),

('FS', 'flower sativa'),
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('FI', 'flower indica'),

('FH', 'flower hybrid'),

('VCBD', 'vape cbd'),

('FCBD', 'flower cbd'),

('CH', 'concentrate hybrid'),

('CI', 'concentrate indica');

create table product (

product_id int PRIMARY KEY,

product_name varchar(100),

brand_id int FOREIGN KEY REFERENCES brand(brand_id),

category_id varchar(100) FOREIGN KEY REFERENCES category(category_id),

product_price varchar(100)

);

insert into product (product_id, product_name, brand_id, category_id, product_price)

values ('743956008', 'Stiizy Vape Indica 1G Biscotti Original Pod', '89', 'VI', '45.00'),

('', 'Stiizy Vape Indica HalfGram IncredibleHulk Pod', '89', 'VI', 'NONE'),

('743956009', 'Stiizy Vape Hybrid 1G PExpress Pod', '89', 'VH', '45.00'),

('743956007', 'Stiizy Vape Sativa 1G BlueDream Pod', '89', 'VS', '55.00'),

('743956010', 'Stiizy Vape Sativa HalfGram PremJack Pod', '89', 'VS', '20.00'),

('743956006', 'Stiizy Vape Sativa 1G SourTangie Pod', '89', 'VS', '45.00'),

('', 'Stiizy Vape Indica HalfGram Slurricane Pod', '89', 'VI', 'NONE'),

('743956005', 'Stiizy Vape Indica 1G Skywalker Pod', '89', 'VI', '45.00'),

('743956011', 'Stiizy Vape Hybrid HalfGram Gelato Pod', '89', 'VH', '33.00'),

('743956004', 'Stiizy Vape Hybrid 1G BirthdayCake Pod', '89', 'VH', '45.00');

create table stock (

dispensary_id int FOREIGN KEY REFERENCES dispensary(dispensary_id),

product_id int FOREIGN KEY REFERENCES product(product_id),

stock_quantity int NOT NULL

);

insert into stock (dispensary_id, product_id, stock_quantity)

values ('100', '743956004', '5'),

('100', '743956006', '7'),

('101', '743956004', '2'),

('103', '743956004', '1'),

('102', '', '5'),

('101', '743956011', '2'),

('102', '743956005', '3'),

('100', '', '2'),

('101', '743956008', '4'),

('103', '743956008', '2');

create table staff (

```
staff_id int PRIMARY KEY NOT NULL,

staff_last_name varchar(100) NOT NULL,

staff_first_name varchar(100) NOT NULL,

staff_activity varchar(100) NOT NULL,

staff_address varchar(100) NOT NULL,

staff_phone int NOT NULL,

staff_email varchar(100) NOT NULL,

staff_mmj_license_number int NOT NULL,

staff_mmj_license_expiration varchar(100) NOT NULL,

dispensary_id int FOREIGN KEY REFERENCES dispensary(dispensary_id)

);


insert into staff (staff_id, staff_last_name, staff_first_name, staff_activity)

values ('541234', 'Abner', 'Seth', 'growops 100'),

('541200', 'David', 'Marshawn', 'cultivation 100'),

('541201', 'Harrow', 'Ty', 'budtending 102'),

('541203', 'Garrett', 'April', 'budtending 101'),

('541202', 'Hefner', 'Paulina', 'cultivation 100'),

('541198', 'Stevensen', 'Deejay', 'growops 100'),

('541204', 'Hanover', 'Elliott', 'budtending 103'),

('541195', 'Luton', 'Gabriela', 'budtending 100'),

('541190', 'Sanderson', 'Bremen', 'growops 100'),

('541205', 'Bird', 'Dee', 'cultivation 100');
```

```
create table order (

order_id int PRIMARY KEY NOT NULL,

mmj_license_number int FOREIGN KEY REFERENCES patient(mmj_license_number) NOT

NULL,

order_date varchar(100) NOT NULL,

dispensary_id int FOREIGN KEY REFERENCES dispensary(dispensary_id) NOT NULL,

cg_mmj_license_number int FOREIGN KEY REFERENCES

caregiver(cg_mmj_license_number) NOT NULL,

staff_id int FOREIGN KEY REFERENCES staff(staff_id) NOT NULL

);


insert into order (order_id, dispensary_id, staff_id)

values ('1357', '101', '541203'),

('2000', '102', '541201'),

('3574', '103', '541204'),

('2525', '102', '541201'),

('2255', '101', '541203'),

('3000', '103', '541204'),

('2999', '102', '541201'),

('3152', '100', '541195'),

('3010', '100', '541195'),
```

('2001', '103', '541204');

```
create table order_detail (

order_id int FOREIGN KEY REFERENCES order(order_id) NOT NULL,

product_id int FOREIGN KEY REFERENCES product(product_id),

order_quantity int NOT NULL,

order_amount int NOT NULL,

order_activity varchar(100) NOT NULL

);
```

```
insert into order_detail (order_id, order_quantity, order_amount)

values ('3574', '4', '175.50'),

('3010', '6', '595.65'),

('2255', '3', '260'),

('2001', '2', '96.50'),

('2525', '6', '305.56'),

('3000', '4', '205.00'),

('2001', '8', '556.95'),

('3152', '1', '48.50'),

('2999', '1', '14.50'),

('2000', '5', '556.00');
```

[SQL Reporting]

1. select * from staff where staff_mmj_license_expiration='not active';

2. select * from categories where category_id='CI';

3. select count (mmj_license_number) from patient;

4. select * from caregiver where caregiver_birthdate='August 5th';

5. select distinct dispensary_id, dispensary_license_expiration from dispensary where dispensary_id= '102';

6. select distinct mmj_license_number, order_date from order where mmj_license_number= '888456689200'AND order_date between 'March 1st 2021' and 'March 31st 2021';

[User Interface]

[Future]

As the designer of this database I see two specific things happening with the organization and the database combined. The first being that with the closer march toward cannabis legalization nationwide this is going to impact the medical cannabis side just as much. All businesses like Seth's Apothecary that specialize in the medical side will have to evolve. That means either having to set up a recreational cannabis side to their business model or double down on medical and offer a wider variety products while reaching a wider audience. Either way will change the database system currently being set up. Either there will be a reshuffle of the current model for a small recreational section of business or a separate database for recreational cannabis sales.

For the moment, things are in a stasis of sorts with COVID-19 and the cannabis industry in Massachusetts. People are getting their medicine and Seth's Apothecary is taking every possible precaution to maintain all state rules and regulations. Things will not always be that way though. The next big change looming on the horizon is the environmental impact of cannabis growth. Greenhouse emissions for indoor grow operations are extremely high compared to outdoor grows. Everything must be monitored and controlled. This cannot be ignored. What does this have to do with the database designed in this project? Well, if regulations are placed on indoor grow operations that limit cannabis grows then this could impact sales until solutions are made. A drop in sales could mean problems with paying for cloud database services. This could also impact paying a database administrator to maintain the database system.

Overall, upkeep is steady yet depends heavily on federal and state changes in the next two to five years. Design-wise, I do see there being frequent database model changes depending on organizational feedback yet nothing too outlandish immediately. This project is a huge

improvement for Seth's Apothecary as it gives the business one accessible database available to all locations versus the current build which is separate databases per location. Having one database for all locations that employees can utilize saves time, resources and improves productivity.