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INFO- 639
Database Design & Development
Prof. Maceli

Final Project Implementation

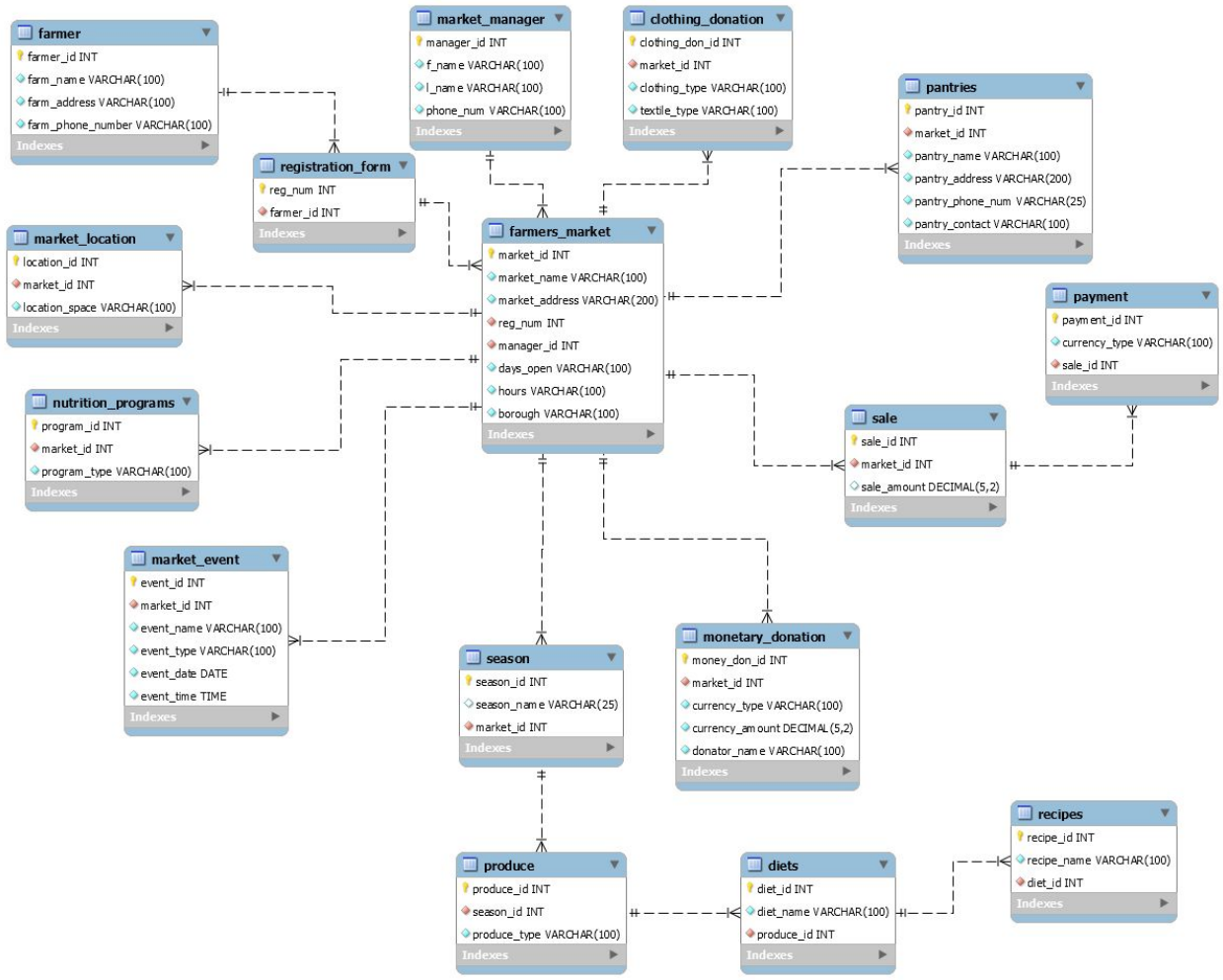
Length & Requirements: One zip file containing 1) a Word/PDF/RTF document containing your SQL queries and 2) a .sql file dump of your final database

The implementation portion of your final project will consist of the physical design and implementation of your database. For your final project submission you should include the following:

1. **A Word/PDF/RTF document** containing:

a. An ER Diagram in Crow's Foot Notation representing your physical design, including all PK/FKs, table names, columns names, data types, and relationships. You may use Workbench's "Reverse Engineer" feature to create the diagram.

Workbench Reverse Engineer



b. Sample queries supporting the users' tasks you identified in the previous stages of the project.

1. **Find farmers' markets and the produce type**

SELECT market_name, produce_type FROM farmers_market e JOIN season r ON e.market_id=r.market_id JOIN produce d ON r.season_id=d.season_id;

2. **Find a farmers' market by borough**

SELECT borough,market_name, market_address FROM farmers_market;

3. **Find produce type and season**

SELECT produce_type, season_name FROM produce INNER JOIN season USING (season_id);

4. **Find days open and time of markets**

SELECT market_name, days_open, hours from farmers_market;

5. **Find farmers' markets by address**

SELECT market_name, market_address from farmers_market;

6. **Find a farm's name and address from a farmer's market**

SELECT farm_name, farm_address, market_name FROM farmer f JOIN registration_form r ON f.farmer_id=r.farmer_id JOIN farmers_market d ON r.reg_num=d.reg_num;

7. **Find out whether a market is indoors or outdoors (in general and for COVID-19 concerns)**

SELECT market_name, location_space FROM farmers_market f JOIN market_location m ON f.market_id=m.market_id;

8. **Find market manager for each farmers' market**

Select market_name, f_name, l_name, phone_num from farmers_market f JOIN market_manager m ON f.manager_id=m.manager_id;

9. **Find nutritional programs for each farmer's market**

SELECT market_name, market_address, program_type FROM farmers_market f JOIN nutrition_programs m ON f.market_id=m.market_id;

10. **Find recipes from produce type**

SELECT produce_type, recipe_name FROM diets d JOIN produce p ON d.produce_id=p.produce_id JOIN recipes r ON d.diet_id=r.diet_id;

11. **Find currency type accepted at farmers' markets**

SELECT currency_type, market_name FROM farmers_market f JOIN sale s ON f.market_id=s.market_id JOIN payment p ON s.sale_id=p.sale_id;

You should also include queries to demonstrate the following (at a minimum), if they are not covered in your users' task queries:

i. **Insert data into the database**

insert into market_manager values(9998756, "Jose", "Rodriguez", "458-222-9923");

insert into farmers_market values(20, "Merry Times Market", "2345 Montrose Ave, Brooklyn, NY, 11239", 99, 9998756, "Sunday","9am to 6pm", "Brooklyn");

insert into registration_form values(99, 120);

```
insert into market_event values(209,20,"Kids Learn
Food","Workshop","2020-12-15","12:30:00");

insert into market_location values(20, 20, "outdoors");

insert into nutrition_programs values(20,20, "NYC Affordable Nutrition Program");

insert into clothing_donation values(20,20,"Pants","Cotton");

insert into monetary_donation values(20,20,"credit","10.50","Jackson Pollack");

insert into pantries values(20,20,"Happy Life Pantry", "340 Williams St, Brooklyn, NY,
11945","784-948-0033","Miguel Hermanez");

insert into sale values(102,20, "20.50");

insert into payment values(20,"cash",102);

insert into season values(20, "Fall",20);

insert into produce values(20,20, "Red Kidney Beans");

insert into diets values(20,"Vegan",20);

insert into recipes values(20, "Vegan Pizza",20);

insert into recipes values(19, "Vegan Lasagna",19);

insert into recipes values(18, "Vegan Burritos",18);
```

ii. Delete data from your database

```
Delete FROM recipes where recipe_id = 18;
```

iii. Update existing data in your database

```
UPDATE diets

SET

   diet_name = 'Mediterranean'

WHERE

   diet_id = 10;
```

iv. Join two or more tables

SELECT produce_id, produce_type, season_name FROM produce INNER JOIN season USING (season_id);

v. A view that satisfies one of your user needs

CREATE VIEW farm_at_market AS

SELECT farm_name, farm_address, market_name FROM farmer f JOIN registration_form r ON f.farmer_id=r.farmer_id JOIN farmers_market d ON r.reg_num=d.reg_num;

-- Also

CREATE VIEW market_information as

SELECT market_name, market_address,produce_type, hours, days_open from farmers_market e JOIN season r ON e.market_id=r.market_id JOIN produce d ON r.season_id=d.season_id;

vi. A transaction

SET autocommit=0;

START TRANSACTION;

insert into market_manager values (845690, "Manuel", "Diaz", "945-934-0034");

COMMIT;

vii. A trigger

CREATE TRIGGER tr_ins_market_event

BEFORE INSERT ON market_event

FOR EACH ROW

SET NEW.event_name = UPPER(NEW.event_name);

CREATE TRIGGER tr_up_market_event

BEFORE UPDATE ON market_event

FOR EACH ROW

SET NEW.event_name = LOWER(NEW.event_name);

viii. A query with a subquery

```
SELECT market_name FROM farmers_market WHERE market_id IN (SELECT market_id
FROM season WHERE season_name = 'Winter');
```

c. One to two paragraph summary of any changes made between the design and implementation stages and your rationale for doing so

There were a variety of changes that I made between the design and implementation stages including removing county and neighborhood from the farmers_market table as I felt that it wasn't needed. The market_address and borough columns seemed to be enough information for a user to find a market. I also removed the idea of incorporating a website for each market from the table as the data is fictional. I think it would be interesting to insert a website column for the markets on a real database design for farmers' markets so that users can find more information.

I also added location_space to the market_location table as I believe that it is important to users who may want to know whether a market is indoors or outdoors, especially in light of the COVID-19 pandemic. I also added a registration_form table because I saw on the GrowNYC website that each farmer has to complete an application/registration form in order to be accepted to sell at a market.

2. **A .sql file dump of your entire database (including structure, data, and triggers)** - Instructions for exporting, i.e. dumping, your database are in the "Importing and Exporting Your Database" file in Week 8 on the LMS.

    a. Your database should include sample data sufficient to demonstrate its use (at least 20 rows per table)

3. Create <u>one zip file</u> containing both files and submit on the LMS.