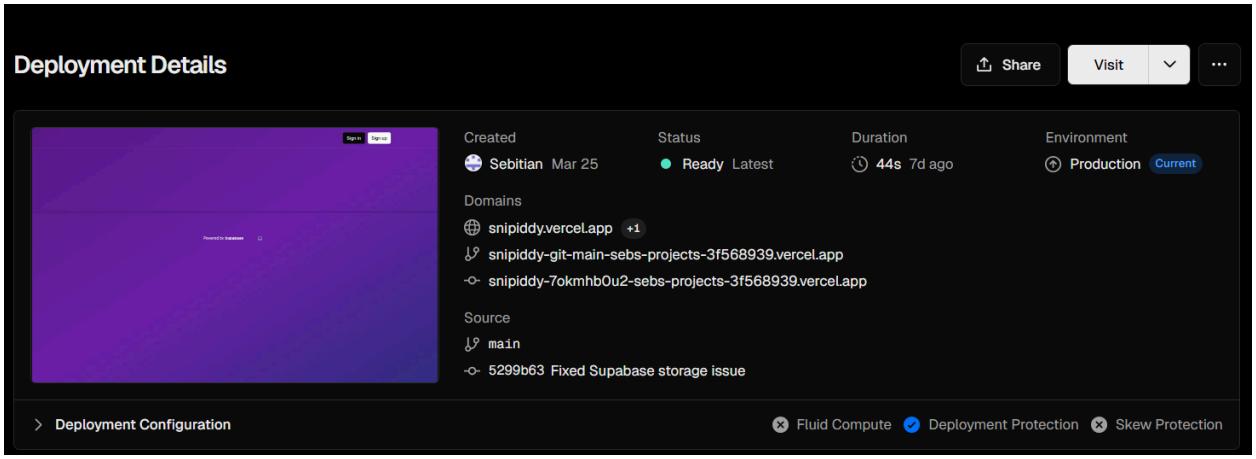
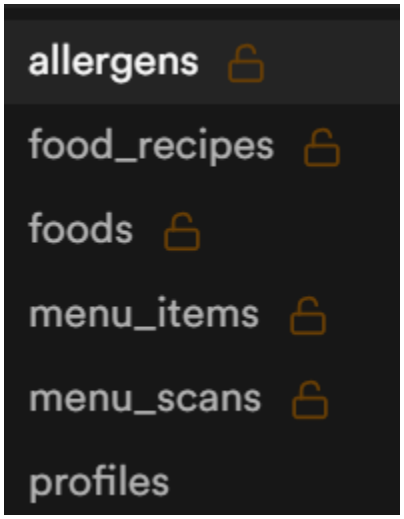
Database Design

Hosted server with supabase



Part 1

I. Tables :



1. **Allergens**
    a. Used to store a list of known well-known allergens as well as the ingredients associated with it.
    b. DDL

```
CREATE TABLE allergens (
    id UUID DEFAULT uuid_generate_v4() PRIMARY KEY,
    class TEXT,
```

```
    type TEXT,
    group_name TEXT,
    food TEXT,
    allergy TEXT,
    created_at TIMESTAMP WITH TIME ZONE DEFAULT
  timezone('utc'::text, now()) NOT NULL);
```

2. **Foods**
    a. Used to store a list of ingredients to and known allergens.
    b. DDL

```
CREATE TABLE foods (
    id UUID DEFAULT uuid_generate_v4() PRIMARY KEY,
    food_product TEXT NOT NULL,
    main_ingredient TEXT,
    sweetener TEXT,
    fat_oil TEXT,
    seasoning TEXT,
    allergens TEXT[],
    prediction TEXT,
    created_at TIMESTAMP WITH TIME ZONE DEFAULT now()
  NOT NULL);
```

3. **Food_recipes**
    a. Use to store recipes and known ingredients
    b. DDL

```
CREATE TABLE food_recipes (
    id UUID DEFAULT uuid_generate_v4() PRIMARY KEY,
    title TEXT,
    ingredient TEXT,
    instructions TEXT,
    image_name TEXT,
    cleaned_ingredients TEXT);
```

4. **Menu_scans**
    a. Used to record scans from user and raw text from after performing optical character recognition (OCR)
    b. DDL

```
CREATE TABLE menu_scans (
    id SERIAL PRIMARY KEY,
```

```
  raw_text TEXT NOT NULL,
  created_at TIMESTAMP WITH TIME ZONE DEFAULT now()
NOT NULL);
```

5. **Menu_items**
    a. Used to store all the items identified in the menu_scan
    b. DDL

```
CREATE TABLE menu_items (
  id SERIAL PRIMARY KEY,
  menu_scan_id INTEGER REFERENCES menu_scans(id),
  dish_name TEXT NOT NULL,
  description TEXT,
  ingredients TEXT[],
  allergens TEXT[],
  price DECIMAL(10,2),
  created_at TIMESTAMP WITH TIME ZONE DEFAULT now()
NOT NULL);
```

6. **Profiles**
    a. Used to store the profile information and user settings.
    b. DDL

```
CREATE TABLE profiles (
  id UUID DEFAULT uuid_generate_v4() PRIMARY KEY,
  user_id UUID REFERENCES auth.users(id) ON DELETE
CASCADE NOT NULL,
  full_name TEXT,
  email TEXT,
  phone_number TEXT,
  allergens TEXT[] DEFAULT '{}',
  diets TEXT[] DEFAULT '{}',
  other_info TEXT,
  created_at TIMESTAMP WITH TIME ZONE DEFAULT now(),
  updated_at TIMESTAMP WITH TIME ZONE DEFAULT now(),
  UNIQUE(user_id));
```

II. Advanced SQL Queries

Description	Query

1. menu_items → foods
 	
This query relates the items extracted from a scan to a list of known food items. We will use this query to identify items from a scanned menu, which we will then use to display menu items according to the user's preference.
	SELECT
	  mi.id AS menu_item_id,
	  mi.dish_name,
	  mi.description,
	  f.id AS food_id,
	  f.food_product,
	  f.main_ingredient,
	  f.sweetener,
	  f.fat_oil,
	  f.seasoning,
	  f.allergens,
	  f.prediction
	FROM menu_items AS mi
	INNER JOIN foods AS f
	  ON mi.dish_name = f.food_product;

2. menu_items → food_recipes
 	
This query relates the menu_items to food_recipes using the dish_name. We then use this information to extract potential ingredients from a recipe, which we can relate to known allergens
	SELECT DISTINCT
	  mi.id AS menu_item_id,
	  mi.dish_name,
	  mi.description,
	  fr.id AS recipe_id,
	  fr.title,
	  fr.ingredients,
	  fr.instructions,
	  fr.image_name,
	  fr.cleaned_ingredients
	FROM menu_items AS mi
	INNER JOIN food_recipes AS fr
	  ON TRIM(LOWER(mi.dish_name)) = TRIM(LOWER(fr.title));

3. profiles → allergens
 	
This query relates a user's allergy preferences to known food items.
	WITH user_allergens AS (
	  SELECT
	  p.id AS profile_id,
	  p.full_name,
	  LOWER(TRIM(unnested)) AS user_allergen
	  FROM profiles p
	  CROSS JOIN LATERAL unnest(p.allergens) AS unnested
	)
	SELECT DISTINCT
	  u.profile_id,
	  u.full_name,

	u.user_allergen, a.id AS allergen_id, a.food, a.allergy, a.class, a.type, a.group_name FROM user_allergens u JOIN allergens a ON LOWER(TRIM(a.allergy)) ILIKE '%' || u.user_allergen || '%' OR LOWER(TRIM(a.food)) ILIKE '%' || u.user_allergen || '%';
4. menu_items → allergens This query relates each ingredient found in a dish to a known allergen.	WITH unnested_ingredients AS (SELECT mi.id AS menu_item_id, mi.dish_name, trim(regexp_replace(unnest(string_to_array(regexp_replace(regexp_replace(mi.ingredients::text, '[\[\]"]', '', 'g'), '\"', '', 'g'), ',')), '^\s+|\s+$', '', 'g')) AS ingredient FROM menu_items mi WHERE mi.ingredients IS NOT NULL) SELECT DISTINCT ui.menu_item_id, ui.dish_name, ui.ingredient, a.food AS allergen_food, a.class AS allergen_class, a.type AS allergen_type, a.group_name AS allergen_group, a.allergy FROM unnested_ingredients ui JOIN allergens a ON ui.ingredient ILIKE a.food OR ui.ingredient ILIKE '%' || a.food || '%' OR a.food ILIKE '%' || ui.ingredient || '%' ORDER BY ui.dish_name, a.food;

#	Result
1	14 rows

menu_item_id	dish_name	description	food_id	food_product	main_ingredien	sweetener	fat_oil	seasoning	allergens	prediction
15	Buffalo Wings	Big meaty wings served with celery & blue cheese. Mild, Hot or BBQ.	43cdd402-0472-4081-b905-b90604fdd089	Buffalo Wings	Chicken wings	None	Vegetable oil	Buffalo sauce	None	Does not contain
22	French Onion Soup	Served in a crock with croutons & topped with melted cheese.	cd03270a-0704-45a5-ab3f-96f901ec56fb	French Onion Soup	Onions	None	Butter	Beef broth, cheese, bread	Dairy, Wheat	Contains
22	French Onion Soup	Served in a crock with croutons & topped with melted cheese.	881e2ea1-9157-438d-8d6c-a3121f6d1a4f	French Onion Soup	Onions	None	Butter	Beef broth, cheese, bread	Dairy, Wheat	Contains
25	Buffalo Wings	Big meaty wings served with celery & blue cheese. Mild, Hot or BBQ.	43cdd402-0472-4081-b905-b90604fdd089	Buffalo Wings	Chicken wings	None	Vegetable oil	Buffalo sauce	None	Does not contain
96	French Onion Soup	Gratinated cheese croutons and parsley	cd03270a-0704-45a5-ab3f-96f901ec56fb	French Onion Soup	Onions	None	Butter	Beef broth, cheese, bread	Dairy, Wheat	Contains
96	French Onion Soup	Gratinated cheese croutons and parsley	881e2ea1-9157-438d-8d6c-a3121f6d1a4f	French Onion Soup	Onions	None	Butter	Beef broth, cheese, bread	Dairy, Wheat	Contains
134	Buffalo Wings	Big meaty wings served with celery & blue cheese. Mild, Hot or BBQ.	43cdd402-0472-4081-b905-b90604fdd089	Buffalo Wings	Chicken wings	None	Vegetable oil	Buffalo sauce	None	Does not contain
142	Onion Rings		57d4f0e1-7581-4002-a731-848ef063b026	Onion Rings	Onions	None	Vegetable oil	Flour	Wheat	Contains
147	French Onion Soup	Served in a crock with croutons & topped with melted cheese.	cd03270a-0704-45a5-ab3f-96f901ec56fb	French Onion Soup	Onions	None	Butter	Beef broth, cheese, bread	Dairy, Wheat	Contains
147	French Onion Soup	Served in a crock with croutons & topped with melted cheese.	881e2ea1-9157-438d-8d6c-a3121f6d1a4f	French Onion Soup	Onions	None	Butter	Beef broth, cheese, bread	Dairy, Wheat	Contains
151	Stuffed Mushrooms	Mushrooms stuffed with spicy sausage & topped with melted mozzarella	55d0f647-f554-4bea-bf5a-88fc65ad4e37	Stuffed Mushrooms	Mushrooms	None	None	Garlic, herbs	None	Does not contain
151	Stuffed Mushrooms	Mushrooms stuffed with spicy sausage & topped with melted mozzarella	8a0d9a6f-a629-4ca7-9296-e1fc69ad1b19	Stuffed Mushrooms	Mushrooms	None	None	Cheese, breadcrumbs	Dairy	Contains
182	Salsa	Serves 2.	58a2a9a2-4b97-4f65-a7b7-934e003a9487	Salsa	Tomatoes	None	None	Onion, cilantro	None	Does not contain
322	Salsa	Serves 2	58a2a9a2-4b97-4f65-a7b7-934e003a9487	Salsa	Tomatoes	None	None	Onion, cilantro	None	Does not contain

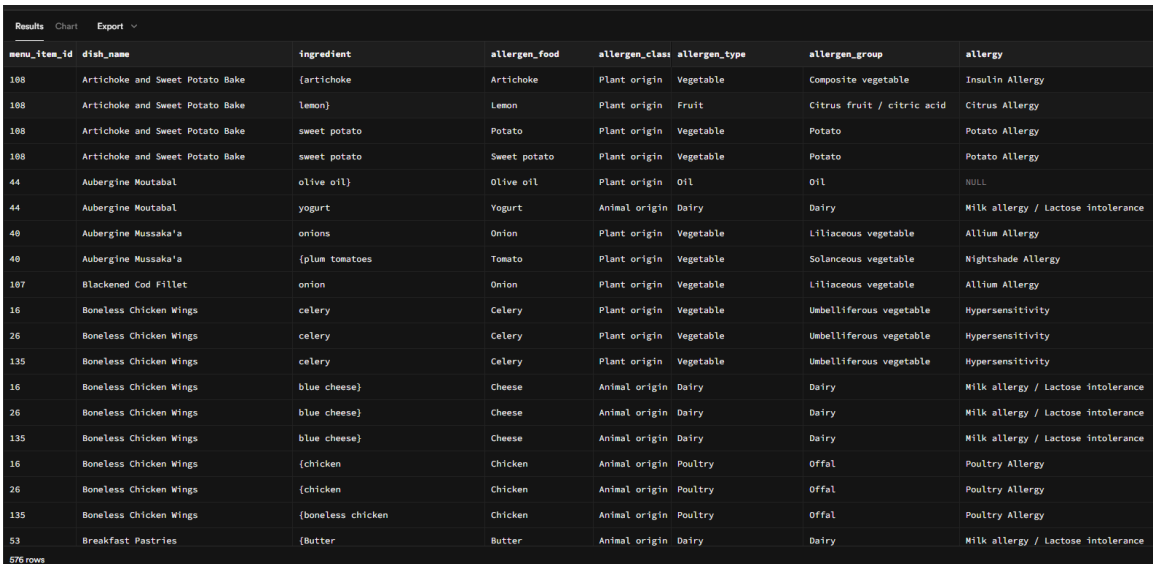
2	14 rows

menu_item_id	dish_name	description	recipe_id	title	ingredients	instructions	image_name
21	Coconut Shrimp	4 shrimp lightly dipped in coconut; pan fried & served with an orang	1337	Coconut Shrimp	['2 tablespoons coconut flour', '1/2 cup unsweetened shredded cocon	Dip each shrimp into the liquid mixture, and then into the dry mixtu	gluten-free-broiled-baked-coconut-
21	Coconut Shrimp	4 shrimp lightly dipped in coconut; pan fried & served with an orang	8025	Coconut Shrimp	['3/4 cup panko (Japanese breadcrumbs)+', '1/2 cup unsweetened shred	Arrange in a single layer in a baking dish. Bake for 15 to 20 minute Pour enough peanut oil into large skillet to reach depth of 1/4 inch Available in the Asian foods section of some supermarkets and at Asi	coconut-shrimp-357329
22	French Onion Soup	Served in a crock with croutons & topped with melted cheese.	6806	French Onion Soup	['2 medium onions, finely chopped', '1 tablespoon unsalted butter',	Preheat oven to 450°F. Cook onions in a 12" nonstick skillet over hi Place ramekins on a rimmed baking sheet. Divide soup among ramekins.	french-onion-soup-367757
33	Coconut Shrimp	4 shrimp lightly dipped in coconut; pan fried & served with an orang	1337	Coconut Shrimp	['2 tablespoons coconut flour', '1/2 cup unsweetened shredded cocon	Dip each shrimp into the liquid mixture, and then into the dry mixtu	gluten-free-broiled-baked-coconut-
33	Coconut Shrimp	4 shrimp lightly dipped in coconut; pan fried & served with an orang	8025	Coconut Shrimp	['3/4 cup panko (Japanese breadcrumbs)+', '1/2 cup unsweetened shred	Arrange in a single layer in a baking dish. Bake for 15 to 20 minute Pour enough peanut oil into large skillet to reach depth of 1/4 inch Available in the Asian foods section of some supermarkets and at Asi	coconut-shrimp-357329
38	FALAFEL	Deep-fried mixed bean patty, served with tahini sauce	6769	Falafel	['6 cups sprouted garbanzo beans', '1 cup loosely packed fresh flat-	Using a homogenizing juicer with the blank plate in place, homogeniz	falafel-367649
42	HUMMUS	Classic chickpeas puree & tahini sauce seasoned with olive oil and l	11019	Hummus	['2 cups drained well-cooked or canned chickpeas, liquid reserved',	1. Put everything except the parsley in a food processor and begin to 2. Taste and adjust the seasoning (I often find I like to add much m	hummus-237832
48	Green Juice	NULL	4801	Green Juice	['1 lemon', '1 1/2 green apples, such as Granny Smith, cut into quar	Trim both ends off the lemon, then stand it on a cut side and use a s Feed the lemon segments, apple, celery, kale, and parsley through a	green-juice-51224410
68	Green Juice		4801	Green Juice	['1 lemon', '1 1/2 green apples, such as Granny Smith, cut into quar	Trim both ends off the lemon, then stand it on a cut side and use a s Feed the lemon segments, apple, celery, kale, and parsley through a	green-juice-51224410
96	French Onion Soup	Gratinated cheese croutons and parsley	6806	French Onion Soup	['2 medium onions, finely chopped', '1 tablespoon unsalted butter',	Preheat oven to 450°F. Cook onions in a 12" nonstick skillet over hi Place ramekins on a rimmed baking sheet. Divide soup among ramekins.	french-onion-soup-367757
97	Shepherd's Pie	Slow-braised lamb and beef with Cheddar mash	10555	Shepherd's Pie	['1 tablespoon vegetable oil', '1 large onion, peeled and chopped',	4. Pour the mixture into a 1 1/2-quart baking dish; set aside. 5. Meanwhile, bring the potatoes to a boil in salted water. Cook unt	shepherds-pie-240224
141	Coconut Shrimp	4 shrimp lightly dipped in coconut; pan fried & served with an orang	1337	Coconut Shrimp	['2 tablespoons coconut flour', '1/2 cup unsweetened shredded cocon	Dip each shrimp into the liquid mixture, and then into the dry mixtu	gluten-free-broiled-baked-coconut-
141	Coconut Shrimp	4 shrimp lightly dipped in coconut; pan fried & served with an orang	8025	Coconut Shrimp	['3/4 cup panko (Japanese breadcrumbs)+', '1/2 cup unsweetened shred	Arrange in a single layer in a baking dish. Bake for 15 to 20 minute Pour enough peanut oil into large skillet to reach depth of 1/4 inch Available in the Asian foods section of some supermarkets and at Asi	coconut-shrimp-357329
147	French Onion Soup	Served in a crock with croutons & topped with melted cheese.	6806	French Onion Soup	['2 medium onions, finely chopped', '1 tablespoon unsalted butter',	Preheat oven to 450°F. Cook onions in a 12" nonstick skillet over hi Place ramekins on a rimmed baking sheet. Divide soup among ramekins.	french-onion-soup-367757

3	30 rows

profile_id	full_name	user_allerger	allergen_id	food	allergy	class	type	group_name
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	milk	8e27d11a-382f-40dc-9d01-ae8d23126305	Buttermilk	Milk allergy / Lactose intolerance	Animal origin	Dairy	Dairy
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	fish	01308765-ca45-4a0b-9cac-95ef515a0548	Tuna	Fish Allergy	Animal origin	Aquatic animal	Fish
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	fish	8a5e0608-bee4-467a-b19d-18f7e8b22bb4	Horse Mackerel	Fish Allergy	Animal origin	Aquatic animal	Fish
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	gluten	2119b0dd-9ef6-4a6d-a97f-a9662ab33cd9	Wheat	Gluten Allergy	Plant origin	Cereal grain and pulse	Cereal grain
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	milk	17e0f493-0afd-4cb5-be04-8c27d15e20de	Cheese	Milk allergy / Lactose intolerance	Animal origin	Dairy	Dairy
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	soy	79c0c811-2541-49b7-b91d-e290d9a0c596	Soybean	Soy Allergy	Plant origin	Cereal grain and pulse	Pulse
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	milk	b9c7fd73-808f-48ae-b082-e4d3aecab452	Ice cream	Milk allergy / Lactose intolerance	Animal origin	Dairy	Dairy
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	milk	dcf31d09-92cf-4372-99f6-ce6e62537afd	Custard	Milk allergy / Lactose intolerance	Animal origin	Dairy	Dairy
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	milk	ef7140e3-233e-48db-9e24-84715a5f8a45	Milk	Milk allergy / Lactose intolerance	Animal origin	Dairy	Dairy
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	milk	98764a7e-5a18-494e-9b41-5c916cb86404	Casein	Milk allergy / Lactose intolerance	Animal origin	Dairy	Dairy
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	fish	c1eebdae-bc7d-4e71-bc5b-2fd7ef6e2af	Salmon	Fish Allergy	Animal origin	Aquatic animal	Fish
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	fish	bfa83e0c-d7fd-4887-8d44-9b8e60f832ed	Eel	Fish Allergy	Animal origin	Aquatic animal	Fish
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	milk	6933c193-1cf5-4769-9517-5c0893a61b75	Sour cream	Milk allergy / Lactose intolerance	Animal origin	Dairy	Dairy
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	gluten	6a2bf537-98aa-4eb7-998a-23a4e091aab2	Barley	Gluten Allergy	Plant origin	Cereal grain and pulse	Cereal grain
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	fish	ad6208fd-371b-477b-ac5a-ee204cd4bc8d	Mackerel	Fish Allergy	Animal origin	Aquatic animal	Fish
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	gluten	f9a9f916-b859-4a7e-9168-eda80b2dd6ca	Rye	Gluten Allergy	Plant origin	Cereal grain and pulse	Cereal grain
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	milk	97828706-3ac4-4f4d-8517-a62e0388bac6	Butter	Milk allergy / Lactose intolerance	Animal origin	Dairy	Dairy
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	fish	90f0816e-24ea-4b13-bf8b-c6ccfe4a4e74	Sea Bass	Fish Allergy	Animal origin	Aquatic animal	Fish
cf1d38fb-4102-4c05-9b0c-89575c3e412f	Sebastian Sovailescu	fish	efa1f515-17bb-4cea-a8e2-e43b7b15b8a2	Globfish	Fish Allergy	Animal origin	Aquatic animal	Fish

30 rows

4	576 rows 

Results Chart Export

menu_item_id	dish_name	ingredient	allergen_food	allergen_class	allergen_type	allergen_group	allergy
108	Artichoke and Sweet Potato Bake	{artichoke	Artichoke	Plant origin	Vegetable	Composite vegetable	Insulin Allergy
108	Artichoke and Sweet Potato Bake	lemon}	Lemon	Plant origin	Fruit	Citrus fruit / citric acid	Citrus Allergy
108	Artichoke and Sweet Potato Bake	sweet potato	Potato	Plant origin	Vegetable	Potato	Potato Allergy
108	Artichoke and Sweet Potato Bake	sweet potato	Sweet potato	Plant origin	Vegetable	Potato	Potato Allergy
44	Aubergine Moutabal	olive oil}	Olive oil	Plant origin	Oil	Oil	NULL
44	Aubergine Moutabal	yogurt	Yogurt	Animal origin	Dairy	Dairy	Milk allergy / Lactose intolerance
40	Aubergine Mussaka'a	onions	Onion	Plant origin	Vegetable	Liliaceous vegetable	Allium Allergy
40	Aubergine Mussaka'a	{plum tomatoes	Tomato	Plant origin	Vegetable	Solanceous vegetable	Nightshade Allergy
107	Blackened Cod Fillet	onion	Onion	Plant origin	Vegetable	Liliaceous vegetable	Allium Allergy
16	Boneless Chicken Wings	celery	Celery	Plant origin	Vegetable	Umbelliferous vegetable	Hypersensitivity
26	Boneless Chicken Wings	celery	Celery	Plant origin	Vegetable	Umbelliferous vegetable	Hypersensitivity
135	Boneless Chicken Wings	celery	Celery	Plant origin	Vegetable	Umbelliferous vegetable	Hypersensitivity
16	Boneless Chicken Wings	blue cheese}	Cheese	Animal origin	Dairy	Dairy	Milk allergy / Lactose intolerance
26	Boneless Chicken Wings	blue cheese}	Cheese	Animal origin	Dairy	Dairy	Milk allergy / Lactose intolerance
135	Boneless Chicken Wings	blue cheese}	Cheese	Animal origin	Dairy	Dairy	Milk allergy / Lactose intolerance
16	Boneless Chicken Wings	{chicken	Chicken	Animal origin	Poultry	Offal	Poultry Allergy
26	Boneless Chicken Wings	{chicken	Chicken	Animal origin	Poultry	Offal	Poultry Allergy
135	Boneless Chicken Wings	{boneless chicken	Chicken	Animal origin	Poultry	Offal	Poultry Allergy
53	Breakfast Pastries	{Butter	Butter	Animal origin	Dairy	Dairy	Milk allergy / Lactose intolerance

576 rows

Part 2 : Indexing

Analysis

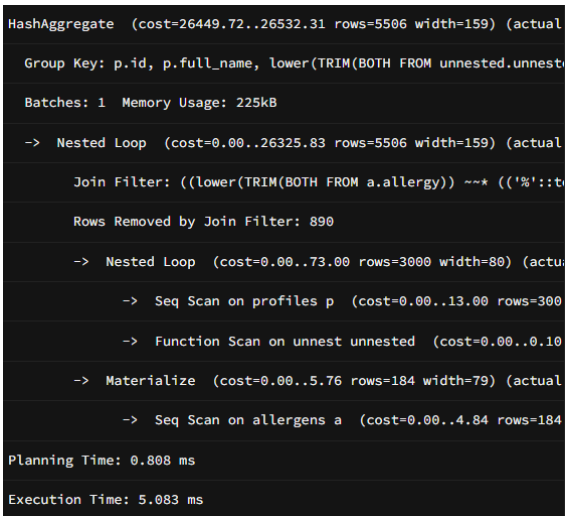
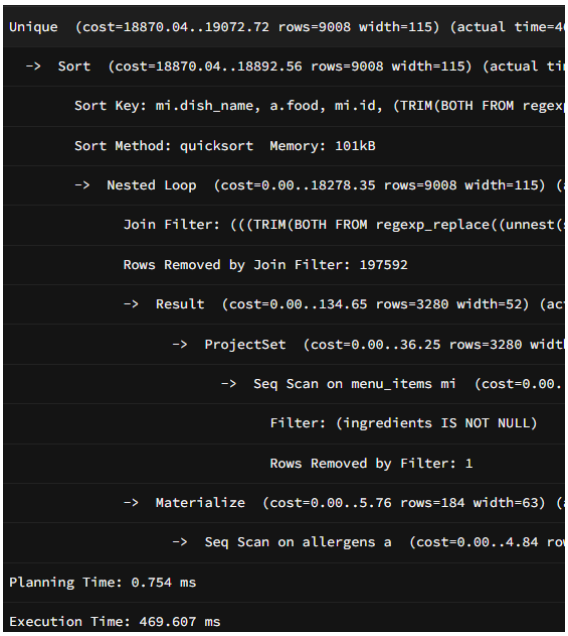
- FinalTried

#	Reasoning	SQL
1		
2	These indices precompute the value of TRIM(LOWER(dish_name)) and TRIM(LOWER(title)) for each row, which speed up the process slightly.	CREATE INDEX idx_menu_items_dish_name_norm ON menu_items ((TRIM(LOWER(dish_name)))); CREATE INDEX idx_food_recipes_title_norm ON food_recipes ((TRIM(LOWER(title))));
3	These indices precompute and store the first word of the allergen field so instead of using wildcard searches every time, we can do equality comparisons which are way faster.	CREATE INDEX idx_allergens_first_word_allergy ON allergens ((split_part(lower(trim(allergy)), ' ', 1))); CREATE INDEX idx_allergens_first_word_food

		ON allergens ((split_part(lower(trim(food)), ' ', 1)));
	Assumes data is normalized (which is not), so it does direct comparisons. However, incorrect data is returned.	CREATE INDEX idx_allergens_allergy_norm ON allergens ((LOWER(TRIM(allergy)))); CREATE INDEX idx_allergens_food_norm ON allergens ((LOWER(TRIM(food))));
4	These indices precompute and store the first word of the allergen field so instead of using wildcard searches every time, we can do equality comparisons which are way faster. This allows use to get rid of the ILIKE computations which are expensive.	CREATE INDEX idx_allergens_first_word_food ON allergens ((split_part(lower(trim(food)), ' ', 1)));

Performance

#	Before	After
1	Cost : 35.46 QUERY PLAN Hash Join (cost=15.98..35.46 rows=373 width=165) (actual time=2.810 Hash Cond: (mi.dish_name = f.food_product) -> Seq Scan on menu_items mi (cost=0.00..13.29 rows=329 width=77 -> Hash (cost=10.99..10.99 rows=399 width=88) (actual time=2.774 Buckets: 1024 Batches: 1 Memory Usage: 57kB -> Seq Scan on foods f (cost=0.00..10.99 rows=399 width=88 Planning Time: 1.161 ms Execution Time: 3.080 ms	
2	Cost : 11708.57 QUERY PLAN Unique (cost=9201.47..11708.57 rows=18371 width=1425) (actual time= -> Gather Merge (cost=9201.47..11295.23 rows=18371 width=1425) (Workers Planned: 1 Workers Launched: 1 -> Sort (cost=8201.46..8228.48 rows=10806 width=1425) (act Sort Key: mi.id, mi.dish_name, mi.description, fr.id, Sort Method: quicksort Memory: 32kB Worker 0: Sort Method: quicksort Memory: 37kB -> Hash Join (cost=17.40..3539.44 rows=10806 width=1 Hash Cond: (TRIM(BOTH FROM lower(fr.title)) = TR -> Parallel Seq Scan on food_recipes fr (cost= -> Hash (cost=13.29..13.29 rows=329 width=77) Buckets: 1024 Batches: 1 Memory Usage: 4 -> Seq Scan on menu_items mi (cost=0.00. Planning Time: 0.831 ms Execution Time: 17.060 ms	Cost : 11469.72 QUERY PLAN Unique (cost=8779.62..11469.72 rows=19712 width=1425) (actual time= -> Gather Merge (cost=8779.62..11026.20 rows=19712 width=1425) (Workers Planned: 1 Workers Launched: 1 -> Sort (cost=7779.61..7808.59 rows=11595 width=1425) (act Sort Key: mi.id, mi.dish_name, mi.description, fr.id, Sort Method: quicksort Memory: 34kB Worker 0: Sort Method: quicksort Memory: 35kB -> Merge Join (cost=0.43..2771.82 rows=11595 width=1 Merge Cond: (TRIM(BOTH FROM lower(fr.title)) = TI -> Parallel Index Scan using idx_food_recipes_t -> Materialize (cost=0.15..19.53 rows=353 width -> Index Scan using idx_menu_items_dish_n Planning Time: 1.018 ms Execution Time: 20.999 ms
3	Cost : 26532.31	Cost : 6140

		
4	Cost : 19072.72 	Cost : 594.53