Key - How to read this document

Yellow = Table Name

Every value listed under this table is an attribute which each item (row) in the table can have.

Blue = Primary Key

This is a unique numerical identifier for each row in this table. It is mandatory and can be used to easily reference a specific item.

Green = Foreign Key

This is an attribute whose value is actually a primary key from another table. This lets us immediately jump to a particular item in that other table, where we can get more detailed info about that it. For instance, each recipe includes an author, which references a user in the users table based on their User ID primary key value. The "author" attribute just stores a User ID value, which lets us easily access everything about that user.

Basic Design notes

To determine the flavor pallette of a dish we can simply add up the flavors of each ingredient and figure out what percentage of the whole they make up. This would be stored in the "flavor breakdown" attribute. So if 40% of the ingredients in a dish are salty, we can say that the flavor pallette of the dish is 40% salty. For example, a fruit smoothie might have upwards of 90% (by volume) sweet ingredients, and therefore its flavor breakdown would be ~90% sweet, 5% salty, etc. On the other hand, a well-balanced soup would have more salt, less sweetness, and so forth. This lets us approximate flavors well.

Spiciness is handled as a seperate attributed attached to each ingredient, on a scale of 1-10. 1 = no spice, 10 = trip to the hospital. The overall spiciness of the dish is calculated as the percentage of each serving made up of spicy ingredients (by volume) multiplied by the spiciness of those ingredients. This gives us a "heat score" which increases the hotter the dish is.

To determine the user's preferences, we can simply take all the dishes they made or liked and calculate the average flavor breakdown. So, for instance, we can see what % of the average dish is sweet, and use that as a general indicator of how much they like sweetness. Then when we search for new stuff we can prioritize stuff which comes close to that average. We can do the same thing with spice to determine the average heat score of their food and recommend things that tend to fall close to that.

Third Normal Form

Users
User ID
Username
First Name
Last Name
Email Address
Salt Value
Hashed + Salted Password
Number of Saved Recipes
Preference Profile ID (*references User Preference Profiles*)

User Allergens
User ID (*references Users*)
Ingredient Name

User Saved Recipes
Saved Recipe ID
User ID (*references Users*)
Recipe ID (*references Recipes*)

User Preference Profiles
Preference Profile ID
User ID (*references Users)*
Sweet Preference (*%, could be treated as an integer 0-100*)
Salty Preference (*%*)
Sour Preference (*%*)
Bitter Preference (*%*)
Umami Preference (*%*)
Heat Preference (*positive integer - potentially large*)

Recipes
Recipe ID
Recipe Name
Instructions
Author (*references User ID from Users)*
Overall User Rating
Number of Ratings
Number of Likes
Country of Origin
Description
Prep Time
Cook Time
Total Prep Time
Yield (*Number of servings*)
Flavor Breakdown ID (*Ref. Recipe Flavor Breakdown)*

Recipe Nutrition Index ID (Ref. Recipe Nutrition Index)
Level of Difficulty
Meal (*breakfast, lunch, dinner, etc.*)
Upload Date+Time

Recipe Ingredients
Recipe Ingredient ID
Recipe ID (*references Recipes)*
Ingredient ID (*references Ingredients)*
Ingredient Quantity

Recipe Tips
Recipe Tip ID
Recipe ID (*references Recipes)*
Tip Author (*references User ID from Users)*
Tip Text
Number of Likes

Recipe Flavor Breakdowns
Flavor Breakdown ID
Recipe ID (*references Recipes*)
Sweet Score (*%*)
Salty Score (*%*)
Sour Score (*%*)
Bitter Score (*%*)
Umami Score (*%*)
Heat Score (*positive integer - potentially large*)

Recipe Reviews
Review ID
Recipe ID (*references Recipes)*
Review Author (*references User ID from Users)*
Rating
Submission Date+Time
Review Text
Number of Likes

Ingredients
Ingredient ID
Ingredient Name
Type (*veggie, pasta, spice, etc*.)
Ingredient Nutrition Index (*references Nutrition Indexes)*
Sweet Score (*%*)
Salty Score (*%*)
Sour Score (*%*)
Bitter Score (*%*)
Umami Score (*%*)
Spiciness (*1-10*)

Pantry Items
Pantry Item ID
Owner (*references User ID from Users*)
Ingredient ID (*references Ingredients*)
Date of Purchase
Known Expiration Date
Estimated Expiration Date

Ingredient Nutrition Indexes
Nutrition Index ID
Ingredient ID (*references Ingredients*)
Serving Size
Calories/Serving
Calories From Fat
Total Fat (g)
Saturated Fat (g)
Trans Fat (g)
Cholesterol (mg)
Omega-3 Fats (g)
Sodium (mg)
Total Carbohydrates (g)
Dietary Fiber (g)
Sugars (g)
Protein (g)
Vitamin A (*% of daily intake - can be > 100*)
Vitamin C (%)
Calcium (%)
Iron (%)
Magnesium (%)
Potassium (%)
Zinc (%)

Recipe Nutrition Indexes
Recipe Nutrition Index ID
Recipe ID (*references Recipes*)
Calories/Serving
Calories From Fat
Total Fat (g)
Saturated Fat (g)
Trans Fat (g)
Cholesterol (mg)
Omega-3 Fats (g)
Sodium (mg)
Total Carbohydrates (g)
Dietary Fiber (g)
Sugars (g)
Protein (g)

Vitamin A (*% of daily intake*)
Vitamin C (%)
Calcium (%)
Iron (%)
Magnesium (%)
Potassium (%)
Zinc (%)