

DWH Modeling Process

The purpose of this process is to take a distributed production like database schema, and turn it into a data warehouse schema. This allows us to understand, interpret, and discuss design decisions to have a more complete understanding of data modeling skills.

The Kambi Grill

There are 3 DevOps teams working at The Kambi Grill. The member's team, the marketing team, and the orders team. They are responsible for their own domain, and have their own micro services running to maintain their domain, their databases, and communication. Currently communication is done point-to-point via JSON, with trust in the shared primary domain keys, but will gradually move towards a data bus architecture. The data domain below does not provide information on the messages or how the domain interacts across, but the structure of their databases.

Members Domain

We at Kambi operate a member's only grill, which is valid for a certain time period. There are different tiers of members, which are adjusted based on how much they have spent. Membership is free, but they are required to renew it in time to maintain their membership level, and need to spend so much as well. One problem is that this is only handled monthly as reporting and processes involved are inefficient. This membership type can impact the marketing received, and possible discounts on ordering. Members also have the ability to have preferences on what they like, or do not like, so when they order, it's automatically included on the order, so if they prefer extra onions, or no pickles, by their preferences being selected, it's automatically included in the order. The options available are from the preference table.

All changes made in this database, are stored in an audit log, which records the table, primary key, the column, new value and old value. This is for all creation and update. There is zero deletion.

Marketing Domain

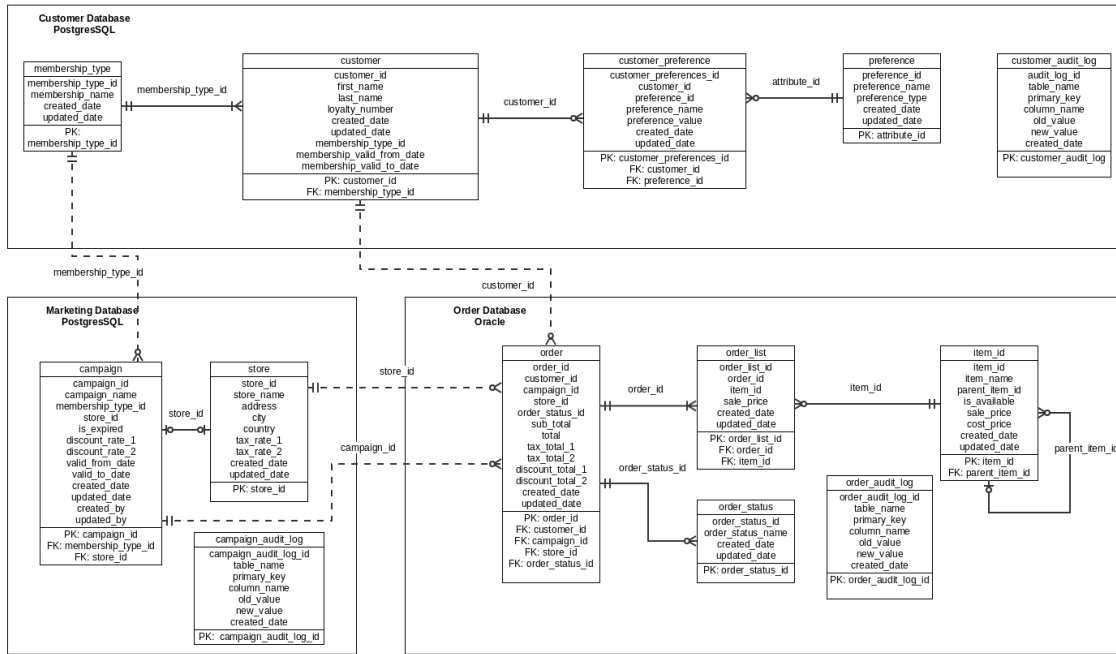
We at Kambi have aggressive marketing campaigns towards our customers, the more you spend, the better the marketing campaign, the better the discounts! Loyalty pays. Marketing campaigns can also be store specific for the members, to try and drive more traffic to specific locations. Marketing is currently on a total sale, but in the future, the product owners want to have marketing towards specific items, not the total order.

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Order Domain

The order domain is where members can place orders for their burgers, fries and shakes. Orders have an order list, which is all the items within the order. Items can be apart of other items, such as a burger meal with fries and shake can be one item which has child items of a burger, fries, and shake. Because of this, the burger meal could be a cheaper price than the items sold separately. The order also receives the customer's current preferences, so they know exactly how to customize the order (extra onions, no pickles), if requested. There is an order status as well, as the item goes from being submitted, in progress, delivered. The policy is no voids, no refunds, all sales are final. The sub total is the "true" value of the order, the total is the "final" value of the order, after taxes and discounts have been applied.

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Questions To Solve

To the best of your knowledge, design a data warehouse that can:

- Gross generated revenue by campaign/store/customer/membership type.
- How long until the first customer orders?
- What items are the most/least popular?
- What is our gross per sale?
- What items should we remove due to customer preferences?
- How can we improve targeting of marketing campaigns?
- How long does it take for an order to be processed/delivered?
- How long does it take for customers to add their first preference?
- How long does it take for customers to improve their membership?
- How many campaigns does it take to improve a customer's membership?
- Which store sees the most campaign action?
- Can we create new "menu meals" to improve sales?
- We want to measure the value of membership types as members return to ensure we have the correct levels.

We are also interested in the reasoning behind your design decisions, and thought process, and any assumptions you made.