

## **Entity Relationship Diagram (ERD)**

To achieve third normal form (3NF), we first had to make sure our entity relationship diagram (ERD) was in first normal form (1NF) meaning there weren't repeating fields, and if there were to add a new table that contained the repeating fields. From there, we made sure it was in second normal form (2NF), removing any partial dependencies. The fields in a table need to depend on a whole primary key, otherwise if they don't, they belong in another table. Next, we made sure the ERD was in third normal form (3NF) by removing the transitive dependency. That is, none of the fields depend on non primary key fields.

For instance, the reason there's a Dessert table and an Order table instead of just an Order table with all the dessert and order information present is because that would create a table with partial and transitive dependencies. If you just had one order table, you would most likely have an OrderId field to uniquely identify every row since it will already be in 1NF at this point. The order id would determine the amount due, the date the order was placed and the dessert for that specific order. But, if you also included dessert information in the table, there's fields that are not being directly determined by the primary key OrderId. That's why you extract the dessert fields into their own table and give them a unique primary key, so that the fields in the table are being directly determined by their primary key.

