# ER Diagram

The ER Diagram depicts the entity relationships between the data tables and attributes provided by our client.

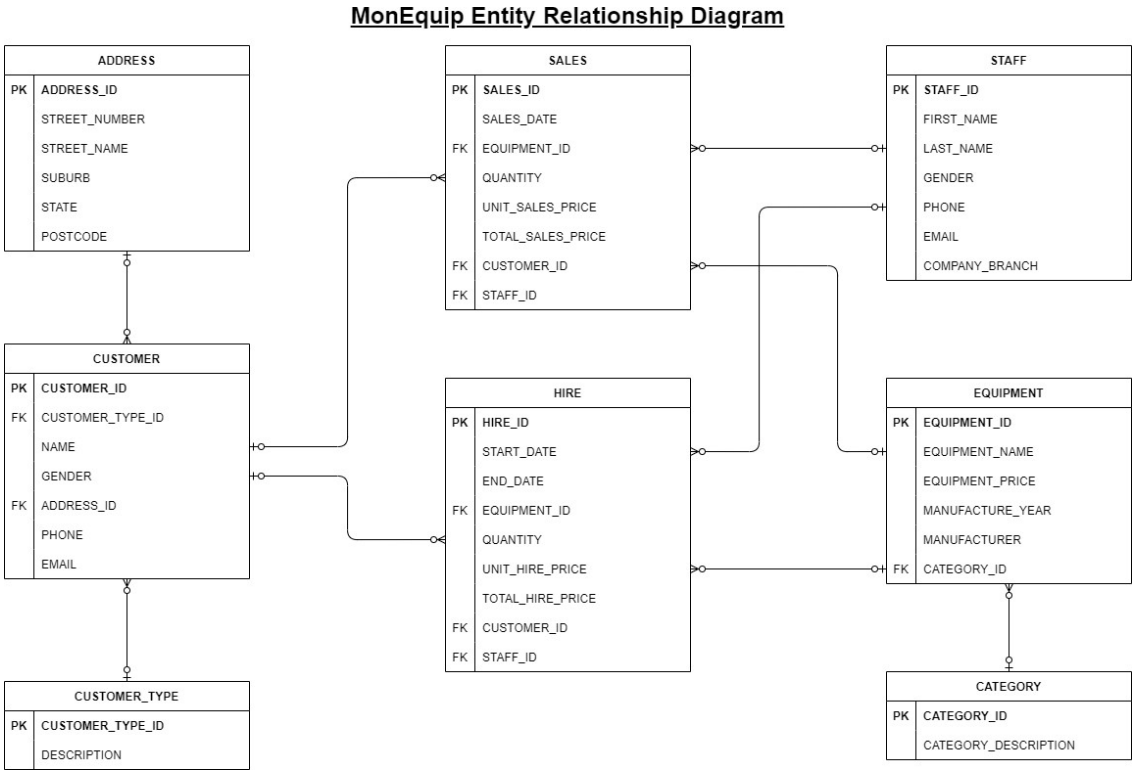


*Figure 1 MonEquip ERD*

## Star Schema V1

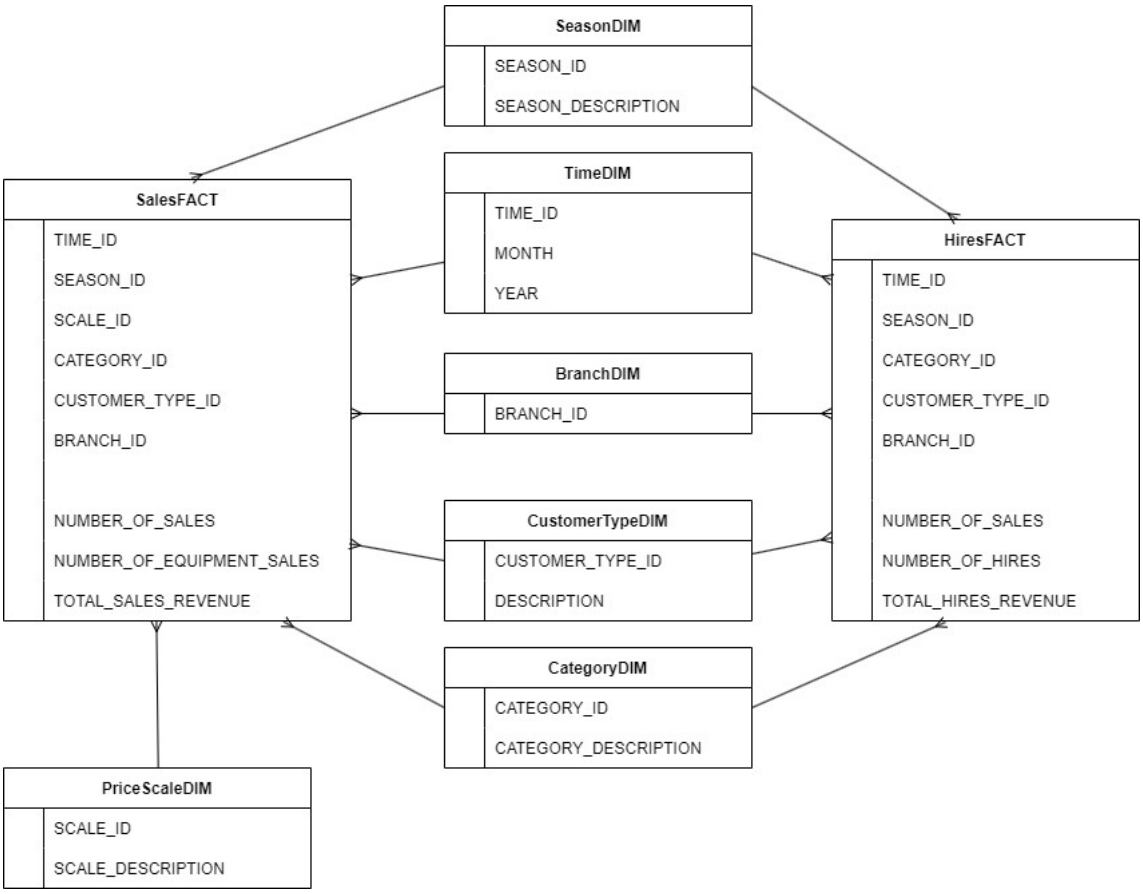


*Figure 2 MonEquip Star Schema V1*

## Star Schema V2

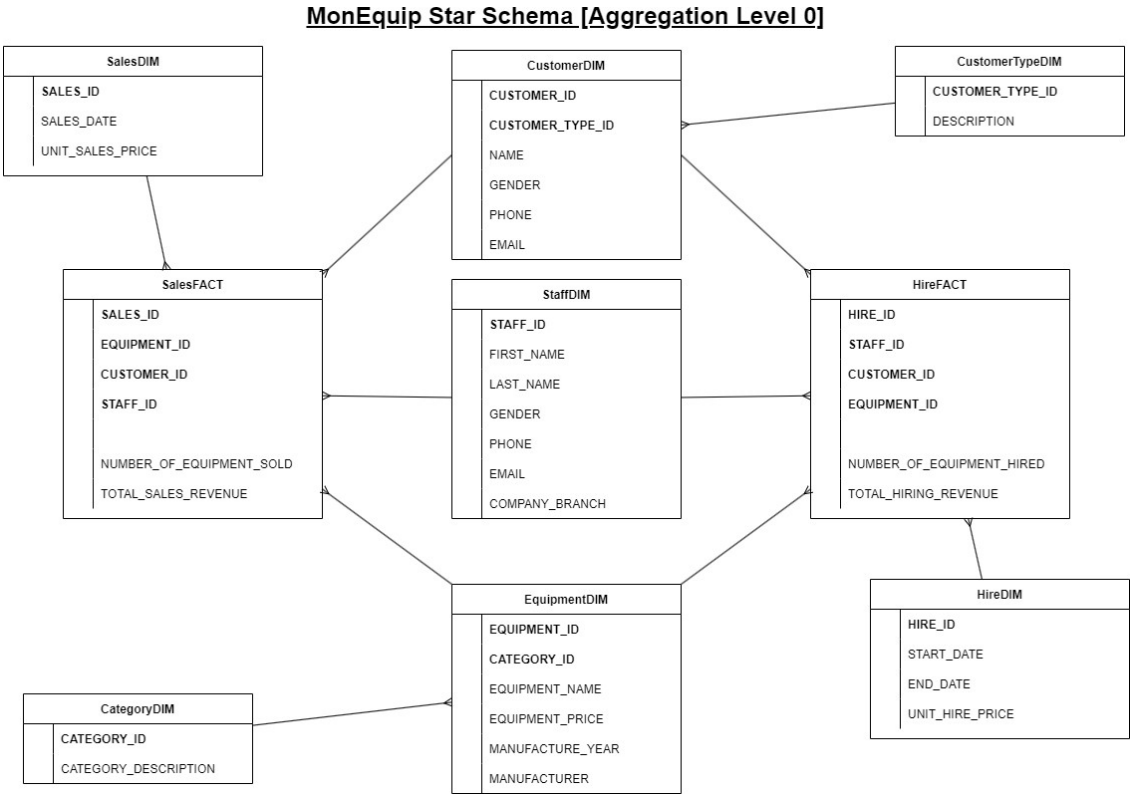


*Figure 3 MonEquip Star Schema V0*

## SCD Description

After going through the requirements for the star schema it is decided that there are no cases that require the use of temporal dimensions or temporal data warehousing. Two specific instances that were analysed are the unit costs (unit_sales_price and unit_hire_price) and equipment_price.

### Unit Costs

These values are recorded in the operational database when a transaction occurs. Since a given transaction (hire or sale) is fixed in time and includes a date, it is not something that would ever require changes to be tracked.

### Equipment_Price

This value does not get used for the calculation of any of our fact measures. Additionally, it is explicitly stated that “When an equipment is purchased, the price of the equipment is kept in the equipment table” then it may require SCD 0.

## Description of V1/V2 Differences

The key difference between the two star schemas is that version 2 has no aggregation. To achieve this, we started with the high level star schema and reduced the aggregation by changing the dimensions linked to the fact table.

- Staff DIM was used instead of Branch DIM. Company branch was left as a variable in Staff dim.
- Customer DIM was added with Customer Type linking to Customer.
- Similarly, Equipment DIM was added with Category being linked to Equipment Dimension

To achieve no aggregation in the fact table we needed a way to uniquely identify each transaction in the operational database. In this case, the only way to do this was by using Sales_ID and Hire_ID. The version 2 star schema includes these. Since there is no aggregation, we removed Number_Of_Hires and Number_Of_Sales as this aggregation is a COUNT and will be equal to 1 for every row in both fact tables.