# Normalization Report

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Normalization ensures that a database will be well structured. It removes all sorts of data redundancy and keeps the data integrity intact. It involves moving through the three normal forms—first normal form, second normal form, and third normal form—each removing specific structural flaws.

# First Normal Form (1NF)

The first normal form seeks to ensure there are no repeating groups and the values for each table are atomic, meaning that each cell contains one value (Chris, 2022). In the Specialty Imports Database, all tables have met this requirement. A field will store singular values, for example, CustomerID, Name, Address, and Phone in the Customer table.

# Second Normal Form (2NF)

2NF seeks to eliminate partial dependencies, which occur when a non-key attribute in a table depends on only part of a composite primary key. Each table was examined for any partial dependencies and was normalized to include all attributes that depend on the entirety of the primary key. For example, the Service table contains all the service records that depend exclusively on the primary key, ServiceID.

# Third Normal Form (3NF)

This final stage, 3NF, eliminates transitive dependencies where non-key attributes depend on other non-key attributes (Studytonight, 2021). Once more, all tables in the Specialty Imports database were tested and ensured that all attributes not directly dependent upon the primary key were eliminated or moved to an appropriate table; the associative table Manufacturer\_Vehicle was built in order to eliminate the many-to-many relationship between Manufacturer and Vehicle; no redundant data is found. These are the steps for complete normalization toward a more efficient reduction of data redundancy. Each table represents one type of entity, and each attribute is directly related to the primary key in a streamlined, 3NF-compliant database.

# References

Chris, K. (2022, December 21). *Database Normalization – Normal Forms 1nf 2nf 3nf Table Examples*. FreeCodeCamp.org. https://www.freecodecamp.org/news/database-normalization-1nf-2nf-3nf-table-examples/

Studytonight. (2021). *1NF, 2NF, 3NF and BCNF in Database Normalization | Studytonight*. Studytonight.com. https://www.studytonight.com/dbms/database-normalization.php