Normalisation

Vehicle Assets

UNF---→ 1NF

1……Remove repeating groups:

There are not repeating groups

2…… Identify the PK:

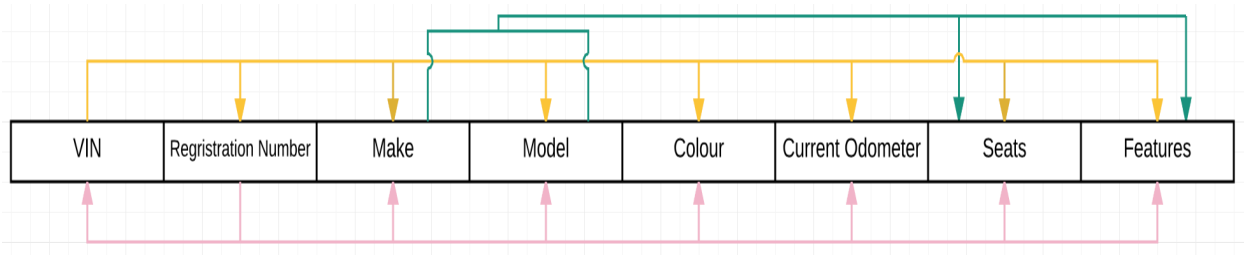
Although both VIN and Registration Number can determine every other attributes, the Registration Number is the simplest one, so, primary key: Registration Number

3…... Identify all dependencies:

VIN →Registration Number, Make, Model, Color, Current Odometer, Seats, Features

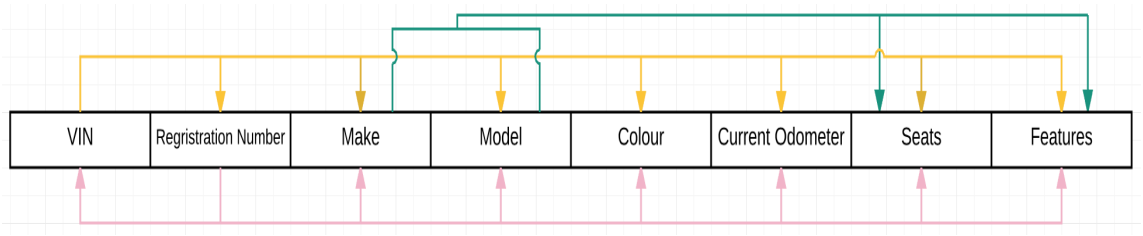
Registration Number →VIN, Make, Model, Color, Current Odometer, Seats, Features

Make, Model → Seats, Features



1NF → 2NF

Remove partial dependencies: As the PK is not a composite key, there are not any partial dependencies, so the dependency diagram in the 1NF is also in the 2NF

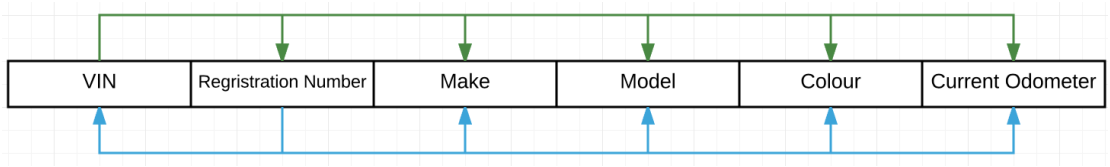


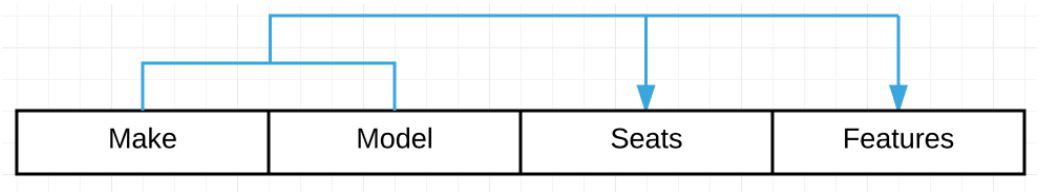

2NF → 3NF

Remove transitive dependencies:

Transitive dependencies: Make, Model → Seats, Features

After taking this dependency out, the results are:




Vehicle (Registration Number, VIN, Make, Model, Color, Current Odometer)

Features (Make, Model, Seats, Features)

2. Driver Job Sheet

UNF---→ 1NF

1……Remove repeating groups:

There are not repeating groups.

2…… Identify the PK: Trip ID is the simplest key to identify other attributes, so, primary key: Trip ID.

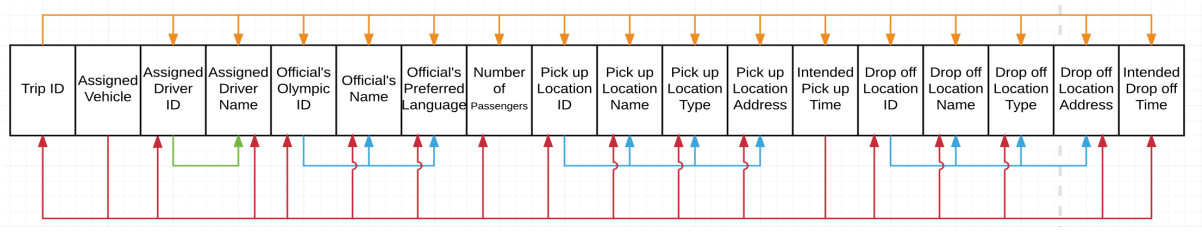
3…... Identify all dependencies:

Trip ID → Assigned Vehicle, Assigned Driver ID, Assigned Driver name, Official OLY ID, Official name, Official preferred language, Number of passengers, Pick up location ID, Pick up location name, Pick up location type, Pick up location address, intended pick up time, Drop off location ID, Drop off location name, Drop off location type, Drop off location address, intended drop off time.

Assigned Driver ID → Assigned Driver name

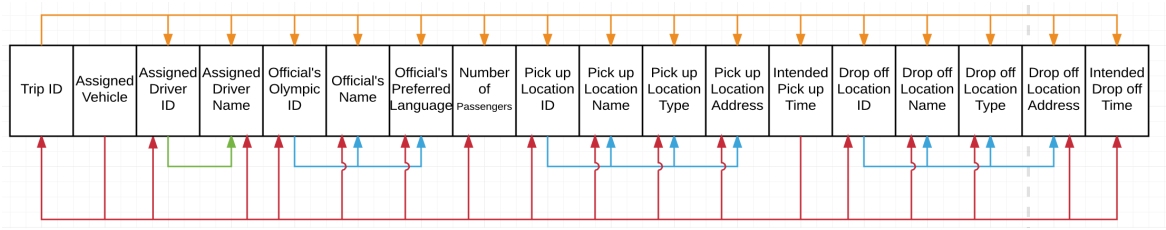
Pick up location ID→ Pick up location name, Pick up location type, Pick up location address
Drop off location ID→ Drop off location name, Drop off location type, Drop off location address
Besides, (Assigned Driver ID, pick up time) or (Assigned Driver ID, drop off time) or (official ID, pick up time) or (official ID, drop off time) can also determine other attributes, there would be too many lines so the dependency diagram skipped them.

1NF Dependency diagram:



1NF → 2NF

Remove partial dependencies: As the PK is not a composite key, there are not any partial dependencies, so the dependency diagram in the 1NF is also in the 2NF:




2NF → 3NF

Remove transitive dependencies:

Transitive dependencies:

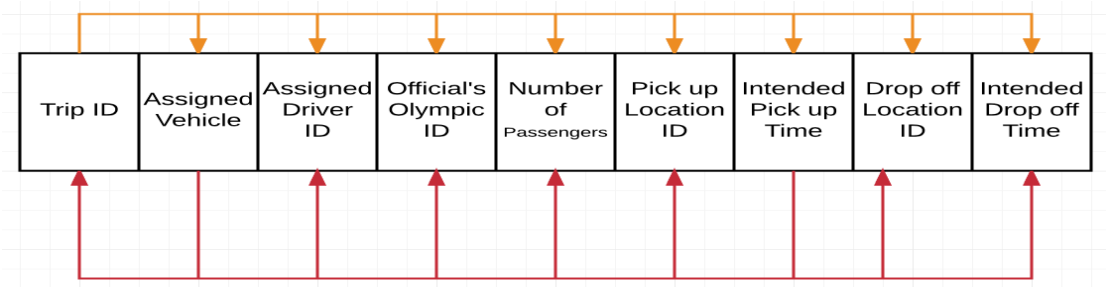
Assigned Driver ID → Assigned Driver name

Official OLY ID → Official name, Official preferred language

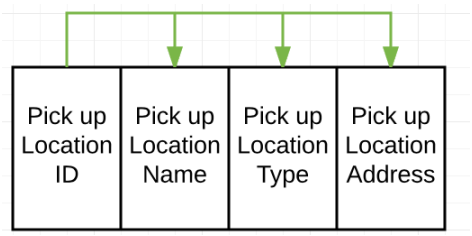
Pick up location ID → Pick up location name, Pick up location type, Pick up location address

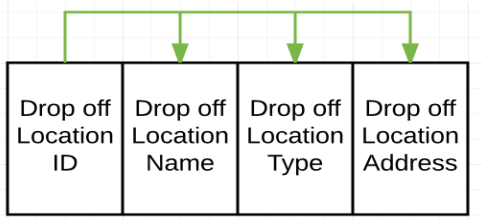
Drop off location ID → Drop off location name, Drop off location type, Drop off location address

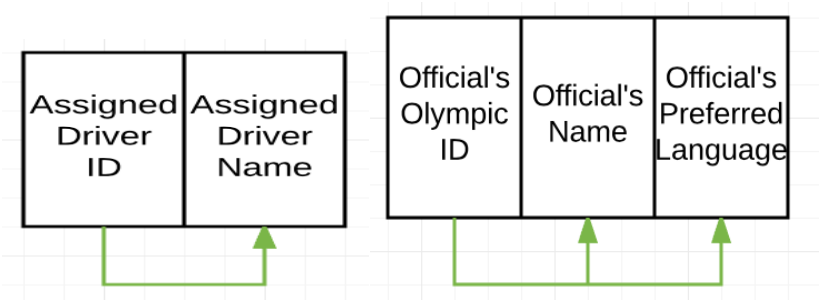
After taking these dependencies out, the relations in 3NF are:




(Assigned Driver ID, pick up time) or (Assigned Driver ID, drop off time) or (official ID, pick up time) or (official ID, drop off time) can also determine other attributes, there would be too many lines so the dependency diagram skipped them




So there will be four tables (Trip, official, driver, location) needed to be created.