TDT4300 - Assignment 1

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Task 1 - Car rental company

A

The task description states that the company wants to analyze both income generated by renting cars and cost related to parking, albeit the task itself asks for which information is essential for analysis of the car fleet usage and the parking fees. In our understanding, the last is the part we want to analyze. Therefore, we mean that the following information is essential for the analysis:

Car fleet usage

To analyize the car fleet usage, we need to have in hand the following information:

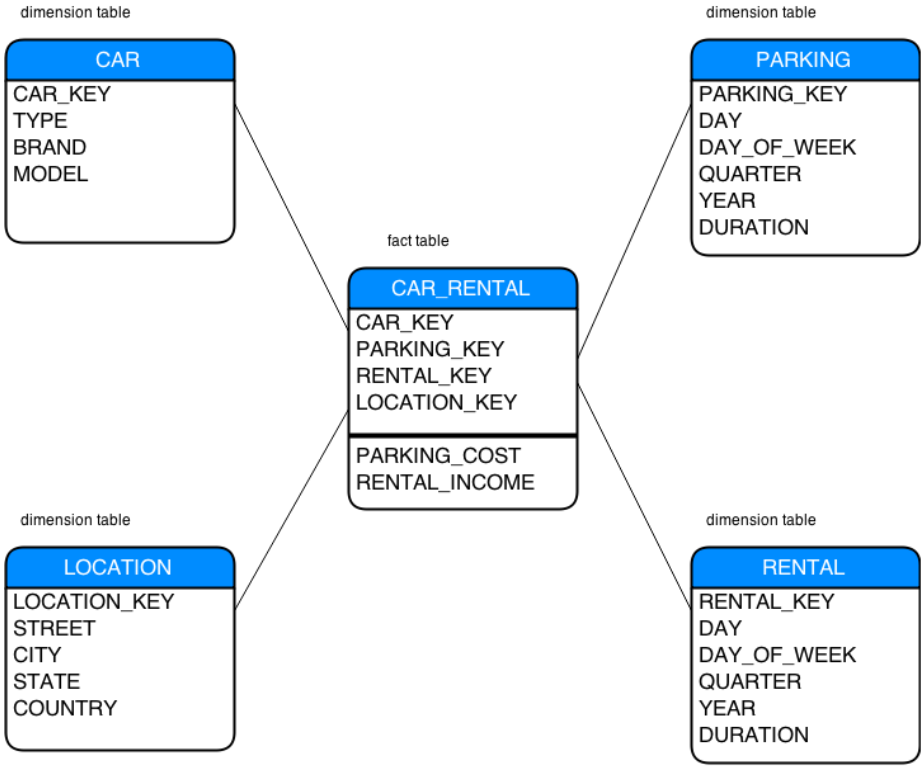
- Car(type, brand, model, ...)
- Date of the ranting
- Duration of the rental

Parking fees

To analyze the parking fees, we need the following information:

- Date of the parking
- Duration of the parking
- Parking fees
- Parking location (street, city, state, ...)

B

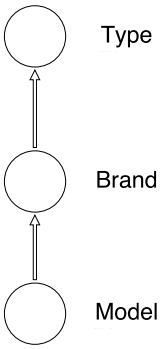


C

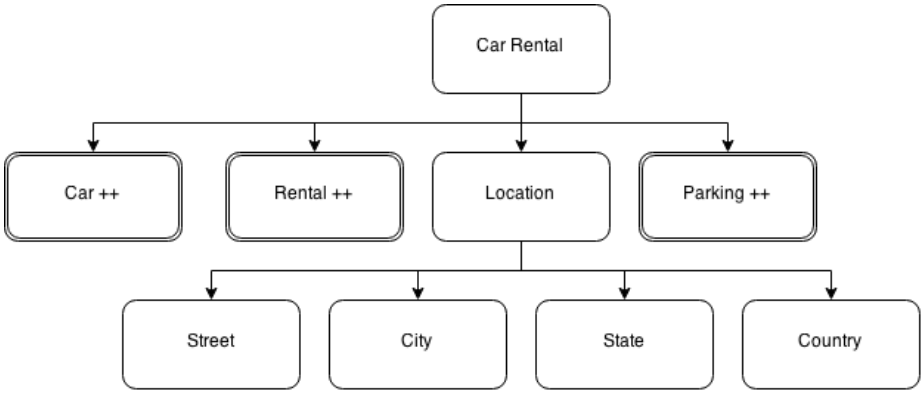
Unlike the star schemas, snowflake schemas will normalize some the dimensions. This improves removes some reduntant information, but it yields a higher complexety. This may affect performance by the need of more "join"-operations. And it's known that "join"-operations are rather expensive.

D

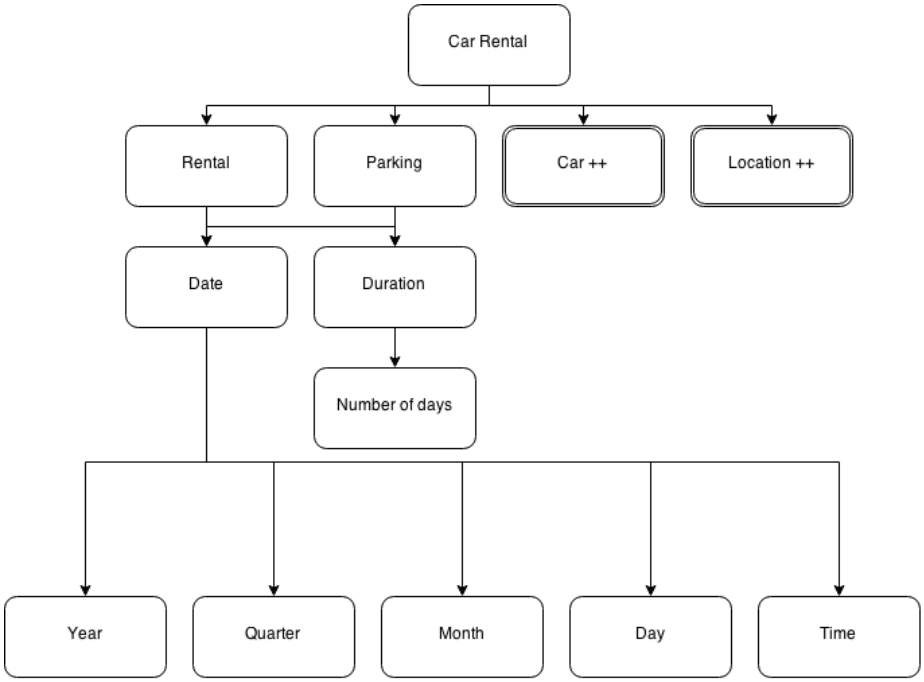
Concept 1



Concept 2



Concept 3

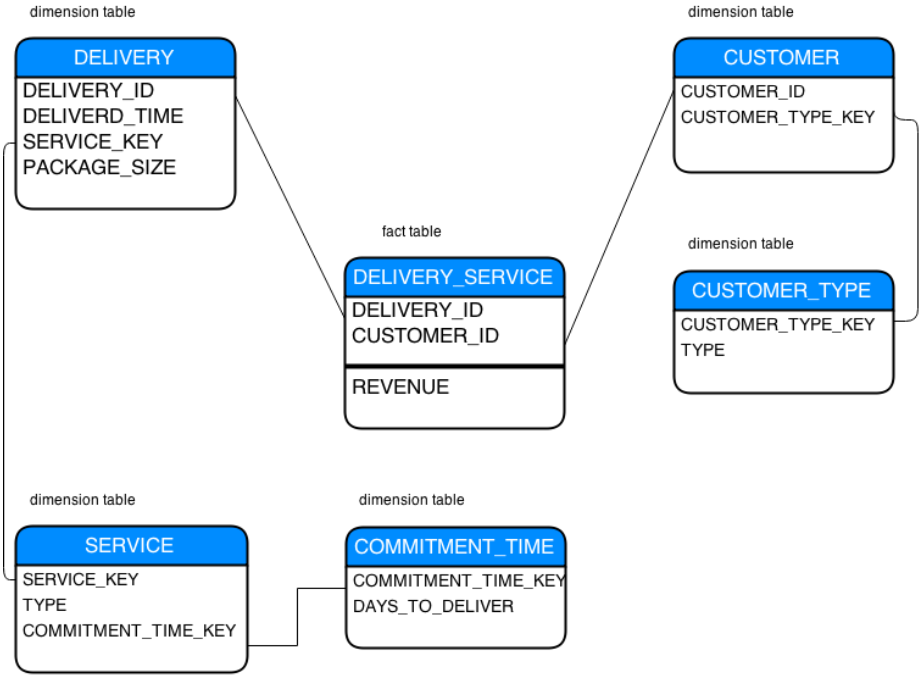


E

- Average rental time on given car types
- Average age on customers for given car models
- Returning customers, and their car brand preferences
- Most popular location for renting

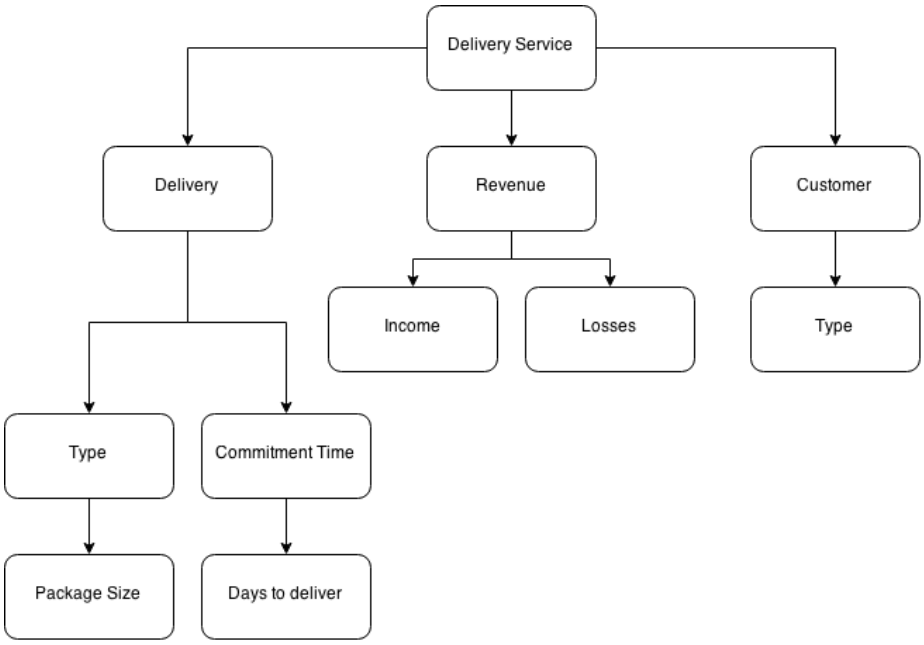
Task 2 - Delivery service company

A

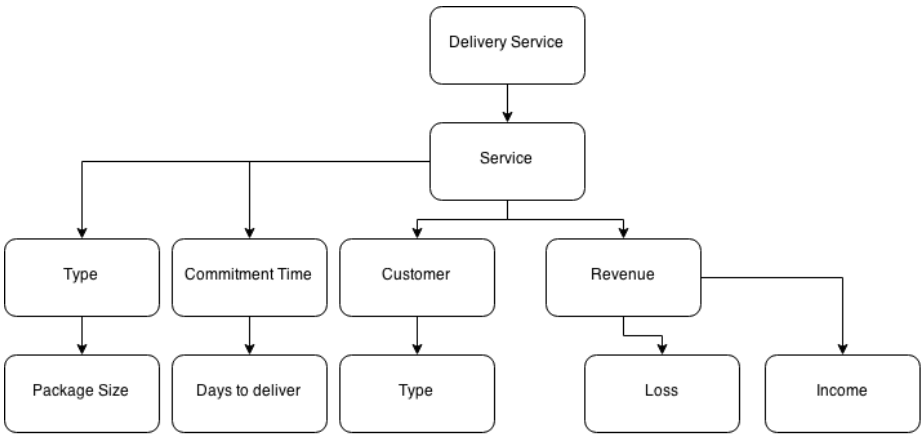


B

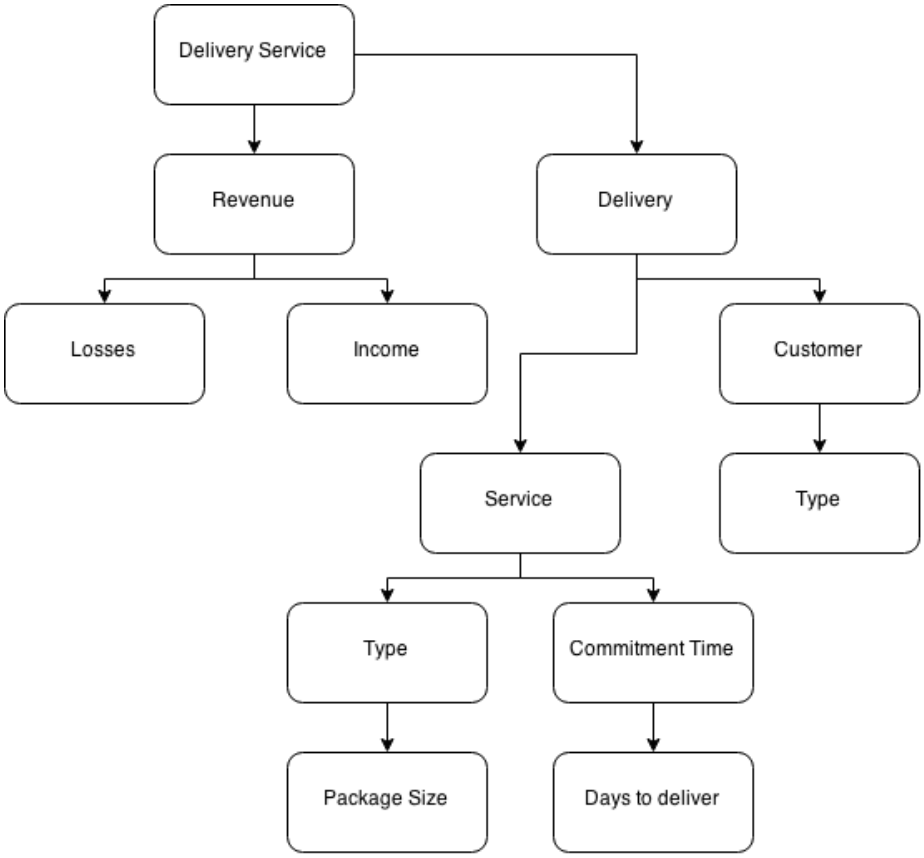
Concept Hierarchy 1



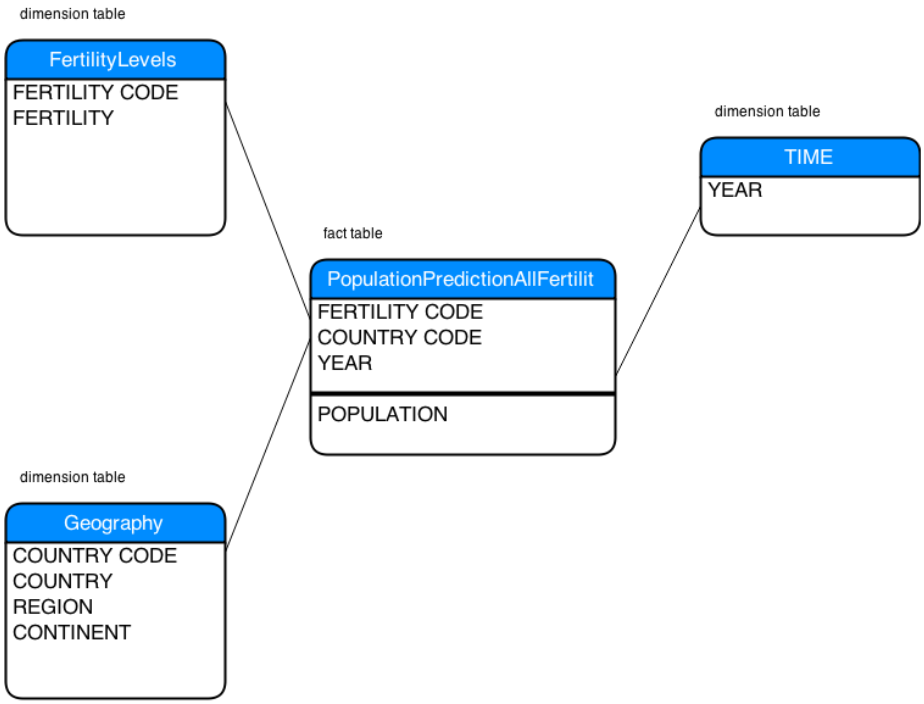
Concept Hierarchy 2



Concept Hierarchy 3



Task 3 - OLAP operations



A

To *"list population prospects for countries in Northern Europe while assuming the fertility level is medium"* we would do the following OLAP-operations:

- roll up from fertility code to fertility
- roll up from country code to region
- dice on (region = "Northern Europe") and (fertility = "Medium")
- drill down from region to country

B

To *"find number of countries with population equal or higher than 50 million residents in 2015 and 2050 (fertility level = high)"* we would do the following OLAP-operations:

- roll up from fertility code to fertility
- roll up from country code to country
- dice on (year = "2015" or "2050") and (fertility = "High")