



Renting Car

Department:	Computer Science
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Introduction

For Data warehousing and Business Intelligence Course we were proposed to create a project that implements the 3 BI methods such as extracts , transformed and loaded information into Data Warehouses.

In this report the subject choosed was “Renting Car”, it’ll simulate a Rental Car company with all of their features necessities. Wich informations do the uses has to provide to rent a car, wich methods he can choose, what are the policies are some of the themes that will be reporte here.

As first step in DW life-cycle , it’ll demonstrate the Dimenstions and Facts diagram to support the conceptual modeling phase.

Basicly, **Database Warehouses** (DWs) are databases used by decision makers to *analyze* the status and the development of an organization. DWs are based on large amounts of data integrated from heterogeneous sources into **multidimensional databases**, and they are optimized for accessing data in a way that comes naturally to human analysts.

Objectives of this Datawarehouse Project:

1. Efficient distribution of renting car information via Web
2. Create user-friendly reporting environment
3. Lay the foundation and develop plans for full warehouse development and implementation
4. Provide relevant , accurate, timely information to the business
- 5.

Rent Auto

Rent Auto is a company that rents automobiles for short periods of time, generally ranging from few hours to a few weeks. It is organized with numerous local branches (which allow a user to return a vehicle to a different location), and primarily located in public places such as near airports, busy city areas.

Our goal is to serve people who require a temporary vehicle, for example, those who do not own their own car, travelers who are out of town, or owners of damaged or destroyed vehicles who are awaiting repair or insurance.

Facts and Dimensions Diagrams:

Attributes:

Total: 12

Facts: 4

Dimensions: 8

pick-up location:

drop-off location:

pick-up date and time: **fact**

drop-off date and time: **fact**

purpose of rental: **fact**

car company:

car price/hour:

car condition: **dimension**

-driver

-owner account

-payment methods

-orders: **fact**

Dimension and Facts Diagram:

Facts and dimensions form the core of any business intelligence effort. Those diagram define all the information that the system will need to manage this business.

A **fact** is a concept relevant to decision-making processes. It typically models a set of events taking place within a company. Examples of facts in the commercial domain are sales, shipments, purchases, and complaints.

A **dimension** is a property, with a finite domain, that describes an analysis coordinate of the fact. A fact generally has multiple dimensions that define its minimum representation granularity.

This diagram shows the relationship between facts and dimensions related to the renting car business.

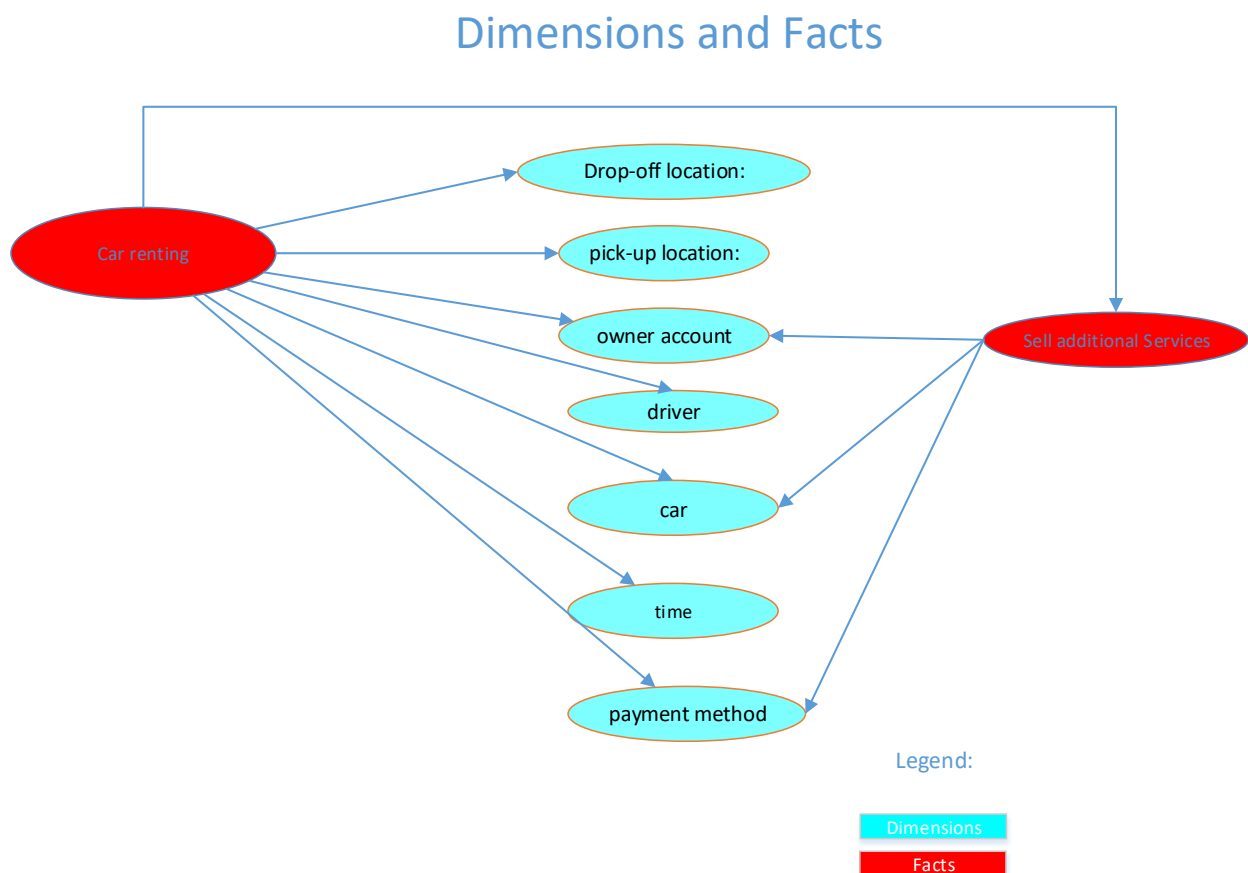


Image 1: Facts and Dimension Diagram with their respective connections

As the **Image 1** shows, this data warehouse's project has 2 facts, **car renting** and **sell additional services**.

The customer cannot have **sell additional services** without having already done a order, which is represented in the line that connect those 2 facts.

That means it will be implemented according to all values that were previously defined in **car renting** .

Concerning to **car renting** fact the the system has know about :

1. the **pick-up location** , such as Country, city and street
2. the **drop off**, such as Country, city street
3. **owner account**, such as
4. **driver** information
5. **car** information
6. **time** , that the car will be taken and delivered
7. **payment method**, wich payment method he choosed

References

https://en.wikipedia.org/wiki/Dimensional_fact_model

FACTS AND MEASURES

Fact: Car Renting
1. approximate value
2. security deposit given
3. security deposit returned
4. insurance
5. additional price
6. damage value
7. full price/hour
8. total value
9. reduced price
10. discount/%
11. distance/km
12. actual time/hour

Fact: Sell Additional Services
1. total value
2. discount
3. number of items
4. full price/service
5. reduced price

Fact: Car Renting

approximate value: is the money that the owner account pay the moment he's doing the order. Sometimes it's not equal to the **total value**.

security deposit given: is the extra money that the owner account pay in the order moment. It's to make sure that if the car is damage or the driver took more time than was previously defined this doubt is pay using that money.

security deposit returned: is the money that the company return to the owner depending on the **additional price**. It can be equal to the **security deposit given**, when the **additional price** is zero or less when unexpected happens and for that we have to add those value in **additional price**.

Insurance: provide financial protection against physical damage or bodily injury. It's no mandatory.

additional price: is the money that result in the subtraction of total value and approximate value.

Sometimes it can be zero.

damage value: is the money calculated to pay any damage happened in the car while it's rented.

full price/hour: is the normal price for renting one car, for one hour, without any discount.

total value: it's the total value calculated after the car be delivered in *drop-off location*. It depends on the time, the kilometers that the driver took during the rental and if the driver has or not insurance. Somethings it's not equal to the approximate value.

reduced price: it's the price that suffered some discount. It can happen in *Summer time* or if the driver is registered.

discount: a deduction from the usual cost according to the full price of the service. It is given as a percentage.

distance: is the length of the spaces that the driver percorred. It's given in *kilometers*.

actual time/hour: the time that the driver spend with the car

Fact: Sell Additional Services

number of items: number of additional services that the owner account take.

full price/service: is the normal price for having a additional services, without any discount.

total value: it's the total value calculated, depending on the *price* of the services and the **number of the items**.

discount: a deduction from the usual cost according to the full price of the service. It is given as a percentage.

reduced price: it's the price that suffered some discount. It can happen in *Summer time* , if the driver is registered or if the owner account is taking a lot of services at the same time.

Drop-off location: is the place that the driver will leave the car.

Pick-up location: is the place that the driver will pick-up the car.

Owner account: the person that is accountable for the activities related to an account.

Driver: the person that drives the car during the car renting.

Time:

1. the time that the driver has the ownership of the car
2. the time that the car is available for the driver, in **Pick-up location**
3. the time that the car is returned and deliver in **Drop-off location**

Payment method: the way that a buyer choose to pay the **car reting** or the **additional service**.