DIAS: Data-Intensive Applications and Systems Laboratory
School of Computer and Communication Sciences
Ecole Polytechnique Fédérale de Lausanne
Building BC, Station 14
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Databases Project – Spring 2019

Team No: 32

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Deliverable 1

Assumptions

The weak entities (`House_properties, Economic_properties, Administrative_properties, Review_scores`) linked to the `Listing` exist only if the listing exists. The attributes of `Review_scores` can be *null* if the `Listing` is new and was not yet evaluated.

Both the `Listing` and the `Neighbourhood` are linked to a city, therefore we have decided to relate a `Listing` to a `Neighbourhood`, that is itself linked to a `City`. We assumed it would avoid having the same information twice (*is in a City - relation*).

The `Review` is written by exactly one `Reviewer` and for exactly one `Listing`. If a Reviewer unsubscribes of the Airbnb platform, we have decided that the `Review` shall still exist. Also, if a `Listing` disappears, we suppose that the `Review` still exists.

We suppose that `City` in this database has a unique name inside their country. Hence we can use city_name and country_code as primary key.

Entity Relationship Schema

Entities	**Description**
`Listing`	Represents a listing in an AirBnb service.
`Host`	Person that hosts a listing.
`Neighbourhood`	Part of a city.
`City`	City.
`House_properties`	Properties of the accommodation.
`Economic_properties`	Costs related to the rent of the accommodation.
`Administrative_properties`	Rules related to the rent of the accommodation.
`Review`	Review in the Airbnb system of a listing.
`Reviewer`	Person who writes a review about a listing.
`Review_scores`	Scores related to a listing of a review in different domains.
`Calender`	Availabilites of a listing.
`Location`	Location on a map of a listing.

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Entity	Relation	Entity	Constraints
a Listing	has	House_properties	one-to-one relationship (Listing's weak entity)
a Listing	has	Economic_properties	one-to-one relationship (Listing's weak entity)
a Listing	has	Administrative_properties	one-to-one relationship (Listing's weak entity)
a Listing	has	Review_scores	one-to-one relationship (Listing's weak entity)
a Host	owns	a Listing	each listing has exatcly one host
a Listing	occupies	a Calender	a listing has availabilities in time. Each date has the corresponding listing's availability
a Review	reviews	a Listing	a review reviews exaxtly one listing
a Reviewer	writes	a Review	a review has exactly one reviewer
a Listing	is in	a Neighbourdhood	a listing is in exactly one neigbourhood
a Listing	is in	a City	a listing is in exactly one city
a Neigbourhood	is in	a City	a neigborhood is in exactly one city

Schema

<Add the figure of the ER schema> //TODO

Relational Schema

Table	Referes to	Relates with
Listing	Listing (entity)	Host_id (owns)
Host	Host (entity)	
Neigbourhood	Neigbourhood (entity)	City (is in)
House_properties	House_properties (entity)	Listing (has)
Economic_properties	Economic_properties (entity)	Listing (has)

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Administrative_ properties	Administrative_ properties (entity)	Listing (has)
Review_scores	Review_scores (entity)	Listing (has)
Review	Review (entity)	Reviewer (writes), Listing (reviews)
Reviewer	Reviewer (entity)	
Calender	Calender (entity)	Listing (occupies)
City	City (entity)	
Location	(relation)	Listing, Neighbourhood, City (is in)

DDL

<Provide the DDL> //TODO

General Comments

For this first work, we thought it was important to work the three together to understand the database correctly. We designed the basis of the ER model, and modified it until the three of us were satisfied. Then we split the work (SQL commands, report, creation of ER model).