# ABSTRACT

## Final Phase of Development of a Data Mart using MySQL

In this project, I have designed, created and implemented some use cases for a sample project, namely AirBnb. Throughout the project, I have completed following steps:

- Creating the model and Drawing ER Diagram
- Normalization
- Creating the DB
- Inserting data into DB.
- Testing the DB with some queries.

The development of this project was carried out in the following stages:

**Conception phase**:

- Since I am also a registered user of Airbnb in real life, I knew about how system worked. Still, I made some search to see if there is any improvement to develop. I even thought of some new features which I could implement over existing system. In this phase, MySQL Workbench helped me to visually see what I do in real-time.
- First, I drew everything on a paper where I could change and add things to make the DB consistent. Because I knew that an error in this phase could lead to irreversible problems during the real usage of the software.
- After drafting and having a thorough understanding of what I will design, I decided the entities and their relations in my mind. Then created them via workbench which will be tables in the DB. Then I thought of the attributes which need to be created in the tables, and created the tables one by one. This brought the scheme to a place where I could pass to second phase to finetune and configure relations of respective columns.
- In this stage and in other stages, I used the advantage of MySQL WorkBench which saved me much time.
- The most difficult part of this stage was to decide the entity relations and create a logic between them. After deciding them, project was half way done for me.

**Development phase**:

- In this phase, I normalized the database by removing some redundant columns which I could not notice during conception phase. Because I knew that a good database would not include duplicated data all over different tables, but in only one.

- I also realized that I could have set some integers as UNSIGNED in order to keep their size smaller. I also happened to see that I could have avoided some NOT NULL features for some columns, but it would not make a functional difference, so I kept them as they were.

- Since I had very well designed all tables and their connections in my mind before starting off, development phase was more like implementing them into their places rather than re-arranging the structure of entire database. Everything went straightforward.

- Further in this phase, I configured cardinalities of connections, foreign and primary key relations and inserting some dummy data via workbench. The advantage of workbench was that it automatically created all the necessary code to create the DB, and insert or update dummy into tables. So I did not have to write any code manually, but check for errors and/or read the only.

- I also had to design on update and on delete features on this stage as to what would happen to a record if it's updated or deleted from a foreign or primary key on any given table. So, pondering all of these in advance led me to a problem-free process in this stage and I successfully inserted data and ran queries on them.

- I ran some more queries to see the results and this project gave me a spark to imagine the power of databases in real life cases.