Low Level Design

Airbnb Data Analysis

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1. Introduction

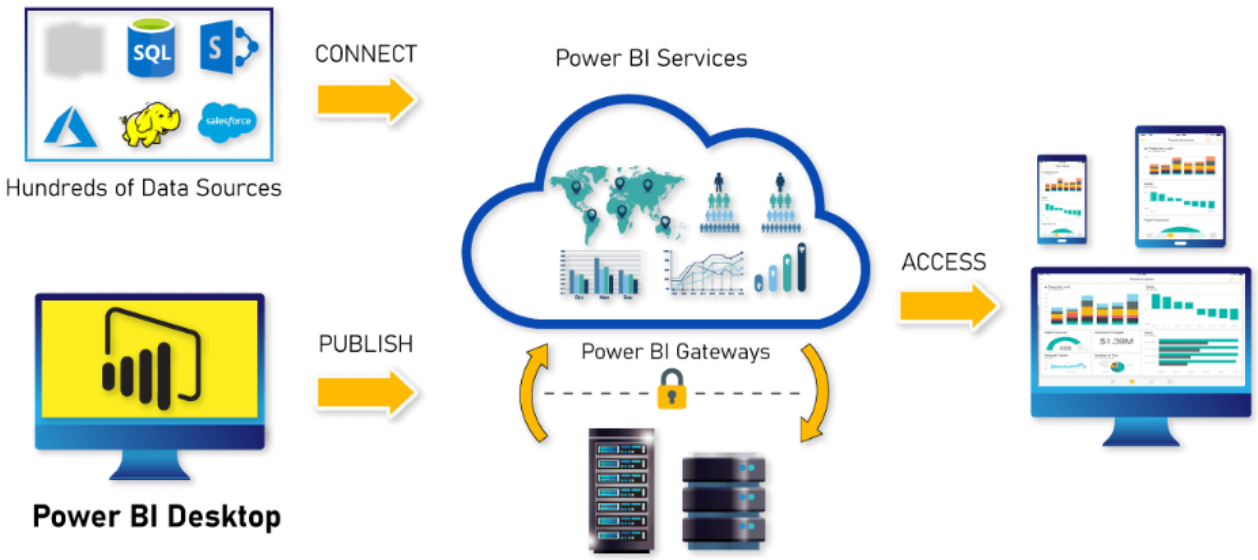
1.1 What is Low-Level design document?

The goal of the LDD or Low-level design document (LLDD) is to give the internal logic design of the actual program code for the Airbnb Data Analysis dashboard. LDD describes the class diagrams with the methods and relations between classes and programs specs. It describes the modules so that the programmer can directly code the program from the document.

1.2 Scope

Low-level design (LLD) is a component-level design process that follows a step-by-step refinement process. The process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the data organization may be defined during requirement analysis and then refined during data design work.

2. Architecture



#1. Data Sources

Power BI can supply information from different online sources and file types. Import the information into the Power BI or establish a live service to receive the information. If you import the file into the Power BI, it compresses the data sets up to 1GB and, uses a direct query if the compressed data sets exceed more than 1GB. Here is the list of Data Sources supported in Power BI.

#2. Power BI Desktop

It is free software that enables you to connect, transform and visualize the data on your desktop. You can connect to various data sources with the help of Power BI Desktop and combine the data into a data model. This data model allows you to create a collection of images and graphics that make you share the information within the organization as records. The majority of the users who work on Business Intelligence projects use Power BI Desktop to create and share their reports with others.

#3. Power BI Service

Power BI Service is an On-Cloud service with a web-based platform and used to share and publish the reports made on Power BI Desktop. It collaborates the data with other users and creates dashboards. Power BI Service is also called “Power BI Workspace”, “Power BI Web Portal”, and “Power BI Site”. Power BI Service offers wonderful features like alerts and natural language Q&A.

#4. Power BI Report Server

Power BI Report Server is similar to the Power BI Service. It is an On-Premises server platform. Using Power BI Report Server, organizations can secure their data. It enables the users to create reports and dashboards and allows you to share the reports with other users or organizations with proper security protocols. To use this service, you need to have a Power BI premium license.

#5. Power BI Gateway

Power BI Gateway is used to maintain fresh information by connecting to your on-site data sources without transferring the data. It provides secure data and allows you to transfer the data between Microsoft cloud services and on-premise services. Microsoft cloud services include PowerApps, Power BI, Azure Analysis Services, Microsoft Flow, and Azure logic apps. By using a gateway, organizations can maintain the databases and other data sources securely in cloud services.

#6. Power BI Mobile Apps

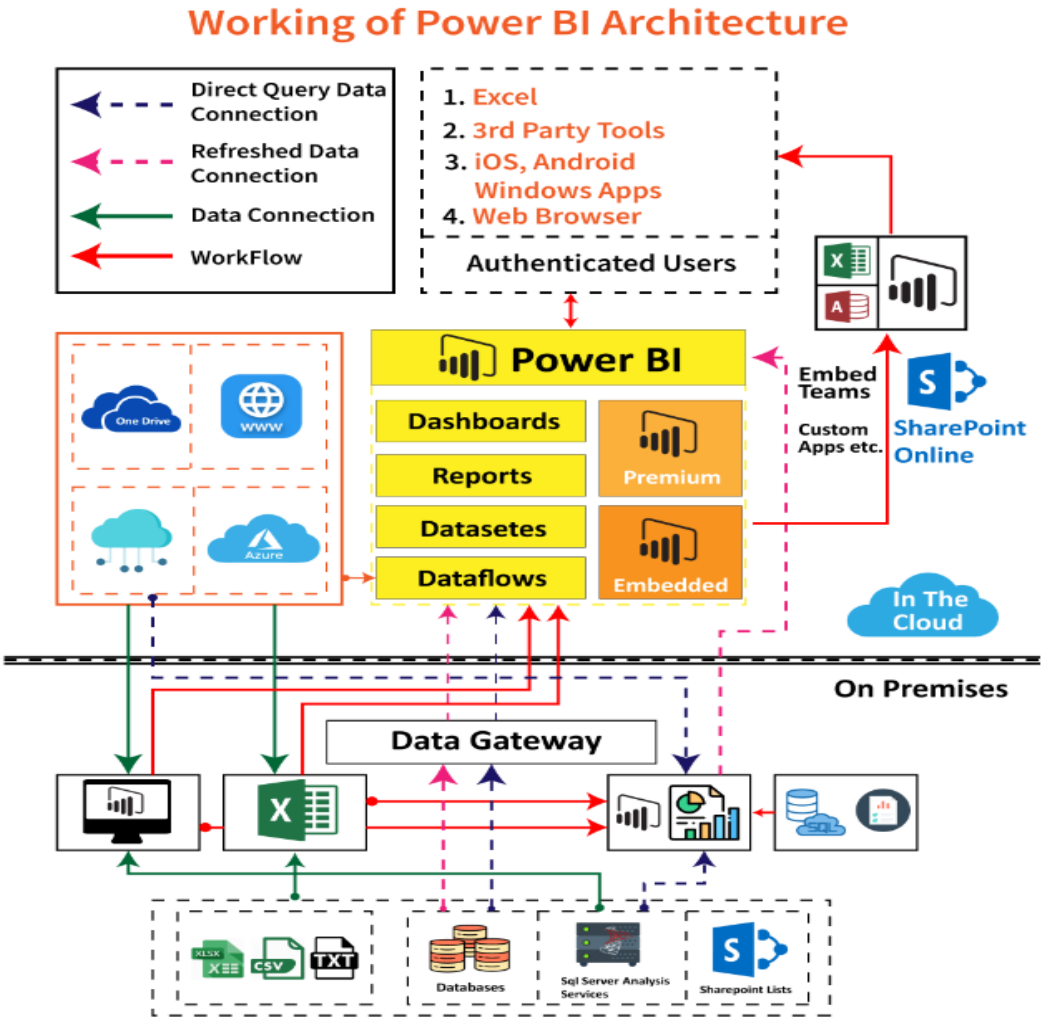
Using Power BI Mobile Apps, you can stay connected with on-premises data from anywhere. Power BI apps are available for iOS, Windows, and Android platforms.

#7. Power BI Embedded

Power BI Embedded is an On-premises service in Azure. It offers APIs for embedding the reports and dashboards into custom applications. Till now, we have been discussing major components of the Power BI, and now, we will talk about the remaining components of Power BI as well.

#8. Power BI Query

Power Query is the data connectivity that enables the business users to access the data which is stored in multiple data sources and redesign it to satisfy their business requirements. Power Query offers custom connectors SDK so that third-party users can create their data connectors.



3. Architecture Description

3.1. Data Sourcing

The dataset is in csv (comma separated values) format. MS Excel is used to load the data.

Airbnb_prices.csv.

3.2 Data Overview

Data has a total count of 18724, in a single csv file.
It includes data from 22 July 2017 to 23 July 2017.

3.3 Data insertion

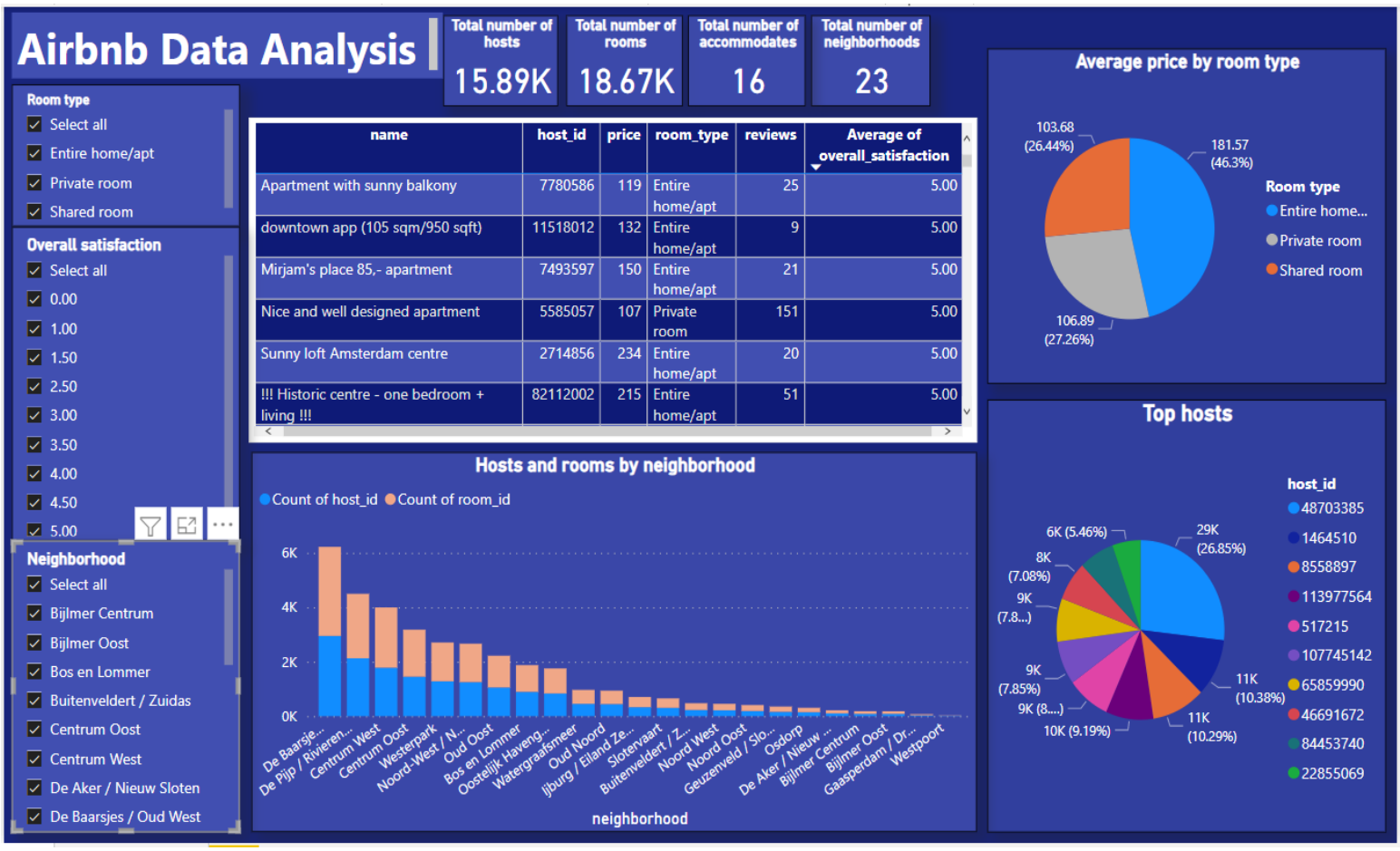
Get data > **Common data sources**
Excel workbook
Power BI datasets
Power BI dataflows
Dataverse
SQL Server
etc.....

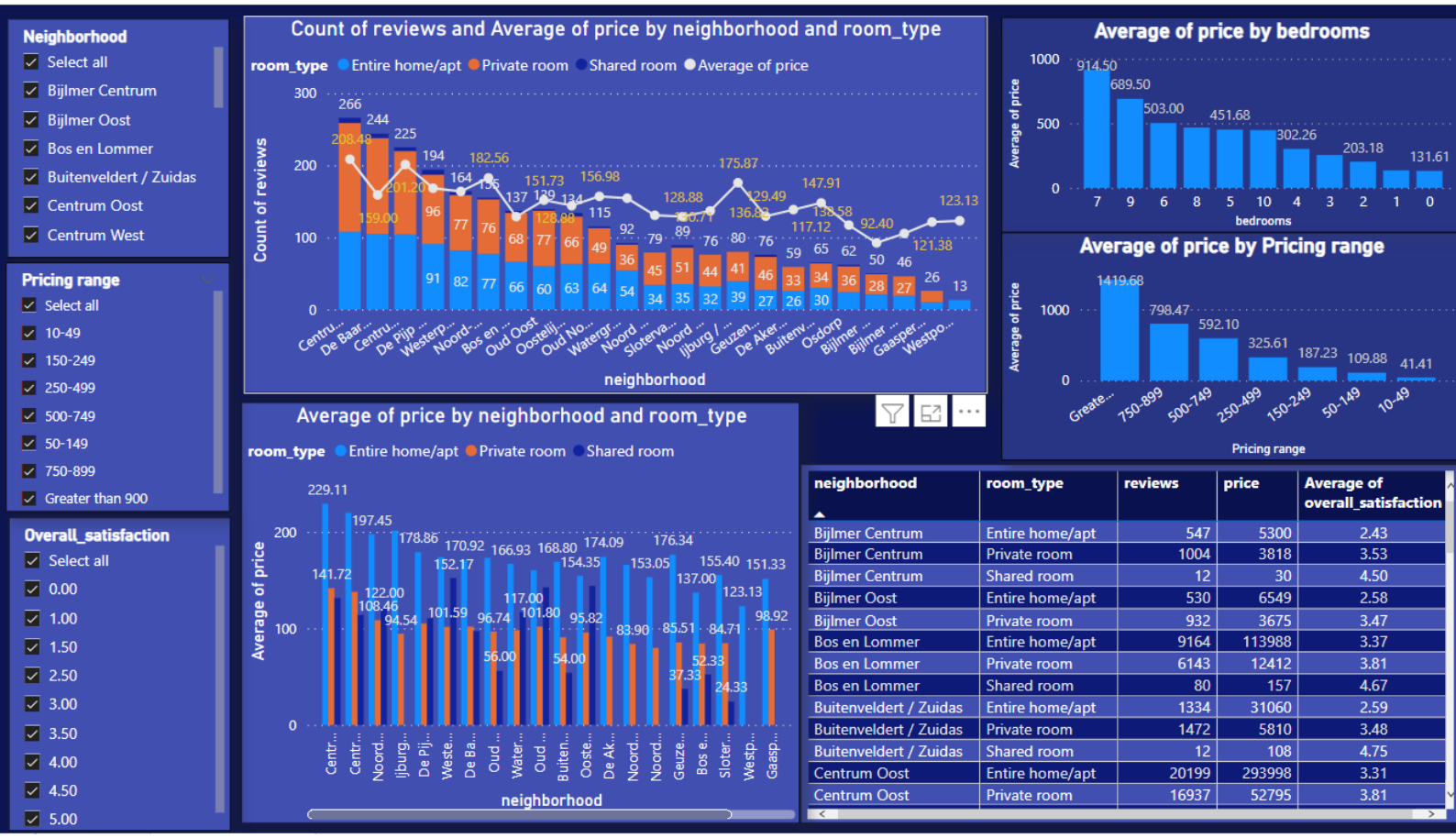
3.4. Data Transformation

In the Transformation Process, we will convert our original datasets with other necessary attributes format.

We will use Power Query Editor. It is the data connectivity and data preparation technology to connect to one or many data sources, shape and transform the data in a structured format.

3.5 Data Visualization





neighborhood	room_type	reviews	price	Average of overall_satisfaction
Bijlmer Centrum	Entire home/apt	547	5300	2.43
Bijlmer Centrum	Private room	1004	3818	3.53
Bijlmer Centrum	Shared room	12	30	4.50
Bijlmer Oost	Entire home/apt	530	6549	2.58
Bijlmer Oost	Private room	932	3675	3.47
Bos en Lommer	Entire home/apt	9164	113988	3.37
Bos en Lommer	Private room	6143	12412	3.81
Bos en Lommer	Shared room	80	157	4.67
Buitenveldert / Zuidas	Entire home/apt	1334	31060	2.59
Buitenveldert / Zuidas	Private room	1472	5810	3.48
Buitenveldert / Zuidas	Shared room	12	108	4.75
Centrum Oost	Entire home/apt	20199	293998	3.31
Centrum Oost	Private room	16937	52795	3.81

3.6 Deployment

Power BI service is a cloud-based business analytics and data visualization service that enables anyone to visualize and analyze data with greater speed, efficiency, and understanding.

It connects users to a broad range of data through easy-to-use dashboards, interactive reports, and compelling visualizations that bring data to life.