Low Level Design

Amazon Sales Data Analysis

Written By	Saqib Alam Ansari
Document Version	0.1
Last Revised Date	

DOCUMENT CONTROL

Change Record:

VERSION	DATE	AUTHOR	COMMENTS
0.1	24/07/2022	Saqib Alam Ansari	Introduction and architecture defined and unit test cases defined.

Reviews:

VERSION	DATE	REVIEWER	COMMENTS

Approval Status:

| VERSION	REVIEW DATE	REVIEWED BY		APPROVED BY	COMMENTS

Contents

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 House Price Prediction 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
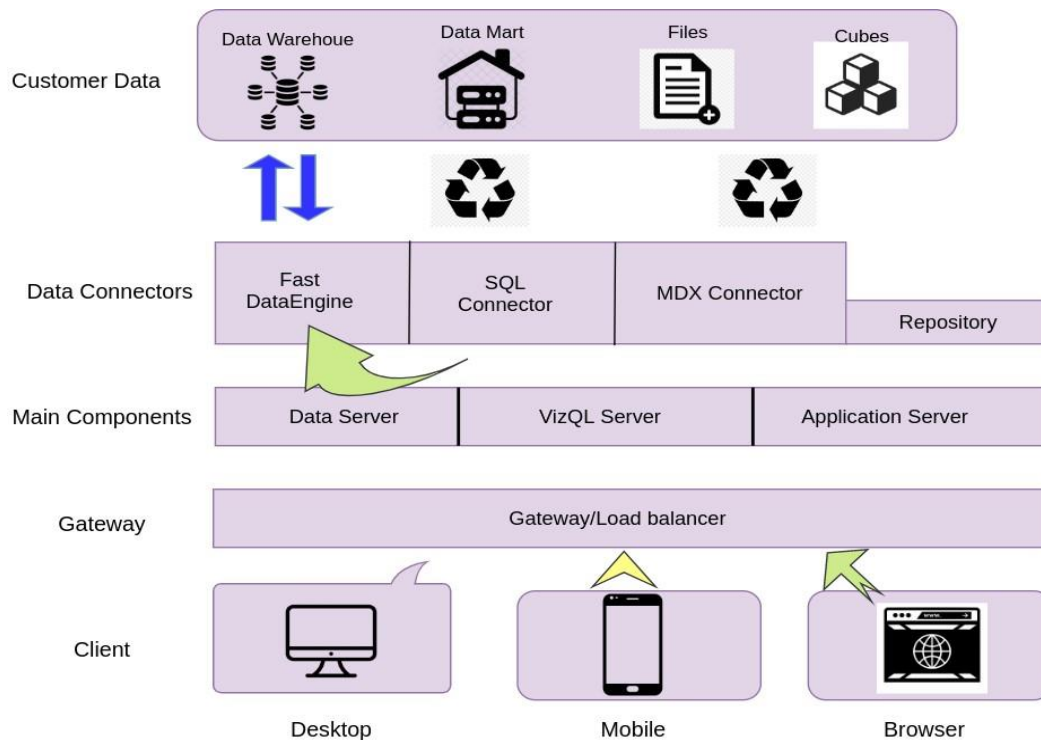
Tableau Server Architecture

Tableau has a highly scalable, n-tier client-server architecture that serves mobile clients, web clients and desktop-installed software. Tableau Server architecture supports fast and flexible deployments.

The following diagram shows Tableau Server's architecture:
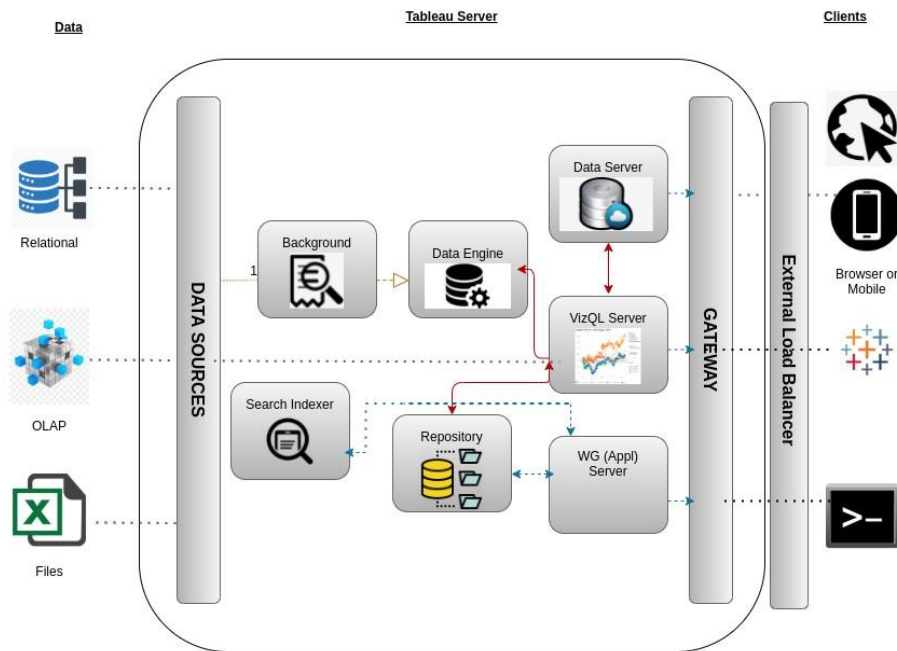
Tableau Communication Flow

Tableau Server is internally managed by the multiple server processes.

1. Gateway/Load Balancer

It acts as an Entry gate to the Tableau Server and also balances the load to the Server if multiple Processes are configured.

2) Application Server: -

Application Server processes (wgserver.exe) handle browsing and permissions for the Tableau Server web and mobile interfaces. When a user opens a view in a client device, that user starts a session on Tableau Server. This means that an Application Server thread starts and checks the permissions for that user and that view.

3) Repository: -

Tableau Server Repository is a PostgreSQL database that stores server data. This data includes information about Tableau Server users, groups and group assignments, permissions, projects, data sources, and extract metadata and refresh information.

4) VIZQL Server: -

Once a view is opened, the client sends a request to the VizQL process (vizqlserver.exe). The VizQL process then sends queries directly to the data source, returning a result set that is rendered as images and presented to the user. Each VizQL Server has its own cache that can be shared across multiple users

5) Data Engine: -

It Stores data extracts and answers queries.

6) Backgrounder: -

The backgrounder Executes server tasks which includes refreshes scheduled extracts, tasks initiated from tabcmd and manages other background tasks.

7) Data Server: -

Data Server Manages connections to Tableau Server data sources

It also maintains metadata from Tableau Desktop, such as calculations, definitions, and groups.

3. Architecture Description

3.1. Data Description

The Dataset contains the details of order like Sales of items, Quantity Sold, Price List, and other details about the Sales.

1. CustKey: Unique ID number given to every Customer.

2. DateKey: Key to track the items through date of billing.

3. Discount Amount: Discount given on particular purchase.

4. Invoice Date: Date of Billing of item.

5. Invoice Number: Unique ID number for every billing of customer.

6. Item Class: Class of particular item.

7. Item Number: Unique ID number for particular item.

8. Item: Name of the Item.

9. List Price: Price list of items.

10. Order Number: Unique ID number for particular Order.

11. Promised Delivery: Estimated Date of order's Delivery.

12. Sales Amount: Total Amount of Sales.

13. Sales Amount based on list price: Total amount of sales based on list price.

14. Sales Margin Amount: Margin on amount of sales.

15. Sales Price: Price of Item per unit.

16. Sales Quantity: Number of Items Purchased.

3.2. Web Scrapping

Web scraping is a technique to automatically extract content and data from websites using bots. It is also known as web data extraction or web harvesting. Web scrapping is made simple now days; many tools are used for web scrapping. Some of python libraries used for web scrapping are Beautiful Soup, Scrapy, Selenium, etc.

3.3. Data Transformation

In the Transformation Process, we will convert our original datasets with other necessary attributes format. And will merge it with the Scrapped dataset.

3.4. Data Insertion into Database

a.   Database Creation and connection - Create a database with name passed. If the database is already created, open the connection to the database.

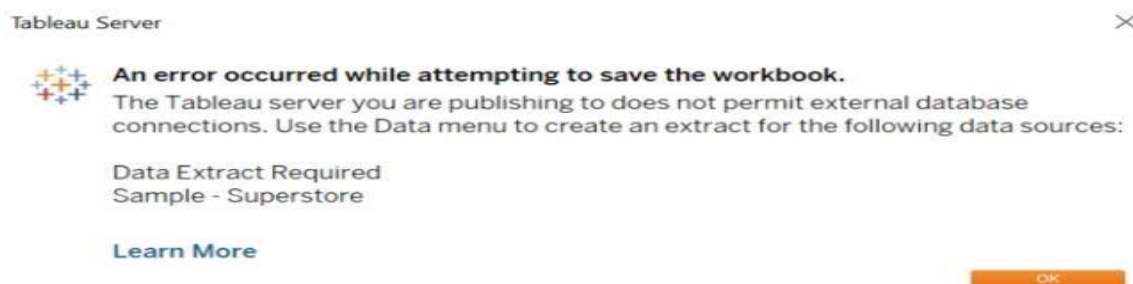b.   Table creation in the database.

c.   Insertion of files in the table

3.5 Deployment.

Once you've completed your dashboard, follow these steps: **- Server, Tableau Public, Save to Tableau Public As**

You may be prompted to log into your Tableau Public profile first if this is your first time publishing.
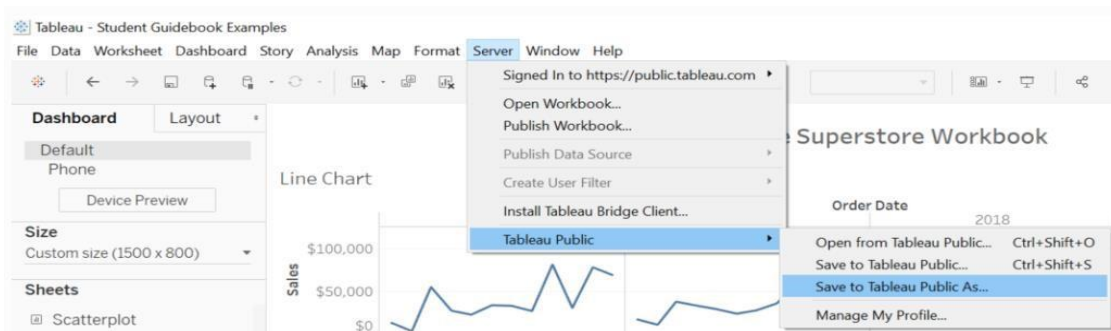
Next, fill out the title you want your viz to have and click "save".

This message means that your connection to the Sample-Superstore data set is a live connection. Tableau Public cannot host live connections, so you'll need to convert your connection to an extract (like a frozen screenshot of your data).

Here in the below screenshot, we can see that out workbook has been published to tableau public.

4. Unit Test Cases

TEST CASE DESCRIPTION	EXPECTED RESULTS
Months wise sales	When we go to dashboard of sales we can check the sales amount we get during every months.
Year wise sales	When we go to dashboard of sales we can check the sales amount we get during every year.
Monthly yearly sales	When we go to dashboard of sales we can check the sales amount we get during monthly yearly.
Key factor & matrix relation	When we go to dashboard of key factor of sales and matrix relationship dashboard, we can check the top and bottom sales item and quantity easily and on relationship dashboard we get relationship of measurable things which helps in growth of business.