Low Level Design(LLD)

E-Commerce Dashboard

Revision Number 1.0

Last Date of Revision: 19/08/2021

PREPARED FOR:

iNeuron

PREPARED BY:

Rachit Agarwal

Aarsh Sapra

DOCUMENT VERSION CONTROL:

DATE	VERSION	DESCRIPTION	AUTHOR
18/08/2021	1.0	First version of LLD completed	Rachit Agarwal Aarsh Sapra

Contents

1.Introduction

1.1 What is a Low-Level design document?

The purpose of the Low-level design document (LLDD) is to give the internal logic design of the actual program code for the E-Commerce 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. For business analytics low level documents encompasses the architecture and configuration of the bi tool used as well as

2.Architecture

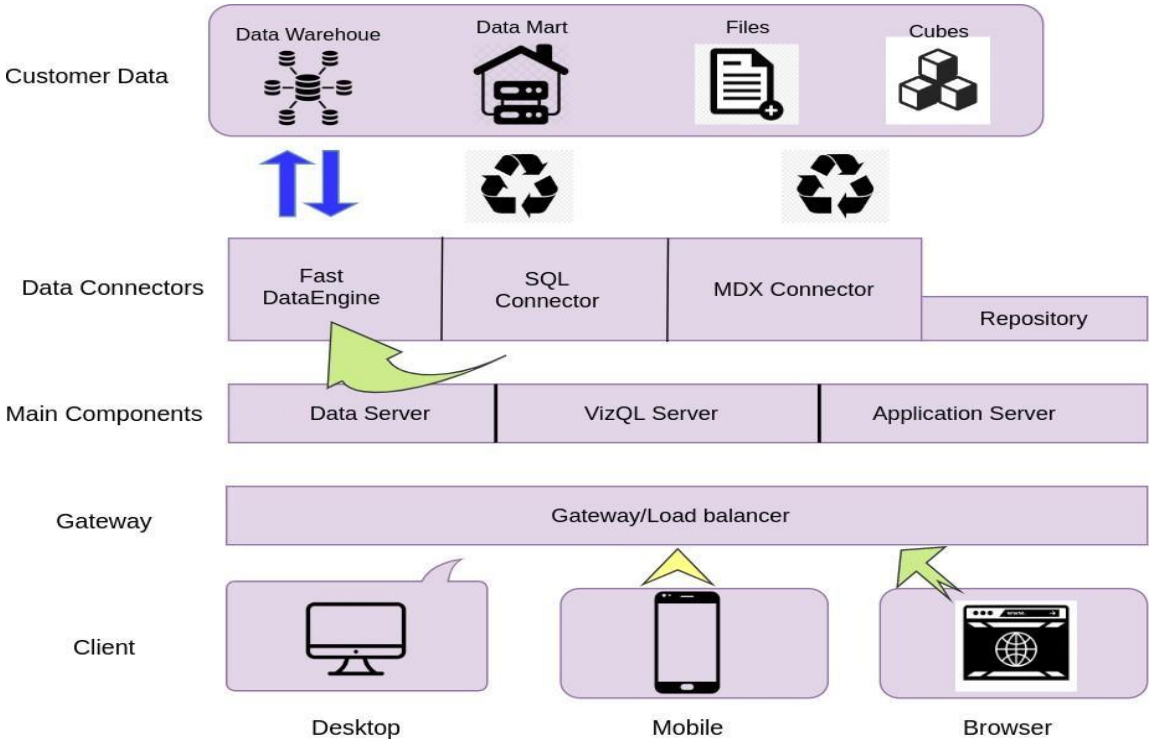


Tableau Server Architecture

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:

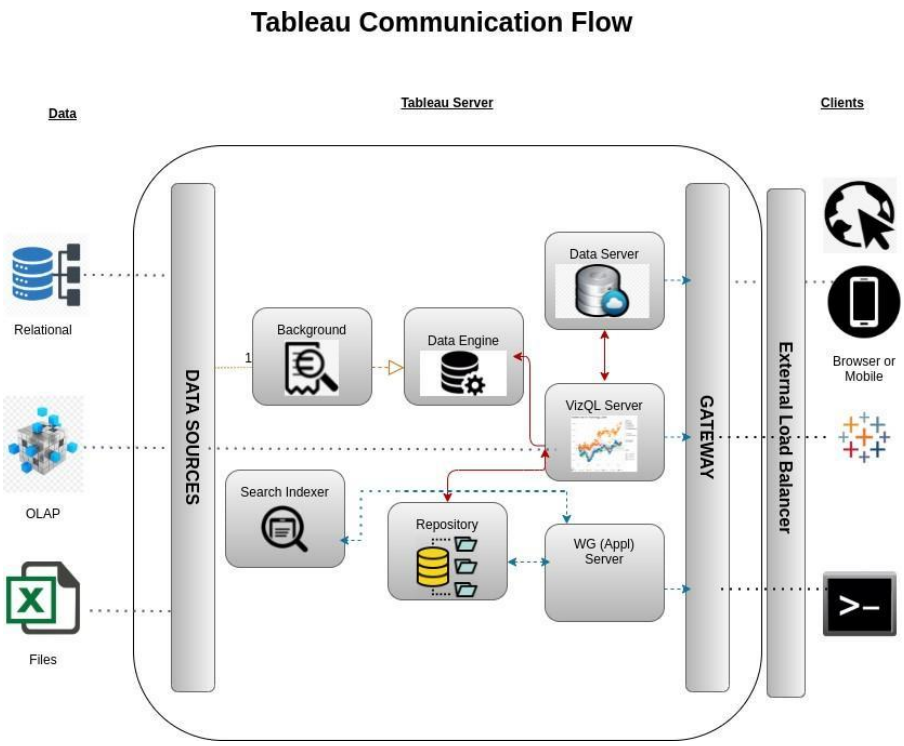


Tableau Server is internally managed by the multiple server processes.

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 Sales data of a company for the year 2015.

1. **Order ID**: A unique order id tracking each order placed.
2. **Order Date**: Date on which the order is placed in dd/mm/yyyy format.
3. **Ship Date**: Date on which the order is shipped in dd/mm/yyyy format.
4. **Aging** : Number of days it took for shipment.
5. **Ship Mode** : Shipment mode for the order (Same Day , First Class , Second Class , Standard Class)
6. **Product Category**: Category to which each product ordered belong (Auto & Accessories , Electronic , Home & Furniture , Fashion)
7. **Product** : Name of the product ordered.
8. **Sales**: The amount of sales for each order (in Dollars)
9. **Quantity**: No of items ordered
10. **Discount**: Discount percent offered to customer on each product (in decimals)
11. **Profit** : Amount of profit earned on each order (in Dollar)
12. **Shipping cost** : Cost of shipment paid by the company (in Dollars)
13. **Order Priority**: Priority for the order shipment selected by the user (Critical, High,

Medium, Low)

14. **Customer ID**: Unique ID identifying each customer
15. **Customer Name**: Name of the customer
16. **Segment** : Customer segmentation based on demographics
17. **City** : City in which the customer lives
18. **State** : State in which the customer lives
19. **Country** : Country to which customer belongs
20. **Region** : Area mapped and allocated according to different countries
21. **Month** : Month in which the order is placed

3.2. Web Scraping

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. Some of the python libraries used for web scraping are Beautiful Soup, Scrapy, Selenium, etc.
Since the dataset was already provided to us as an excel file , no additional data needed to be scraped from the internet

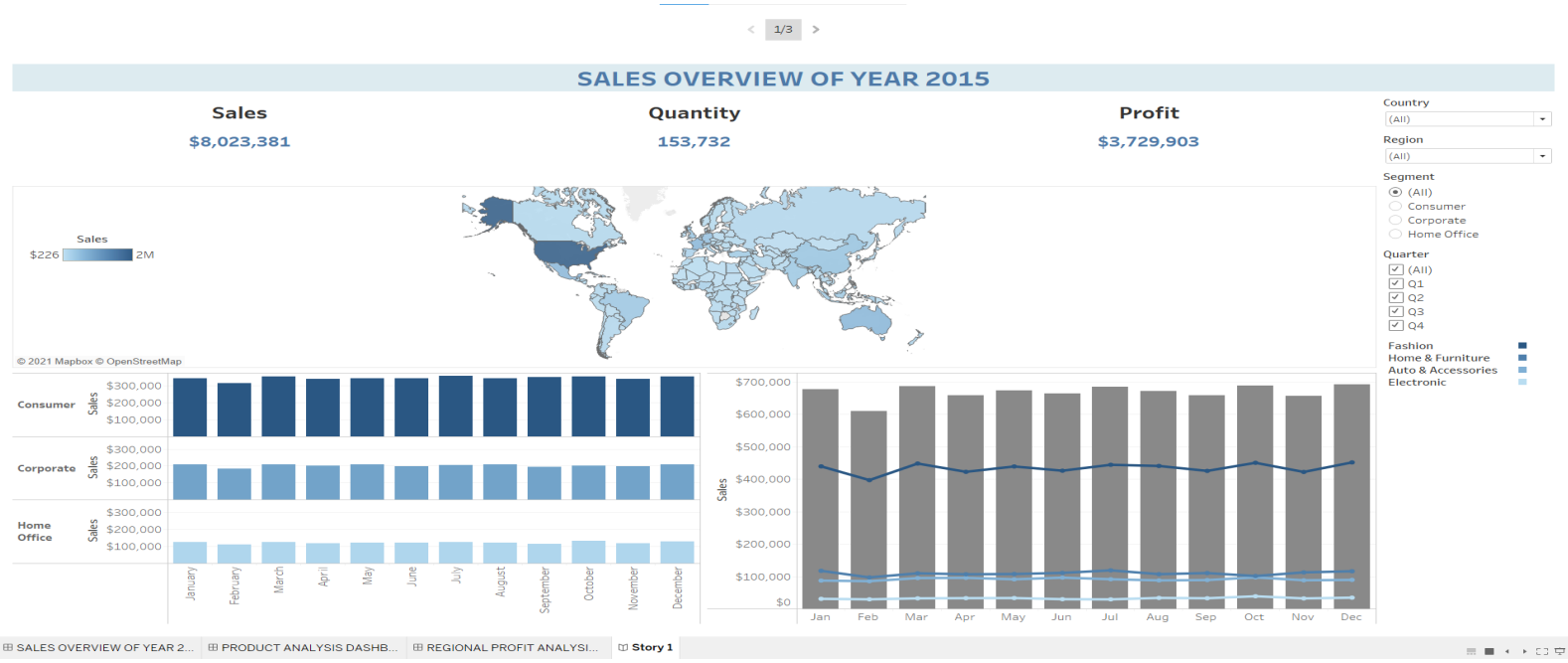
3.3. Data Transformation

In the Transformation Process, we do the essential preprocessing and cleaning before importing it into tableau for data visualization.
Since there were no missing values or human entry errors our dataset is ready

3.4. Deployment

Visualizing data on its own is not enough. Once the dashboard is created, it needs to be made accessible such that all concerned professionals can use it to study key factors and make certain improvements or changes. IT companies have shifted their focus towards deployment of such dashboards based on various business intelligence tools and Tableau is no exception
We deploy our dashboard on **tableau public**

PREVIEW OF THE STORY



4.Unit Test Cases

TEST CASE DESCRIPTION	EXPECTED RESULTS
Country multiple value filter	When clicked on the filter, a drop down should occur which has a List of countries in the dataset. Sales data can be filtered based on the countries we select.
Region multiple value filter	When clicked on the filter, a drop down should occur which List the various regions based on the countries we select.
Relation Between Sales and Segments	Here a monthly bar chart displays amount of sales for various segments which can be filtered on quarterly basis
Relation between total sales and sale across various product categories	Bar and line chart comparing trends of sales of different product category and total sales
An interactive legend for product category	A customized legend which acts as filter and enables user to examine interested categories
Profit and profit % for a particular country	Map highlighting profit earned in each state of a particular country

Single value country filter	When clicked a dropdown occur , which allows the user to select one state of interest
Region filter	Based on the country of interest , the user can further narrow down his interest in a particular region.
Single value slider for selecting month	Users can slide through the month , to highlight the profit earned at each month.
Top 10 profitable products	A bar chart showing top 10 most profitable product
A context filter for product category	When clicked , user can select the categories and the top 10 products will be filtered accordingly
Relation between different segments and product categories on profit earned	A donut chart showing the profit percentage for each product category segmented over 3 columns which can be filtered to enable the user derive its own insights
Relationship between shipment mode and order priority	A table highlighting the preferred shipment priority and how each priority is handled by the company through various ship mode
Relationship between the product categories and shipment status	A bubble chart showing how many products are shipped late ,early or on time across various categories
A True/False filter	A true/false filter which allows the user to visualize and compare data trends for business days.
Multiple value dropdowns	When clicked on filter, a drop down occurs enabling user to select order priorities and shipment modes