Low Level Design

Crop Producon Analysis

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Last Revised Date	

Crop Producon Analysis

DOCUMENT CONTROL

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VERSION	DATE	AUTHOR	COMMENTS
0.1	27- july - 2023	Vinay SIngh	Introducon and architecture defined
	- -		

Reviews:

VERSION	DATE	REVIEWER	COMMENTS
	- -		

Approval Status:

VERSION	REVIEW DATE	REVIEWED BY		APPROVED BY	COMMENTS

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Contents

1. Introducon

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 Predicon dashboard. LDD describes the class diagrams with the methods and relaons 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 soware architecture, source code and ulmately, performance algorithms. Overall, the data organizaon may be defined during requirement analysis and then refined during data design work.

2. Architecture

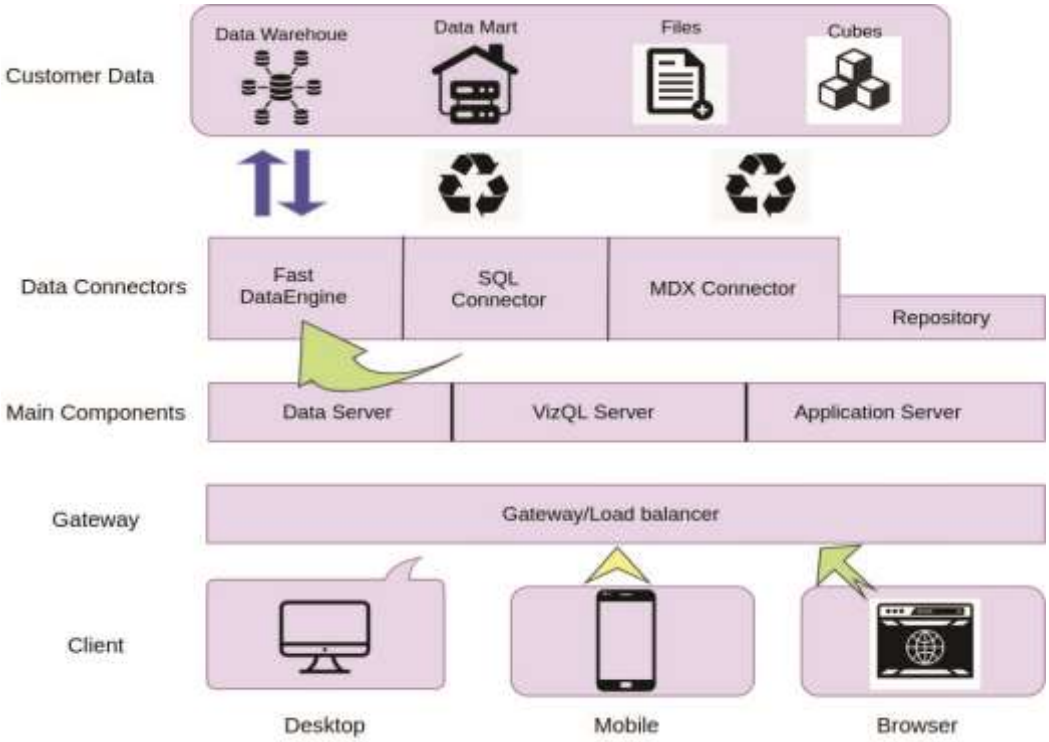


Tableau Server Architecture

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

The following diagram shows Tableau Server's architecture:

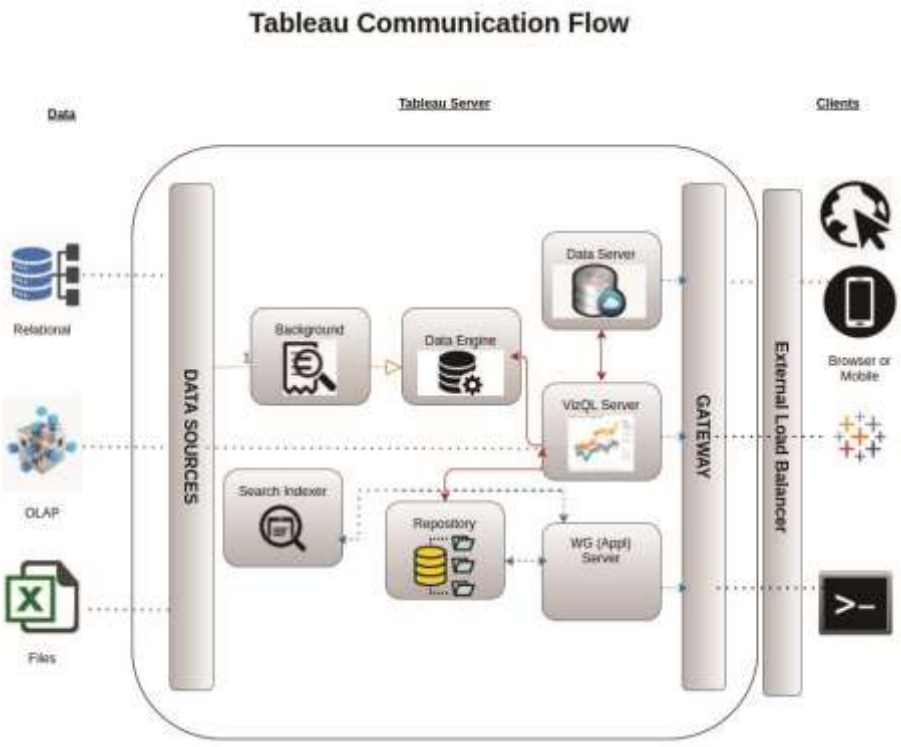


Tableau Server is internally managed by the mulple server processes.

1. Gateway/Load Balancer

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

2) Applicaon Server:-

Applicaon 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 Applicaon 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 informaon about Tableau Server users, groups and group assignments, permissions, projects, data sources, and extract metadata and refresh informaon.

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 mulple users

5) Data Engine:-

It Stores data extracts and answers queries.

6) Backgrounder:-

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

7) Data Server:-

Data Server Manages connecons to Tableau Server data sources

It also maintains metadata from Tableau Desktop, such as calculaons, definions, and groups.

3. Architecture Descripon

3.1. Data Descripon

The Dataset contains house price of cies that fall under the categories A,B and C based on the availability of parking, rainfall, its built-up area etc

1. Crop: Crop names
2. Crop_Year: The year for which the data is.
3. State_Name: Names of all the Indian States.
4. Area(hectare): This is the area in hectares for a parcular row.
5. Producon(tonnes): This is the producon for a parcular crop in a unit area.-
6. Producvity: Producon per unit area is called as producvity.

7. Category: All the crops are divided into categories.
8. Rainfall: Annual rainfall in the area where property is located (in cm) 9. House_Price: Price at which the property was sold (in Dollars)

3.2. Web Scrapping

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

3.3. Data Transformaon

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

3.4. Data Inseron into Database

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

b. Table creaon in the database.

c. Inseron of files in the table

3.5 Make the SQL connecon and set up the data source

Step 1: Configuring Tableau

Launch Tableau on your workstaon and select SQL Server from the connect column on the le. This will open a dialogue box where you need to provide the connecon details for SQL Server.

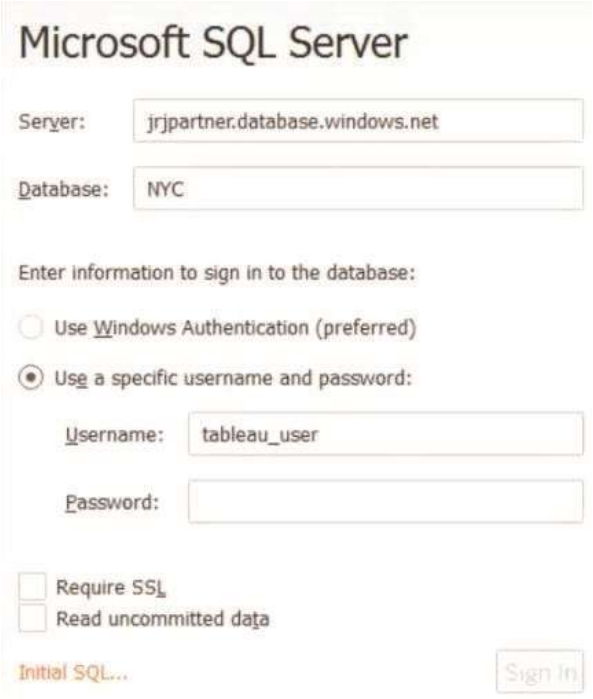
To connect with tableau, you will need to provide informaon about the server which hosts your database. If you want to connect to a contained database, you can also specify the name of the database.

To connect with a port other than the default port, you need to specify the port and server as follows:

```
<server_name><port_number>
```

Example query: my_server 8051

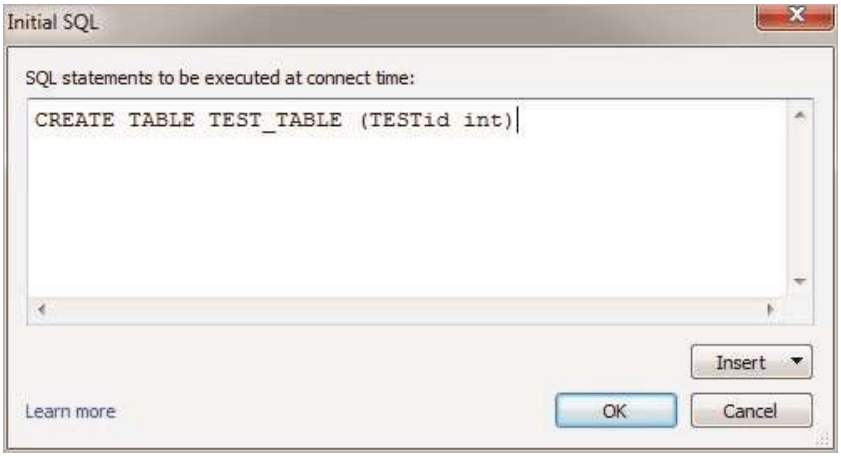
There are two ways in which you can sign-in to the server, either by using Windows authencaon or by using the username and password. Using the username and password becomes a must if you're working with a password-protected server in a non-Kerberos environment.



Click on Sign in to establish a connecon. This will enable a connecon without SSL. To establish an SSL enabled connecon, click the Require SSL checkbox before you sign in.

SQL Server provides an opon to let the user queries access the modified rows even before they have been commied. This opon is called Read Uncommied data. It saves me by prevenng complex queries such as extract refreshes from locking the database and causing a delay. If this opon is unchecked, Tableau makes use of default isolaon levels.

If you want to run a specific SQL command every-me a new connecon is established, you can use the Inial SQL opon. This will open a dialogue box, where you can specify your desired SQL query.

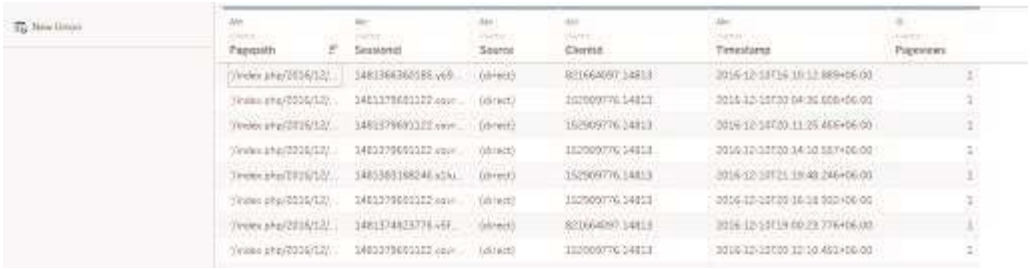


Step 2: Configuring Data Source

The data source page loads up aer configuring the Tableau connector and successfully signing in. This is how the page looks like:

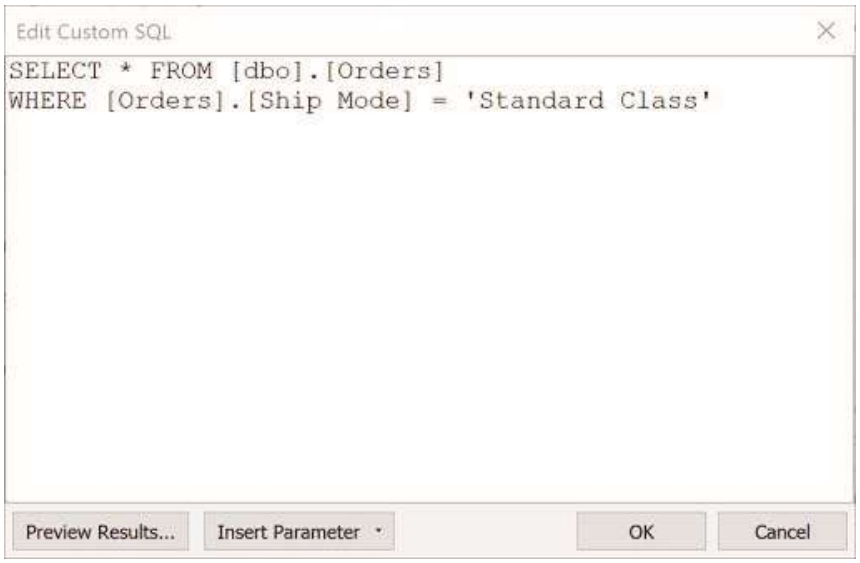
Select the data source name opon and give a unique name to the database you are using. It's considered a good pracce to have a unique name as it makes it much easier for users to idenfy the database from which data is being fetched.

To select the desired schema, you can use the schema drop-down list from the column on the le. You can also perform a text-based search to find the desired opon. Now similarly find and select the desired table and drag it onto the canvas.



This is how you can connect SQL Server with Tableau. Now click on the sheets tab to begin the analysis.

Custom SQL features can be used to focus on specific SQL statements, rather than querying the enre database. Click on the Custom SQL opon from the panel on the le. A new dialogue box will now open up, where you can provide the query you want to execute.



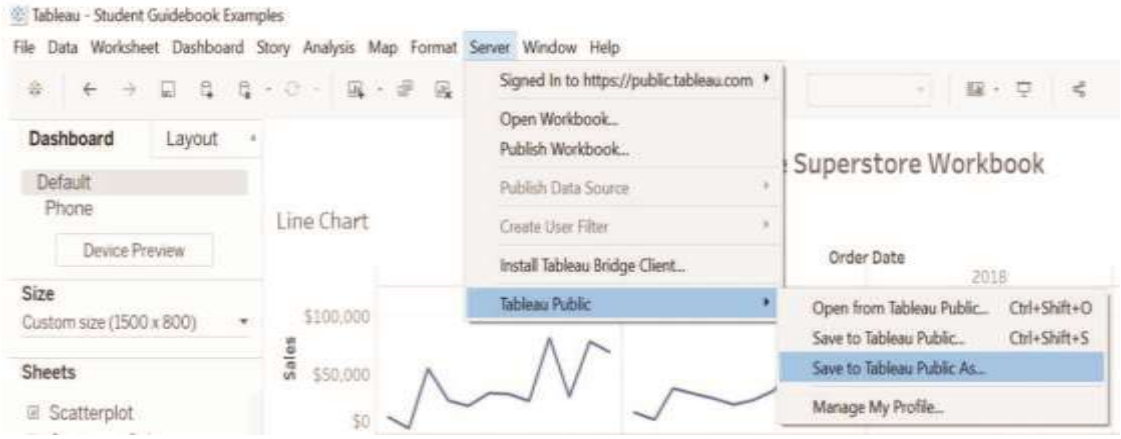
3.5. Export Data from Database

Data Export from Database - The data in a stored database is exported as a CSV file to be used for Data Pre-processing.

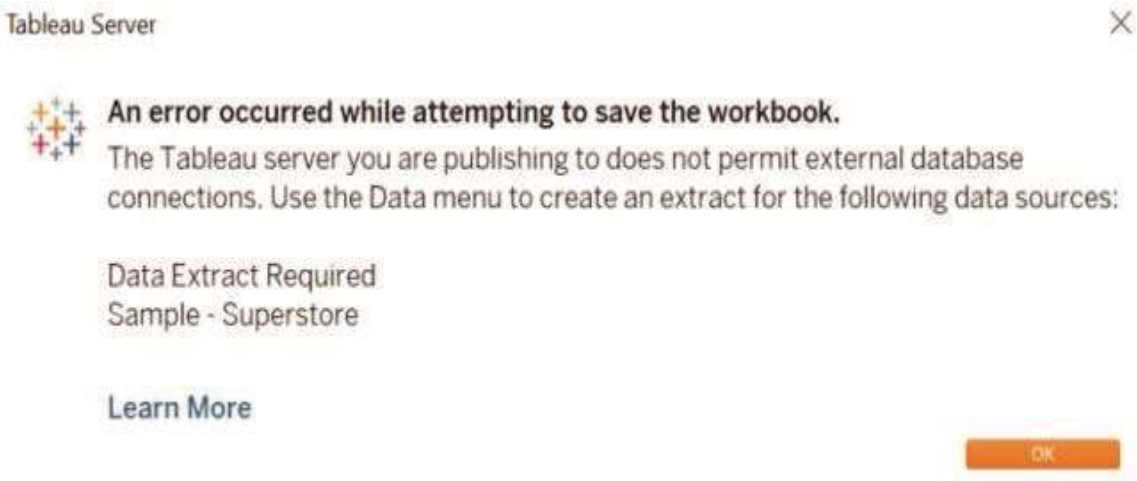
3.6 Deployment.

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 me publishing.



Next, fill out the tle you want your viz to have and click “save”.



This message means that your connecon to the Sample-Superstore data set is a live connecon. Tableau Public cannot host live connecons, so you’ll need to convert your connecon 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.


+ableau public
GALLERY
AUTHORS
BLOG
RESOURCES
ACTIVITY
ABOUT
HousePrice by Yash Sakalley
Storyline of the Housing Price
Impact of Parking Facilities on House Price across the Cities
Distribution of House Prices across the Cities
CAT A
CAT B
CAT C
26.62%
56.22%
0%
20%
40%
60%
80%
100%
Relation of Parking and Count of Cities
Open
CAT B
139
Open
CAT C
92
Open
CAT A
121
Not Provided
CAT B
89
Not Provided
CAT A
82

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