Low Level Design

Agriculture Data Analysis - India

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Document Version	0.3
Last Revised Date	

DOCUMENT CONTROL

Change Record:

VERSION	DATE	AUTHOR	COMMENTS
0.1	27- Aug - 2021	Author 1	Introduction and architecture defined Architecture & Architecture description appended and uploaded.

Reviews:

VERSION	DATE	REVIEWER	COMMENTS
0.1	11- Aug - 2021	Author 3	Unit test cases to be added

Approval Status:

VERSION		REVIEW DATE	REVIEWED BY	APPROVED BY	COMMENTS

Contents

1. Introduction

1.1 What is a 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

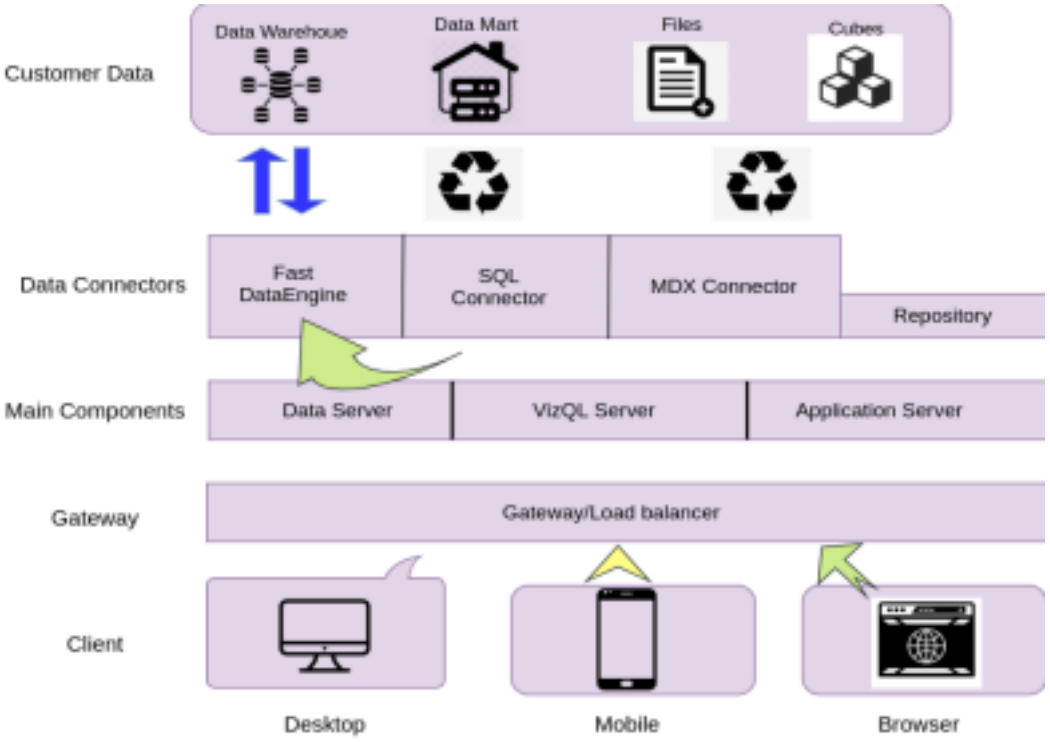


Tableau Server Architecture

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:

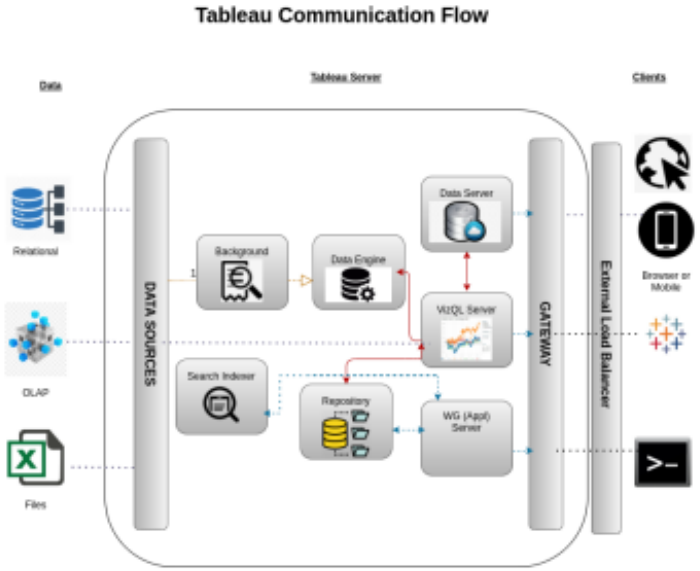


Tableau Server is internally managed by the multiple server processes.

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

Data Set : World Development Indicators (WDI)

Link : https://datacatalog.worldbank.org/dataset/world-development-indicators

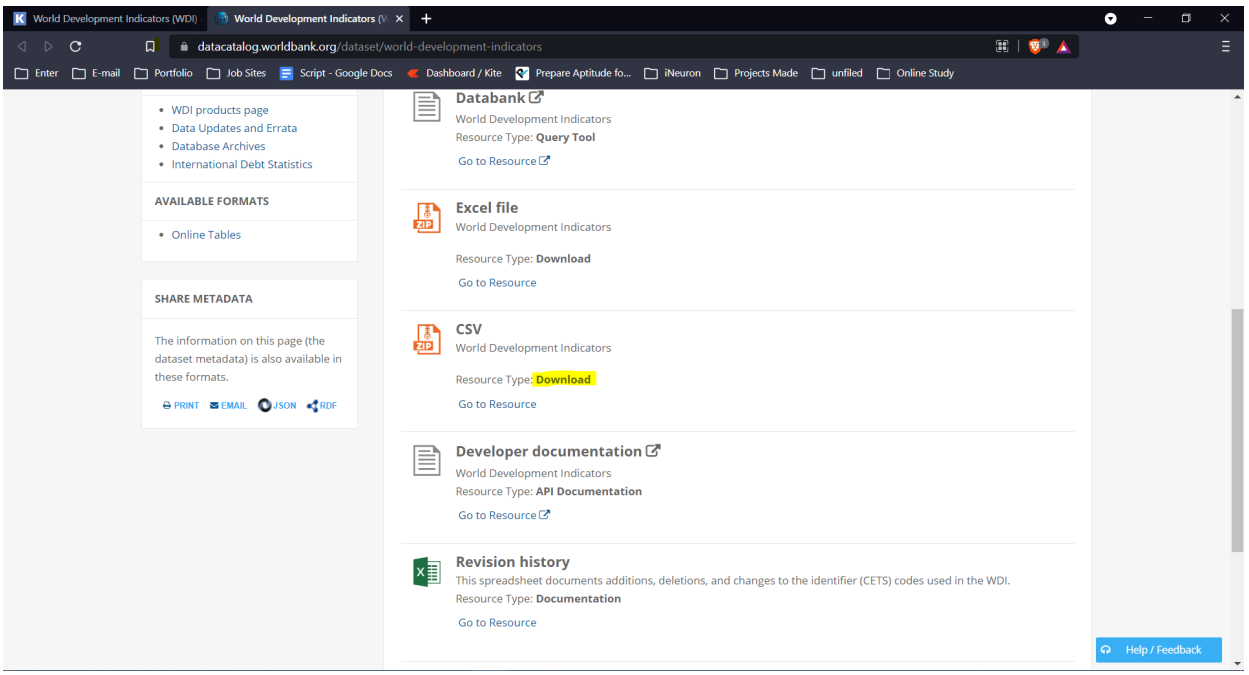
The primary World Bank collection of development indicators, compiled from officially-recognized international sources. It presents the most current and accurate global development data available, and includes national, regional and global estimates

3.2. Data Transformation

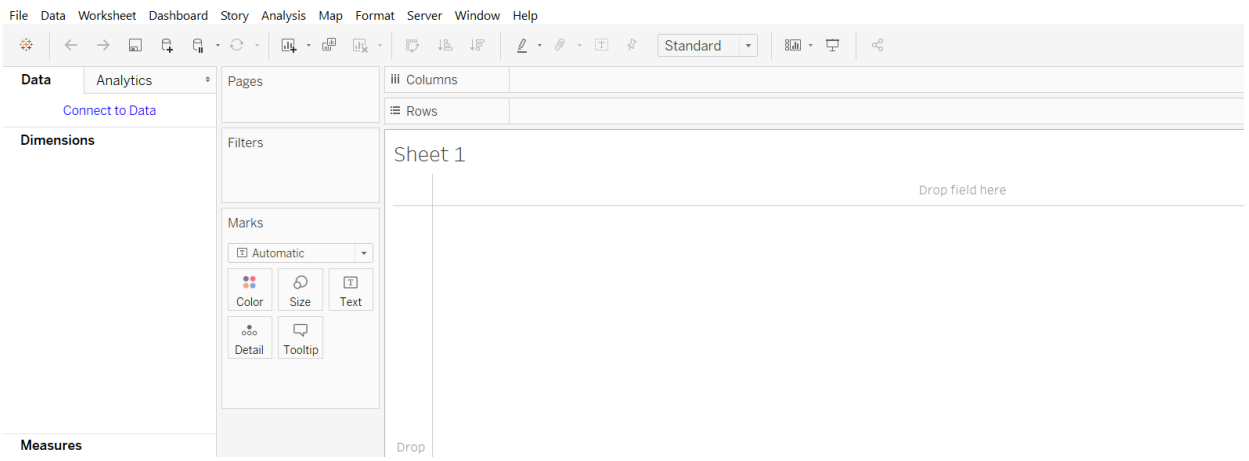
In the Transformation Process, we will convert our raw datasets with other necessary attributes format.

3.3. Set up the Data Source

Step 1: Download the Dataset in the CSV format.



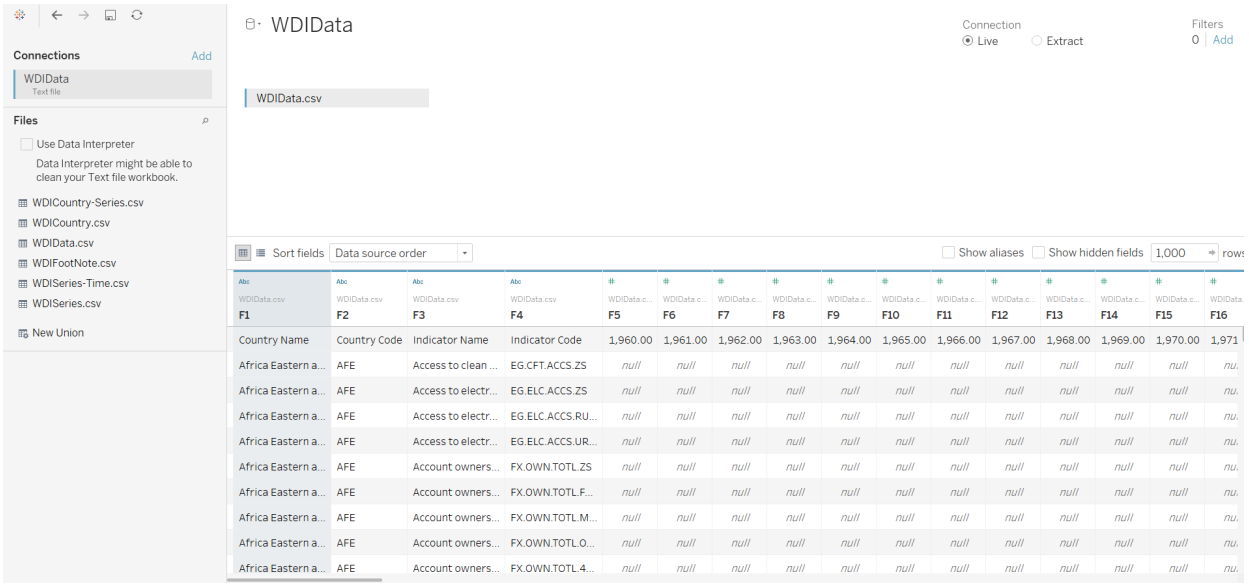
Step 2: Select Connect to Data in Tableau Software



After selecting the connect to data, select the text file format and upload the csv file on tableau desktop.

Step 3: Setting up the first row as header

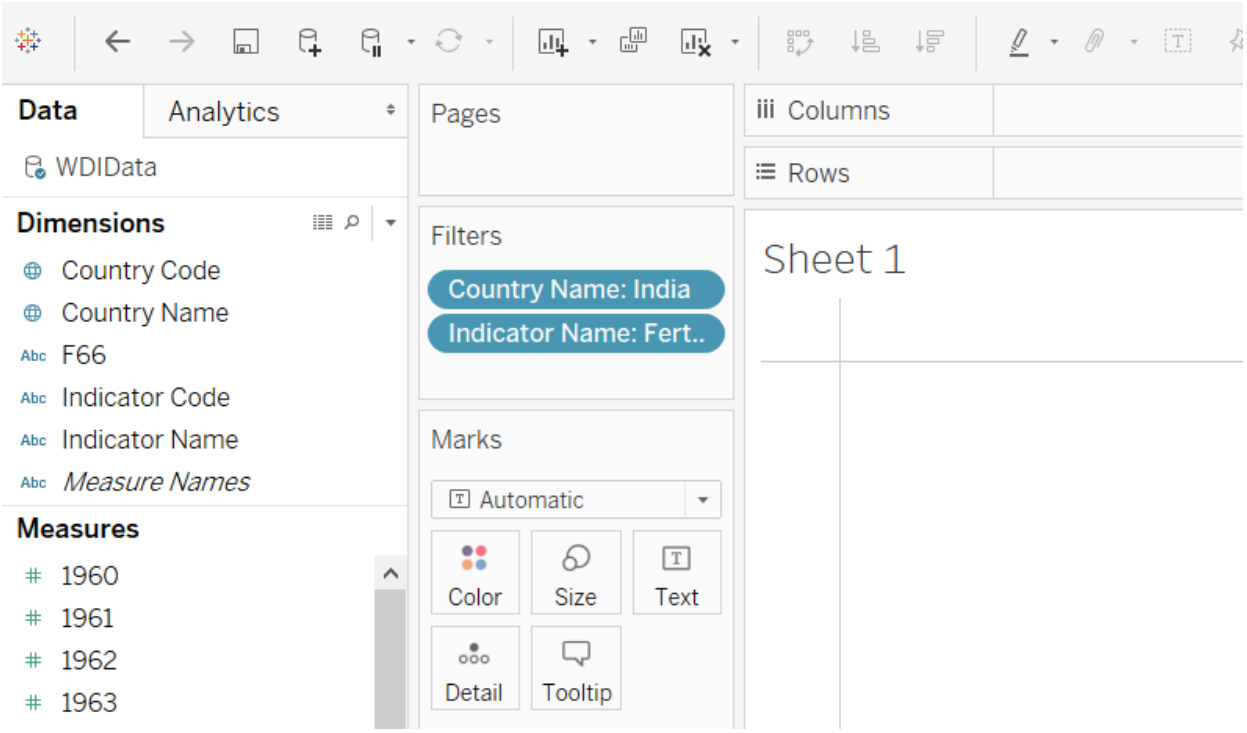
After uploading the file



We have to set the first row as header by selecting the WDIdata.csv file and clicking Field names in the first row.

Country Name	Country Code	Indicator Na...	Indicator Code	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Africa Eastern a...	AFE	Access to clean ...	EG.CFT.ACCS.ZS	null	null	null	null	null	null	null	null	null	null	null
Africa Eastern a...	AFE	Access to electr...	EG.ELC.ACCS.ZS	null	null	null	null	null	null	null	null	null	null	null
Africa Eastern a...	AFE	Access to electr...	EG.ELC.ACCS.RU...	null	null	null	null	null	null	null	null	null	null	null
Africa Eastern a...	AFE	Access to electr...	EG.ELC.ACCS.UR...	null	null	null	null	null	null	null	null	null	null	null
Africa Eastern a...	AFE	Account owners...	FX.OWN.TOTL.ZS	null	null	null	null	null	null	null	null	null	null	null
Africa Eastern a...	AFE	Account owners...	FX.OWN.TOTL.F...	null	null	null	null	null	null	null	null	null	null	null
Africa Eastern a...	AFE	Account owners...	FX.OWN.TOTL.M...	null	null	null	null	null	null	null	null	null	null	null
Africa Eastern a...	AFE	Account owners...	FX.OWN.TOTL.O...	null	null	null	null	null	null	null	null	null	null	null
Africa Eastern a...	AFE	Account owners...	FX.OWN.TOTL.4...	null	null	null	null	null	null	null	null	null	null	null
Africa Eastern a	AFE	Account owners	FX.OWN.TOTL.P	null	null	null	null	null	null	null	null	null	null	null

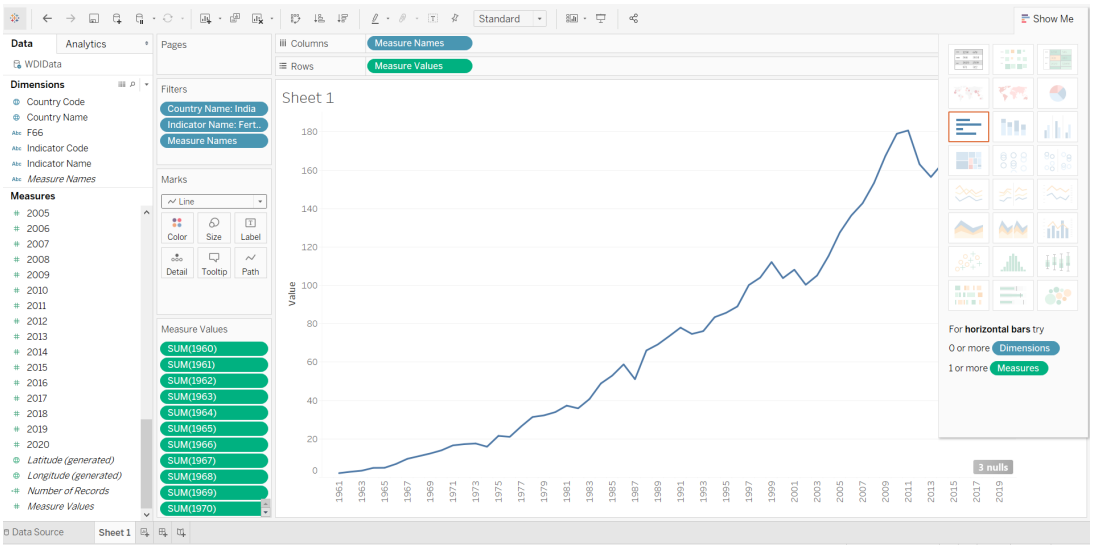
Step 4: Click on Sheet 1 and Insert Country Name, Indicator Name in Filter Shelf



Set the County Name filter to India and Indicator Name filter to fertilize consumption per hectare of land.

Step 5: VIsualize the trend line on the sheet

1. Select all the year's values and drop them on the sheet.
2. Click on Show me and select horizontal bars.
3. Change the mark from automatic to line to show it in the line chart.



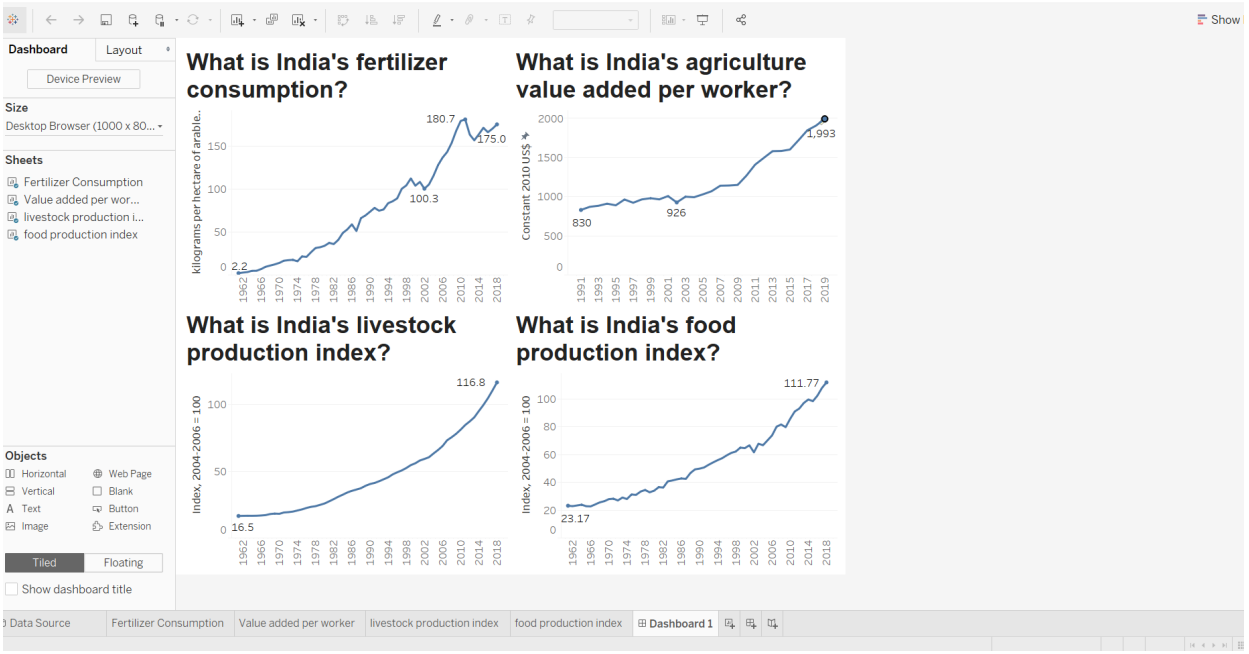
Step 6: Perform the same operation on other sheets

1. Perform the same operation on other sheets for the following categories:
    A. India Agriculture value added per worker
    B. India livestock production index
    C. India food production index

3.4 Create a Dashboard

Step 1: Click on Add Dashboard

Step 2: Drag and Drop all the charts in an appealing manner.



3.4. Export Data

Data Export from Tableau - The data can be exported as a .twb (tableau workbook) or .twbx (tableau packaged workbook).

Tableau packaged workbooks are packaged along with data to make the visualization and data accessible to new users.

3.5 Deployment.

Once you've completed your dashboard, you can share the .twbx file with stakeholders of the project.

The Analytics team can use the dashboard to analyze the Indian Agriculture factors and outputs based on various categories.