Low Level Design

E-COMMERCE SALES DASHBOARD

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DOCUMENT CONTROL

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VERSION	DATE	AUTHOR	COMMENTS
0.1	10- Sep - 2021	JAGRITI	Introduction and architecture defined
0.2	12-Sep - 2021	VIKASH AND KADAMBANI	Architecture & Architecture description appended and updated.

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VERSION	DATE	REVIEWER	COMMENTS
0.2			

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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 logic and formulas used during the E COMMERCE SALES DASHBORD creation.

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. Excel Server Architecture
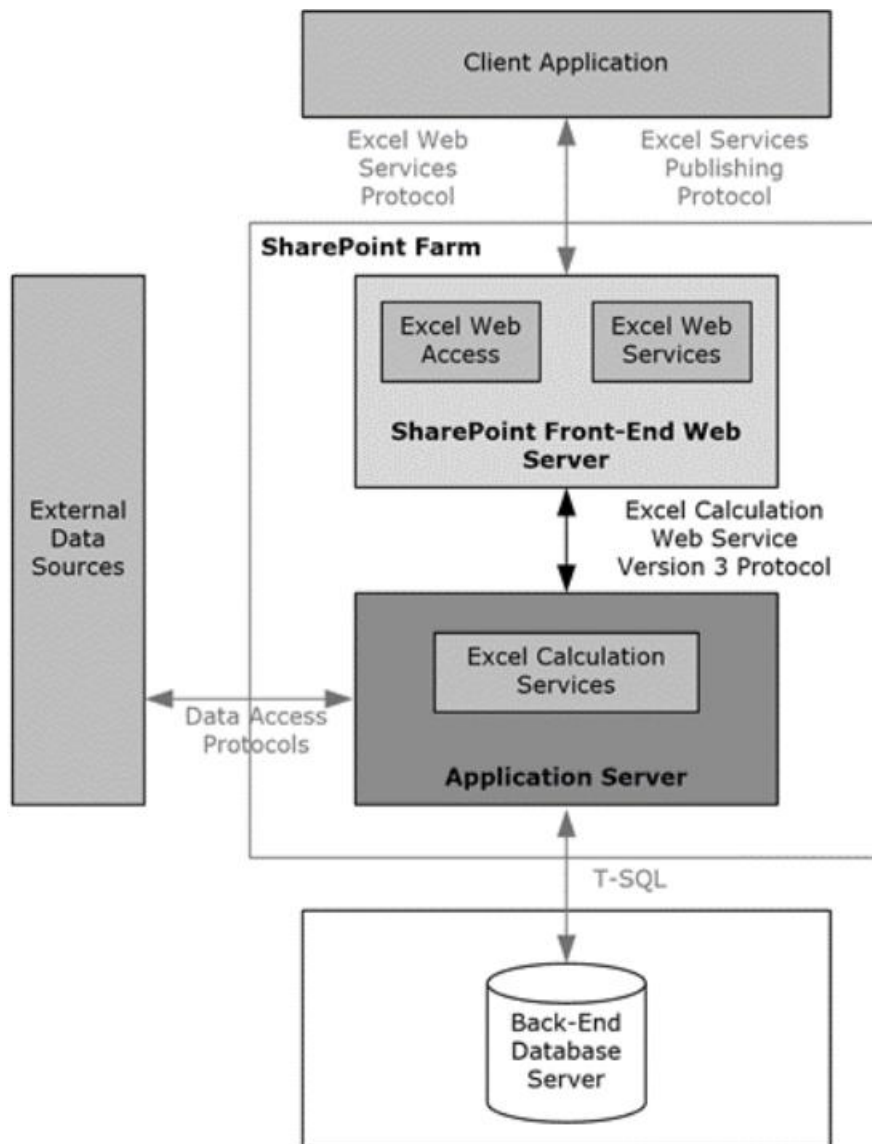
. Excel Services is based on the technologies of ASP.NET and SharePoint Foundation. The important components of Excel Services are given below:

•   Excel Web Access

•   Excel Web Services

•   User-defined functions (UDFs)

•   ECMAScript (JavaScript, JScript)

•   Representational State Transfer (REST) service

•   Excel Calculation Services

The components of Excel Web Access, Excel Web Services, UDFs, JavaScript, the REST service, and Excel Calculation Services can be separated into two different groups:

1)Front-end server components (also referred as "Web front end") includes Excel Web Access, JavaScript, the REST service, and Excel Web Services

2)Back-end application server components (A Web front end and a back-end application server's components) includes The Excel Calculation Services component, along with any UDF assemblies added by an administrator

Well, talking about the Web Front-End Servers & Back-End Application servers, In the least complex arrangement in SharePoint Worker 2010—that is, only one PC running SharePoint Worker 2010 as an independent establishment—each of the five parts are introduced on a similar PC. Not talking about an organization environment with an enormous number of clients, the parts Online front-end worker and the parts toward the back application worker are on various PCs in a homestead setup. It is feasible to scale out the Internet front-end worker autonomously from the back-end application worker. Understanding with an example if we talk about an IT company requirement; we need to have a good number of Web front-end servers with the back-end application servers.

3. Architecture Description

3.1. Data Description

The dataset contains sales of various products which fall in different product categories. The dataset keeps a track of

1. aa: product Id

2. Order date: the date on which the item was ordered

3. Ship date: date on which the product was shipped

4. Aging: no. Of days taken for the shipment to process

5. Ship mode: The mode of the shipment

6. Product category: Category to which the product belongs

7. Product: what is the product ordered

8. Sales: Selling cost of the product

9. Quantity: the quantity of the product ordered

10. Discount: the discount given by the company to the customer on that product

11. Profit: the profit that the company made by selling that product

12. Shipping Cost: the amount that has been taken by the product to ship it.

13. Order Priority: whether the product falls in high, medium or low priority category

14. Customer id: id of the customer who has ordered the product

15. Customer name: name of the customer

16. Segment: whether the order was a corporate order or a home order etc.

17. City: name of the city to which the order needs to be delivered

18. State: name of the state to which the order needs to be delivered

19. Country: name of the country to which the order needs to be delivered

19. Region: the region to which the order must be delivered

20. Months: the month in which the order was placed

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 Creating Microsoft Excel Connections to SQL databases

 Microsoft Excel can be a powerful tool to evaluate SQL data. In Excel, a connection can be created to directly link to a particular database filtered according to your requirements.   This connection must be validated by a SQL login to ensure the contents of your databases remain secure. The connection can be refreshed to update the content from the SQL database.
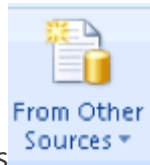
Step 1: To Create an Excel Connection:
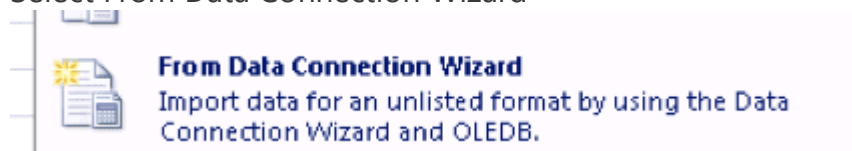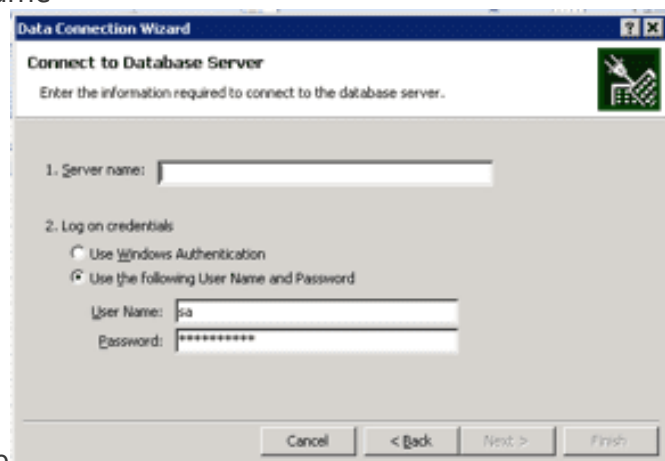
- Open Microsoft Excel
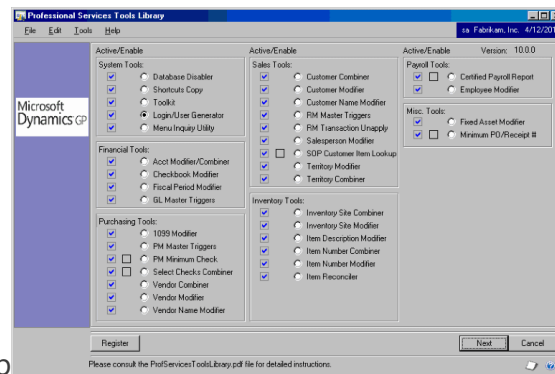
- Select the Data tab

- Click From other sources
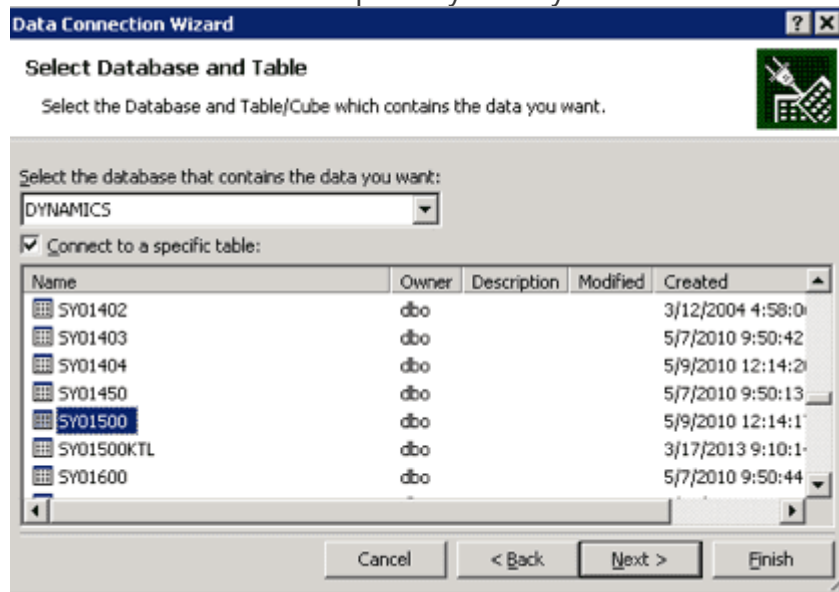- Select From Data Connection Wizard

- Select Microsoft SQL Server
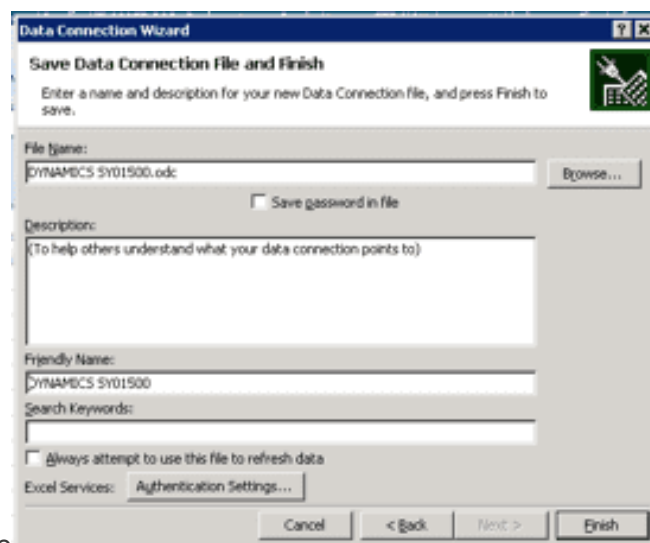- Click Next
- Enter the SQL Server Name

- Select credentials to use
- Click Next

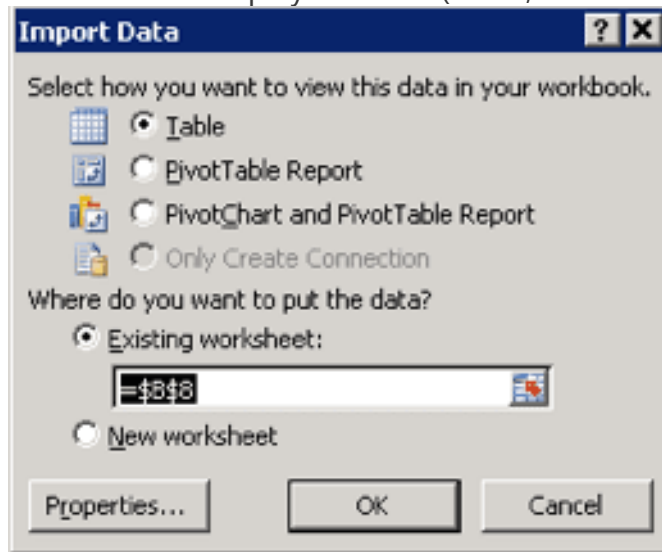- Select the database and primary table you would like to use

- Click Next
- Enter File Name

- Enter Friendly Name
- Click Finish
- Enter cell to start the data connection

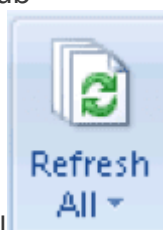- Select how to display the data (Table, Pivot Table, Pivot Chart and Table)

- Click Ok
- Enter your credentials
- Click Ok

Step 2: Refresh an Excel Connection to a SQL database

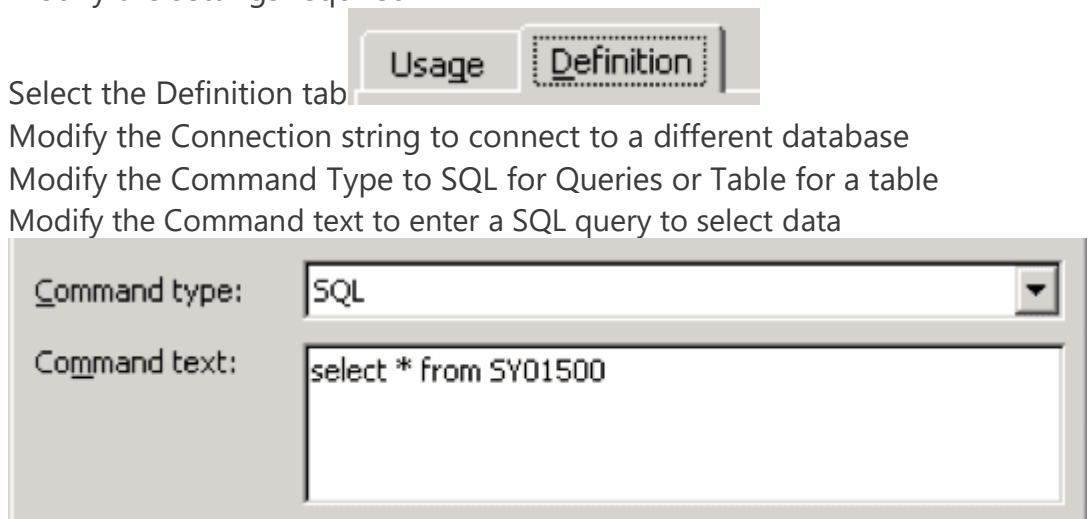To refresh the Excel Connection:

- Select the Data tab

- Select Refresh All

Step 3: Update Excel Connection(s) to a SQL database

Update the connection:

- Update an Excel Connection:
- Select the Data tab
- Select Connections
- Select the Connection
- Select the properties button
- Modify the settings required

- Select the Definition tab
- Modify the Connection string to connect to a different database
- Modify the Command Type to SQL for Queries or Table for a table
- Modify the Command text to enter a SQL query to select data

3.6 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.

3.7 Deployment of Excel Dashboard

- The Analytics team of an Online E-Commerce Company wants to design a Sales dashboard to analyze the sales based on various product categories.
- The company wants to add user control for product category, so users can select a category and can see the trend month-wise and product-wise accordingly.
- We created a histogram for shipping days(aging) then we created a user combo box then using SUMIFS formula calculated the Total Sales, Quantity, and Profit and sales and profit month-wise. We then created column charts.

4. Unit Test Cases

TEST CASE DESCRIPTION	EXPECTED RESULTS
Combo box	When clicked on the arrow button in the combo box, a dropdown Should occur which has all the product categories from this customer Can select the product categories and see the changes in the dashboard.
Sales, Quantity & Profit	Here the column chart shows total sales, quantity sold, profit gained monthly wise.
Aging parameter	Number of shipping days taken by the product.
Aging wise frequency	Here a histogram is shown that depicts the age wise frequency of various age bins
Comparison of sales region wise	Here a column chart is shown that compares a particular category's sales in various regions
Monthly sales and profit	Here a histogram is shown that visualizes the total sales and profit made by a particular product category in various months