LOW LEVEL DESIGN

AMAZON SALES DATA ANALYSIS

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DOCUMENT VERISON CONTROL

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28-10-2023	1.0	First Version of Low-Level Design Document is been completed	Shubham Vedi

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1. INTRODUCTION

1.1 WHAT IS LOW LEVEL DESIGN DOCUMENT?

The goal of the low-level design document is to give the internal logic design of the actual program or the dashboard of Amazon sales data analysis. Low level design document describes the class diagrams with the methods and relations between classes and program specs. It describes the modules so that programmer can directly code or create the dashboard directly through this document.

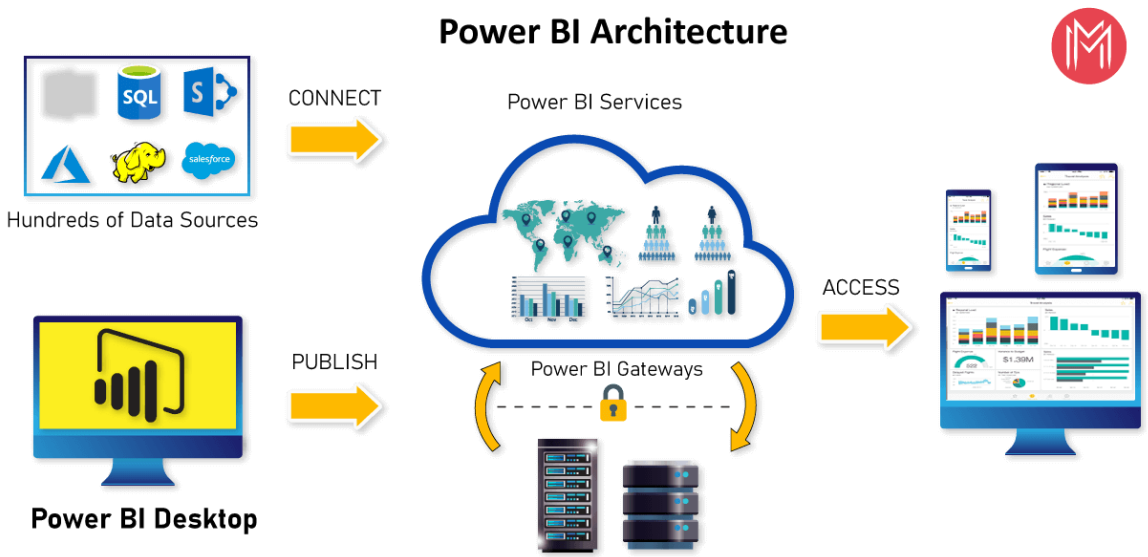
1.2 SCOPE

Low level design is a component level design process that follows a step-by-step refinement process. This process can be used for designing data structures, required software architecture, source code and ultimately performance algorithms as well. We will be using this low-level design document in order to create a high-level dashboard design which will give us all the necessary insights.

2. ARCHITECTURE

Power BI is a business suite that includes several technologies that work together. To deliver outstanding business intelligence solutions, Microsoft Power BI technology consists of a group of components such as:

- Power Query (for data mash-up and transformation)
- Power BI Desktop (a companion development tool)
- Power BI Mobile (for Android, iOS, Windows phones)
- Power Pivot (for in-memory tabular data modelling)
- Power View (for viewing data visualizations)
- Power Map (for visualizing 3D geo-spatial data)
- Power Q&A (for natural language Q&A)



1. DATA SOURCES

An important component of Power BI is its vast range of data sources. You can import data from files in your system, cloud-based online data sources or connect directly to live connections. If you import from data on-premise or online services there is a limit of 1 GB.

Some commonly used data sources in Power BI are:

- Excel
- Text/CSV
- XML
- JSON
- Oracle Database
- IBM DB2 Database
- MySQL Database
- PostgreSQL Database
- Sybase Database
- Azure SQL Database
- Salesforce Reports
- Google Analytics
- Facebook
- GitHub

2. POWER BI DESKTOP

Power BI Desktop is a client-side tool know as a companion development and authoring tool. This desktop-based software is loaded with tools and functionalities to connect to data sources, transform data, data modelling and creating reports. Power BI desktop can be used in order to create interactive dashboard and generate various insights. It provides with a wide range of features which can be used in order to get your work done in an easy manner.

3. POWER BI SERVICE

Power BI Service is a web-based platform from where you can share reports made on Power BI Desktop, collaborate with other users, and create dashboards.

It is available in three versions:

- Free version
- Pro version
- Premium version

Power BI Service is also known as, "**Power BI.com**," "**Power BI Workspace**,"

4. POWER BI REPORT SERVER

The Power BI Report Server is like the Power BI Service. The only difference between these two is that Power BI Report Server is an on-premise platform. It is used by organizations who do not want to publish their reports on the cloud and are concerned about the security of their data. Power BI Report Server enables you to create dashboards and share your reports with other users following proper security protocols. To use this service, you need to have a Power BI Premium license.

5. POWER BI GATEWAY

This component is used to connect and access on-premise data in secured networks. Power BI Gateways are generally used in organizations where data is kept in security and watch. Gateways help to extract out such data through secure channels to Power BI platforms for analysis and reporting.

6. POWER BI MOBILE

Power BI Mobile is a native Power BI application that runs on iOS, Android, and Windows mobile devices. For viewing reports and dashboards, these applications are used.

7. POWER BI EMBEDDED

Power BI Embedded offers APIs which are used to embed visuals into custom applications.

3. ARCHITECTURE DESCRIPTION

3.1 DATA DESCRIPTION

This dataset contains only a single sheet withing an Excel workbook which is Amazon Sales data of the year 2017, 2018, 2019.

It contains the following fields:

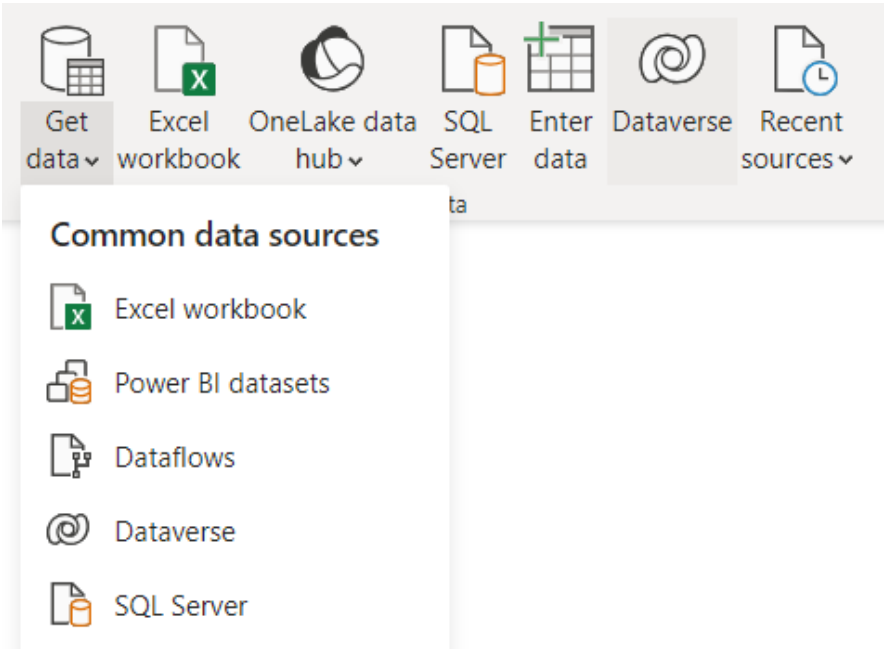
- **Custkey** – It is a Unique Id used to define a customer.
- **Datekey** – It is the date on which transaction took place.
- **Discount amount** – It is the difference between Sales amount based on list price and Sales amount.
- **Invoice Date** – It is the date on Which the Ordered delivered and invoice created.
- **Invoice Number** – It is a Unique number generated by the system after making of invoice
- **Item Class** – It is the class of the Item.
- **Item Number** – It is a Unique number used to define an item.
- **Item** – It is the name of the item for which transaction took place.
- **Line Number** – It is the number of lines from which it is ordered.
- **List Price** – It is the price quoted by the manufacturer.
- **Order Number** – It is the Unique Number for the order.
- **Promised delivery date** – It is the date provided on which delivery is expected.
- **Sales Amount** – It is the Product of Sales Price and Quantity.
- **Sales amount based on List Price** – It is the product of List price and Quantity.
- **Sales Cost amount** – It is the amount caused for making sales of the item.
- **Sales Margin amount -** It is the difference between Sales amount and Sales cost amount.
- **Sales Price** – It is the price at which Item is Sold.
- **Sales Quantity** – It is the quantity of the ordered item.
- **Sales Rep**. – It is the unique number or Id of the sales representative.
- **U/M** – It Is the Unit of measurement for item.

3.2 DATA LOADING

Steps to load data into Power BI Desktop:

1. Open Power BI Desktop

2. Click on Get Data → Click on Excel Option



3. Navigate through the menu and find your excel file and press OK.

4. Once the data is been successfully selected select the sheet and click on Transform Data.

3.3 DATA TRANSFORMATION

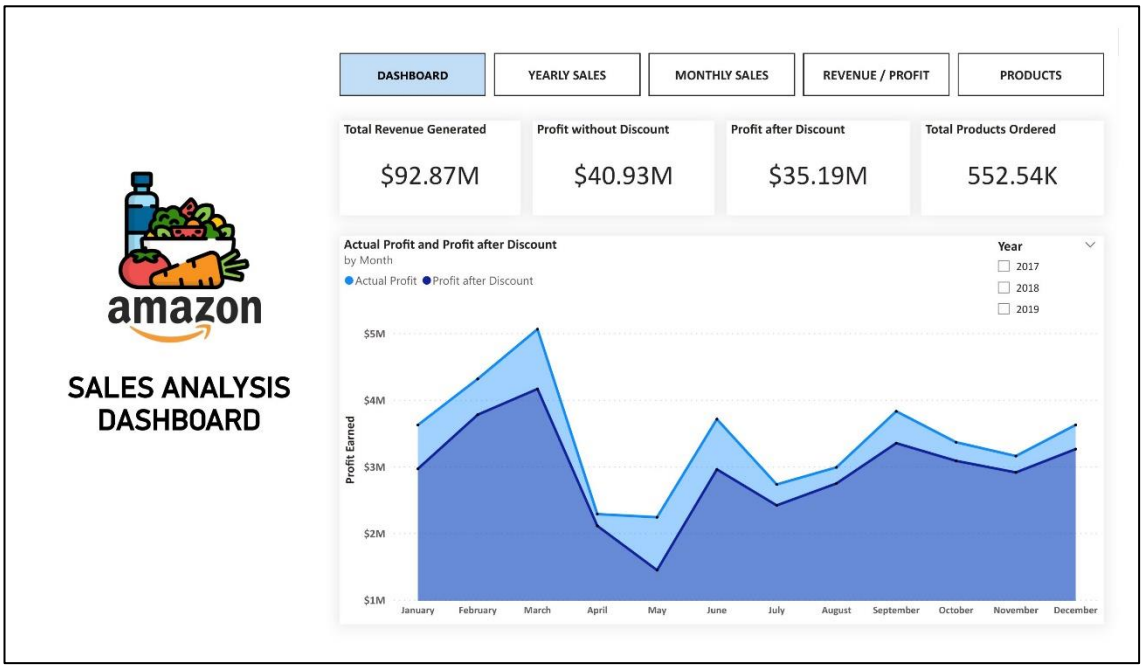
Data Transformation is the process of cleaning the data in order to make it fit for our analysis. This process is even called as Data Wrangling, Data Cleaning etc. In this process of data transformation, we can make use of various software such as Excel, Power BI, Python etc in order to understand the data and remove unnecessary columns and data.

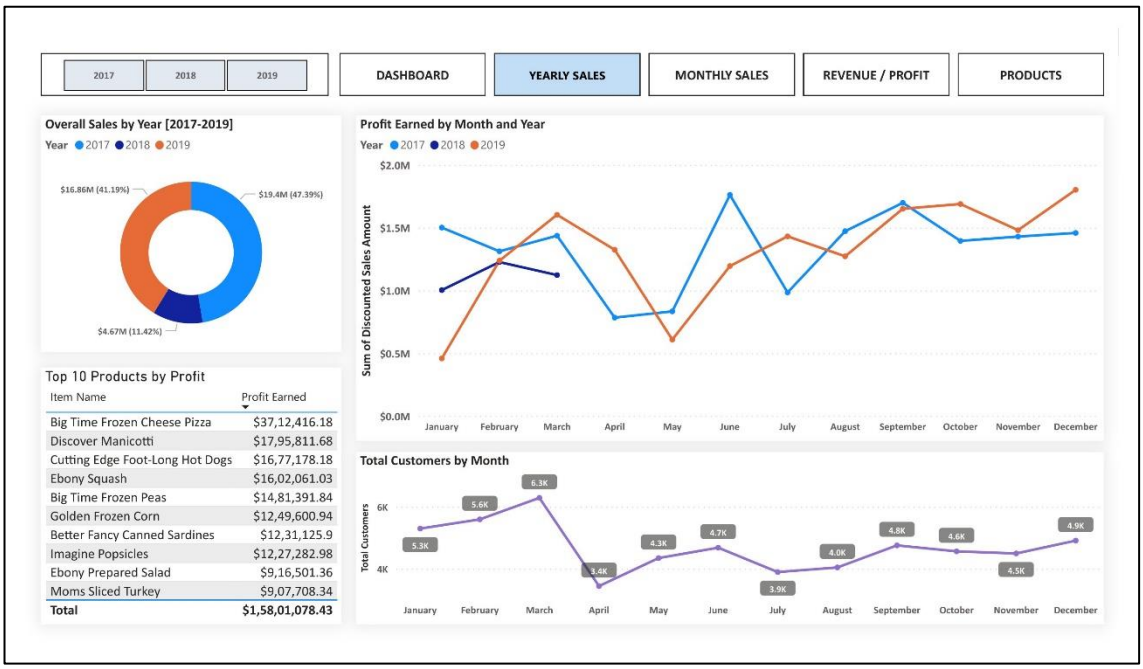
In this analysis I have changed the names of the columns in order to understand them better and it would be easier in order to know what type of data is been stored into it. Some columns are not necessary according to our analysis point of view and hence they have been deleted.

3.4 DEPLOYMENT

After completion of your dashboard creation process. You can do the following steps in order to upload the dashboard into your workspace, Power BI service.

1. Click on the Publish button on the ribbon
2. A box would appear and then select the workspace and press Select
3. Now the report is been published to Power BI service
4. You can now explore your reports and online.





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4. UNIT TEST CASES

TEST CASE	DESCRIPTION
Year Slicer	A slicer which shows 3 Years
Proper Cards	The cards which show correct values
Top Products	Show top products in order to understand on what to focus for more sales
Months Tree map	To see the sales by months and sort them by profit made
Monthly Profit	A graph which shows the sales by months and can be sorted by year
Page Buttons	The page buttons in order to navigate all the pages of the dashboard in an easy way