LOW LEVEL DESIGN

Amazon Sales Data Analysis

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Contents

1. **Introduction**

1.1 **What is Low-Level design document?**

The purpose of this low-level document is to provide a comprehensive guide for analyzing Amazon e-commerce sales data. The document will cover the steps required to gather, clean, and analyze the data, as well as interpret the results and take actionable steps to improve sales performance. This document is intended for data analysts, business intelligence professionals, and anyone who is interested in analyzing Amazon e-commerce sales data to gain insights into the performance of the platform.

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

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 modeling)
- 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
- Teradata Database
- SAP HANA Database
- SAP Business Warehouse server
- Amazon Redshift

2.Power BI Desktop

Power BI Desktop is a client-side tool known 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 modeling and creating reports.

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"**, **"Power BI Site"** and **"Power BI Web Portal"**. This component also offers advanced features like *natural language Q&A* and *alerts*.

4. Power BI Report Server

The Power BI Report Server is similar to 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

The dataset contains E-Commerse Sales data of Amazon for the year 2010 to 2017

Amazon Sales Data Contains

1. Region - Continent or Region of the Sales Country
2. Country - Name of the Country of Sales happened
3. Item Type - It is The Category of the product
4. Sales Channel - Mode of the Sales (Online or Offline)
5. Order Priority - It is Priority of the product (**H C L M**)
6. Order Date - Date of order registered
7. Order ID - Unique id number of order to track the order
8. Ship Date - Date of the ordered product got shiped
9. Unit Sold - Amount of quantity sold for that order
10. Unit Price - Amount sold to costumer per Unit
11. Unit Cost - Orginal price of the Unit
12. Total Revenue - Total revenue of the order
13. Total Cost - Orginal total cost of sold units
14. Total Profit - Profit gained in that order(Total revenue – Total Cost)

1. Customer Key-   Unique Number given to customer
2. Date Key -   Date When Customer Purchase Item
3. Discount Amount –   Discount Given To Customer
4. invoice Date -   Billing Date
5. Invoice Number -   Bill Number
6. Item Class -   It is The Category of the product
7. Item Number –   Number Assign To Customer
8. Item –   Product Number
9. Line Number -
10. List Price –   Prices Of Customer
11. Order Number –   Order Number
12. Promised Delivery Date
13. Sales Amount –   Total Amount of Sales
14. Sales Amount Based on List Price
15. Sales Cost Amount-   How much Spend on Selling Product
16. Sales Margin Amount –   Actual Profit
17. Sales Price –   Product Sold On This Price
18. Sales Quantity –   How Much Quantity Sold
19. Sales Rep

3.2 Data Gathering

Step 1:- Open Power BI Desktop Application
Step 2:- Click on Get Data ◊ Click on excel
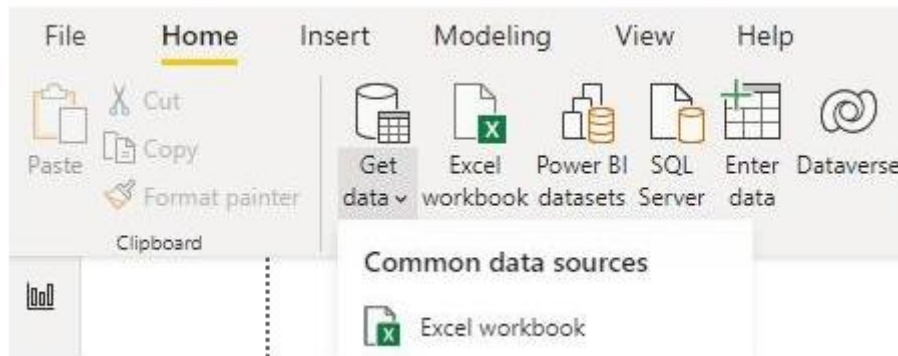
Step 3:- Browse to the data file on your system and select
Step 4:- Once Data is loaded click on **Transform data** in the bottom for further
    transformation.

3.4 Data Transformation
In the Transformation Process, we will convert our original datasets with other
necessary attributes format and change the features according to the problem statement
on Power BI ETL tool Power Query as the data is in excel format.

A new Dim_ date table created for easy time intelligence analysis the features are:
1.Day of Week
2.Month name
3.Year
4.Year quarter
5.Month
6.Date

3.5 Data Modelling
After the data is transformed the data is modeled for visualizing and analysis

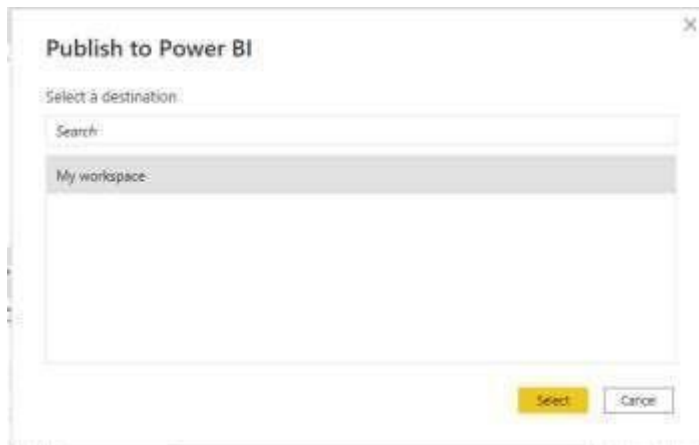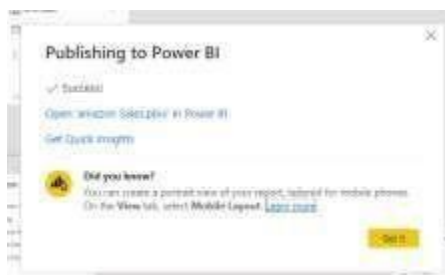## 3.4 DEPLOYMENT:

After completing Dashboard Follow the Steps to
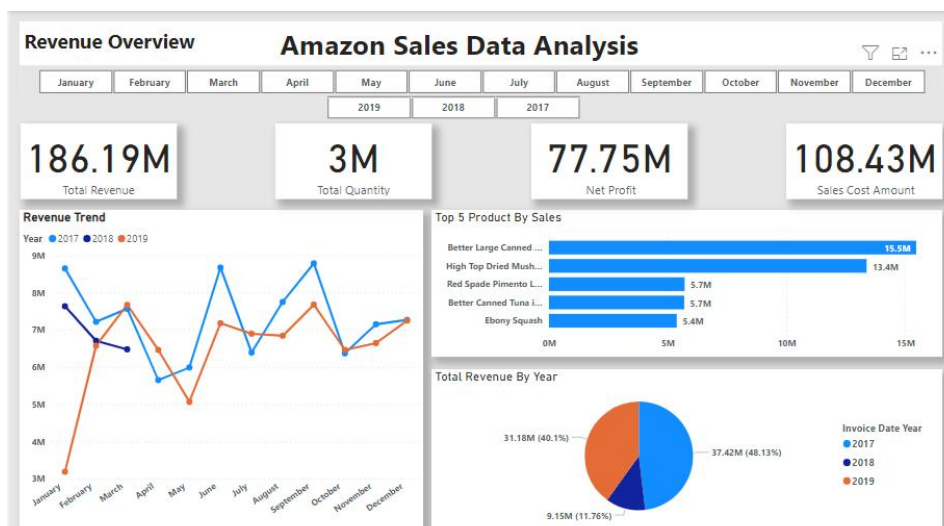deploy the report Step 1:- Click on **Publish** on the
ribbon.

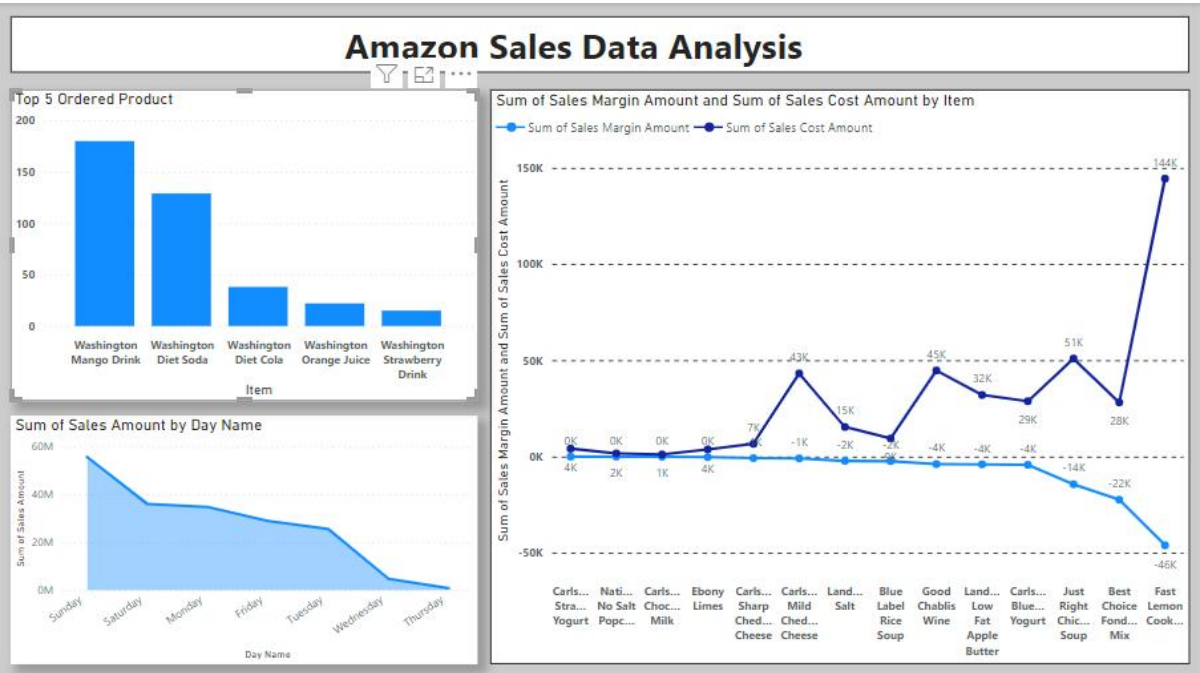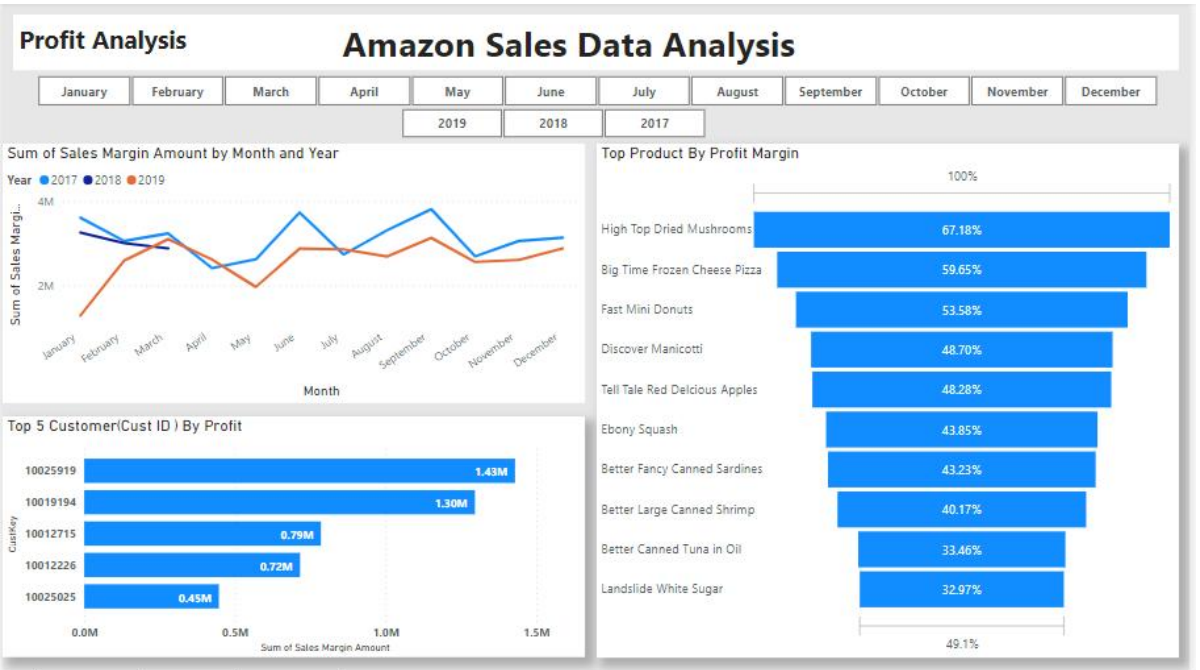Step 2:- A box will pop just click on **my workplace** and **select**

Step 3:- Now your report is published just click on open to check your report.

Step 4:- Report is published now explore your report

LOW LEVEL DESIGN

Profit Analysis — Amazon Sales Data Analysis

| January | February | March | April | May | June | July | August | September | October | November | December |

| 2019 | 2018 | 2017 |

Sum of Sales Margin Amount by Month and Year

Year ● 2017 ● 2018 ● 2019

Top Product By Profit Margin

Product	%
High Top Dried Mushrooms	67.18%
Big Time Frozen Cheese Pizza	59.65%
Fast Mini Donuts	53.58%
Discover Manicotti	48.70%
Tell Tale Red Delcious Apples	48.28%
Ebony Squash	43.85%
Better Fancy Canned Sardines	43.23%
Better Large Canned Shrimp	40.17%
Better Canned Tuna in Oil	33.46%
Landslide White Sugar	32.97%

100% ... 49.1%

Top 5 Customer(Cust ID) By Profit

CustKey	Sum of Sales Margin Amount
10025919	1.43M
10019194	1.30M
10012715	0.79M
10012226	0.72M
10025025	0.45M

Amazon Sales Data Analysis

Top 5 Ordered Product

Washington Mango Drink, Washington Diet Soda, Washington Diet Cola, Washington Orange Juice, Washington Strawberry Drink

Sum of Sales Margin Amount and Sum of Sales Cost Amount by Item

— Sum of Sales Margin Amount — Sum of Sales Cost Amount

Sum of Sales Amount by Day Name

Sunday, Saturday, Monday, Friday, Tuesday, Wednesday, Thursday

4. UNIT TEST CASES

Slicer of Year, Country & Quarter	Slicer shows a drop down
Top 20 product slicer	Slicer show top 20 product and select works
Charts	All charts showing 0 error
Tooltips	Tooltips on various page working properly
Page buttons	Page buttons working properly