Low Level Design
Amazon E-Commerce Sales Data Analysis

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Contents

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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)
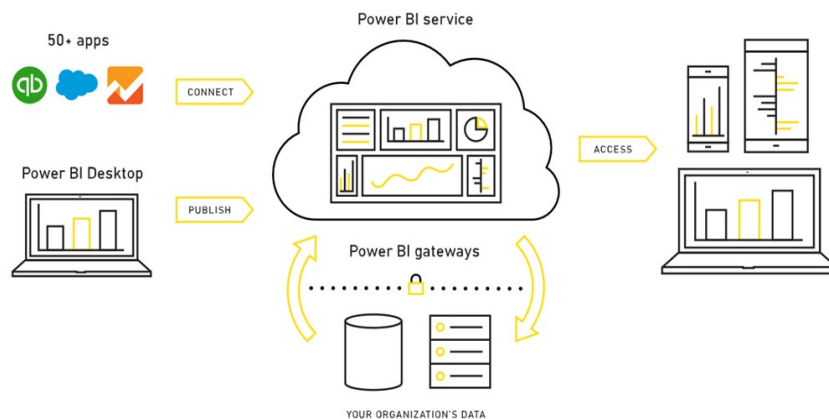
1. Data Sources

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

- Impala
- Google BigQuery (Beta)
- Azure SQL Database
- Salesforce Reports
- Google Analytics
- Facebook
- GitHub

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)

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3.2 Data Gathering

Step 1:- Open Power BI Desktop Application

Step 2:- Click on Get Data → Click on excel
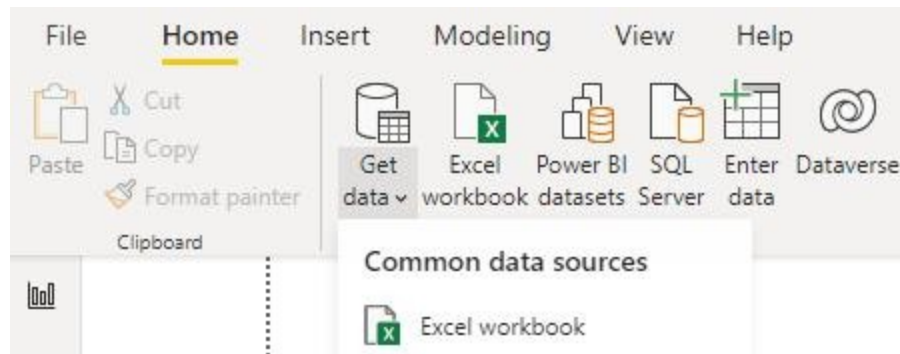
Step 3:- Browse to the data file on your system and select

Step 4:- Once Data is loaded click on **Transform data** in the bottom for further transformation.

3.3 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
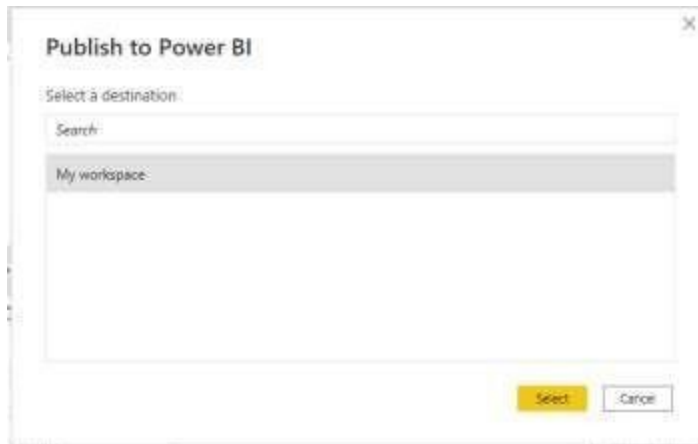4.Year quarter
5.Month
6.Date

3.3 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

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

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