Architecture Design Document

Project Name: Amazon Sales Data Analysis
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Date	Version	Description	Author
08 July 2025	1.0	Initial version of Architecture Design	Sourav Patra

1. Introduction

1.1 What is an Architecture Design Document?

An architecture design document outlines the structural design and technology stack used to implement the system. It defines the data flow between components, software tools, transformation stages, and deployment setup used in the project.

This document represents the **framework for data ingestion, processing, and visualization** of the Amazon Sales Dashboard project.

1.2 Scope

This document covers:

- Data source structure
- Data ingestion & transformation process
- Visualization architecture in Power BI
- Local deployment model
- Component interactions in the ETL and dashboarding layers

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2. Architecture Overview

📦 Architecture Stack Used:

Layer	Technology
Data Source	CSV File (`amazon_sales.csv`)
ETL Layer	Excel (Power Query)
Data Modeling & DAX	Power BI Desktop
Visualization Layer	Power BI Visuals
Storage & Sharing	`.pbix` file (local) or Power BI Service (optional)

3. Architecture Description

3.1 Power BI Architecture for This Project

This is a **local Power BI desktop architecture**, composed of:

1. **Data Source (CSV)**
   Raw Amazon Sales data loaded into Excel for basic formatting and cleanup.
2. **ETL Layer (Power Query in Excel)**
   Cleaned and transformed using Power Query, including:
   - Date format corrections
   - New columns: Year, Month, YearMonth
   - Removing duplicates or blank values
3. **Data Modeling in Power BI**
   - **AmazonSales Table**: Contains the cleaned records
   - **DateTable**: Created via DAX to enable time-based slicing
   - **Relationship**: DateTable[Date] → AmazonSales[Order Date]
4. **DAX Calculations**
   - Total Revenue, Total Profit, Units Sold, etc.
   - Time intelligence measures for trend tracking
5. **Visualization Layer**
   Dashboards include:
   - Line Chart (Monthly Sales)
   - Bar Chart (Profit by Region)
   - Pie Chart (Revenue by Item Type)
   - Cards (KPI indicators)
   - Filters/Slicers (Region, Year, Item Type)

3.2 Deployment Options

For this project, **Power BI Desktop** is used for local development and testing.

Possible Deployment Models:

Option	Description
Power BI Desktop (.pbix)	Local, offline analysis and sharing
Power BI Service	Optional online deployment for interactive sharing
Power BI Report Server	For internal enterprise-level hosting (not used here)

3.3 Diagram (Text Description)