Architecture Design Document

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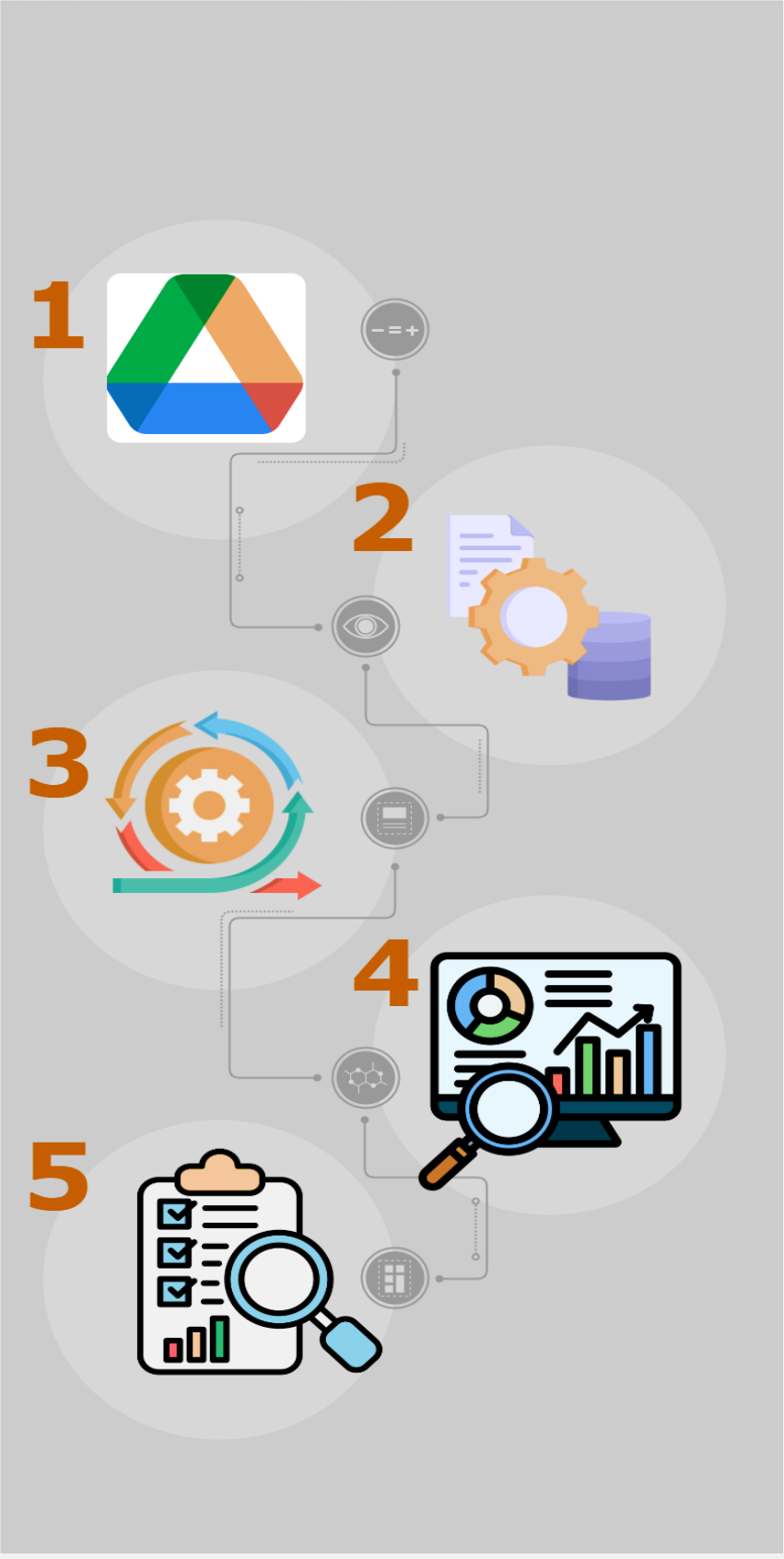
Architecture Design



Introduction:

This Architecture Design Document describes the approach and procedures for performing Business Intelligence (BI) analysis on Amazon Sale data in Jupyter Notebook using Exploratory Data Analysis (EDA). The goal is to get useful insights and create data-driven decisions in order to improve business performance and sales tactics.

Project Overview

Data Source: Amazon Sale Data (raw data in xlsx format).

Tool: Jupyter Notebook using Python and EDA-relevant libraries.

Output: BI insights, visualisations, and actionable recommendations.

Architecture Components:

1.Data Source:

The Amazon Sales dataset, which includes raw sales data such as sales transactions, products, revenue, costs, and timestamps, is the major data source for this BI solution. The information retrieve can from a source like xlsx.

2. Data Preparation:

-Load the raw data into Jupyter Notebook using Pandas or other appropriate libraries.

- Handle missing data, duplication, and difficulties with data quality.

- Convert data types (e.g., date fields, numerical values) as needed.

- As needed for analysis, perform data cleansing and transformation.

3.Exploratory Data Analysis (EDA):

- Conduct preliminary data analysis to understand the structure and characteristics of the data.

- Visualize data distributions, correlations, and patterns using Matplotlib, Seaborn library.

- Explore sales trends over time, identify peak sales periods, and assess seasonality.

- Analyse Top-selling items and quantities of them

- Analyse Sales Comparison - Sales Metrics and Item Bar Graph

- A comparison of sales and profitability

- Pie and Donut charts for highlighting Sales Metrics and Items

4.Business Intelligence Insights:

- Convert the EDA process findings into actionable insights.

- Develop relevant visualisations (charts, graphs, heatmaps, and so on) to effectively communicate findings to stakeholders.

- Determine key performance indicators (KPIs) and metrics related to business objectives (e.g., sales growth, customer retention).

- Examine how marketing strategy, quantity, and promotions affect sales performance.

5. Recommendations and Decision-Making:

- Make actionable recommendations based on the data findings.

- Develop strategies for increasing sales, improving customer experience, and increasing revenue.

- Assist with data-driven marketing, inventory management, and sales forecasting decisions.

6. Reporting and Visualisation:

- Create a detailed report summarising the BI insights and suggestions.

- Create dynamic dashboards or reports with tools like Jupyter widgets for easy data exploration by stakeholders.

Conclusion:

This Architecture Design Document describes how to execute Business Intelligence analysis on Amazon Sale data in Jupyter Notebook using Exploratory Data Analysis. Businesses may make educated decisions, improve sales tactics, and drive growth in the competitive e-commerce landscape by extracting valuable insights from data. The combination of BI and EDA enables organisations to harness the power of data and obtain a commercial advantage.