High Level Design (HLD)

Fortune 500 Companies

Data Analysis

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Contents

Abstract

This High-Level Design Document serves as the strategic blueprint for the Fortune 500 US Companies Financial Analysis Project. The project aims to analyze the financial performance of Fortune 500 companies in the United States over a specific year. This document outlines the project's objectives, scope, methodologies, tools, key performance indicators (KPIs), and deployment considerations in greater detail.

1 Introduction

1.1 Why this High-Level Design Document?

The purpose of this High-Level Design (HLD) Document is to add the necessary detail to the current project description to represent a suitable model for coding. This document is also intended to help detect contradictions prior to coding, and can be used as a reference manual for how the modules interact at a high level.

This High-Level Design Document plays a pivotal role in ensuring the successful planning and execution of the analytics project. It provides a comprehensive view of the project's design principles, strategies, and objectives. It serves as a crucial reference point for all project stakeholders, from data analysts to decision-makers.

1.2 Scope

The HLD documentation presents the structure of the system, such as the database architecture, application architecture (layers), application flow (Navigation), and technology architecture. The HLD uses non-technical to mildly-technical terms which should be understandable to the administrators of the system.

The scope of this analytics project is to conduct an in-depth financial analysis of Fortune 500 companies in the United States for a specific year. It encompasses a broad array of financial metrics, including market capitalization, 52-week high and low prices, dividends, earnings per share (EPS), EBITA, and various price ratios. The project further classifies companies into sectors and by market capitalization size (large, mid, small) to enable detailed comparative analysis.

2 General Description

2.1 Product Perspective & Problem Statement

In the contemporary financial landscape, the need for comprehensive financial analysis of leading corporations is paramount. This project addresses this need by providing a detailed view of the financial performance of Fortune 500 companies. It aims to empower investors, analysts, and decision-makers with valuable insights into financial trends, market dynamics, and investment opportunities.

2.2 Tools used

Business Intelligence tools works such as Ms. Excel, PowerBI are used to build the whole framework.

3 Design Details

3.1 Functional Architecture

The functional architecture of the project is characterized by a sequence of interrelated components:

- **Data Collection and Preprocessing:** Raw financial data is collected and subjected to rigorous preprocessing, including data cleaning, imputation, and normalization.
- **Exploratory Data Analysis (EDA):** EDA techniques are employed to identify patterns, outliers, and correlations within the data. Visualizations are generated to facilitate data exploration.
- **Statistical Analysis:** Statistical methods are applied to calculate summary statistics, inferential statistics, and correlations among various financial metrics.
- **Visualization:** The project utilizes advanced visualization techniques to create informative charts, graphs, and dashboards for clear communication of insights.

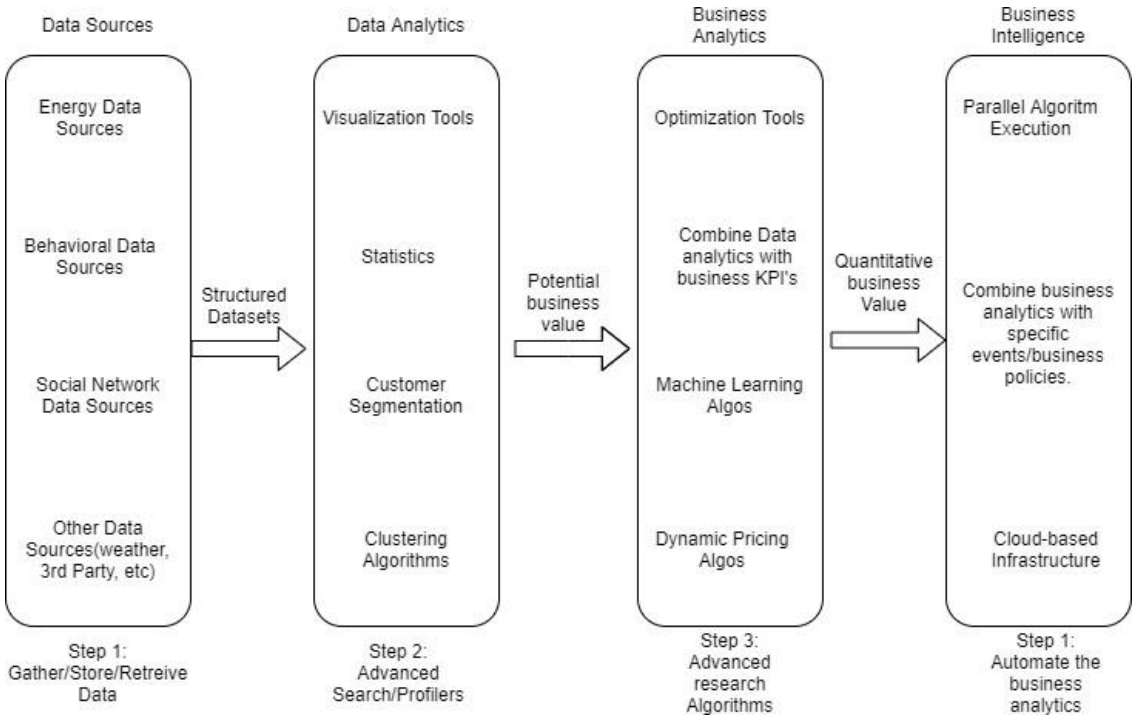
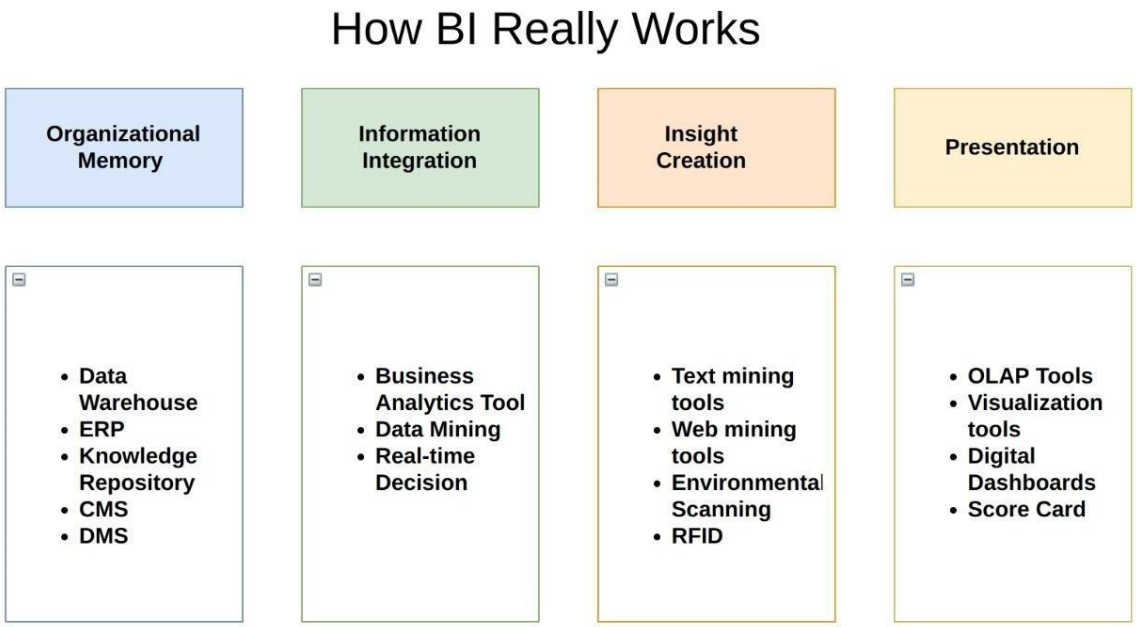


Figure 1: Functional Architecture of Business Intelligence



3.2 Optimization

To ensure optimal performance, the project incorporates several optimization strategies:

- **Data Caching:** Frequently used data is cached to reduce redundant data retrieval and processing.
- **Parallel Processing:** Computational tasks are distributed across multiple cores or processors to expedite data analysis.
- **Memory Management:** Efficient memory management techniques are applied to prevent memory leaks and enhance performance.

4 KPIs

4.1 KPIs (Key Performance Indicators)

The project's success will be measured through a set of Key Performance Indicators (KPIs):

1. **Accuracy:** The project's ability to ensure data accuracy and reliability.
2. **Preprocessing Effectiveness:** The efficiency of data preprocessing techniques in preparing the data for analysis.
3. **Visualization Quality:** The clarity and informativeness of data visualizations.
4. **Insight Generation:** The project's capacity to provide actionable insights into financial performance and market trends.

5 Deployment

Deployment is a critical phase in ensuring that the project's insights are accessible and usable by stakeholders. Considerations include:

- **Dashboard Development:** Creation of web-based dashboards for interactive exploration of financial data.
- **Automated Reporting:** Generation of automated reports summarizing key findings and insights.
- **API Integration:** Provision of APIs to allow external systems to access and utilize the project's analysis results.