High Level Design (HLD)

Customer Data Analysis

Revision Number: 1.0

Last date of revision: 01/05/2024

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Document Version Control

Date Issued	Version	Description	Author
01th May 2024	1.0	First Version of Complete HLD	Bysani Sai Santhosh

Contents

Abstract

For an organization to run smoothly and economically, employee access credentials must be managed effectively. However, the old practice of manually giving and revoking access when people migrate between jobs is time-consuming and error-prone. To solve this issue, this paper recommends the creation of automated access models that use previous data to properly forecast employees' access demands.

Through the utilization of abundant data on employee roles and granted access, these auto-access models seek to optimize the access management procedure while reducing the need for human intervention. The models will use powerful machine learning techniques to analyses previous access patterns and personnel attributes to forecast access requirements when employees enter or exit jobs within the organization.

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 manualfor how the modules interact at a high level.

The HLD will:

- Present all of the design aspects and define them in detail
- Describe the user interface being implemented
- Describe the hardware and software interfaces
- Describe the performance requirements
- Include design features and the architecture of the project
- List and describe the non-functional attributes like:
  - Security
  - Reliability
  - Maintainability
  - Portability
  - Reusability
  - Application compatibility
  - Resource utilization
  - Serviceability

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.

2 General Description

2.1 Product Perspective & Problem Statement

Understanding client behaviour and preferences is critical for firms who want to personalise their offers successfully. This project aims to leverage consumer data to acquire meaningful insights about buying habits, preferences, and engagement metrics. By utilising advanced data visualisation techniques with products like Tableau or Power BI,

The goal is to provide firms a thorough visual knowledge of client interactions. The goal is to extract relevant insights from a massive amount of consumer data to optimise marketing tactics, personalise customer experiences, and ultimately drive company success.

2.2 Tools used

Business Intelligence tools and libraries works such as Numpy, Pandas, Excel, Tableau, Power BI are used to build the whole framework.

3 Design Details

3.1 System Architecture

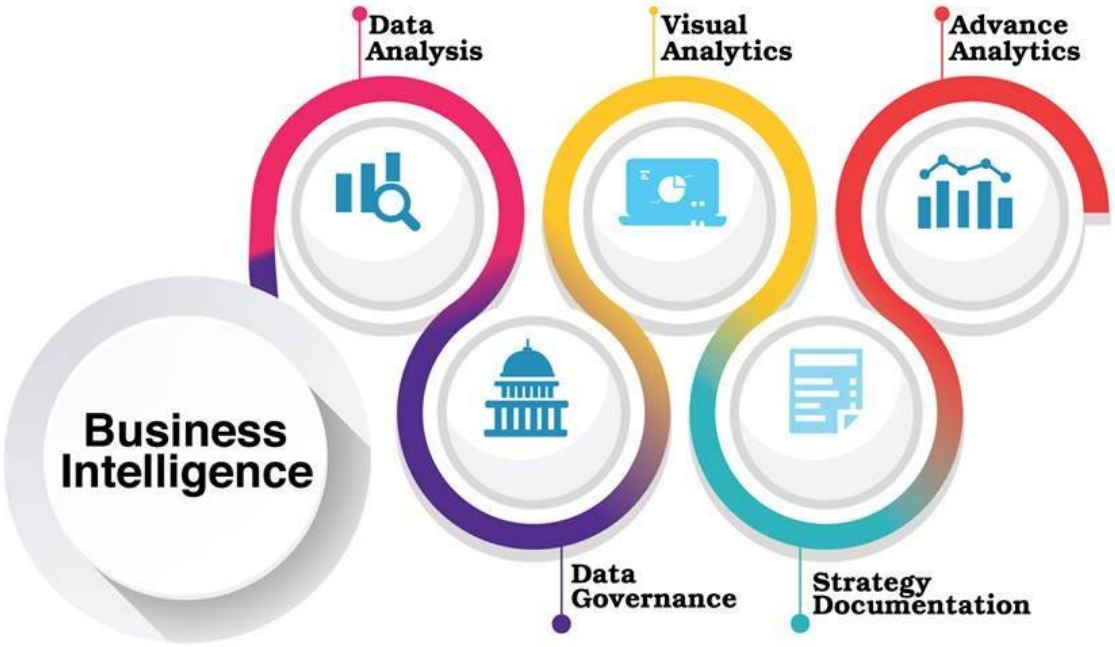
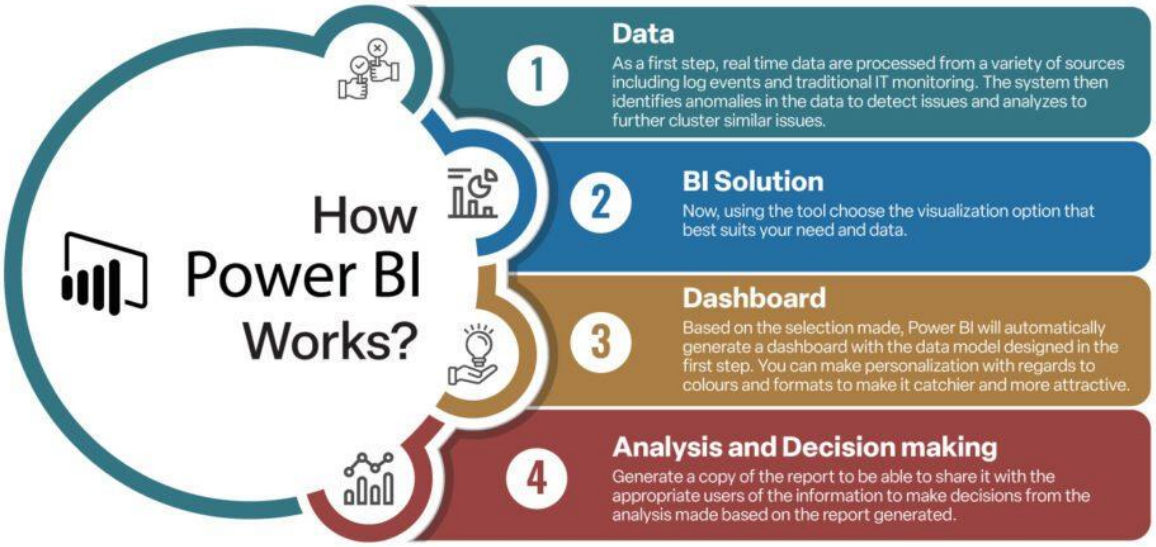


Figure 1: Functional Architecture of Business Intelligence



3.2 Data Sources

Customer databases: Hold data about customers, such as contact information, purchasing history, and demographics.

CRM systems: Record communications with clients, including questions, grievances, and sales activity.

Transactional data: Keeps track of consumer transactions, such as product purchases, order specifics, and payment details.

Website analytics: Monitors user activity, such as page views, clicks, and conversions, on the business website.

3.3 Data Integration

Extract: Get information from several sources, including as CRM systems, transactional databases, online analytics tools, and customer databases.

Transform: Make sure data is accurate and consistent by cleaning and standardising it. This might entail organising data, fixing mistakes, and eliminating duplicates.

Load: Move the data that has been converted for analysis and reporting into a centralised data repository or data warehouse.

3.4 Power Bi Dashboard

Central visualisation platform: Create interactive dashboards and reports to visualise important insights and metrics produced from the integrated data sources.

Features: Represent data in a meaningful and useful way by using a range of visualisations, including tables, graphs, charts, and maps.

Interactivity: Give users the ability to interactively explore data by using slicers, drill-downs, and filters to obtain more in-depth understanding.

3.5 Security

Role-based access control (RBAC): Set up access controls to limit data access based on users' roles and responsibilities.

Data confidentiality: Make sure sensitive client information is only available to authorised individuals.

Data integrity: Take steps to avoid unauthorised data alterations or tampering in order to ensure data correctness and dependability.

4 KPIs

Dashboards will be implemented to display and indicate certain KPIs and relevant indicators for the disease.

As and when, the system starts to capture the historical/periodic data for a user, the dashboards will be included to display charts over time with progress on various indicators or factors

4.1 KPIs (Key Performance Indicators)

Key indicators displaying a summary of the Customers Data and its relationship with different metrics

1. Amazon customers data sorted by year
2. Amazon customers data sorted by Agency
3. Amazon customers data sorted by Quarter
4. Influence on issue detail by agency
5. Amazon customers data sorted by Commendation or Compliant

5 Deployment

Prioritizing data and analytics is critical for all organizations. Using the massive volumes of data that your organization now gathers to its advantage may help solve problems and establish a competitive edge as well as propel corporate change. Effective IT organizations are using Power BI for scalable self-service analytics deployment in response to the expanding data landscape.

With Power BI, you can easily use your current technological investments by adjusting it to your corporate design. Power BI offers a cutting-edge analytics platform, whether via Power BI Desktop for solitary analysis or Power BI Service (Cloud) for group insights. Power BI meets a variety of organizational demands with deployment choices that include cloud, hybrid, and on-premises solutions.

By enabling people to freely access and analyze data, your organization promotes a culture of data-driven decision-making. Power BI helps customers to effectively extract meaningful insights from

diverse data sources, from data visualization to predictive analytics. Configuring user permissions, integrating Power BI with the current technological infrastructure, and providing users with training are all part of the implementation process. Furthermore, continuous maintenance and support guarantee that the platform continues to be optimized for changing business requirements.

Your business may fully use its data assets, leading to innovation, increasing operational effectiveness, and maintaining an advantage in the current competitive environment, by using Power BI strategically.

TYPE PROS CONS

Power Bi Desktop

- Free to use & easy to install
- Limited collaboration features
- Suitable for individual analysis and report creation
- No centralized data storage

Power Bi Service (cloud)

- Quick implementation and scalability
- Fully hosted solution, no infrastructure required
- Simple collaboration and sharing across teams
- Limited control over data security and compliance

Power Bi Report Server (On-Premises)

- Complete control over hardware and software
- Improved security and compliance control
- Requires dedicated administrators for management
- Initial setup and configuration may be complicated

The successful implementation of Power BI requires cooperation between system administrators, appointed Power BI administrators, and other necessary positions in technology. Crucial phases in the deployment process include configuring user permissions and integrating with the current technological infrastructure. Business teams utilise the Data & Analytics Survey as a foundational tool to determine data use cases, audience size, and user needs, which in turn inform the deployment strategy.

The deployment plan involves Power BI Service or Power BI Report Server sizing, installation, and setup based on survey results. Planning for Power BI Desktop, Power BI Mobile, and Power BI Gateway client software installation also guarantees smooth user access and functioning.

Organizations may enable people to freely access and analyze data by utilizing Power BI, which promotes data-driven innovation and educates decision-makers. Businesses can fully use their data assets and drive organizational development and competitiveness in the digital age by strategically using Power BI, which helps them to leverage the data and analytics that continue to be their top priorities.