



High Level Design Document

Introduction

This High Level Design (HLD) document outlines the architecture and core components for the **CareDash - Healthcare KPI Dashboard** project. The purpose of this project is to deliver a Power BI dashboard that enables monitoring of key healthcare performance indicators (KPIs) such as patient admissions, discharge rates, and average length of stay, with interactive slicers and filters for enhanced data exploration.

1. System Architecture Overview

Architecture Description:

CareDash consists of three main layers: Data Source, Data Processing, and Visualization. Data is ingested from healthcare data sources, processed and modeled, then visualized in Power BI.

Component	Role/Description
Data Source	Stores raw healthcare data (e.g., admissions, discharges)
Data Processing	ETL (Extract, Transform, Load) and data modeling
Power BI Dashboard	Visualizes KPIs, provides interactivity via slicers/filters

2. Component Interactions

Step	Source Component	Target Component	Interaction Description
1	Data Source	Data Processing	Raw data extraction and transformation
2	Data Processing	Power BI Dashboard	Load processed/modelled data for visualization
3	User	Power BI Dashboard	Interact via slicers/filters, view KPIs

3. Data Flow Overview

Data Flow	Description
Raw Data Ingestion	Import patient and hospital data from source systems
Data Transformation	Clean, aggregate, and model data for KPI calculation
Dashboard Visualization	Display KPIs and enable user-driven filtering and slicing

4. Technology Stack

Layer/Function	Technology/Tool
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Data Source	CSV, Excel, or Database
Data Processing	Power Query (Power BI)
Data Modeling	Power BI Data Model
Visualization	Power BI Dashboard

5. Scalability & Reliability

- **Scalability:** Power BI supports scaling via cloud-based datasets and incremental data refresh. Data sources should be structured for efficient querying.
 - **Reliability:** Data refresh schedules and error handling in Power BI ensure up-to-date and accurate KPI reporting.
 - **Security:** Access to dashboards and data is managed via Power BI's role-based access controls and data source permissions.
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