



High Level Design Document

Introduction

This High Level Design (HLD) document outlines the architecture and core components for the **StaySmart - Hospitality Occupancy Dashboard** project. The purpose of this project is to deliver a Tableau dashboard for a hotel chain, enabling monitoring of occupancy rates, average daily rates, and booking sources, with filtering by location and time period.

1. System Architecture Overview

Architecture Description:

The system consists of three main layers: Data Source, Data Processing, and Visualization. Data is extracted from hotel management systems, processed and transformed, then visualized in Tableau.

Component	Role
Data Source	Stores raw hotel data (occupancy, rates, bookings)
Data Processing	ETL (Extract, Transform, Load) pipeline to clean and aggregate data
Tableau Dashboard	Visualizes metrics and provides interactive filters

2. Component Interactions

Step	Interaction Description
1	Data Source exports raw data (CSV, database, or API)
2	Data Processing layer ingests, cleans, and aggregates data for dashboard consumption
3	Processed data is loaded into Tableau (via extract or live connection)
4	Tableau Dashboard queries processed data and renders visualizations with filters

3. Data Flow Overview

Source	Transformation	Destination	Purpose
Hotel Data Store	ETL: clean, aggregate, format	Tableau Data Source	Enable dashboard analytics and filters
User Interaction	Filter selection in Tableau	Dashboard Visuals	Dynamic update of displayed metrics

4. Technology Stack

Layer	Technology/Framework
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Data Source	Hotel PMS/Database/CSV/API
Data Processing	Tableau Prep / ETL Scripts
Visualization	Tableau Desktop/Server

5. Scalability & Reliability

- **Scalability:**

- Supports additional hotel locations by extending data sources and ETL logic.
- Tableau Server can be scaled for more users or higher data volumes.

- **Reliability:**

- Scheduled ETL ensures up-to-date data.
 - Tableau's built-in user access controls secure sensitive information.
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