# **📄 High-Level Design (HLD) Document**

**Project Title**: Power BI Dashboard for Customer Transactions Analysis  
**Objective**: To analyze customer behavior, sales trends, product performance, and operational efficiency using interactive visual dashboards.

## **1. 🎯 Project Purpose**

To deliver insights to business stakeholders for data-driven decisions by analyzing:

* Sales events (Black Friday, Christmas Market, Regular)
* Demographics (age, gender, location)
* Purchase behavior
* Operational metrics (returns, delivery, payment)
* Product-level performance

## **2. 🧩 System Components**

| **Component** | **Description** |
| --- | --- |
| Data Source | Excel datasets |
| ETL Tool | Power Query in Power BI for cleaning and transforming raw data |
| Visualization Tool | Power BI |
| Data Model | Star schema with fact table (transactions) and dimensions (products, time, customer, region) |

**3. 🧠 Dashboard Modules**

### **A. Overview Dashboard**

* KPIs:  
  + Total Transactions
  + Year-wise Transaction Trend
* Visuals:  
  + Event-wise transaction share
  + Top Provinces by Transactions
  + Transaction by Weather
  + Product Category Trends
* Purpose:  
  + Understand seasonal sales trends
  + Compare regional performance
  + Analyze impact of weather and product demand

### **B. Purchases Dashboard**

* KPIs:  
  + Average Customer Satisfaction
* Visuals:  
  + Satisfaction by Event (Black Friday, Christmas Market, Regular)
  + Transaction by Gender
  + Transaction by Age Group
  + Purchase Mode Trend (Online vs In-Store over years)
  + Promotions & Gift Wrapping Impact
  + Transaction by Unit Price Category
* Purpose:  
  + Analyze demographics and behavior
  + Assess pricing strategy
  + Compare customer satisfaction across events
  + Track shift to online shopping

### **C. Operations Dashboard**

* KPIs:  
  + Average Delivery Time
* Visuals:  
  + Delivery Time by Event
  + Payment Methods Distribution
  + Returns Overview (Returned vs Not Returned)
  + Shipping Modes (Express, Overnight, Standard)
  + Product Performance Table (ID, Volume, Sales $)
* Purpose:  
  + Evaluate operational efficiency
  + Understand customer return behavior
  + Optimize delivery and shipping methods
  + Track best-performing products

## **4. 📌 Key Outcomes**

* Identification of best-performing events and regions
* Shift from in-store to online purchasing
* Demographic trends in purchases
* Operational gaps in delivery and returns
* Product-level sales effectiveness