Project Report: Sales Intelligence Dashboard in Power BI using Azure SQL and Power Query for Brand Optimization

1. Project Overview

The goal of this project was to create a **Sales Intelligence Dashboard** that helps identify:

- Over-discounted brands with poor ROI.
- Pricing inefficiencies across the product catalog.
- Imbalance between product variety and profitability.

The workflow connected **Azure SQL Database** to **Power BI**, performed data cleaning in **Power Query**, applied **DAX calculations** for KPI generation, and built **brand-focused visuals** for actionable insights.

Key Outcomes:

- Imported & cleaned **1,400+ product records** from the Men's T-shirt category.
- Generated KPIs for **profit %, discount %, and cost price**.
- Identified top/bottom performing brands by sales, profitability, and discounting.
- Delivered a **layered Power BI dashboard** for strategic brand-level decision-making.

2. Technology Stack & Rationale

Technology	Purpose	Why Chosen
Azure SQL Database	Centralized, cloud-based data storage.	Easy integration with Power BI; scalable; secure.
Power Query	Data transformation & cleaning before modeling.	GUI-based ETL process with M language for advanced steps.
DAX (Data Analysis Expressions)	KPI calculation & business logic in Power BI.	Allows row-level and aggregated business metrics.
Power BI Desktop & Service	Data visualization & sharing reports.	Widely used BI platform, strong Azure integration.

3. Data Pipeline Execution

Step 1 – Setting up Azure SQL Database

1. Created a **Free Azure Account**.
2. Created a **SQL Database** and server in Azure Portal.
3. Configured **firewall rules** to allow Power BI connection.

Step 2 – Loading Data into Azure SQL

The raw dataset (Men+Tshirt.csv) was imported into Azure SQL using SQL Server Management Studio (SSMS):

```
CREATE TABLE Men_Tshirts (
   Brand NVARCHAR(100),
   Title NVARCHAR(255),
   Original_Price NVARCHAR(50),
   Sale_Price NVARCHAR(50)
);


BULK INSERT Men_Tshirts
FROM 'https://<storage-account>.blob.core.windows.net/data/Men+Tshirt.csv'
WITH (
   FIELDTERMINATOR = ',',
   ROWTERMINATOR = '\n',
   FIRSTROW = 2
);
```

Step 3 – Data Cleaning in Power Query

Once connected in Power BI:

1. **Removed null brands/titles**.
2. **Converted currency text to numbers**:

```
= Table.TransformColumns(#"Previous Step", {{"Original Price", each Number.FromText(Text.Replace(_, "₹", "")), type number}})
```

3. Created **Discount %** column:

```
= Table.AddColumn(#"Previous Step", "Discount %", each ([Original Price] - [Sale Price]) / [Original Price] * 100, type number)
```

4. Filtered out products with unrealistic prices.

4. KPI Generation in DAX

Profit %

```
Profit % =
DIVIDE(
  [Original Price] - [Sale Price],
  [Original Price],
  0
) * 100
```

Cost Price

```
Cost Price = [Sale Price] * (1 - Profit % / 100)
```

Average Discount % by Brand

```
Avg Discount % = AVERAGEX(VALUES(Men_Tshirts[Brand]), [Discount %])
```