E-Commerce User Behaviour & Sales Analytics Dashboard

Project Objective

The main objective of this project is to analyze e-commerce user behaviour and product performance using Power BI. The dashboard will provide insights into customer interactions, category trends, and sales conversions, helping stakeholders identify top-performing products, improve marketing strategies, and optimize inventory decisions through data-driven insights.

Business Problem / Opportunity

With the rapid growth of e-commerce, businesses collect massive amounts of user interaction data across products, categories, and customer journeys. However, decision-makers often lack a unified view of:

- User behaviour and conversion trends
- Product and category performance
- The impact of product availability on sales

This project presents an opportunity to consolidate these insights into a single, interactive Power BI dashboard, enabling stakeholders to monitor performance, identify customer behaviour patterns, and make data-driven decisions to improve sales and marketing effectiveness.

Target Audience

- **Business Analysts** – To identify trends in customer interactions, sales performance, and conversion behaviour.
- **Marketing & Product Teams** – To understand user preferences, product engagement, and optimize campaigns.
- **Operations Teams** – To monitor item availability and performance across categories.
- **Executives / Management** – To gain a high-level view of business performance and drive strategic decisions.

Scope

Dashboard with five key analysis pages:

1. **User Interaction Overview** – Overall trends of views, carts, and purchases
2. **Conversion Funnel Analysis** – Track product movement from view to purchase
3. **Product & Category Performance** – Identify top-selling and least-viewed items
4. **Customer Behaviour Analysis** – Study engagement frequency and event patterns
5. **Recommendations & Insights** – Data-driven business improvement suggestions

Features:

- Interactive filters (event type, date, category, product, availability)
- Key KPIs
- Data normalization and relationships built in Power BI (Star Schema: events as Fact table)

Data sources

Total Dataset Size: Approximately 375 MB

Data Format: CSV (Comma-Separated Values)

Key Metrics / KPIs

- Total Events
- Total Purchases
- Total Views
- Add-to-Cart Rate (%)
- Conversion Rate (%)
- Active Users
- Top Viewed Products
- Top Purchased Products
- Category Performance
- Item Availability (%)

- Event Distribution by Time
- Top Performing Categories

Deliverables

1. Choose dataset, load it into Power BI, and document Business Requirements.
2. Assess the dataset and perform data cleaning and transformation.
3. Document Functional Requirements and create dashboard mock-ups.
4. Build Power BI dashboard and design the data model (draft version).
5. Finalize the dashboard and data model, export interactive reports, and prepare an Analysis Report with a README document.

Timeline / Milestones (5-Day Plan)

Day	**Task**
Day 1	Dataset Understanding
Day 2	Cleaning, Data normalization and relationships built in Power BI
Day 3	Power BI Connection & DAX Measures
Day 4	Dashboard Design (Pages 1–5)
Day 5	Final Touches

Notes / Assumptions

- Data is static and represents historical e-commerce activity.
- Data loaded directly from CSV files into Power BI.
- Only valid events (view, addtocart, transaction) are used.
- Timestamps converted from UNIX to standard datetime.
- Dashboard focuses on analytical and management insights.
- Power BI used for data modelling and visualization.
- Measures created using DAX.
- Each visitor and item ID is unique.
- Missing or invalid records are excluded.