FLIPKART PRODUCT DISSECTION

Step 1: Company Overview :

Flipkart, founded in 2007, is one of India's largest e-commerce platforms, offering a wide range of products, including electronics, fashion, home essentials, groceries, and lifestyle items. Acquired by Walmart in 2018, Flipkart has grown into a retail giant with a massive customer base, efficient supply chain management, and advanced technology infrastructure. Its platform provides a seamless shopping experience through features like personalized recommendations, easy returns, and multiple payment options.

- **Key Features:**
  - User-friendly interface with category-based navigation.
  - Advanced search and filtering options to refine product results.
  - Personalized recommendations based on user behavior.
  - Seamless checkout process with multiple payment options.
  - Flipkart Plus membership offering benefits like faster delivery and special discounts.

- **User Interaction:**
  - Users can browse products, add to cart, place orders, track shipments, and leave reviews.
  - Sellers can list products, manage inventory, and monitor sales.
  - Flipkart offers customer support via live chat, email, and call.

Step 2: Product Dissection and Real-World Problems Solved by Flipkart :

Flipkart addresses key challenges in the e-commerce industry by providing user-centric solutions that streamline shopping experiences, boost seller visibility, and enhance logistics efficiency.

Problem 1: Limited Access to Quality Products in Tier-2 & Tier-3 Cities :

- Real-World Challenge: Customers in smaller cities often face limited access to branded or quality products due to supply chain constraints.
- Flipkart's Solution:
    - Expanded its logistics network to deliver to remote areas.
    - Provides a wide range of products through its Fulfilled by Flipkart (FBF) service, ensuring faster and more reliable delivery.

Problem 2: Difficulty in Finding Relevant Products :

- Real-World Challenge: Users often struggle to find relevant products due to inadequate search and filter options.
- Flipkart's Solution:
    - Advanced search filters based on price, brand, category, and customer reviews.
    - AI-based personalized recommendations using browsing and purchase history.

Problem 3: Price Sensitivity and Lack of Affordability :

- Real-World Challenge: Many customers face affordability issues when purchasing high-value items.
- Flipkart's Solution:
    - Introduced Flipkart Pay Later and No-Cost EMI options for flexible payments.
    - Offers regular discounts and sales events like Big Billion Days to make products affordable.

Problem 4: Delivery and Return Hassles :

- Real-World Challenge: Customers often experience delayed delivery and complex return processes.
- Flipkart's Solution:
    - Flipkart Assured guarantees faster delivery and better quality checks.
    - Easy returns and refunds policy to enhance customer satisfaction.

Step 3: Case Study: Real-World Problems and Flipkart's Solutions :

Flipkart efficiently tackles real-world e-commerce challenges by providing user-friendly solutions, ensuring seamless transactions, and enhancing customer satisfaction.

Problem 1: Lack of Product Variety :

- Challenge: Customers in remote areas had limited access to product choices.
- Solution:
    - Expanded product categories with more sellers onboard.
    - Ensured availability of diverse product lines across all regions.

Problem 2: Difficulty in Product Discovery :

- Challenge: Customers found it hard to discover products matching their preferences.
- Solution:
    - AI-powered recommendation engine to personalize product suggestions.
    - Enhanced search filters and sorting options.

Problem 3: Logistics and Delivery Issues :

- Challenge: Inconsistent delivery times and delayed shipments.
- Solution:
    - Improved logistics infrastructure with faster last-mile deliveries.
    - Introduced real-time tracking for transparency.

Some of the other problems faced by Flipkart and solutions provided by Flipkart are :

- **Product Quality Concerns:** Cases of product mismatch or low quality affect customer satisfaction.
- **Payment Failures:** Users may experience transaction failures during checkout.
- **Customer Support Issues:** Delayed response times impact the customer experience.

How Flipkart's Features Help:

- **Fast Shipping & Delivery:** Flipkart offers same-day/next-day delivery through Flipkart Assured.
- **Easy Returns & Refunds:** Flexible return policies and quick refunds enhance customer trust.
- **Order Tracking:** Real-time shipment tracking ensures transparency.
- **Flipkart Plus Benefits:** Exclusive deals and free shipping for loyal customers.

Step 4: Schema Description :

The Flipkart schema captures the core entities and relationships essential for managing users, products, orders, and payments effectively.

Users Entity :

Represents customers registered on Flipkart.

Attributes-

- **UserID (Primary Key):** Unique identifier for each user.
- **Name:** Full name of the user.
- **Email:** Registered email address.
- **PhoneNumber:** Contact number for notifications.
- **UserType:** Type of user (Customer/Seller).
- **RegistrationDate:** Date the user created the account.

Products Entity :

Represents the products listed on Flipkart by sellers.

Attributes-

- **ProductID (Primary Key):** Unique identifier for each product.
- **Title:** Product name or title.
- **Description:** Details of the product.
- **Price:** Selling price.
- **Category:** Product category (e.g., electronics, fashion).
- **Brand:** Brand of the product.
- **Stock:** Available stock quantity.
- **SellerID (Foreign Key referencing Users Entity):** Seller listing the product.

Orders Entity :

Represents purchase transactions made by users.

Attributes-

- **OrderID (Primary Key):** Unique identifier for each order.
- **UserID (Foreign Key referencing Users Entity):** Customer placing the order.
- **ProductID (Foreign Key referencing Products Entity):** Purchased product.
- **OrderDate:** Date of order placement.
- **Quantity:** Number of units ordered.
- **TotalAmount:** Total cost of the order.
- **OrderStatus:** (Pending, Shipped, Delivered, Cancelled).

Payments Entity :

Records payment details for completed orders.

Attributes-

- **PaymentID (Primary Key):** Unique identifier for each payment.
- **OrderID (Foreign Key referencing Orders Entity):** Associated order.
- **PaymentDate:** Date of payment.

- **PaymentMode:** (Card, UPI, COD).
- **PaymentStatus:** (Pending, Successful, Failed).

Reviews Entity :

Stores customer feedback and ratings for products.

Attributes-

- **ReviewID (Primary Key):** Unique identifier for each review.
- **UserID (Foreign Key referencing Users Entity):** User submitting the review.
- **ProductID (Foreign Key referencing Products Entity):** Reviewed product.
- **Rating:** Numeric rating out of 5.
- **Comments:** Customer feedback.

Cart Entity :

Stores temporary information about products added by users before checkout.

Attributes-

- **CartID (Primary Key):** Unique identifier for each cart.
- **UserID (Foreign Key referencing Users Entity):** User owning the cart.
- **ProductID (Foreign Key referencing Products Entity):** Added product.
- **Quantity:** Number of units in the cart.
- **AddedDate:** Date the product was added.

Relationships :

1. **User → Orders:**

- Relationship Type: One-to-Many
- Description: A single user can place multiple orders, but each order belongs to only one user.

2. **User → Cart:**

- Relationship Type: One-to-One
- Description: Each user can have only one cart, and each cart is linked to a single user.

3. **User → Payments:**

- Relationship Type: One-to-Many
- Description: A user can make multiple payments, but each payment belongs to a single user.

4. **Orders → Products:**

- Relationship Type: Many-to-Many
- Description: Each order can contain multiple products, and each product can be part of multiple orders.

5. **Orders → Payments:**

- Relationship Type: One-to-One
- Description: Each order has one corresponding payment record.

6. **User → Reviews:**

- Relationship Type: One-to-Many
- Description: A single user can submit multiple reviews, but each review is linked to only one user.

7. **Products → Reviews:**

- Relationship Type: One-to-Many
- Description: Each product can have multiple reviews, but a review is linked to only one product.

Step 5: <u>Rationale and Strategy:</u>

Why Certain Design Elements Were Chosen?

<u>Entity Relationships:</u>

- **One-to-Many:** Flipkart's core structure relies heavily on one-to-many relationships, such as:
    - One User → Many Orders.

        - One Order → Multiple Products.
        - One User → Many Payments and Reviews.
- **One-to-One:**
        - One User → One Cart.
- **Attributes in Each Entity:**

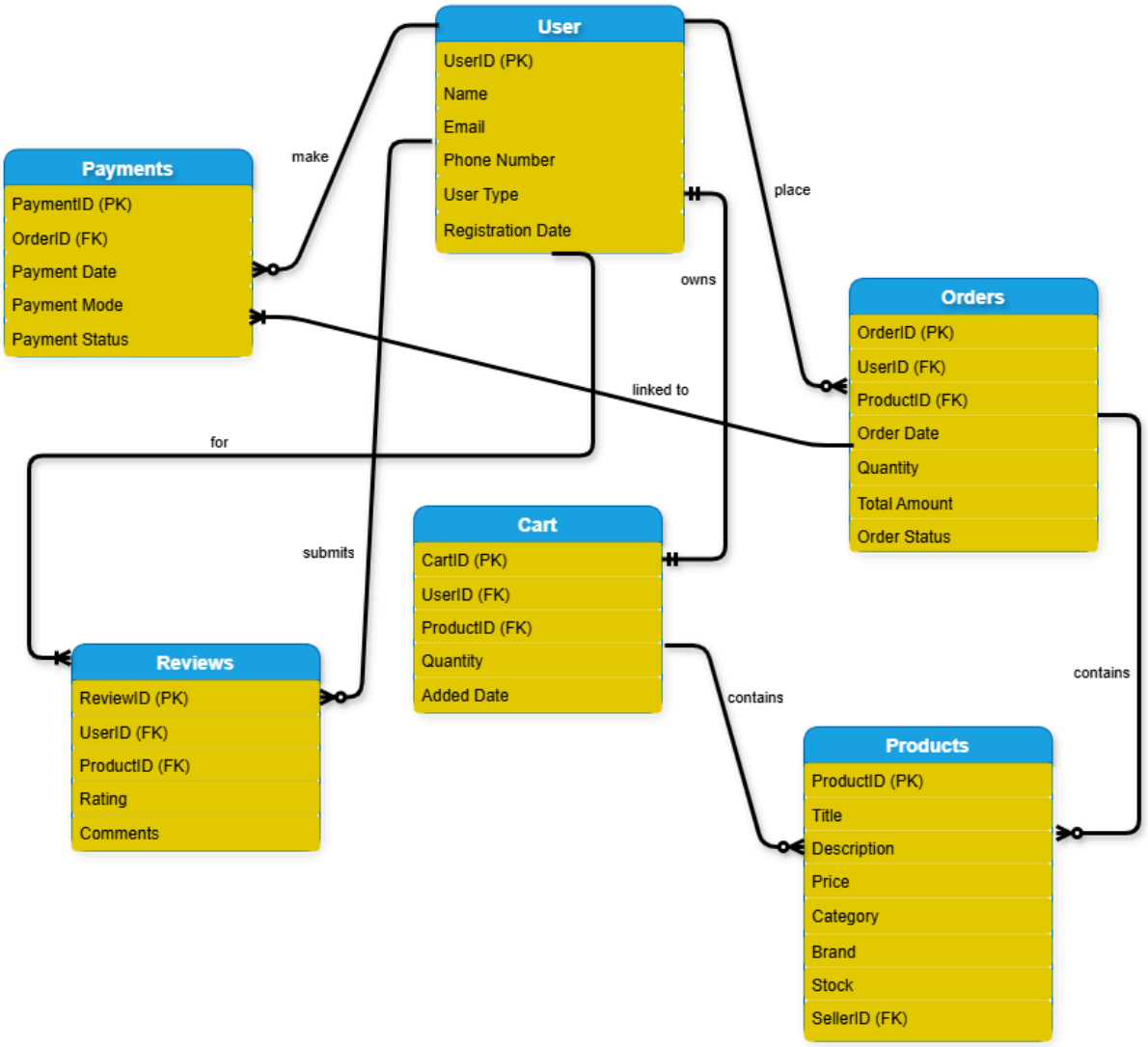
  Added necessary columns like Order Date, Payment Mode, Product Description, etc., for detailed information.

- **Primary and Foreign Keys:**
    - Primary keys (PK) uniquely identify records in each table.
    - Foreign keys (FK) establish relationships between entities.
- **Normalization:**
    - The schema is normalized to reduce redundancy and improve querying efficiency.
- **Data Integrity:**
    - Foreign key constraints ensure data consistency between related tables.

Step 7:ER Diagram :

- The ER diagram was created using Draw.io Tool.
- It visualizes Flipkart's data architecture, including:
- Entities: Users, Orders, Products, Payments, Cart, Reviews.
- Relationships: One-to-One and One-to-Many relationships with primary and foreign keys clearly marked.
- Columns inside each entity:
- Example:
    - Users: user_id (PK), name, email, phone, address, created_at.
    - Orders: order_id (PK), user_id (FK), total_price, status.

The diagram provides a clear visual representation of Flipkart's schema structure.



Step 8:Conclusion :

Flipkart leverages advanced technology and a well-defined schema to deliver seamless e-commerce experiences. By addressing customer challenges through efficient logistics, user-friendly features, and streamlined transactions, Flipkart maintains its position as a market leader in the Indian e-commerce sector.

The Flipkart product dissection project provided a comprehensive analysis of the platform's core functionalities, data architecture, and schema design. Through detailed research and schema visualization, the project showcased how Flipkart efficiently manages its user data, orders, payments, and product catalog. This dissection not only enhanced the understanding of Flipkart's operational framework but also demonstrated the importance of well-structured data models in optimizing platform performance.