

E-Commerce Management System (Walmart)

Group – 19

Abstract:

The E-commerce Management System is a comprehensive and integrated platform designed to streamline and enhance the online shopping experience for both consumers and vendors. It encompasses a robust database schema with well-defined entities and relationships to efficiently manage users, products, orders, payments, promotions, reviews, and more. By providing a structured foundation, the system aims to ensure data integrity, security, and scalability in handling the diverse aspects of e-commerce operations.

Mission Statement:

At the core of our E-commerce Management System is a dedication to revolutionizing the online retail landscape. Our mission is to provide a cutting-edge platform that not only simplifies the complexities of e-commerce but also elevates the entire online shopping experience. We envision a future where businesses thrive and users engage effortlessly, empowered by a feature-rich and intuitive ecosystem.

Pillars of our Mission:

1. Empowering Businesses:

- We are committed to empowering businesses, both established and emerging, by providing them with an innovative and efficient platform. Our system serves as a catalyst for growth, offering vendors the tools they need to expand their reach, manage their product catalog effectively, and optimize their operations.

2. Staying Ahead of Trends:

- In a dynamic e-commerce landscape, staying ahead of trends is crucial. Our mission involves not just meeting current industry standards but anticipating and adapting to emerging trends. We commit to continuous research, development, and innovation to ensure our platform evolves in sync with the ever-changing demands of the market.

In summary, our mission is to redefine e-commerce by creating a platform that empowers businesses, enhances user experiences, anticipates trends, builds trust through security, facilitates seamless transactions, promotes vendor success, and maintains agility in development. Through these endeavors, we strive to contribute to the growth and success of businesses and users within the vibrant and ever-evolving world of online commerce.

Objectives:

1. User-Centric Experience:

- Provide users with an intuitive and user-friendly interface for an enhanced shopping and management experience.
- Implement personalized features such as wishlists, multiple shopping carts, and efficient order tracking to cater to diverse user preferences.

2. Efficient Order Management:

- Streamline order processing, from creation to delivery, ensuring accuracy and timely fulfillment.
- Integrate effective communication channels, such as customer support tickets, to address user inquiries and concerns promptly.

3. Product Catalog Management:

- Enable vendors to efficiently manage and showcase their product catalogs with the flexibility of associating products with multiple categories and promotions.
- Implement a robust review system to enhance product transparency and aid users in making informed purchasing decisions.

4. Secure Payment Processing:

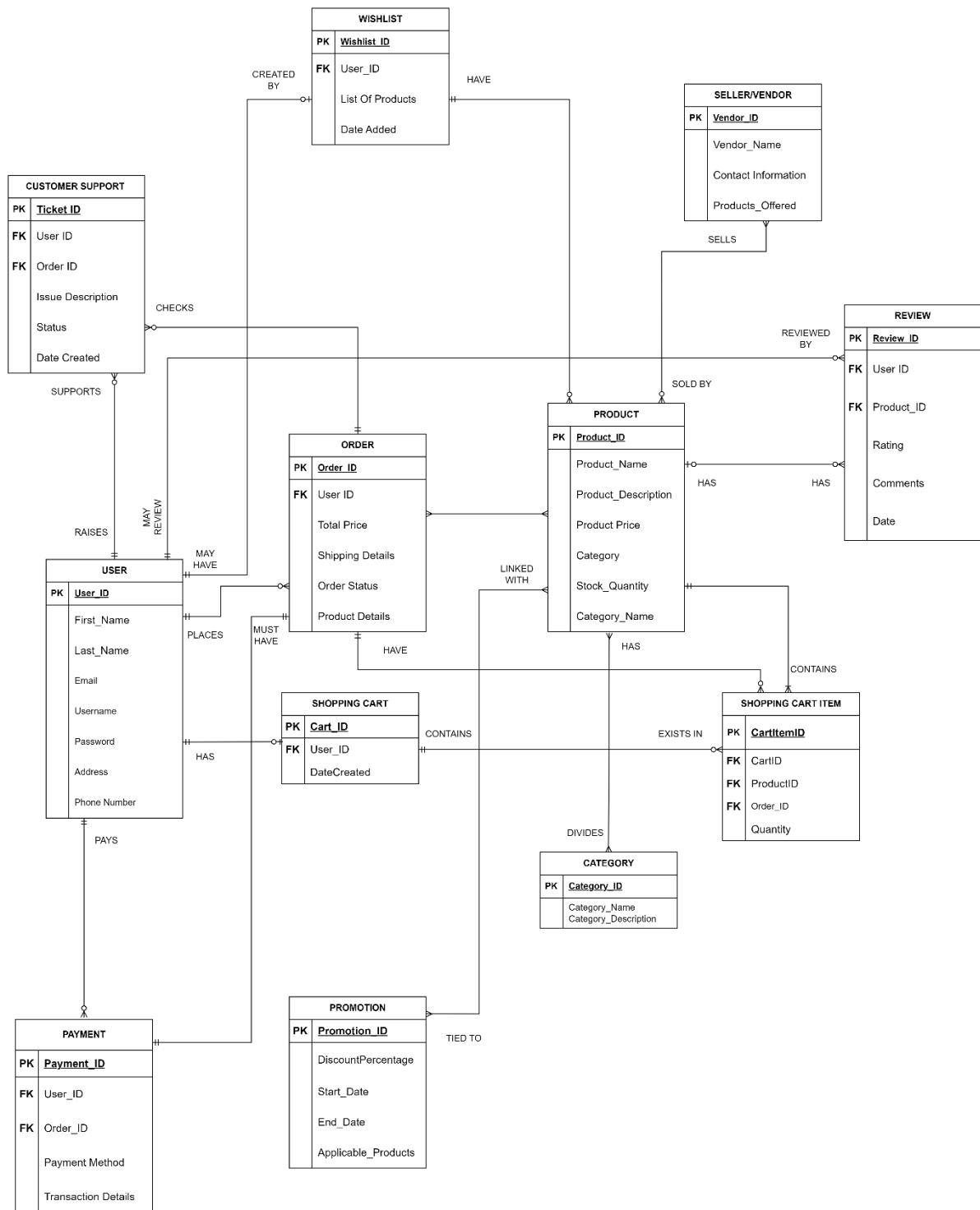
- Implement secure payment methods and transaction processing to instill confidence in users during their online transactions.

5. Vendor Collaboration:

- Support vendor-seller relationships by allowing sellers to efficiently manage their products, monitor sales, and interact with customers.
- Provide analytics and reporting tools to assist vendors in making informed decisions and optimizing their online presence.

Through these objectives, the E-commerce Management System aims to establish itself as a reliable, innovative, and customer-centric solution, fostering growth and success for both businesses and users in the dynamic e-commerce landscape.

E-R Diagram:



Entities & Relationships:

1. User:

- **Attributes:** UserID (Primary Key), FirstName, LastName, Email, Username, Password, Email, Address, Phone Number.

- **Relationships:**

- One-to-Many with Order: A user can place multiple orders.
- One-to-One or One-to-Many with Wishlist: A user can have one or multiple wishlists.
- One-to-Many with Payment: A user can have multiple payment methods.
- One-to-Many with Customer Support Ticket: A user can create multiple support tickets.
- One-to-Many with ShoppingCart: A user can have multiple shopping carts.

2. Product:

- **Attributes:** ProductID (Primary Key), Product Name, Product Description, Product Price, Category, Stock Quantity, Category Name

- **Relationships:**

- Many-to-Many with Order: A product can be part of multiple orders, and an order can contain multiple products.
- Many-to-Many with Category: A product can belong to multiple categories, and a category can have multiple products.
- One-to-Many with Review: A product can have multiple reviews.
- One-to-Many with ShoppingCartItem: A product can be present in multiple shopping carts.

3. Shopping Cart:

- **Attributes:** CartID (Primary Key), UserID (Foreign Key), DateCreated.

- **Relationships:**

- One-to-Many with ShoppingCartItem: One shopping cart can contain multiple items.
- Many-to-One with User: Many shopping carts can be associated with one user.

4. ShoppingCartItem:

- **Attributes:** CartItemID (Primary Key), CartID (Foreign Key), ProductID (Foreign Key), Quantity.

- **Relationships:**

- Many-to-One with ShoppingCart: Many cart items belong to one shopping cart.
- Many-to-One with Product: Many cart items are associated with one product.

5. Order:

- **Attributes:** OrderID (Primary Key), UserID (Foreign Key), TotalPrice, ShippingDetails, OrderStatus, Product Details

- **Relationships:**

- Many-to-Many with Product: An order can contain multiple products, and a product can be part of multiple orders.
- One-to-One with Payment: Each order is associated with one payment.
- One-to-One with Shipping: Each order is associated with one shipping record.
- One-to-Many with Customer Support Ticket: An order can have multiple support tickets.

6. Category:

- **Attributes:** CategoryID (Primary Key), Category Name, Category Description.

- **Relationships:**

- Many-to-Many with Product: A category can have multiple products, and a product can belong to multiple categories.

7. Payment:

- **Attributes:** PaymentID (Primary Key), UserID (Foreign Key), OrderID (Foreign Key), PaymentMethod, TransactionDetails.

- **Relationships:**

- Many-to-One with User: Many payments can be associated with one user.
- One-to-One with Order: Each payment is associated with one order.

8. **Promotion:**

- **Attributes:** PromotionID (Primary Key), DiscountPercentage, StartDate, EndDate, ApplicableProducts.

- **Relationships:**

- Many-to-Many with Product: A promotion can apply to multiple products, and a product can be part of multiple promotions.

9. **Review:**

- **Attributes:** ReviewID (Primary Key), UserID (Foreign Key), ProductID (Foreign Key), Rating, Comments, Date.

- **Relationships:**

- Many-to-One with User: Many reviews can be associated with one user.

- Many-to-One with Product: Many reviews can be associated with one product.

10. **Seller/Vendor:**

- **Attributes:** VendorID (Primary Key), Vendor Name, Contact Information, Products Offered.

- **Relationships:**

- One-to-Many with Product: A seller can offer multiple products, but each product is associated with only one seller.

11. **Wishlist:**

- **Attributes:** WishlistID (Primary Key), UserID (Foreign Key), List of Products, DateAdded.

- **Relationships:**

- Many-to-One with User: Many wishlists can be associated with one user.

- Many-to-Many with Product: A wishlist can contain multiple products, and a product can be part of multiple wishlists.

12. **Customer Support:**

- **Attributes:** TicketID (Primary Key), UserID (Foreign Key), OrderID (Foreign Key), IssueDescription, Status, DateCreated.

- **Relationships:**

- Many-to-One with User: Many tickets can be associated with one user.
- Many-to-One with Order: Many tickets can be associated with one order.