



## Product Dissection for Amazon.com (Relational Database )

### Company Overview:

Amazon was founded by Jeff Bezos from his garage in Bellevue, Washington, on July 5, 1994. Amazon.com Inc (Amazon) is an online retailer and web service provider. The company provides products such as apparel, auto and industrial items, beauty and health products, electronics, grocery, games, jewelry, kids and baby products, music, sports goods, toys, and tools. It also offers related support services including home delivery and shipping, cloud web hosting and other web related services. Amazon merchandises its products through company-owned online and physical platforms. It also manufactures and commercializes various electric devices such as Kindle e-readers, fire tablets, fire TVs, echo, Alexa and other devices. The company allows authors, musicians, filmmakers, and others to publish and sell content.

# **Product Dissection and Real-World Problems**

## **Solved by Amazon:**

### **1. Amazon Prime**

#### **Real-World Problems Solved:**

- Long delivery times
- Fragmented access to entertainment services

#### **Amazon's Solution:**

- Faster Shipping: With free 2-day (or even same-day) shipping, Amazon solved long wait times for deliveries, making online shopping more convenient.
- Bundled Entertainment: Amazon integrated streaming services (Prime Video, Amazon Music) into Prime subscriptions, offering customers a one-stop platform for movies, shows, and music.

### **2. Amazon Web Services (AWS)**

#### **Problem Solved:**

- High costs and complexity of IT infrastructure
- Solutions Provided:
- Cloud storage, computing power, and machine learning services on demand revolutionized business IT management, reducing costs and increasing scalability for startups and enterprises.

### **3. Amazon Alexa & Echo**

**Real-World Problems Solved:**

- Inconvenient access to information and limited home automation options

**Amazon's Solution:**

- Hands-Free Assistance: Alexa-enabled devices provide instant access to information, entertainment, reminders, and weather updates.
- Smart Home Control: Users can control lights, thermostats, and security systems with voice commands, enhancing convenience and efficiency.

### **4. Amazon Fresh and Whole Foods Integration**

**Real-World Problems Solved:**

- Limited access to fresh groceries
- Time constraints for in-store grocery shopping

**Amazon's Solution:**

- Convenient Grocery Delivery: Amazon Fresh and Whole Foods Market offer online grocery ordering with fast, flexible delivery options to meet customer needs.

# Case Study: Real-World Problems and Amazon Innovative Solution

## Case Study: Amazon Go – Revolutionizing Retail with Just Walk Out Technology

### Real-World Problem: Inefficiencies in Retail Checkouts

Traditional retail stores face challenges such as:

- Long checkout lines: Leading to poor customer experiences.
- Human errors: Mistakes in scanning or pricing.
- High labor costs: For staffing checkout counters.

These factors hindered customer convenience and retail efficiency. Retailers sought a way to enhance the in-store experience without compromising on security and accuracy.

### Amazon's Innovative Solution: Amazon Go

In 2018, Amazon launched Amazon Go, a checkout-free shopping experience that uses advanced Just Walk Out technology.

Key Features:

1. Computer Vision and AI: Cameras and sensors track customers' movements and identify products they pick or put back.
2. Deep Learning Algorithms: Analyze behavior to ensure accuracy without manual input.
3. IoT Sensors: Seamlessly update virtual carts as customers move through the store.
4. Amazon App Integration: Customers simply scan the app upon entry and are automatically charged upon exiting—no checkout required.

### Benefits of the Solution:

- Enhanced Customer Experience: No lines or waiting time.
- Faster In-Store Flow: Reduced congestion and better use of floor space.
- Lower Operational Costs: Minimizing reliance on checkout staff.
- Data-Driven Insights: Amazon can collect detailed data on customer preferences for better inventory management.

### Real-World Impact:

Amazon Go stores have proven popular for their convenience and speed. This technology also influences broader retail trends, with other companies exploring similar AI-driven solutions.

# Conclusion

Amazon Go exemplifies how innovation can solve long-standing retail challenges. By leveraging AI, computer vision, and IoT, Amazon addressed inefficiencies in traditional checkout processes and delivered a seamless, convenient shopping experience. This solution not only enhanced customer satisfaction but also reduced operational costs and influenced the broader retail industry. As Amazon continues to refine and expand its Just Walk Out technology, it paves the way for future innovations, setting new standards for how businesses can blend physical and digital shopping experiences to drive convenience and efficiency.

## Top Features of Amazon

### 1. Personalized Recommendations

- Uses AI to suggest products based on user browsing, purchase history, and preferences.
- Boosts customer satisfaction and drives sales.

### 2. Amazon Prime Membership

Exclusive Deals

Prime Video

Prime Music

Fast, Free Delivery

**3 Amazon Advertising:** Sellers can utilize Amazon's advertising services to promote their products through sponsored listings, display ads, and video ads, increasing product visibility and driving sales.

**4 Amazon Seller Central:** Seller Central is a comprehensive dashboard that allows sellers to manage their product listings, orders, payments, and customer interactions, providing a centralized hub for e-commerce operations.

**5 Customer Reviews:** Amazon allows customers to leave reviews and ratings, providing valuable feedback to both sellers and buyers, building trust and credibility for products and sellers.

**6 Fulfillment by Amazon (FBA):** FBA enables sellers to store their products in Amazon's fulfillment centers. Amazon handles storage, packing, and shipping, streamlining the order fulfillment process.



## **Schema Description:**

**Creating a detailed schema for an e-commerce platform for Amazon involves defining the structure of the database that stores various elements of the platform. These entities include Users, Products, Categories, Orders, Orders Details, Sellers, Reviews and more. Each entity has specific attributes that describe its properties and relationships with other entities.**

### **User Entity:**

**Users are at the core of Amazon. The user entity contains information about each user:**

- **UserID (Primary Key):** A unique identifier for each user.
- **Username:** The chosen username for the user's account.
- **Email:** The user's email address for account-related communication.
- **Full Name:** The user's full name as displayed on their profile
- **Bio:** A brief description that users can use to express themselves
- **Registration Date:** The date when the user joined Amazon.

## **Products Entity:**

**Stores details about individual products, including names, descriptions, prices, stock quantities, and their respective sellers and categories.**

- **ProductID (Primary Key):** A unique identifier for each product.
- **Product Name:** A unique name for each product.
- **Description:** Description of each product.
- **Price:** Price of each product per unit.
- **Stock Quantity:** Available number of product quantity.
- **SellerID (Foreign Key referencing Seller Entity):** They can identify the seller of a product.
- **CategoryID (Foreign Key):** Creating a link between products and their respective categories.

## **Categories Entity:**

**Contains different product categories to classify items, facilitating organized browsing and search functionalities for users.**

**CategoryID (Primary Key):** A unique product category.

**Category Name:** A unique name product category.

**Records each customer's purchase, capturing order IDs, associated user IDs, order dates, total amounts, and shipping addresses for efficient order management.**

- **OrderID (Primary Key):** A unique identifier for each order.
- **UserID (Foreign Key references to User entity):** Linking the order to the specific user who placed it.
- **Order Date:** Records the date and time when the order was placed.
- **Total Amount:** Represents the overall cost of the order.
- **Shipping Address:** Contains the delivery location details.
- **Payment Details:** Stores information about the payment method used for the order.

## **Order Details Entity:**

**Provides specific information about products within each order, including order detail IDs, associated order and product IDs, quantities, and subtotal amounts.**

**OrderDetailID (Primary Key): Unique identifier for each order detail.**

**OrderID (Foreign Key References the Orders entity):** Linking the order detail to a specific order.

**ProductID (Foreign Key References the Products entity):** The order detail to a specific product.

**Quantity:** Indicates the number of units of a specific product included in the order detail.

**Subtotal:** Represents the total cost of a particular product in the order detail.

## Sellers Entity:

Stores information about sellers or vendors, including unique seller IDs, names, and descriptions, allowing the platform to showcase products from various sellers.

- **SellerID (Primary Key):** A unique identifier for each seller.
- **Seller Name:** Represents the name or title of the seller or vendor.
- **Description:** Provides a brief text describing the seller, their products, or their business.

## Reviews Entity:

Manages user-generated reviews, including review IDs, associated product and user IDs, ratings, comments, and review dates, helping other customers make informed purchase decisions based on feedback.

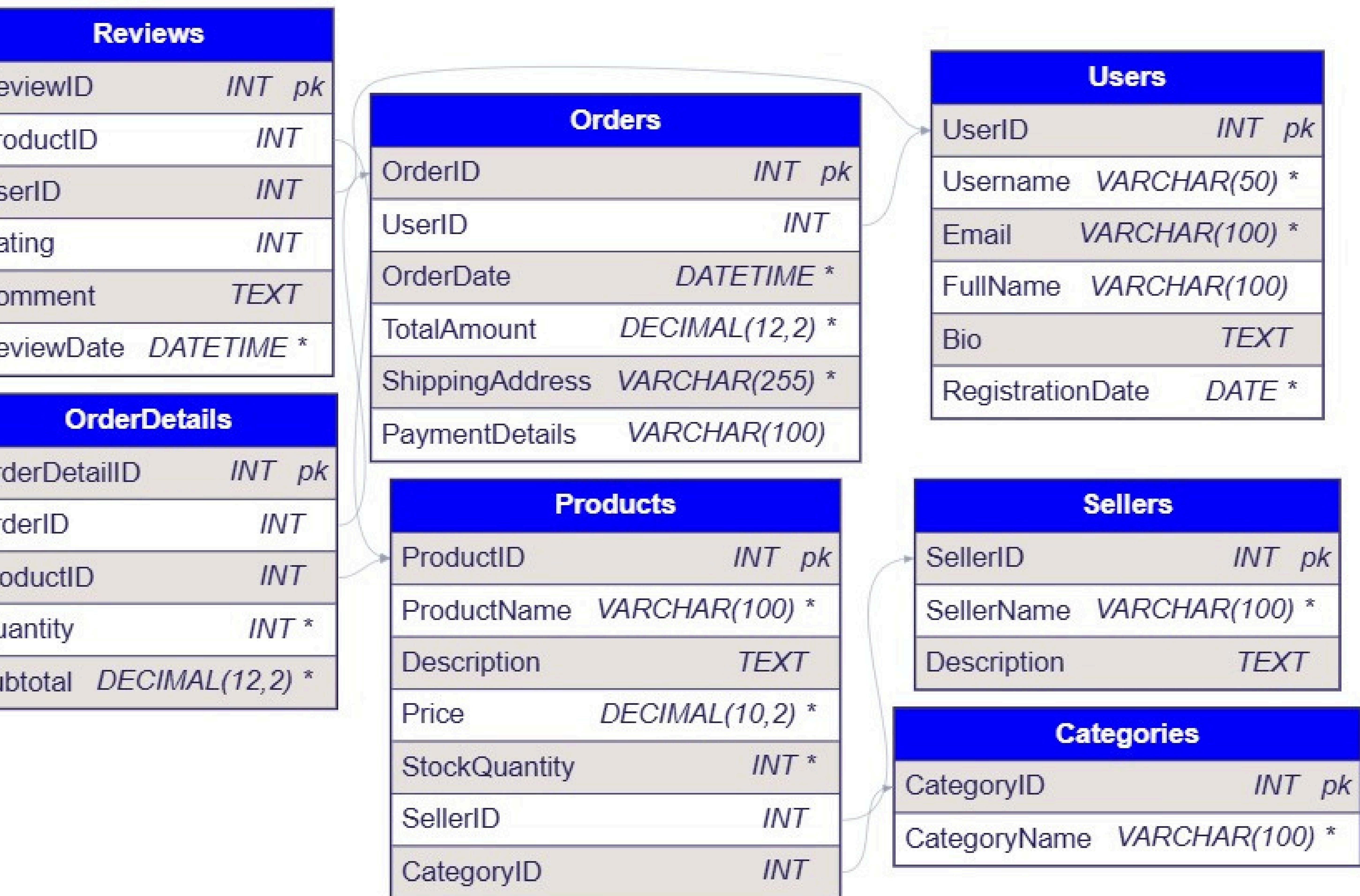
- **ReviewID (Primary Key):** A unique identifier for each review.
- **ProductID (Foreign Key References the Products entity):** The review to a specific product.
- **UserID (Foreign Key References the Users entity):** Linking the review to the user who provided it.
- **Rating:** Represents the numerical or star-based score given by the user.
- **Comment:** Contains the text-based feedback or review.
- **Review Date:** Indicates the date and time when the review was submitted.

# **Relationships between these entities:**

- **Users and Orders:** One-to-Many relationship, where one user can place multiple orders, but each order is associated with only one user.
- **Orders and Order Details:** One-to-Many relationship, where one order can contain multiple order details (representing different products within the order), but each order detail is linked to only one order.
- **Order Details and Products:** Many-to-One relationship, where multiple order details can be associated with one product, but each order detail pertains to only one product.
- **Products and Categories:** Many-to-One relationship, where multiple products can belong to one category, but each product is categorized under only one category.
- **Sellers and Products:** One-to-Many relationship, where one seller can offer multiple products, but each product is associated with only one seller.
- **Reviews and Products:** One-to-Many relationship, where one product can have multiple reviews, but each review is tied to only one product.
- **Reviews and Users:** One-to-Many relationship, where one user can leave multiple reviews, but each review is authored by only one user.
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# ER--Diagram

We can build a comprehensive relational schema to illustrate the relationships between key entities, attributes, and interactions. This schema design helps clarify how data is structured and interconnected within Amazon's ecosystem. By laying out the database structure, the schema captures the essential dynamics of Amazon's data model and highlights the relationships that underpin key operations.



The main use of an ER (Entity-Relationship) diagram is to visually represent the structure of a database. It helps in mapping out the relationships between different entities (tables) in a system, which is useful for:

**Database Design**

**Data Modeling**

**Communication**

**Identifying Redundancies**

In conclusion, Amazon's journey from an online bookstore to the global e-commerce giant it is today demonstrates the power of innovation, customer-centricity, and adaptability. By constantly pushing the boundaries of technology, logistics, and personalized experiences, Amazon has not only transformed how we shop but also redefined business strategy in the digital age. Their commitment to continuous improvement, backed by a culture of experimentation and risk-taking, sets a blueprint for future businesses aiming to succeed in an ever-evolving marketplace. Amazon's story is a testament to the fact that in the world of business, those who dare to dream big, innovate relentlessly, and prioritize the customer always find a way to lead the way.

*presenting by  
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*Thank You almabetter!!*