Super Classes

Primary key of a class

Weak Classes

Partial key

Specialization / Generalization

**Data Requirements:**

The system is designed to manage a complex business operation where **Users** are at the core of all activities. Each User's profile contains essential personal information including their name, contact details and addresses to make an order. The system implements a comprehensive role-based access control mechanism to manage different levels of system permissions and responsibilities. Users are categorized into two main types: **Registered Users and Visitors**. The system tracks Visitors through their IP addresses and session IDs, while also monitoring their Page views and recording view times for security purposes. Registered Users are further divided into four distinct categories: **Sellers, Buyers, Cloud Users, and Digital Content Users**. Each type of Registered User can be either **Premium or Standard,** with different privileges and access levels. Premium users receive additional benefits and enhanced features compared to Standard users.

A registered user can have **multiple payment methods** such as Google Pay, Amazon Pay, and Credit Card. **Every user (even if not registered) can add products to the cart** and more than one Discounts can be applied to the cart . Only registered users can contact **customer service** to resolve their issues or make suggestions and can report a reasonable number of complaints. Each product in the cart is represented as a CartItem, and each CartItem corresponds to a product. Buyers can add products to their wishlist to revisit them later. A wishlist can contain multiple products, and a product can be in multiple wishlists.

**The Review system is divided into SellerReview and ProductReview** to allow reviews on both products and sellers. Each review has a attribute called Verified purchase that means, on Amazon indicates that a review for a product was made by a customer who actually purchased and paid for the product through Amazon.

The system offers multiple options for sellers to sell their products under the name of the sales channel. The system offers multiple options for sellers to sell their products under the sales channel, including Logistic, Dropshipping, and FBA provider.

**Logistic Provider:** Third-party logistics companies responsible for transporting and delivering products.

**Dropshipping Provider:** A model where the seller does not physically hold the products. The products are shipped directly from a third-party supplier to the customer.

**FBA Provider:** A service where Amazon stores, packages, and ships the seller’s products using its own warehouse and logistics network.

Each sales channel can be associated with multiple products, and each product can be present in multiple channels. Logistic and dropshipping services are provided by third-party companies, while FBA is only provided by Amazon. Therefore, logistic and dropshipping services establish relationships with carrier companies. Each carrier company can have multiple methods, and each method can belong to multiple sellers.

Additionally, some products are listed under "Today's Deals," a section where Amazon offers discounted products and special promotions daily. This section features limited-time offers and discounts across various categories. Multiple products can be listed as Today's Deals.

The business operations revolve around **Products**, which are organized within a structured **Shop by Department** system. Each product maintains comprehensive details, including its name, brand name, description, and pricing details. Some products are only found in a single category, while others can belong to multiple categories. In fact, a product may not belong to a specific category but instead be placed in a more general category.

Each product belongs to a **Product list**, and these **Product lists** are unique to each seller. A **seller** can have multiple **Product List** where they list the products they sell. Each seller has their own **Inventory** where they track stock levels. If the stock drops below a certain threshold, the seller receives a notification.

111111111Each **category** can contain **multiple subcategories**. Some products can belong to multiple categories simultaneously, while others may not. **Some products can also belong to a parent category of one of the subcategories.**

The system revolves around **Orders**. A user can place multiple orders, and each order is associated with a single user. Additionally, the Order Total Spent is can be calculated using these informations.

After the buyer orders a product, they can view it in their **order history**. Depending on the order status (created, delivered, returned), they can take actions accordingly in the **event system.** Each buyer can place or return multiple orders that they want .

Each order can be shipped using one of three **shipping types**: Standard shipment, Express shipment, or International shipment. Shipment specifies the methods by which the package can be delivered based on the buyer's level. Each carrier company can operate under multiple shipping types. **Carrier** companies can serve in three main categories: Ground Carrier, Air Carrier, and Courier. The carrier company determines which method will be used during delivery.