Business Rules

User & Role Rules

1. Email, First Name, Last Name, and Phone Number are mandatory for user registration.
2. Email and Phone Number must be unique and follow valid formats.
3. User Role must be one of the following:
    a. Admin: Full system management.
    b. Standard User: Can shop and place orders.
    c. Business Analytics User: Read-only access to data and reports.
    d. Guest User: Limited access, browsing only.
4. A user cannot register multiple times with the same email or phone number.
5. Each user is assigned a Tier: Standard, Bronze, Silver, Gold, or Platinum.

Product & Category Rules

1. Each product must belong to a valid category and brand (enforced via foreign keys).
2. Product name must be non-empty and unique within its brand.
3. Products marked as IsArchived = 'Y' or IsAvailable = 'N' are excluded from storefront, cart, and checkout.
4. Out-of-stock products cannot be added to the cart or ordered.

Product Variations, Attributes & Images

1. Stock quantity for all product variations must be ≥ 0.
2. Each product variation must be uniquely identified by product, size, and color.
3. At least one image is required per variation before it can be made publicly visible.
4. Images are associated with product variations, not base products.

Cart Rules

1. Cart item quantity must be ≥ 1 and defaults to 1.
2. A user cannot have duplicate cart entries for the same product.
3. Only active and in-stock products can be added to the cart.
4. Cart is automatically cleared after order placement (handled at the application layer).

Order Rules

1. Order line items must have quantity ≥ 1.
2. Discounts are applied at checkout using:

    SellingPrice = Price - (Price * UserTier.DiscountRate / 100)
3. A user's discount eligibility is determined dynamically using their UserTier.

Payment Rules

1. All orders must have a valid payment method and payment status recorded.

Review Rules

1. Only users who have purchased a product can submit a review (verified buyers).
2. A user can submit only one review per product.
3. Review ratings must be integers between 1 and 5.