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**Entities:**

1. Customer: The user that browses the product inventory and places an order.
2. Order: The order placed by the user and the details.
3. Product: The item ordered by the user based on the rating, reviews, and discounts.
4. Review: The product feedback as provided by the customer along with the ratings.
5. Deals: A discount-day like event that lists the popular product on sale.

**Relationships:**

1. Places: Relation between a customer and an order. A customer can place 0 or many orders.
2. Contains: Relation between an order and a product. An order can have 1 or many products.
3. Has: Relation between a product and reviews. A review needs to be a part of 1 product.
4. Write: Relation between customer and reviews. A customer can write 0 or more reviews.
5. Display: Relation between products and deals. A product can be a part of 0 or many deals.

**Attributes:**

Customer:

* Customer\_ID: A unique ID assigned to each customer.
* Customer\_First\_Name: The customer’s first name.
* Customer\_Last\_Name: The customer’s last name.
* Billing\_Detail: The billing details of the customer.
* Num\_Of\_Orders: Total number of orders placed by the customer.

Order:

* Order\_ID: A unique ID assigned to each order placed.
* Order\_Cost: The total cost of the order.
* Order\_Date: The date the order was placed.
* Order\_Status: The tracking information of the order.

Product:

* Product\_ID: A unique ID assigned to each product as part of the inventory/database.
* Product\_Name: The name of the product.
* Product\_Company: The company that sells the product.
* Product\_Description: A short description about the product.
* Product\_Avg\_Ratings: A five-star rating calculated as an average from the rating stars of the product as part of the reviews.
* Subscription\_Option: A binary option selecting ‘yes’ or ‘no’ to a subscription service for the product.
* Product\_Availability: The availability of the product.
* Department: The department the product belongs to.

Review:

* Review\_ID: A unique ID assigned to each review.
* Rating\_Stars: The rating stars associated with each review.
* Comment\_Sentiment: A one-word review of the product as either: Good, Moderate or Bad.

Deals:

* Product\_Sell\_Performance: The performance of the best-selling and worst-selling products.
* Price: The price of the products after the applied discount.
* Discount\_Rates: A percentage figure of the discount for each product.

**Cardinality:**

* Customer to Order: A customer can place none or multiple orders. The order associated to each customer is unique and can only be 1 per customer.
* Order to Product: An order can contain have 1 or many products. A product can contain 0 or many orders.
* Product to Review: A product has 0 or many reviews. A unique review only has 1 product associated.
* Review to Customer: A customer can write 0 or many reviews. A review written by the customer is unique and can only be 1.
* Deals to Products: A deal can display 1 or many products. A product can be displayed on 0 or many deals.

Diagram

Description automatically generated

Figure 1: Entity-Relationship Diagram (ERD) of an e-commerce platform such as Amazon