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Assignment 1: Entity Relationship Diagram

I have chosen the convenience store as my mini-world. The database stores information about the products sold in the store, including upcoming orders and promotions, as well as pricing and stock numbers.

- Products are identified by their name and brand. They have a sale price, which is determined by their retail price and the discount from any promotion they currently belong to. We also want to keep track of the number in stock.
- The store is divided into sections which sell different types of products. We want to keep track of which section each product belongs to, as well as the number of products being sold in each section.
- Promotions provide discounts for certain products in the store. They have a start date and end date, as well as a discount value, which is applied to the price of all products participating in the promotion. A product can only belong to one promotion at a time, but a promotion can apply to many products. Promotions may also have any number of conditions.
- When a product is running low on stock, an order must be made with a supplier. Orders can include many products (each with an amount to order), and are identified simply by the arrival date and the supplier.
- For each supplier, we store their name, contact information, the products they supply and the number of pending orders.

Entities:

- PRODUCT
- PROMOTION
- SECTION
- ORDER (weak entity)
- SUPPLIER

Relationships:

- PART_OF
  - N:1 relationship
  - A product can only participate in one promotion, but a promotion can include many products.
  - Product is partial participation, promotion is total participation.
- INCLUDED_IN
  - M:N relationship
  - An order can contain many products (so long as they have the same supplier), and a product can be included in many orders.
  - Has attribute *Amount* which stores how many of each product is being ordered.
  - Product is partial participation, ORDER is total participation.
- FROM
  - N:1 relationship
  - Each order comes from a supplier. A supplier can have many orders.
  - Supplier is partial participation, ORDER is total participation.
- SUPPLIED_BY
  - N:1 relationship
  - Each product has a supplier, suppliers supply many products
  - Both SUPPLIER and PRODUCT are total participation.