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**“Semester project ERD:”**

**Question:**

Pharmacy System with Prescription and Drug Interaction Warnings. A modern pharmacy requires prescriptions for certain medications and verifies the prescription’s issuing doctor and date. Drug data includes side effects, ingredients, and interactions with other drugs. If a customer tries to buy conflicting medications, the system raises an alert. Expired or near-expiry items are removed from shelves automatically. Inventory is synced with supplier databases to allow for rapid replenishment.

**Entities and Key Attributes:**

1. Customer (Customer ID, Name, Date of Birth, Contact Info).

P.K = Customer ID

2. Doctor (Doctor ID, Name, License Number and Contact Info).

P.K = Doctor ID

3. Prescription (Prescription ID, Date Issued, Expiration Date, Doctor ID, Customer ID).

P.K = Prescription ID F.K = Doctor ID, Customer ID

4. Drug (Drug ID, Name, Ingredients, Side Effects).

P.K = Drug ID

5. Prescription Drug (Prescription ID (PK, FK), Drug ID (PK, FK), Dosage, Frequency). Weak relationship (Associative Entity)

6. Drug Interaction (DrugID1 (PK, FK), DrugID2 (PK, FK), Interaction Description). Weak relationship (Associative Entity)

7. Inventory (Inventory ID, Drug ID, Quantity, Expiry Date, and Location, Status (e.g., “Available”, “Expired” and “Near-Expiry”).

P.K = Inventory ID F.K = Drug ID

8. Supplier (Supplier ID, Name, Contact Info).

P.K = Supplier ID

9. Supplier Drug (Supplier ID (PK, FK), Drug ID (PK, FK), Price, Stock Available). Weak relationship (Associative Entity)

**Relationships:**

1. A Customer can have many Prescriptions.

2. A Doctor can issue many Prescriptions.

3. A Prescription includes one or more Drugs (via Prescription Drug).

4. A Drug can interact with another Drug (self-referencing many-to-many via Drug Interaction).

5. Inventory holds many instances of a Drug.

6. A Supplier supplies multiple Drugs (via Supplier Drug).

**ERD:**

