

Entity 1: Customers

Candidate Keys:

- CUSTOMER_ID
- (FIRST_NAME, LAST_NAME, DOB, PHONE)

Primary Key:

- CUSTOMER_ID

Foreign Keys:

- (none—parent table)

One Superkey:

- CUSTOMER_ID and FIRST_NAME

Reason:

CUSTOMER_ID is a single, consistent, system-generated identification. Composite alternatives (name + DOB + phone) can vary and may not be unique.

Entity 2: Medications

Candidate Keys:

- MEDICATION_ID
- (BRAND_NAME, STRENGTH, FORM)

Primary Key:

- MEDICATION_ID

Foreign Keys:

- (none—parent table)

One Superkey:

- MEDICATION_ID and BRAND_NAME

Reason:

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MEDICATION_ID is distinct and stable; the brand/strength/form may be reused or altered over time.

Entity 3: Prescriptions

Candidate Keys:

- PRESCRIPTION_ID
- (CUSTOMER_ID, MEDICATION_ID, DATE_PRESCRIBED)

Primary Key:

- PRESCRIPTION_ID

Foreign Keys:

- CUSTOMER_ID → Customers (CUSTOMER_ID)
- MEDICATION_ID → Medications (MEDICATION_ID)

One Superkey:

- PRESCRIPTION_ID and CUSTOMER_ID

Reason:

PRESCRIPTION_ID avoids duplication when a patient receives the same drug several times; the composite key is more fragile and difficult to handle.

Entity 4: Orders

Candidate Keys:

- ORDER_ID
- (CUSTOMER_ID, ORDER_DATE)

Primary Key:

- ORDER_ID

Foreign Keys:

- CUSTOMER_ID → Customers (CUSTOMER_ID)

One Superkey:

- ORDER_ID and CUSTOMER_ID

Reason:

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ORDER_ID guarantees uniqueness; a patient may place numerous orders on the same day.

Entity 5: OrderItems

Candidate Keys:

- ORDERITEM_ID
- (ORDER_ID, MEDICATION_ID)

Primary Key:

- ORDERITEM_ID

Foreign Keys:

- ORDER_ID → Orders (ORDER_ID)
- MEDICATION_ID → Medications (MEDICATION_ID)

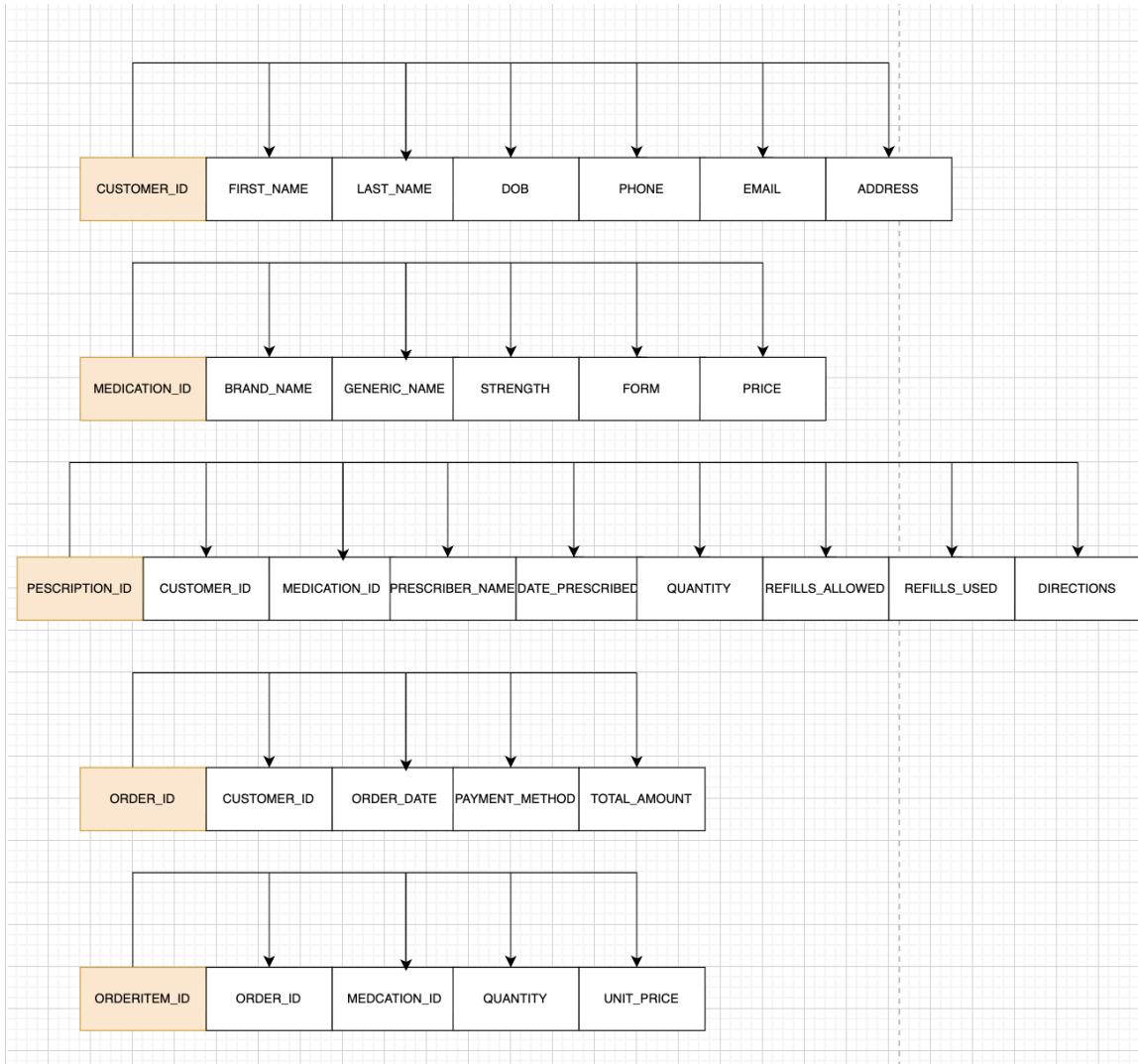
One Superkey:

- ORDERITEM_ID and ORDER_ID

Reason:

ORDERITEM_ID Each line is uniquely identified and enables for flexibility (for example, numerous lines for the same medicine or price at the moment of sale).

Dependency Diagram:



ER Diagram:

