📄 Database Design for PetPalate – Premium Pet Feed & Nutrition Platform

✅ 1. Defining Unique Entities

This system includes six uniquely defined entities, each with a meaningful and distinct name:

1. User – A person who registers and shops for pet food.
2. Product – A pet food item listed in the store.
3. Cart – A temporary container holding the items a user wants to buy.
4. CartItem – An associative entity representing the product entries inside a user's cart.
5. Order – A simulated purchase made by the user.
6. OrderItem – An associative entity between orders and products (many-to-many relationship).

✅ Criteria met: At least 5 unique, meaningful entities → 40 points

✅ 2. Identifying the Types of Entities

| Entity | Type | Reason |
| --- | --- | --- |
| User | Key Entity | Has a unique identifier (primary key id) |
| Product | Key Entity | Each product has a distinct identity and attributes |
| Cart | Weak Entity | Exists only in the context of a user (dependent on user\_id) |
| CartItem | Associative | Joins carts and products in a many-to-many relationship |
| Order | Key Entity | Captures transactions simulated by the user |
| OrderItem | Associative | Joins orders and products; includes purchase-specific data like price |

✅ Criteria met: All 3 types of entities (key, weak, associative) are defined correctly → 40 points

✅ 3. Identifying Relationships + Cardinality & Ordinality

| Relationship | Cardinality | Ordinality | Notes |
| --- | --- | --- | --- |
| User → Cart | 1 to 1 | Mandatory | Each user has one cart |
| Cart → CartItem | 1 to many | Mandatory | A cart must contain at least one item |
| CartItem → Product | many to 1 | Mandatory | Each item is associated with one product |
| User → Order | 1 to many | Optional | A user may place multiple orders |
| Order → OrderItem | 1 to many | Mandatory | An order has one or more products |
| OrderItem → Product | many to 1 | Mandatory | Each order item refers to a single product |

✅ Criteria met: Relationships are accurate; cardinality and ordinality are clearly specified → 40 points

✅ 4. Identifying Attributes (Key, Weak Key, Derived, Multivalued)

✴️ Entity Attribute Breakdown

🔸 User

* id *(Primary key)*
* name
* email *(Unique)*
* password
* created\_at

🔸 Product

* id *(Primary key)*
* name
* description
* price
* category *(Multivalued in future for tags: e.g., "grain-free", "senior dog")*
* image\_url
* stock\_quantity
* created\_at

🔸 Cart

* id *(Weak key, auto-increment)*
* user\_id *(Foreign key → users.id)*
* created\_at, updated\_at
* total\_price *(Derived: sum of all cart\_items × quantity)*

🔸 CartItem

* id *(Primary key)*
* cart\_id *(Foreign key → carts.id)*
* product\_id *(Foreign key → products.id)*
* quantity

🔸 Order

* id *(Primary key)*
* user\_id *(Foreign key → users.id)*
* order\_date
* total\_amount

🔸 OrderItem

* id *(Primary key)*
* order\_id *(Foreign key → orders.id)*
* product\_id *(Foreign key → products.id)*
* quantity
* unit\_price *(Captures price at time of purchase)*

✅ Criteria met: Attribute types are clearly determined, including key, weak, derived, and multivalued → 40 points

**Visual ER Diagram**

Изображение выглядит как текст, снимок экрана, число

Контент, сгенерированный ИИ, может содержать ошибки.