

ER Design + Business Rules

1. Users Table Business Rules:

- **Unique User ID:** Each user must have a unique **User ID**.
- **Unique Email:** Each user must have a unique email address.
- **Valid Subscription:** The **Premium Mode Subscription** should be a boolean value indicating whether the user has a premium subscription.
- **Electronic Purse Balance:** The **Electronic Purse** balance should not be negative.
- **Discount Codes:** The **Discount Codes** field should be an integer, and NULL is allowed if there are no discount codes.
- **Password Requirements:** Passwords must follow a specific complexity requirement (e.g., at least one uppercase letter, one lowercase letter, one digit, and one special character).

2. Riders Table Business Rules:

- **Unique Rider ID:** Each rider must have a unique **rider_id**.
- **Vehicle Type Constraints:** The **vehicle_type** must be one of the predefined types (e.g., Scooter, Normal bike, Electric Bike).
- **Rider Status:** The **rider_status** must be one of the predefined statuses (e.g., available, busy, out of service).

3. Restaurants Table Business Rules:

- **Unique Restaurant ID:** Each restaurant must have a unique **restaurant_id**.
- **Stars Rating:** The **stars** rating should be between 0 and 5.

- **Shipping Cost:** The `shipping_cost` should be a positive value.
- **Top Partner Details:** If `is_top_partner` is true, `top_partner_join_date` must be provided.

4. Dishes Table Business Rules:

- **Unique Dish ID:** Each dish must have a unique `dish_id`.
- **Price Validity:** The `price` should be a positive value.
- **Discount Constraints:** The `discount` should be a non-negative value, not exceeding the `price`.

5. Orders Table Business Rules:

- **Unique Order ID:** Each order must have a unique `order_id`.
- **Valid Status:** The `order_status` must be one of the predefined statuses (e.g., pending, delivered, canceled).
- **Rating Constraints:** Both `rating_rider` and `rating_restaurant` should be between 1 and 5 if provided.
- **Tip Amount:** The `tip_amount` should be a non-negative value.

6. Ingredients Table Business Rules:

- **Unique Ingredient ID:** Each ingredient must have a unique `ingredient_id`.
- **Users and Orders (1-to-Many):** Each user can place multiple orders over time, but each order is associated with only one user
- **Riders and Orders (1-to-Many):** A rider can deliver many orders, but each order is delivered by one specific rider.

- **Restaurants and Dishes (1-to-Many):** A restaurant offers various dishes, but each dish belongs to one restaurant.
- **Restaurants and Orders (1-to-Many):** A restaurant can receive many orders, but each order is placed at one restaurant.
- **Dishes and Orders (Many-to-Many):** A dish can be part of many orders, and each order can contain multiple dishes. Managed via a join table (order_items).
- **Dishes and Ingredients (Many-to-Many):** A dish can have many ingredients, and an ingredient can be used in many dishes. Managed via a join table (dish_ingredients).
- **Orders and Users (Many-to-1):** Each order is placed by one user.
- **Orders and Riders (Many-to-1):** Each order is delivered by one rider.
- **Orders and Restaurants (Many-to-1):** Each order is placed with one restaurant.
- **Orders and Dishes (Many-to-Many):** Managed via a join table (order_items).
- **Ingredients and Dishes (Many-to-Many):** A dish can have many ingredients, and an ingredient can be used in many dishes. Managed via a join table (dish_ingredients).