Activity #1

List of entities:

- **CUSTOMER_142**
- **SHOP_STAFF_142**
- **ORDER_DETAIL_142**
- **CUSTOMER_ORDER_142**
- **ITEM_142**
- **ITEM_PRICE_142**
- **ITEM_CRUST_142**
- **ITEM_SIZE_142**
- **ITEM_TOPPING_142**

Activity #2

Optional and mandatory attributes:

1. **CUSTOMER_142**

   - Customer contact (Mandatory)
   - Full name (Mandatory)
   - Email (Optional)
   - Address state (Optional)
   - Address city (Optional)
   - Address zip code (Mandatory)
   - Address street (Mandatory)
   - Recent order date (Optional)

2. **SHOP_STAFF_142**

   - Staff code (Mandatory)
   - Contact phone (Mandatory)
   - Contact email (Optional)
   - Full name (Mandatory)
   - Role (Mandatory)
   - Joined date (Mandatory)

3. **ORDER_DETAIL_142**

   - Order code (Mandatory)
   - Total price (Mandatory)
   - Total tax (Mandatory)
   - Total discount (Mandatory)
   - Order placed date (Mandatory)
   - Staff code (Mandatory)

4. **ITEM_142**

   - Item code (Mandatory)
   - Item name (Mandatory)
   - Item description (Mandatory)

5. **CUSTOMER_ORDER_142**

   - Item code (Mandatory)
   - Order code (Mandatory)

6. **ITEM_CRUST_142**

   - Crust code (Mandatory)
   - Crust name (Mandatory)
   - Crust price (Mandatory)

7. **ITEM_SIZE_142**

   - Size code (Mandatory)
   - Size name size price (Mandatory)

8. **ITEM_TOPPING_142**

   - Topping code (Mandatory)
   - Topping price (Mandatory)
   - Topping detail (Mandatory)

9. **ITEM_PRICE_142**

   - Item price code (Mandatory)
   - Item total price (Mandatory)
   - Size code (Mandatory)
   - Crust code (Mandatory)
   - Topping code (Mandatory)
   - Item code (Mandatory)

Activity #3

Relationship matrix table:

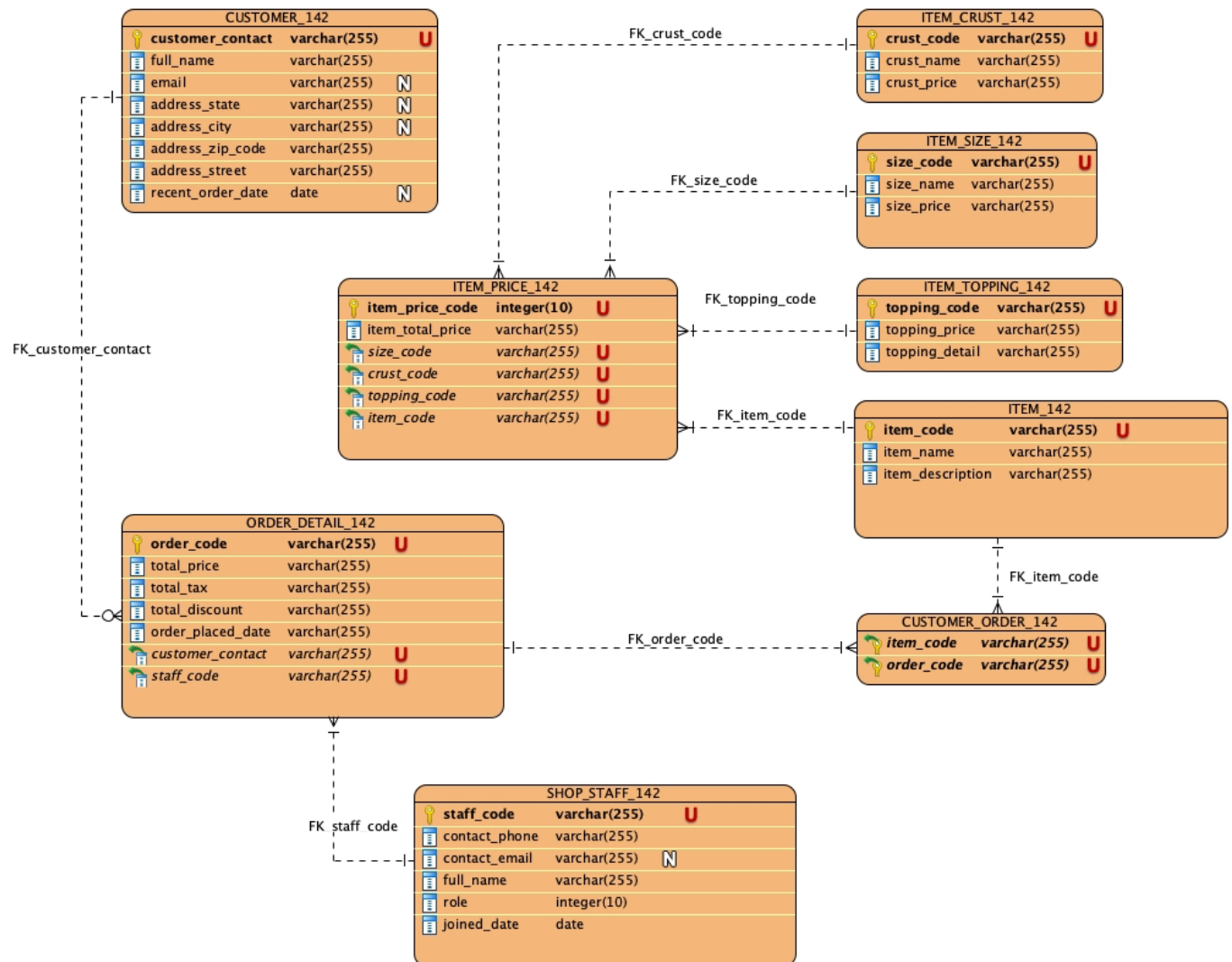|	CUSTOMER_142	CUSTOMER_ORDER_142	ITEM_142	ITEM_CRUST_142	ITEM_PRICE_142	ITEM_SIZE_142	ITEM_TOPPING_142	ORDER_DETAIL_142	SHOP_STAFF_142
CUSTOMER_142								1 : N	
CUSTOMER_ORDER_142			N : 1					N : 1	
ITEM_142		1 : N			1 : N				
ITEM_CRUST_142					1 : N				
ITEM_PRICE_142			N : 1	N : 1		N : 1	N : 1		
ITEM_SIZE_142					1 : N				
ITEM_TOPPING_142					1 : N				
ORDER_DETAIL_142	N : 1	N : 1							N : 1
SHOP_STAFF_142								1 : N	

Explanation:
- Customer can place many order.
- Many orders can have same item.
- Many orders can have same order detail.
- Item can be included in many customer order.
- Item crust can have many price.
- Item can have many crusts.
- Many item can have same price.
- Many item crust can have same price.
- Many item size can have same price.
- Many item topping can have same price.

- Item size can have many price.
- Item topping can have many price.
- Many order detail can have same customer.
- Many order detail can have same customer order.
- Many order detail can be handled by same staff.

Activity #4

Entity Relationship Diagram:

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Figure 1: ER diagram