



LUIGI EKENE DIMUDE
C0799030
CSD 1111 DATABASE DESIGN & SQL
TERM 1
JIM COOPER, PROFESSOR

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Company Name: ONTAKE

Company Overview:

Founded in Japan in 1943 and headquartered in the heart of Osaka, Ontake Corporation is a Japanese premium rice cooker manufacturer. It all started with *kamado*; a traditional Japanese cook stove used for cooking rice and has now expanded to the modern rice cookers we know today.

Its products are designed to perfection and built to an exceptional standard of quality. It continues to deliver award-winning rice cookers that are commended by industry-leading publications across Japan.

Mission:

To deliver great value for our customers while maintaining excellent quality and to ensure reliability.

Vision:

To be recognized as a leading and trusted rice cooker manufacturer by providing excellent service to our customers.

Location:

110 Sakuragicho, Neyagawa-shi, Osaka 572-00, Japan.

Product: Rice cookers

Product Attributes: Sample Data

Attributes	Sample Data
Product_id (Primary UID)	101
Product Code	NS302
Brand	ONTAKE Professional
Model	ONS-3010
Dimensions	9.46" x 9.6" x 10"
Description	Digital rice cooker/multicooker with ceramic inner pot
Power consumption	120V/60Hz 600W
Color	Stainless Black
Capacity	Up to 10 cups / 1.8 litres
Cost per unit	\$130.00
Weight	7.000lbs

Product Attributes: Description

Attributes	Description
Product_id	The internal unique identifier for the product table in the database not visible to customers
Product Code	The external unique identifier for products visible to all customers and employees
Brand	Represents the brand of category the product is used for
Model	Represents the specific product
Dimensions	This represents the measurable extent of the product, such as the length, breadth and height in inches
Description	Gives a short description of the model
Power consumption	Represents the electrical rating of the product
Color	Represents the specific color of the product
Capacity	Describes the capacity of the model in number of cups and litres
Cost per unit	Represents the cost to manufacture the model in US dollars
Weight	Represents the weight of the model in pounds



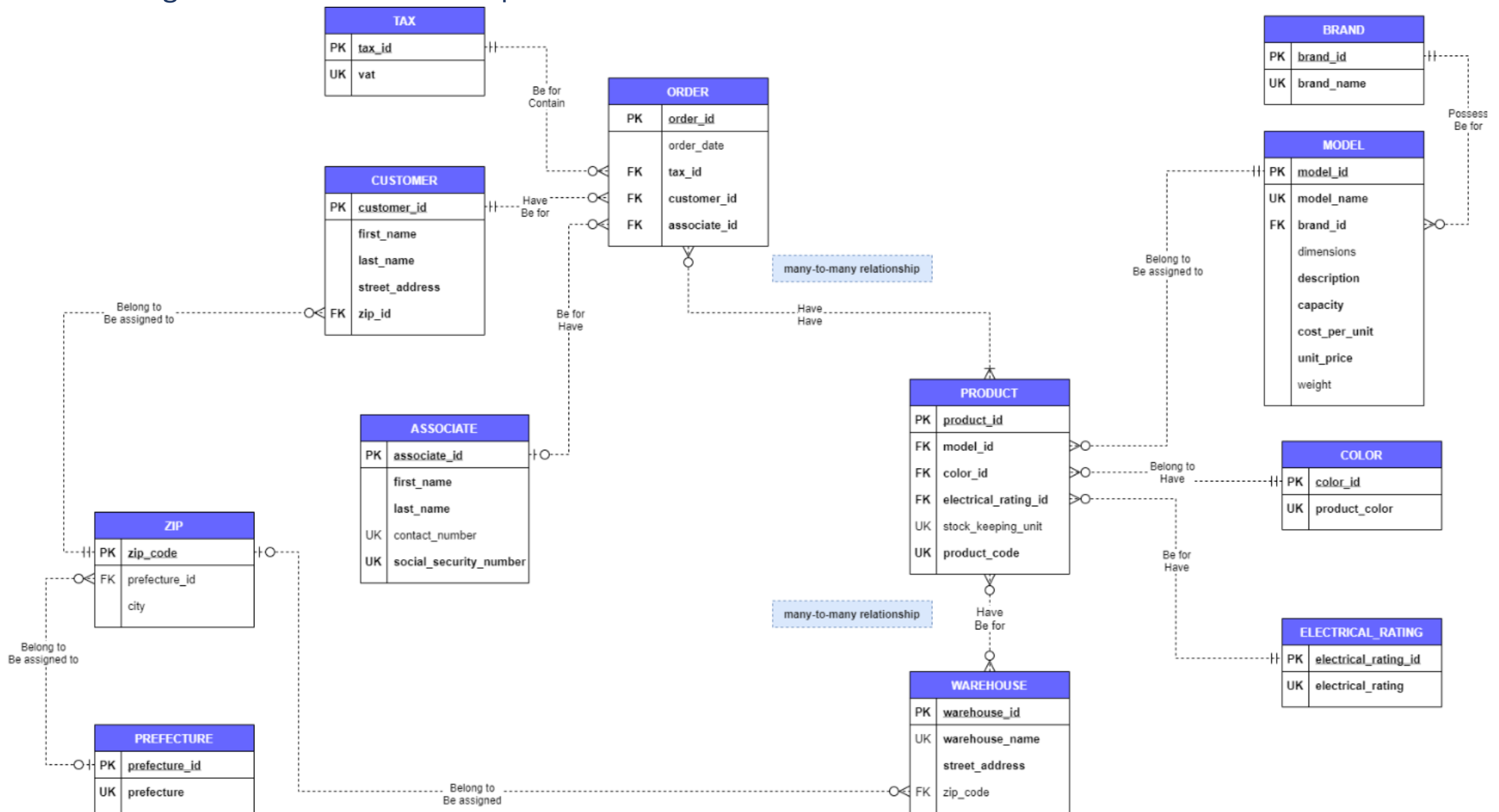
110 Sakuragicho,
Neyagawa-shi, Osaka
572-00

Customer Sales Invoice

Customer ID:	109	Order ID:	1006
Customer Name:	Naomi Osaka	Order Date:	11-02-2020
Customer Address:	1-chome Funehikimachi, Tobudai, Tamurashi, 96343	Associate ID:	101
		Associate Name:	Ren Yagami

Product Code	Model	Brand	Description	Qty	Unit Price	Extended Price
NS301	ONS-3010	ONTAKE Professional	Digital rice cooker/multicooker with ceramic inner pot	10	\$209.00	\$2,090.00
NS302	ONS-3020	ONTAKE Professional	Turbo rice cooker/multicooker	5	\$349.99	\$1,749.95
NA201	ONA-2010	ONTAKE Home	Automatic keep warm mode digital rice cooker	15	\$135.00	\$2,025.00
NA202	ONA-2020	ONTAKE Home	Platinum infused nonstick digital rice cooker	15	\$125.00	\$1,875.00
NG221	ONG-1220	ONTAKE Green	Eco-friendly digital rice cooker	5	\$169.99	\$849.95
					Sub-total	\$8,589.90
					Tax (10%)	\$859.99
					Invoice Total	\$9,449.89

ER Diagram: M:M Relationship



ERD Language: M:M Relationship

Each **ZIP** may belong to zero, one or many **CUSTOMERS**.
Each **CUSTOMER** must have one and only one **ZIP**.

Each **CUSTOMER** may have zero, one or many **ORDERS**.
Each **ORDER** must be for one and only one **CUSTOMER**.

Each **ZIP** may belong to zero or one **PREFECTURE**.
Each **PREFECTURE** may be assigned to zero, one or more **ZIPS**.

Each **ZIP** may belong to zero, one or many **WAREHOUSES**.
Each **WAREHOUSE** may be assigned zero or one **ZIP**.

Each **WAREHOUSE** may have zero, one or many **PRODUCTS**.
Each **PRODUCT** may be for zero, one or more **WAREHOUSES**.

Each **ELECTRICAL RATING** may be for zero, one or many **PRODUCTS**.
Each **PRODUCT** must have one and only one **ELECTRICAL RATING**.

Each **COLOR** may belong to zero, one or many **PRODUCTS**.
Each **PRODUCT** must have one and only one **COLOR**.

Each **MODEL** may belong to zero, one or many **PRODUCTS**.
Each **PRODUCT** must be assigned to one and only one **MODEL**.

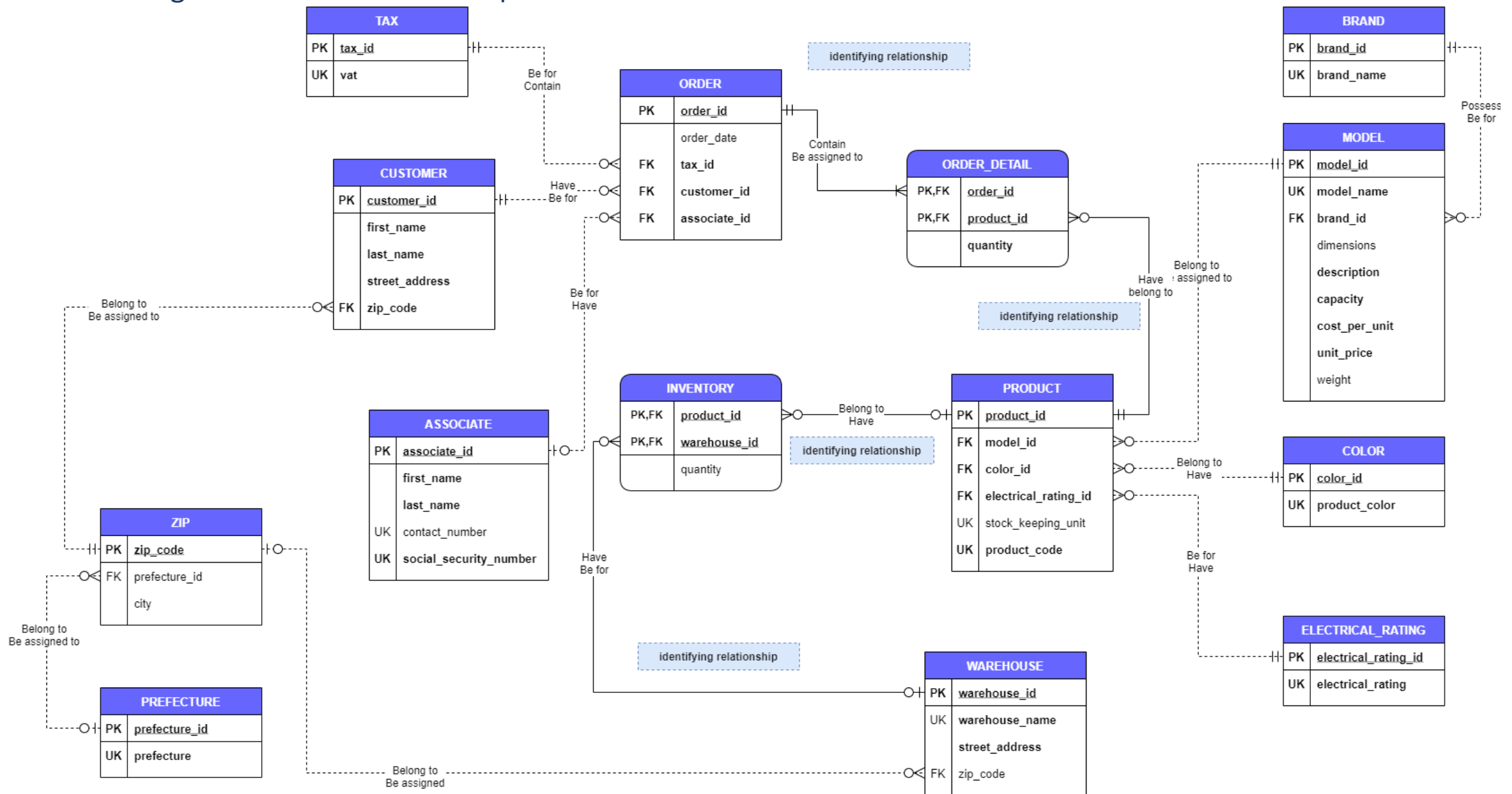
Each **BRAND** may possess zero, one or many **MODELS**.
Each **MODEL** must be for one and only one **BRAND**.

Each **PRODUCT** may have zero, one or many **ORDERS**.
Each **ORDER** must have one or more **PRODUCTS**.

Each **TAX** may be for zero, one or more **ORDERS**.
Each **ORDER** must contain one and only one **TAX**.

Each **ASSOCIATE** may be for zero, one or many **ORDERS**.
Each **ORDER** may have zero or one **ASSOCIATE**.

ER Diagram: M:M Relationship Resolved



ERD Language: M:M Relationship Resolved

Each **ZIP** may be assigned to zero, one or many **CUSTOMERS**.
Each **CUSTOMER** must have one and only one **ZIP**.

Each **CUSTOMER** may have zero, one or many **ORDERS**.
Each **ORDER** must be for one and only one **CUSTOMER**.

Each **ZIP** may belong to zero or one **PREFECTURE**.
Each **PREFECTURE** may be assigned to zero, one or more **ZIPS**.

Each **ZIP** may belong to zero, one or many **WAREHOUSES**.
Each **WAREHOUSE** may be assigned zero or one **ZIP**.

Each **WAREHOUSE** may have zero, one or many **INVENTORIES**.
Each **INVENTORY** may be for zero or one **WAREHOUSE**.

Each **PRODUCT** may belong to zero, one or many **INVENTORIES**.
Each **INVENTORY** may have zero or one **PRODUCT**.

Each **ELECTRICAL RATING** may be for zero, one or many **PRODUCTS**.
Each **PRODUCT** must have one and only one **ELECTRICAL RATING**.

Each **COLOR** may belong to zero, one or many **PRODUCTS**.
Each **PRODUCT** must have one and only one **COLOR**.

Each **MODEL** may belong to zero, one or many **PRODUCTS**.
Each **PRODUCT** must be assigned to one and only one **MODEL**.

Each **BRAND** may possess zero, one or many **MODELS**.
Each **MODEL** must be for one and only one **BRAND**.

Each **PRODUCT** may have zero, one or many **ORDER DETAILS**.
Each **ORDER DETAIL** must belong to one and only one **PRODUCT**.

Each **ORDER** must contain one or many **ORDER DETAILS**.
Each **ORDER DETAIL** must be assigned to one and only one **ORDER**.

Each **TAX** may be for zero, one or more **ORDERS**.
Each **ORDER** must contain one and only one **TAX**.

Each **ASSOCIATE** may be for zero, one or many **ORDERS**.
Each **ORDER** may have zero or one **ASSOCIATE**.

Relational Physical Model: Table Format

LEGEND

PK - Primary key

FK - Foreign Key

UK - Unique Key

o - Optional

* - Mandatory

ORDERS				
Key Type	Optionality	Column name	Data Type	Length
PK	*	order_id	integer	
	o	order_date	date	
FK	*	tax_id	integer	
FK	*	customer_id	integer	
FK	*	associate_id	integer	

TAXES				
Key Type	Optionality	Column name	Data Type	Length
PK	*	tax_id	integer	
UK	*	vat	decimal	5,4

CUSTOMERS				
Key Type	Optionality	Column name	Data Type	Length
PK	*	customer_id	integer	
	*	first_name	varchar	30
	*	last_name	varchar	30
	*	stree_address	varchar	30
	*	contact_number	decimal	11,0
FK	*	zip_code	integer	

ZIPS				
Key Type	Optionality	Column name	Data Type	Length
PK	*	zip_code	integer	
FK	o	prefecture_id	integer	
	o	city	varchar	40

PREFECTURES				
Key Type	Optionality	Column name	Data Type	Length
PK	*	prefecture_id	integer	
UK	*	prefecture	varchar	40

ASSOCIATES				
Key Type	Optionality	Column name	Data Type	Length
PK	*	associate_id	integer	
	*	first_name	varchar	30
	*	last_name	varchar	30
UK	o	contact_number	decimal	11,0
UK	*	social_security_number	decimal	12,0

COLORS				
Key Type	Optionality	Column name	Data Type	Length
PK	*	color_id	integer	
UK	*	product_color	varchar	20

ORDER_DETAILS				
Key Type	Optionality	Column name	Data Type	Length
Pk,FK	*	order_id	integer	
PK,FK	*	product_id	integer	
	*	quantity	decimal	5,0

PRODUCTS				
Key Type	Optionality	Column name	Data Type	Length
PK	*	product_id	integer	
FK	*	model_id	integer	
FK	*	color_id	integer	
FK	*	electrical_rating_id	integer	
UK	o	stock_keeping_unit	varchar	20
UK	*	product_code	varchar	20

WAREHOUSES				
Key Type	Optionality	Column name	Data Type	Length
PK	*	warehouse_id	integer	
UK	*	warehouse_name	varchar	30
	*	street_address	varchar	50
FK	o	zip_code	integer	

BRANDS				
Key Type	Optionality	Column name	Data Type	Length
PK	*	brand_id	integer	
UK	*	brand_name	varchar	30

MODELS				
Key Type	Optionality	Column name	Data Type	Length
PK	*	model_id	integer	
UK	*	model_name	varchar	30
FK	*	brand_id	integer	
	o	dimensions	varchar	30
	*	description	varchar	90
	*	capacity	varchar	30
	*	cost_per_unit	decimal	9,2
	*	unit_price	decimal	9,2
	o	weight	decimal	6,3

ELECTRICAL_RATINGS				
Key Type	Optionality	Column name	Data Type	Length
PK	*	electrical_rating_id	integer	
UK	*	electrical_rating	varchar	40

INVENTORIES				
Key Type	Optionality	Column name	Data Type	Length
Pk,FK	*	product_id	Integer	
Pk,FK	*	warehouse_id	Integer	
	o	quantity	decimal	8,0

Relational Physical Model: Text Format

LEGEND
<u>Underlined bold</u> : Primary key
FK → Foreign key: Foreign key
<i>Italicized</i> : Unique key

ORDERS (**order_id**, order_date, tax_id, customer_id, associate_id)

FK → customer_id

Fk → associate_id

FK → tax_id

TAXES (**tax_id**, vat)

CUSTOMERS (**customer_id**, first_name, last_name, stree_address,
contact_number, zip_code)

FK → zip_code

ZIPS (**zip_code**, prefecture_id, city)

FK → prefecture_id

PREFECTURES (**prefecture_id**, prefecture)

ASSOCIATES (**associate_id**, first_name, last_name, contact_number,
social_security_number)

COLORS (**color_id**, product_color)

ORDER_DETAILS (**order_id**, **product_id**, quantity)

FK → order_id

FK → product_id

PRODUCTS (product_id, model_id, color_id, electrical_rating_id,
stock_keeping_unit, product_code)

FK → model_id

FK → color_id

FK → electrical_rating_id

WAREHOUSES (warehouse_id, warehouse_name, street_address, zip_code)

FK → zip_code

BRANDS (brand_id, brand_name)

MODELS (model_id, model_name, brand_id, dimensions, description,
capacity, cost_per_unit, unit_price, weight)

FK → brand_id

ELECTRICAL_RATINGS (electrical rating_id, electrical_rating)

INVENTORIES (product_id, warehouse_id, quantity)

FK → product_id

FK → warehouse_id

Business Rules

ORDERS				
Key Type	Optionality	Column Name	Data Type	Business Rule
PRIMARY KEY → SEQUENCE AUTO GENERATED COLUMN	NOT NULL	order_id	INTEGER	
		order_date	DATE	DEFAULT VALUE = CURRENT_DATE
FOREIGN KEY → TAXES	NOT NULL	tax_id	INTEGER	DEFAULT VALUE = 1
FOREIGN KEY → CUSTOMERS	NOT NULL	customer_id	INTEGER	
FOREIGN KEY → ASSOCIATES	NOT NULL	associate_id	INTEGER	

TAXES				
Key Type	Optionality	Column Name	Data Type	Business Rule
PRIMARY KEY	NOT NULL	tax_id	INTEGER	
UNIQUE KEY	NOT NULL	vat	DECIMAL (5,4)	vat BETWEEN 0.0010 AND 2.0000

CUSTOMERS				
Key Type	Optionality	Column name	Data Type	Business Rule
PRIMARY KEY → IDENTITY AUTO GENERATED COLUMN	NOT NULL	customer_id	INTEGER	
	NOT NULL	first_name	VARCHAR (30)	
	NOT NULL	last_name	VARCHAR (30)	
	NOT NULL	stree_address	VARCHAR (30)	
	NOT NULL	contact_number	DECIMAL (11,0)	
FOREIGN KEY → ZIPS	NOT NULL	zip_code	INTEGER	

ZIPS				
Key Type	Optionality	Column name	Data Type	Business Rule
PRIMARY KEY	NOT NULL	zip_code	INTEGER	zip code LESS THAN 99999
FOREIGN KEY → PREFECTURES		prefecture_id	INTEGER	
		city	VARCHAR (40)	

PREFECTURES				
Key Type	Optionality	Column name	Data Type	Business Rule
PRIMARY KEY	NOT NULL	prefecture_id	INTEGER	
UNIQUE KEY	NOT NULL	prefecture	VARCHAR (40)	

ASSOCIATES				
Key Type	Optionality	Column name	Data Type	Business Rule
PRIMARY KEY	NOT NULL	associate_id	INTEGER	
	NOT NULL	first_name	VARCHAR (30)	
	NOT NULL	last_name	VARCHAR (30)	
UNIQUE KEY		contact_number	DECIMAL (11,0)	
UNIQUE KEY	NOT NULL	social_security_number	DECIMAL (12,0)	

COLORS				
Key Type	Optionality	Column name	Data Type	Business Rule
PRIMARY KEY	NOT NULL	color_id	INTEGER	
UNIQUE KEY	NOT NULL	product_color	VARCHAR (20)	

ORDER_DETAILS				
Key Type	Optionality	Column name	Data Type	Business Rule
PRIMARY KEY & FOREIGN KEY → ORDERS	NOT NULL	order_id	INTEGER	
PRIMARY KEY & FOREIGN KEY → PRODUCTS	NOT NULL	product_id	INTEGER	
	NOT NULL	quantity	DECIMAL (5,0)	quantity BETWEEN 0 AND 1000000

PRODUCTS				
Key Type	Optionality	Column name	Data Type	Business Rule
PRIMARY KEY	NOT NULL	product_id	INTEGER	
FOREIGN KEY → MODELS	NOT NULL	model_id	INTEGER	
FOREIGN KEY → COLORS	NOT NULL	color_id	INTEGER	
FOREIGN KEY → ELECTRICAL_RATINGS	NOT NULL	electrical_rating_id	INTEGER	
UNIQUE		stock_keeping_unit	VARCHAR (20)	
UNIQUE	NOT NULL	product_code	VARCHAR (20)	

WAREHOUSES				
Key Type	Optionality	Column name	Data Type	Business Rule
PRIMARY KEY	NOT NULL	warehouse_id	INTEGER	
UNIQUE	NOT NULL	warehouse_name	VARCHAR (30)	
	NOT NULL	street_address	VARCHAR (50)	
FOREIGN KEY → ZIPS		zip_code	INTEGER	

BRANDS				
Key Type	Optionality	Column name	Data Type	Business Rule
PRIMARY KEY	NOT NULL	brand_id	INTEGER	
UNIQUE	NOT NULL	brand_name	VARCHAR (30)	

MODELS				
Key Type	Optionality	Column name	Data Type	Business Rule
PRIMARY KEY	NOT NULL	model_id	INTEGER	
UNIQUE	NOT NULL	model_name	VARCHAR (30)	
FOREIGN KEY → BRANDS	NOT NULL	brand_id	INTEGER	
		dimensions	VARCHAR (30)	
	NOT NULL	description	VARCHAR (90)	
	NOT NULL	capacity	VARCHAR (30)	
	NOT NULL	cost_per_unit	DECIMAL (9,2)	cost_per_unit GREATER THAN 5.00
	NOT NULL	unit_price	DECIMAL (9,2)	unit_price GREATER THAN cost_per_unit
		weight	DECIMAL (6,3)	weight BETWEEN 2.00 AND 100.00

ELECTRICAL_RATINGS				
Key Type	Optionality	Column name	Data Type	Business Rule
PRIMARY KEY	NOT NULL	electrical_rating_id	INTEGER	
UNIQUE	NOT NULL	electrical_rating	VARCHAR (40)	

INVENTORIES				
Key Type	Optionality	Column name	Data Type	Business Rule
PRIMARY KEY & FOREIGN KEY → PRODUCTS	NOT NULL	product_id	INTEGER	
PRIMARY KEY & FOREIGN KEY → WAREHOUSES	NOT NULL	warehouse_id	INTEGER	
		quantity	DECIMAL (8,0)	

Website Resources

<https://www.zojirushi.com/>

<https://www.aroma-housewares.com/>