

Miniworld description:

We need to go buy food to live. The grocery store is where people come to shop for a variety of items.

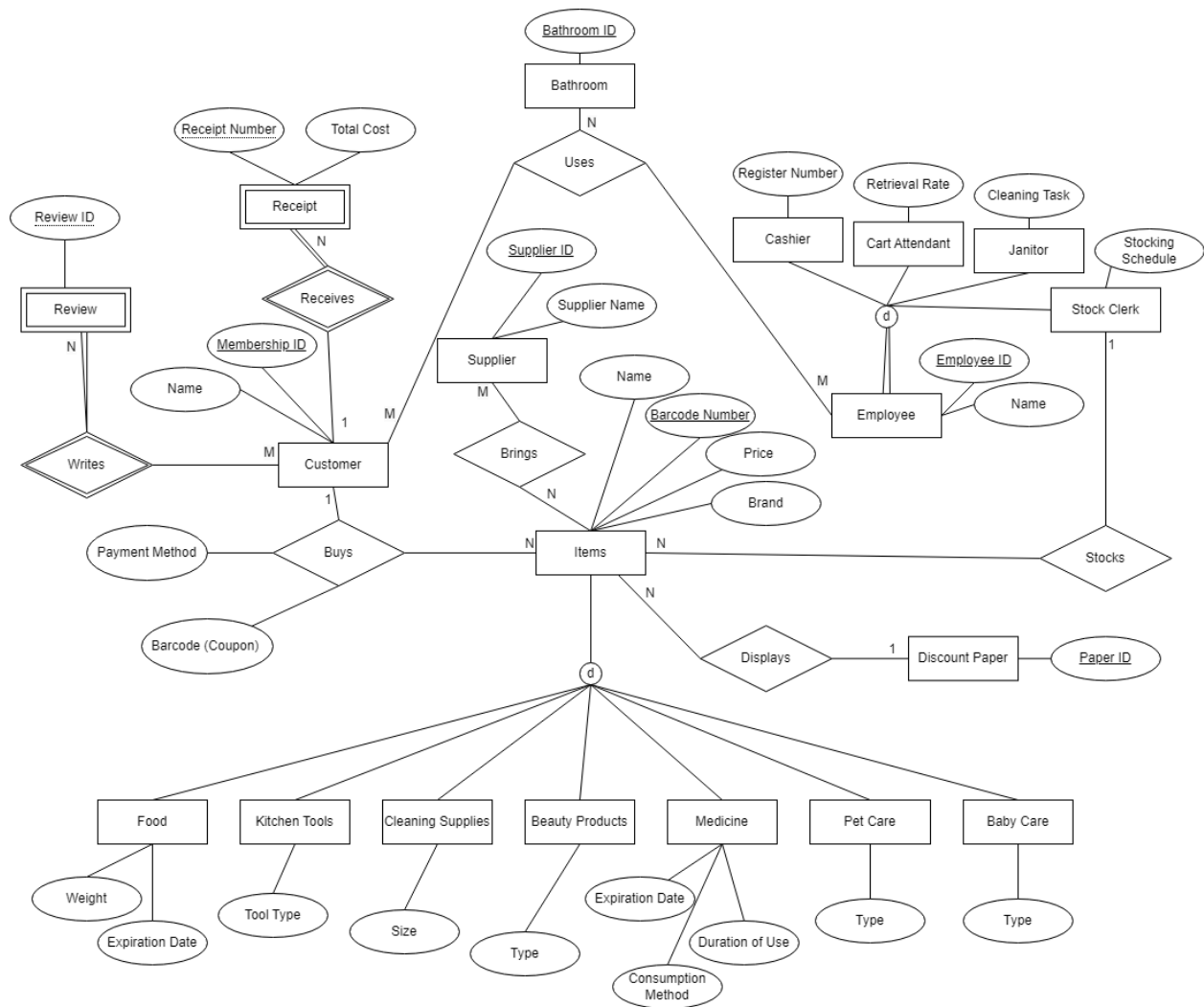
The people inside the store include customers. These customers have a name and a membership ID and are here to do the shopping. When a customer is buying an item, they have different payment methods and can apply coupons for discounts. Customers can also write a review about their grocery store experience, with the review having a unique review ID to keep track of every review. People include employees, those who work at the grocery store. They have a name and an employee ID. Different types of employees work here, including cashiers who have their assigned register number for the shift, cart attendants who have a retrieval rate for the carts, janitors who have a cleaning task, and stock clerks who have a stocking schedule. A stock clerk is responsible for stocking the items in the grocery store. For the stock clerk to have items to stock, the grocery store gets its products from different suppliers that come in on delivery days. Each supplier has their own unique supplier ID and a supplier name.

There are multiple bathrooms for people to use.

The groceries items are what the customers will buy. They have a name, a unique barcode number, a price, and a brand and can be separated into multiple categories like food, kitchen tools, cleaning supplies, beauty products, medicine, pet care, and baby care. Food has a certain weight and expiration date. Kitchen tools have a tool type. Cleaning supplies have a size. Beauty products have a product type. Medicine has an expiration date, consumption method, and a duration of use. Pet care and baby care will also have a type of product. After buying their groceries, customers will receive a receipt. The receipt will contain the unique receipt number and the total cost of the customer's haul during that trip.

A discount paper, with a unique paper ID, is present at the grocery store to display what items will be on sale.

EER Diagram:



**Assumptions:**

There is a total participation for the Employee superclass to its subclasses.

**Entity Dictionary:**

Entity: Baby Care

Description: Baby items that can be purchased at the grocery store

Attributes:

- Type, VarChar(80), type of baby item

Primary Key: Inherited Barcode Number from superclass Items

Entity: Bathroom

Description: Where people go to do their business

Attributes:

- Bathroom ID, VarChar(80), unique string to specify/identify the bathroom

Primary Key: Bathroom ID

Entity: Beauty Products

Description: Cosmetics that can be purchased at the grocery store.

Attributes:

- Type, VarChar(80), the type of beauty product

Primary Key: Inherited Barcode Number from superclass Items

Entity: Cart Attendant

Description:

Employee that handles getting carts in parking lot and putting them back inside

Attributes:

- Retrieval Rate, int, the amount of times the cart attendant goes to retrieve carts per day.

Primary Key: Inherited Employee ID from superclass Employee

Entity: Cashier

Description: Employee that handles the sales of good in the store

Attributes:

- Register Number, int, the cashier's register number they will work at

Primary Key: Inherited Employee ID from superclass Employee

Entity: Cleaning Supplies

Description: Products and tools used to clean and maintain hygiene in various spaces.

Attributes: Size, VarChar(80), the size of of cleaning product  
Primary Key: Inherited Barcode Number from superclass items

Entity: Customer

Description: Someone who buys items at the grocery store.

Attributes:

- Name, VarChar(80), First and Last name of the customer
- MembershipID, int, unique number for customer's membership

Primary Key: MembershipID

Entity: Discount Paper

Description: A paper that shows the items that are on sale

Attributes:

- Paper ID, int, unique number for the discount paper

Primary Key: Paper ID

Entity: Employee

Description: Someone who works at the grocery store.

Attributes:

- Name, VarChar(80), First and Last name of the employee
- Employee ID, int, unique number for employee's work ID

Primary Key: Employee ID

Entity: Food

Description: Edible items sold at the grocery store.

Attributes:

- ExpirationDate, VarChar(80), month, day, and year the food expires (MM/DD/YYYY)
- Weight, float, how much the food weighs in pounds

Primary Key: Inherited Barcode Number from superclass Items

Entity: Items

Description: Things to purchase and stock at the grocery store.

Attributes:

- Name, VarChar(80), Name of the item
- Brand, VarChar(80), Brand name of the product
- Price, Float, How expensive the product is
- Barcode number, VarChar(80), Item's unique barcode number for scanning item

Primary Key: Barcode Number

Entity: Janitor

Description: Employee that is responsible for cleaning the store

Attributes:

- Cleaning Task, VarChar(80), the specific task the janitor is assigned to.

Primary Key: Inherited Employee ID from superclass Employee

Entity: Kitchen Tools

Description: A type of item sold in the grocery store. Tools used in a kitchen.

Attributes:

- Tool type, VarChar(80), The category of kitchen tool

Primary Key: Inherited Barcode Number from superclass Items

Entity: Medicine

Description: Medicine that can be purchased from the pharmacy inside the grocery store

Attributes:

- Consumption Method, VarChar(80), The way medicine is consumed, oral, nasal, etc.
- Expiration Date, int, The day that the medicine is expired and should no longer be used
- Duration of Use, int, How long that the customer should be taking the Medicine.

Primary Key: Inherited Barcode Number from superclass Items

Entity: Pet Care

Description: Items for Pets

Attributes:

- Type, VarChar(80), Type of Pet Care Item

Primary Key: Inherited Barcode Number from superclass Item

Entity: Receipt

Description: A slip of paper that shows what the customer bought on their trip to the grocery store.

Attributes:

- Total Cost, float, The total cost of the customer's purchase made that day
- Receipt Number, int, The specific number related to the receipt

Primary Key: None

Entity: Review

Description: Review that customers leave after shopping

Attributes:

- Review ID, int, number specific to that review

Primary Key: None

Entity: Stock Clerk

Description: Employee that stocks up the grocery store items

Attributes:

- Stocking Schedule, int, the amount of times the stock clerk stocks items per day

Primary Key: Inherited Employee ID from superclass Employee

Entity: Supplier

Description: Supplier brings in items to the store for stocking.

Attributes:

- Supplier ID, int, specific number related to supplier
- Supplier Name, VarChar(80), Name of the supplier

Primary Key: Supplier ID

### **Relationship Dictionary:**

Relationship: Brings

Description: Suppliers bring an amount of items to the grocery store. The supplier can exist without the items and items can exist without the supplier.

Entities: Supplier, Items

Cardinality: Many Suppliers to Many Items

Participation: Partial to Partial

Relationship: Buys

Description: Customer buys one or more items from the grocery store. Customer can exist without items and items can exist without customers.

Entities: Customer, Items

Attributes:

- Barcode(Coupon), Integer, an identifying number for the coupon.
- Payment Method, VarChar(80), type of payment method customer is using to buy items.

Cardinality: One Customer to Many Items

Participation: Partial to Partial

Relationship: Displays

Description: The discount paper displays items that are on sale.

Entities: Discount Paper, Items

Cardinality: One Discount Paper to many Items

Participation: Partial to Partial

Relationship: Receives

Description: Customer receives a receipt from the grocery store after purchasing an item. A Receipt can not exist without a Customer.

Entities: Customer, Receipt

Cardinality: One Customer to Many Receipts

Participation: Partial to Total

Relationship: Stocks

Description: Stock Clerk stocks an amount of items at the grocery store. Employee can exist without items and items can exist without employee.

Entities: Stock Clerk, Items

Cardinality: One Stock Clerk to Many Items

Participation: Partial to Partial

Relationship: Uses

Description: Employees or customer can use the bathroom in the store

Entities: Customer, Bathroom, Employees

Cardinality: Many Customers to Many Bathrooms to Many Employees

Participation: Partial to Partial to Partial

Relationship: Writes

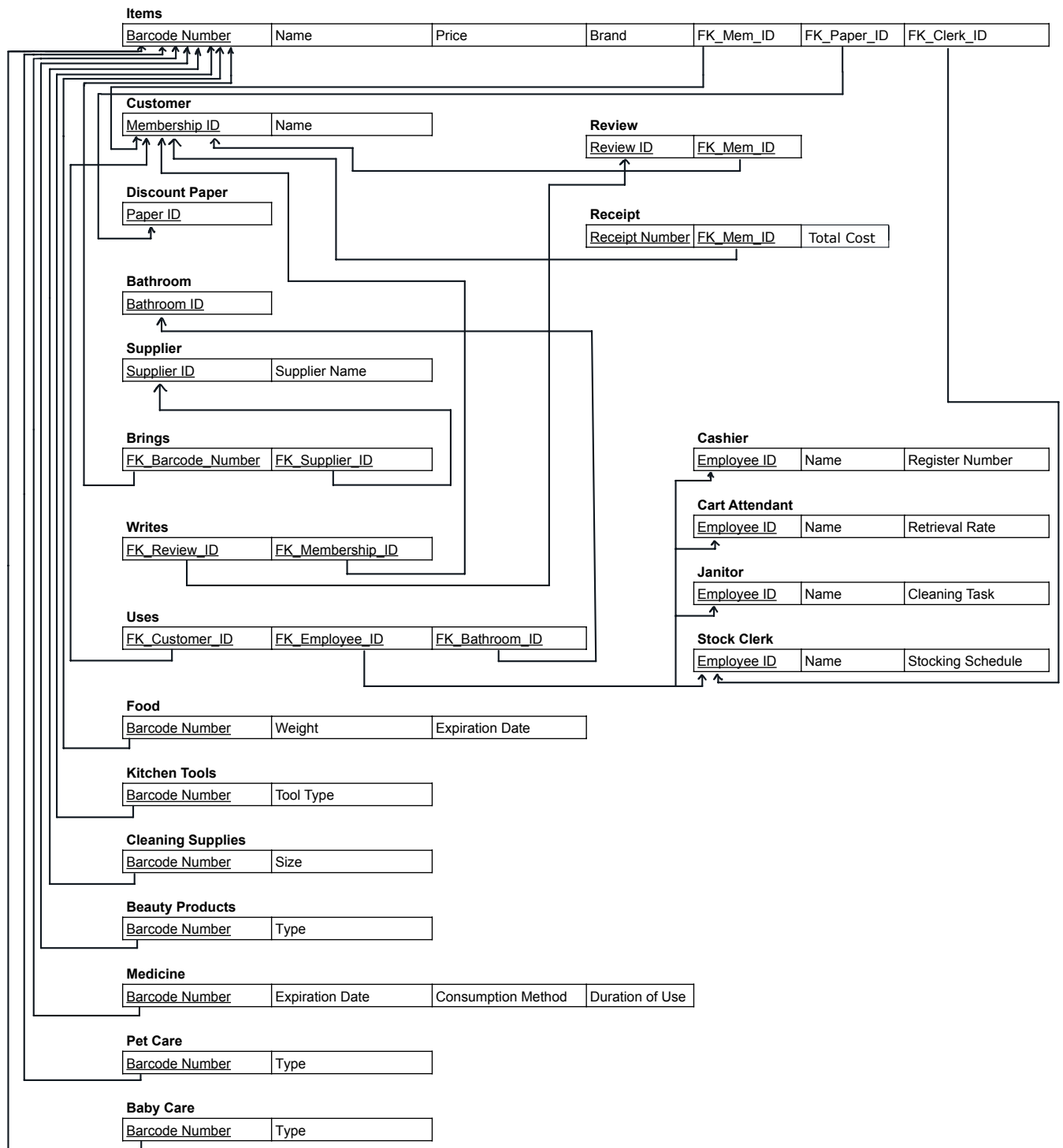
Description: Customer writes reviews of store after shopping

Entities: Customer, Review

Cardinality: Many Customer to Many Reviews

Participation: Partial to Total

# Schema Diagram





## **Schema Dictionary**

### **Schema: Baby Care**

**Description:** Items in the store typically used for infants

**Attributes:**

- Barcode Number,VarChar(80), barcode at the back of the item
- Type,VarChar(80), the type of baby care item

**Primary Key:** Barcode Number

**Foreign Key:**N/A

### **Schema: Bathroom**

**Description:** Where people at the grocery store go to do their business

**Attributes:**

- Bathroom ID,INT, the ID of the bathroom being used

**Primary Key:** Bathroom ID

**Foreign Key:**N/A

### **Schema: Beauty Products**

**Description:** Cosmetics that can be purchased at the grocery store.

**Attributes:**

- Barcode Number,VarChar(80), barcode at the back of the item
- Type,VarChar(80), the type of beauty product

**Primary Key:** Barcode Number

**Foreign Key:**N/A

### **Schema: Brings**

**Description:** Supplier brings items to the store

**Attributes:**

- FK\_Barcode\_Number,int, barcode at the back of the item
- FK\_Supplier\_ID,int, number given to specific supplier

**Primary Key:**FK\_Barcode\_Number, FK\_Supplier\_ID

**Foreign Key:**FK\_Supplier\_ID references Supplier(Supplier\_ID)

**Foreign Key:**FK\_Barcode\_Number references Item (Barcode Number)

### **Schema: Cart Attendant**

**Description:** Employee who ensures carts are placed in the proper location

**Attributes:**

- Employee ID,int, the type of baby care item
- Name,VarChar(80), the name of the employee
- Retrieval Rate, INT, number of carts retrieved by the employee per hour

**Primary Key:** Employee ID

**Foreign Key:**N/A

**Schema:** Cashier

**Description:** Processes transactions for customers purchasing items

**Attributes:**

- Employee\_ID,int, unique code for employees
- Name,VarChar(80), the name of the employee
- Register Number, int, number assigned to a register

**Primary Key:** Employee ID

**Foreign Key:** N/A

**Schema:** Cleaning Supplies

**Description:** Items in the store typically used for cleaning

**Attributes:**

- Barcode Number,VarChar(80), barcode at the back of the item
- Size, VarChar(80), the height of the item in feet

**Primary Key:** Barcode Number

**Foreign Key:**N/A

**Schema:** Customer

**Description:** The people who enter the store and purchase items

**Attributes:**

- Membership ID,INT, unique number associated with customer's membership
- Name, VarChar(80), the name of the customer

**Primary Key:** Membership ID

**Foreign Key:**N/A

**Schema:** Discount Paper

**Description:** The newspaper containing coupons for the customers

**Attributes:**

- Paper ID,INT, a unique number associated with the paper containing the coupons

**Primary Key:** Paper ID

**Foreign Key:**N/A

**Schema:** Employees

**Description:** All the employees' ids

**Attributes:**

- Employee\_ID, int, id of employee

**Primary Key:** Employee\_ID

**Foreign Key:**N/A

**Schema:** Food

**Description:** Food items in the store

**Attributes:**

- Barcode Number,VarChar(80), barcode at the back of the item
- Weight, INT, the weight of the item in pounds
- Expiration Date, date, the date which the food item expires

**Primary Key:** Barcode Number

**Foreign Key:**N/A

**Schema:** Items

**Description:** Items in the store

**Attributes:**

- Barcode Number,INT, barcode at the back of the item
- Name,VarChar(80), the name of the item
- Price, FLOAT, the cost of the product in dollars
- Brand, VarChar(80), the brand which produces the product
- FK\_Mem\_ID, INT, foreign key associated with customer's membership ID number
- FK\_Paper\_ID,INT, a foreign key associated with discount paper ID
- FK\_Clerk\_ID,INT, a foreign key associated with clerk ID who stocked the item

**Primary Key:** Barcode Number

**Foreign Key:**FK\_Mem\_ID references Customer (Membership ID)

**Foreign Key:**FK\_Paper\_ID references Discount Paper (Paper ID)

**Foreign Key:**FK\_Clerk\_ID references Stock Clerk (Employee ID)

**Schema:** Janitor

**Description:** An employee who cleans the store

**Attributes:**

- Employee ID,int, unique code for employees

- Name,VarChar(80), the name of the employee
- Cleaning Task, VarChar(80), the type of cleaning task

**Primary Key:** Employee ID

**Foreign Key:** N/A

**Schema:** Kitchen Tools

**Description:** Kitchen tools sold in the store

**Attributes:**

- Barcode Number,VarChar(80), barcode at the back of the item
- Tool Type, VarChar(80), the type of kitchen tool

**Primary Key:** Barcode Number

**Foreign Key:**N/A

**Schema:** Medicine

**Description:** Medicinal items sold in the store

**Attributes:**

- Barcode Number,VarChar(80), barcode at the back of the item
- Expiration Date, DATE, the date which the food item expires
- Consumption Method,VarChar(80), the consumption method of the medicine
- Duration of Use,INT, how long the customer should be taking the medicine

**Primary Key:** Barcode Number

**Foreign Key:**N/A

**Schema:** Pet Care

**Description:** Items in the store used for pets

**Attributes:**

- Barcode Number,VarChar(80), barcode at the back of the item
- Type,VarChar(80), the type of pet care item

**Primary Key:** Barcode Number

**Foreign Key:**N/A

**Schema:** Receipt

**Description:** A receipt for customers to show the total cost during each grocery trip

**Attributes:**

- Receipt Number, int, unique number to identity each receipt
- FK\_Mem\_ID, int, unique number associated with customer's membership

- TotalCost, Float, the total price the customer spent on their trip

**Primary Key:** Receipt Number, FK\_Mem\_ID

**Foreign Key:** FK\_Mem\_ID references Customer(Membership ID)

**Schema:** Review

**Description:** Customer's opinions/ratings about their experience at the grocery store

**Attributes:**

- Review ID, int, unique number to identity each review
- FK\_Mem\_ID, int, unique number associated with customer's membership

**Primary Key:** Review ID, FK\_Mem\_ID

**Foreign Key:** FK\_Mem\_ID references Customer(Membership ID)

**Schema:** Stock Clerk

**Description:** An employee who stocks items at the store

**Attributes:**

- Employee ID,int, unique code for employees
- Name,VarChar(80), the name of the employee
- Stocking schedule, int, how many times a day the clerk stocks items

**Primary Key:** Employee ID

**Foreign Key:** N/A

**Schema:** Supplier

**Description:** Provides goods or services to fulfill the store's inventory needs.

**Attributes:**

- Supplier ID,int, unique supplier number
- Supplier name,VarChar(80), name of supplier

**Primary Key:** Supplier ID

**Foreign Key:** N/A

**Schema:**Uses

**Description:** Customers or Employees have the ability to use the store bathroom

**Attributes:**

- FK\_Customer\_ID(FK\_Membership\_ID), int, specific id given to each customer
- FK\_Employee\_ID, int, id given to each employee
- FK\_Bathroom\_ID, int, id given to the bathroom

**Primary**

**Key:**FK\_Customer\_ID(FK\_Membership\_ID),FK\_Employee\_ID,FK\_Bathroom\_ID

**Foreign Key:**FK\_Customer\_ID(FK\_Member

**Foreign Key:**FK\_Employee\_ID references Cashier, Cart Attendant, Janitor, and Stock Clerk's (Employee ID)

**Foreign Key:**FK\_Bathroom\_ID references Bathroom(Bathroom ID)

**Schema:**Writes

**Description:** Customer writing review after shopping

**Attributes:**

- FK\_Review\_ID,int,unique number given to review
- FK\_Membership\_ID, int, id given to each customer

**Primary Key:**FK\_Review\_ID,FK\_Membership\_ID

**Foreign Key:** FK\_Review\_ID references Review(Review\_ID)

**Foreign Key:** FK\_Membership\_ID references Customer(Membership\_ID)