**Entity Relational Diagram**

A diagram of a diagram

Description automatically generated with medium confidence

This is an ER Diagram with 4 entities.

Entities: Users, Receipts, Rewards Receipt List and Brand.

Initially, the schema has 3 entities. To simplify the relation, The Receipts entity is further broken into Rewards Receipt List.

Relationships:

1. User submits receipts : The User and Receipt entity are associated with a one-to-many relationship, as One user can have many receipts. In the "Receipt" table, userId can be joined with the \_id field in the User table.
2. Receipts has information about Rewards: The Rewards Receipt list has information like brand code, bar code, final price etc. One receipt can have one Rewards Receipt list and a list can belong to one receipt.
3. The rewards receipt list may contain information about brand: The Brand entity does not have a direct relationship with Rewards Receipt List. However, the rewardsReceiptItemList contains information about the items purchased, such as barcode, brandcode. If the brand information were available in the data, it would likely be associated.

ER Diagram Notation:

|  |  |
| --- | --- |
|  | Entity |
|  | Attribute |
|  | Multivalued Attribute |
|  | Relationship |

Relational Schema:

A screenshot of a computer

Description automatically generated

This is the Relational Schema. There are 4 tables Users, Receipts, Rewards Receipt Item List, Brand.

The Receipts table is connected to Users by user\_id which is a primary key to users.

Rewards table is connected to Receipts by receipts\_id which is a primary key to receipts.

The Brand table and Rewards can be connected by item\_id or brandcode.