Entity Table:

1. Users: userID, name, email, password
2. Markets: marketID, name, location
3. Products: productID, name
4. Status: statusID, timestamp, isInStock, numOfLikes, numOfDislikes
5. Categories: categoryID, level1, level2
6. Retails: retailID, price

Relation Table:

1. Like: sentiment

Relational Schema:

Markets(marketID: INT [PK], name: VARCHAR(32), location: VARCHAR(64), retailID: INT [FK to Retails.retailID])

Products(productID: INT [PK], categoryID: INT [FK to Categories.categoryID], name: VARCHAR(64))

Categories(categoryID: INT [PK], level1: VARCHAR(32), level2: VARCHAR(32))

Retails(retailID: INT [PK], marketID: INT [FK to Markets.marketID], productID: INT [FK to Products.productID], price: REAL)

Status(statusID: INT [PK], retailID: INT [FK to Retails.retailID], userID: INT [FK to Users.userID], timestamp: DATETIME, isInStock: BOOLEAN, numOfLikes: INT, numOfDislikes: INT)

Users(userID: INT [PK], name: VARCHAR(32), email: VARCHAR(32), password: CHAR(32))

Like(statusID: INT [PK][FK to Status.statusID], userID: INT [PK][FK to Users.userID], sentiment: BOOLEAN)

Assumptions & Descriptions:

Assumptions & Descriptions on Relationships:

1. Markets - Retails:
    a. One market lists one to many retails.
    b. One retail only belongs to exactly one market.
2. Retails - Products:
    a. One retail can only list exactly one product
    b. One product can belong to one to many retails.
3. Retails - Status:

    a. One retail listing can have zero to many status updates as time goes on.
    b. A status update can only be made to exactly one retail listing.
4. Products - Category:
    a. A product can only belong to exactly one category while one category can have zero to many items
5. User - Status:
    a. A status update can only be made by exactly one user.
    b. A user can make zero to multiple status updates
    c. A status update can be liked or disliked by zero to many users.
    d. A user can like or dislike zero to multiple status updates.

Assumptions & Descriptions of Entities:

1. User:
    a. users register using email and password
    b. the password is stored in md5 and thus uses CHAR(32)
2. Categories:
    a. Every product has one two-level category
    b. level1 denotes the main category of products, level2 denotes the subcategory
3. Status:
    a. A status reflects if the retail it attaches to is in stock or out of stock at a certain time
    b. Every status will be evaluated by likes or dislikes given by customers
4. Retails:
    a. A record of Retails refers to a certain product sold in a certain market

UML