CS 166 Project Report

Group Information
Group 32
Faye Yang / fyang094
Asher Snyder / asnyd014

Implementation Description
This system enables customers, managers, and admins to access and manipulate the information stored within the Amazon storefront database. Users have access to different functions depending on their type, and are entirely unable to utilize the functions of other user types. Customers can view stores and products, as well as place orders. Managers can update products at their managed stores, view popular customers and products at their stores, and place supply requests from warehouses. Admins can alter information of any user and product in the system.

1. Users
New User Registration

```
Please make your choice: 1
        Enter name (less than 50 characters): Vassilis
        Enter password consisting of at least 3 and no more than 11 characters: a11
        Enter latitude (-90 to 90, up to six digits after decimal point): 30.27578
        Enter longitude (-180 to 180, up to six digits after decimal point): 172.84
User successfully created!
```

The Create User function collects the necessary information from the user, and utilizes it in an INSERT query for the Users table.

Underline: User Login/Logout

```
Please make your choice: 2
        Enter name: Vassilis
        Enter password: a11
```

The Log In function will take a name and password from the user and match the combination of the two against the database. Since names were made unique, there will only be one row found for each name, so if the name doesn't exist or the password doesn't match, the user will not be logged in.

Browse Stores

```
Please make your choice: 1
storeID distance (miles)
3         14.95
8         24.64
10        13.05
11        22.74
13        4.42
14        22.19
```

The Browse Stores function will use the logged in user's coordinates and calculate the distance between the user and all other stores, printing those with a distance less than or equal to 30.

Browse Products

```
Please make your choice: 2
Enter the ID of the store to view products at (no entry to cancel): 4

productname      numberofunits    priceperunit
7up                    87          3
Pepsi                  29          4
Lemonade               53          8
Brisk                  81          3
Orange Juice           94          6
Donuts                 45          7
Pudding                71          3
Ice Cream              48          6
Hot and Sour Soup      30          5
Egg                    92          3
```

The Browse Products function will take the ID of a store from the user and output the products with a matching storeID.

Order Products

```
Please make your choice: 3
storeID distance (miles)
5        4.59
6        14.01
19       24.97
20       5.37

Enter the ID of the store within 30 miles you will order from (no entry to cancel): 5

productname      numberofunits    priceperunit
7up                    46          3
Pepsi                  69          4
Brisk                  24          3
Orange Juice           48          6
Donuts                 42          7
Pudding                41          3
Ice Cream              95          6
Hot and Sour Soup      94          5
Egg                    25          3
Lemonade               97          8

Enter the name of the product you are ordering from store 5 (no entry to cancel): Pepsi

Store 5 has 69 units of Pepsi available for order at $4 per unit.
Enter the number of units of Pepsi you want to order (no entry to cancel): 3
Order placed for 3 units of Pepsi from store 5.
```

The Order Products function will take a store ID of a store within 30 miles of the user's location, product name, and product count from the user and if all values are valid, make an INSERT query to the Orders table and an UPDATE query to the Product table.

Update Product Information

```
Please make your choice: 5

storeid latitude        longitude
1       94.771430       25.580180
19      17.992480       58.764400
20      40.649810       53.623250

        Enter the ID of the store you are updating a product at: 1

productname     numberofunits   priceperunit
7up                     39      4
Pepsi                   48      4
Lemonade                48      8
Brisk                   48      3
Orange Juice            48      6
Donuts                  48      7
Pudding                 48      3
Ice Cream               48      6
Hot and Sour Soup       48      5
Egg                     48      3

        Enter the name of the product you are updating: 7up

Update number of units? Provide updated value or hit ENTER with no value to skip: 42
Update price per unit? Provide updated price or hit ENTER with no value to skip: 3

        Do you want to update another product at store 1? [y/N]: n

        Do you want to update products for another store? [y/N]: n
```

Managers select a store they manage and a product they want to update, then optionally provide new values for the number of units and the price per unit, which are passed into the UPDATE and INSERT queries for the Product and ProductUpdate tables respectively. If no new values are provided, no queries are made.

Admins

```
MAIN MENU
---------
1. View Stores within 30 miles
2. View/Update User Information
3. View/Update Product
......................
20. Log Out
Please make your choice: █
```

```
87      Clotilde              xyz       57.172900   31.645310   manager
88      Carrie_Kuhn           xyz       34.762190   82.500440   customer
89      Megane_Little         xyz       70.083540   63.275170   customer
90      Darrel.Konopelski     xyz       77.987350   78.835460   customer
91      Roberta_Erdman        xyz       55.293410   75.874210   customer
92      Garrett               xyz       67.428760   91.785130   customer
93      Dedric                xyz       26.077420   54.569880   customer
94      Nicholaus_Frami       xyz       95.196320   9.882900    customer
95      Fritz                 xyz       97.998190   14.221320   customer
96      Domenico              xyz       65.370790   20.449950   customer
97      Santino               xyz       63.753840   52.897230   customer
98      Chase                 xyz       30.212120   66.655030   customer
100     Maci_Powlowski        xyz       25.365790   27.859870   customer
101     Carine Tham           zyx       54.847600   173.472000  admin
99      Abdullah              xyz       93.353160   65.879550   manager

        Input the user ID of the user you are editing (no entry to cancel): 98
1. Name
2. Password
3. Latitude / Longitude
4. User Type
5. Done
Please make your choice: 4

1. Customer
2. Manager
3. Admin
        Enter the updated user type (no entry to cancel): 3
Would you like to update another field? [y/N]:
        Would you like to update another user's information? [y/N]:
```

```
Please make your choice: 3

storeid latitude        longitude
1        94.771430      25.580180
2        86.247250      3.659240
3        9.255290       14.251070
4        1.174670       59.023060
5        42.096240      53.958550
6        30.408910      64.677520
7        81.234030      87.339080
8        7.189840       49.595340
9        10.683980      75.928090
10       9.746990       17.303860
11       17.009880      10.882990
12       81.018290      14.130330
13       3.444470       28.841020
14       21.924100      22.354760
15       30.798250      88.319440
16       74.187430      0.303490
17       62.558630      1.163500
18       77.795670      62.756950
19       17.992480      58.764400
20       40.649810      53.623250

        Enter the ID of the store you are updating a product at: 1

productname      numberofunits    priceperunit
7up                         56    3
Lemonade                    48    8
Brisk                       48    3
Orange Juice                48    6
Donuts                      48    7
Pudding                     48    3
Ice Cream                   48    6
Hot and Sour Soup           48    5
Egg                         48    3
Pepsi                       37    4

        Enter the name of the product you are updating: 7up
        Update product name? Provide updated name (no entry to skip):
        Update number of units? Provide updated value (no entry to skip): 42
        Update price per unit? Provide updated price (no entry to skip): 5

        Do you want to update another product at store 1? [y/N]:

        Do you want to update products for another store? [y/N]: ▮
```

Admins can update all fields of user information (the only way to change user type) as well as update the name, amount, and price of products. These are done using UPDATE queries, which utilize only the values that are provided.

2. Orders
Browse Orders List
Customers:

```
Please make your choice: 4

storeid productname        unitsordered     ordertime
6       7up                23               2024-03-16 14:02:11.193609
5       Pepsi              3                2024-03-16 13:59:53.966502
5       Lemonade           3                2024-03-16 13:58:00.559315
10      Hot and Sour Soup  45               2016-09-10 19:58:00
15      7up                7                2016-09-10 18:27:00
```
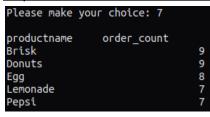
Managers:

```
Please make your choice: 8
        Enter the ID of the store to view orders from: 1

ordernumber     customerid      storeid productname    unitsordered    ordertime
13      9       1       Lemonade                17      2016-09-10 13:11:00
34      13      1       Brisk                   43      2016-09-10 13:33:00
76      79      1       Donuts                  28      2016-09-10 14:09:00
147     17      1       Pudding                 39      2016-09-10 15:07:00
158     42      1       Ice Cream               7       2016-09-10 15:17:00
163     20      1       Lemonade                21      2016-09-10 15:20:00
184     23      1       Brisk                   33      2016-09-10 15:39:00
244     10      1       Brisk                   34      2016-09-10 16:31:00
253     12      1       Lemonade                22      2016-09-10 16:41:00
256     29      1       Donuts                  41      2016-09-10 16:43:00
288     13      1       Ice Cream               41      2016-09-10 17:17:00
290     40      1       Egg                     39      2016-09-10 17:18:00
313     60      1       Lemonade                9       2016-09-10 17:39:00
343     85      1       Lemonade                24      2016-09-10 17:57:00
362     73      1       Pepsi                   35      2016-09-10 18:12:00
402     6       1       Pepsi                   19      2016-09-10 18:41:00
421     4       1       7up                     24      2016-09-10 18:53:00
455     47      1       Orange Juice            31      2016-09-10 19:20:00
458     11      1       Ice Cream               14      2016-09-10 19:24:00
474     39      1       Brisk                   23      2016-09-10 19:37:00
481     89      1       7up                     28      2016-09-10 19:43:00
486     19      1       Donuts                  8       2016-09-10 19:47:00
500     69      1       Egg                     28      2016-09-10 19:58:00

        Do you want to view orders from another store? [y/N]:
```

For customers, the View Orders function will simply use their user ID to get their last 5 orders. For managers, a store may be selected and allowed based on their user ID, and will show all orders from the chosen store.

Popular Products and Customers

```
Please make your choice: 7

productname     order_count
Brisk                   9
Donuts                  9
Egg                     8
Lemonade                7
Pepsi                   7
```

```
Please make your choice: 8

customerid      name    latitude        longitude       order_count
76      Rebeka                                  37.562460       56.696110       3
12      Kobe                                    51.697430       94.435800       3
6       Sid_Stamm                               15.555640       95.293570       3
10      Paige                                   94.088140       31.758170       2
11      Stanton_Klocko                          27.612170       25.959640       2
```

The View 5 Popular Products and View 5 Popular Customers functions retrieve their provided information from the Orders table, referencing only stores with a manager ID matching the one of the current user, sorting that information appropriately, and displaying 5 rows of results to the user. The User table is joined to the Orders table to access user information for the View 5 Popular Products function specifically.

3. ProductRequests
<u>Put Supply Request</u>

```
Please make your choice: 9
        Enter Store ID: 2
        Enter product name: Pepsi
        Enter requested number of units of Pepsi: 4
        Enter the ID of the warehouse to request from: 2
Order for 4 unit(s) of Pepsi placed for Store 2 from Warehouse 2.
```

The supply request function will ask the user for a store ID, product name, number of requested units, and warehouse ID. It will use these values to insert a new product supply request and update the number of products at the store with the provided ID.

Extra Credit

For all inputs taken from the user, the program will validate what the user enters. Numbers are confirmed to be numbers, values meant to exist in the database are checked against the database using queries, and constraints are applied when applicable.

```
Please make your choice: 3
storeID distance (miles)
5       4.59
6       14.01
19      24.97
20      5.37

Enter the ID of the store within 30 miles you will order from (no entry to cancel): 7
Please enter a store ID from the provided list of stores within 30 miles of your location.
```

```
Store 5 has 46 units of 7up available for order at $3 per unit.
Enter the number of units of 7up you want to order (no entry to cancel): 357
You cannot order more units than the store has available

Store 5 has 46 units of 7up available for order at $3 per unit.
Enter the number of units of 7up you want to order (no entry to cancel): er
Invalid input. This field should be a number.

Store 5 has 46 units of 7up available for order at $3 per unit.
Enter the number of units of 7up you want to order (no entry to cancel): -35
Invalid input. This field should be a positive number.

Store 5 has 46 units of 7up available for order at $3 per unit.
Enter the number of units of 7up you want to order (no entry to cancel):

MAIN MENU
---------
1. View Stores within 30 miles
2. View Product List
3. Place an Order
4. View 5 Most Recent Orders
.......................
20. Log Out
Please make your choice:
```

```
Please make your choice: 2
Enter the ID of the store to view products at (no entry to cancel): 98
Invalid input. Entered value does not exist in database.
```

```
        Input the user ID of the user you are editing (no entry to cancel): 98
1. Name
2. Password
3. Latitude / Longitude
4. User Type
5. Done
Please make your choice: 1
        Enter the updated name with a max of 50 characters (no entry to cancel): Amy
That name has already been taken. Please choose another.
        Enter the updated name with a max of 50 characters (no entry to cancel): Chasee
Would you like to update another field? [y/N]: y
1. Name
2. Password
3. Latitude / Longitude
4. User Type
5. Done
Please make your choice: 2
        Enter the updated password with between 3 and 11 characters (no entry to cancel): 12
        Enter the updated password with between 3 and 11 characters (no entry to cancel): yyz
Would you like to update another field? [y/N]:
        Would you like to update another user's information? [y/N]:
```

Problems/Findings

A means of checking a user's type was necessary, so that a user could have access to the correct functions when they log in. In order to make this work, the "name" value of the User table was made unique so that it could serve as a username.

Contributions
Faye Yang implemented the customer functions and performed testing to ensure that input validation was present across all functions. Asher Snyder implemented the manager and admin functions. Both Faye and Asher wrote the parts of the report corresponding to the functions they implemented.