

CS 411 – Team 029 OurSQL

Stage 1

1. **Project Title:** Care2Share

2. **Project Summary**

“Cheaper by the Dozen” - this is a wellknown fact we encounter everyday going groceries: buying in bigger packages is much cheaper per unit of good. But what if one doesn’t need a dozen but still wants to buy things cheaper? No need to search for friends that can share the price with you. Care2Share web-application does that for you. Make a wishlist of groceries, enter the quantity you need, match up with other people and benefit from affordable prices!

3. **Description:**

A lot of community members, and especially students, are not able to benefit from the better deals at the wholesale stores due to having to buy large quantities. It’s not rare when 3-4 people gather together, go to the wholesale store and then share the packages. Our project “Care2Share” will be developed to facilitate this process.

Care2Share gives people the opportunity to buy what they like and save by sharing the quantity and the cost of an item. We are developing a web-application – an aggregator of the groceries and several other household items of several wholesales in Urbana-Champaign that will match potential buyers who are looking to share an item. Care2Share will collect users’ grocery wishlists, match the quantities of the same product from the same store, and also find the person who can deliver these products. Person assigned to delivery will buy the products distributed among matched buyers and deliver users’ orders to several station points.

4. **Usefulness.**

Similar to what we already mentioned in the description part, the application aims to serve those people who do not need large portion of goods, but goods usually comes with cheaper price in large package. We believe this situation gives our application a foundation of usefulness. Those people who do not need such a large portion would want a fair price, this can be achieved by sharing a large portion of goods with others. We would like to provide a platform for them to make this faster, more convenient. There are indeed similar applications, for example, there is a mobile app called “PINDUODUO” in China. In addition to the geographical feature, the difference is that PinDuoDuo aims to collect enough customer who wants a same kind of goods, and the goods supplier would then lower the price since the number of the customers have been guranteed, given the number of customers are already high enough. Helping people to share a single product, and helping them to distribute the product properly, is the goal of our applicaiton.

5. **Realness.**

The main datapiece we will need for this application is data of grocery products from the wholesale markets. The most actual source to get this data is grocery store’s websites. Both CostCo and Sam’s Club have the websites with all products’ information listed there. We can scrap the data with the open source tools like CostocoAPI. The API can help us to retrieve the data from the website of the supermarket, including the information of the goods, like product name, price, quantity.

Other information our application needs is users' data. This includes users' personal information such as name, phone number but also wishlists of the groceries they want as well. For the purposes of the project this data will be synthetic since we do not have real users yet.

The third piece of data we will have is generated Orders. This is the entity where all the matched up together orders will be listed. It will have information such as product's name, quantity, users matched up for this product, date/time of the order. The data will come from applying aggregation queries on Users' Wishlist data and Product Information data.

6. Functionality

a. We would need at least 5 tables to form the backend of our application:

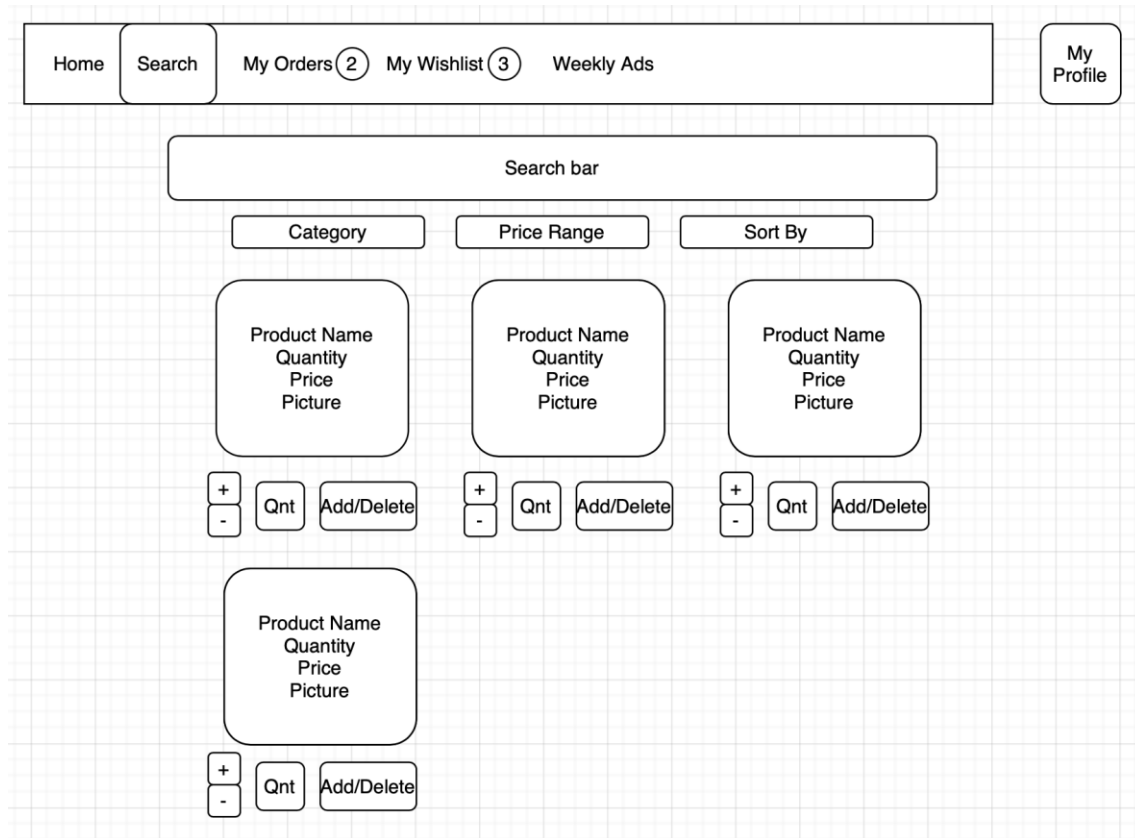
1. Products (Product_id, name of the products, store, price, quantity, image, etc)
* Comes from web-scraping the Costco and Sam's Club
2. Users (User_id, name, phone number, email, password, preferred delivery station (station_id), if they want to go to the store and buy the products)
* Will be synthetic at first
3. Wishlists (User_id, wishlist_id, list of product_ids and quantity wanted)
* Will be synthetic at first
4. Stations (Station_id, address)
* Will be synthetic at first
5. Orders (Order_id, product_id, quantity, buyers of this product (list of user_id), station_id)
* Is generated with JOIN queries from WishLists and Products tables

b. The very first basic functionality of our application which user will encounter is registration using personal information, username and password. After registering to the application, user can create and maintain the wishlist of the products to buy. One of the main features of our application is that people can add a portion of the products to the wishlist. It is worth mentioning that only products which can be portioned will have this feature (e.g. eggs, packs of water, rice, flour, etc.). After wishlist is created, our matching service will find the orders with same products and form the final aggregated order and will be assigned the delivery person. Delivery person here is the user who opted in that she/he can go to the store and buy products. In addition to feature of matching, our application will have basic features of filtering and sorting by price, category, stores of products as well as search by keywords among the products. The deliveries will be made to one of the in-town locations (we'll select few point within the campustown) where customers can get their corresponding products. For now, it is assumed the different products from the same wishlist can be assigned to different stations and can have different delivery dates, depending on the availability of the matching.

c. The possible creative extra features which would enhance the user experience can be the search by image feature and personal recommendations. The former feature will return the exact or similar products for a user's given image. It can be achieved by some Deep Learning models to embed the user's image to feature vector and compared to feature vectors of our database of products. Another possible feature can be personalised recommendations for user based on their

history. Especially we can recommend to buy a share of pending product to quickly form the order. The implementation of this model requires a large purchase history.

7. UI Mock-up



Search page of the application – here users can search for the product applying some filters and sorts.

Home
Search
My Orders
My Wishlist 3
Promotions

My Profile

Category

Price Range

Sort By

Product Name
Quantity
Price
Picture

3/4

+
-

Qnt

Add/Delete

Product Name
Quantity
Price
Picture

2/4

+
-

Qnt

Add/Delete

Product Name
Quantity
Price
Picture

8/12

+
-

Qnt

Add/Delete

Product Name
Quantity
Price
Picture

2/4

+
-

Qnt

Add/Delete

Home page will show some pending orders where you can be added up to the order. Also it will show what quantity of the product is already matched up.

8. Project work distribution:

Task		Person assigned
Create a database design		Everyone
Populate the data (+preprocessing)	Scrapping Costco, Sam's Club	Linxi and Darkhan
	Creating synthetic Users data	Hend
	Creating Wishlists, Stations data	Bota
Implement the database	Products table	Linxi and Darkhan
	Users table	Hend
	Wishlists, Stations tables	Bota
Search page	Search by name, keywords	Linxi

	Sorting and filtering	Darkhan
Login page		Hend
Wishlists page – create, update, delete		Bota
Orders Aggregation		Everyone