

# Grocery Items Management System

Liulan Zheng, Chi Shing Lee, Joshua Natis

CSCI 43500-01



## 1 Problem Statement

Understanding our relationship with food can have many benefits. However, it is quite difficult to track one's food-related activities **manually**. Writing down every item we buy along with its price, expiration date, and so on all while keeping this information safe and organized over long periods of time requires a herculean effort. Yet, this information is immensely useful to analyze, as it can help us spend smarter, eat healthier, and be less wasteful. What can be done?

## 2 Description

Computers. Our system will automate the process of tracking food items (and their associated information). This allows the data to be **safe** (stored in an external environment built specifically with safety in mind, as opposed to a piece of paper or the user's general purpose computer), **easily accessible** and digestible (no pun intended) through a graphical interface, and **analyze-able** by computer programs that can help us find patterns that wouldn't otherwise be immediately visible.

### 3 Services

The core services of our system are twofold:

1. providing users with an environment to log information about their groceries in an organized and convenient manner, and
2. displaying summarized data and its analysis for users in an easy-to-read format, including both textual and graphical elements.

Together, these services can help users become more self-aware of how much money they spend on food and how much / what kinds of food they eat. This organization comes with the added benefits of

- knowing which items are soon to expire, thus minimizing waste
- having an easily accessible list of currently available ingredients
- avoiding the purchase of duplicate goods
- tracking the prices of goods over time to see if a current price is fair

This is not an exhaustive list.

### 4 Users

This system is targeted towards anybody who eats food. A user is defined as somebody who has registered for an account on our website. One may use a single account for their entire household, or each member of the household can have their own account and work collaboratively on logging information to a shared database.

### 5 Usage

Usage of the system is split into two pages: one for logging data, and the other for viewing data (as per our core services).

#### 5.1 Logging Data

The user will enter each of their grocery items, one at a time. Conceptually, a grocery item consists of the following:

- **name** — *string*
- **price** — *float*
- **quantity** — *float*
- **expiration date** — *timestamp*

- calories — *int*
- healthy — *boolean*
- category (e.g. meat, dairy, produce) — *string*

The data listed in bold must be provided by the user in order for the procedure to complete successfully. The other data points are optional and the system will attempt to automatically fill them in using existing information from an internal database of common foods.

This page is also where the user will mark any items as having been removed (consumed, trashed, etc), effectively removing them from the "currently available" items.

## 5.2 Viewing Data

This page consists of two modes: *Simple View* (default) and *Complex View*.

### 5.2.1 Simple View

Meant for quickly finding key data points and important updates. Some things you might find in this view are:

- items expiring soon
- currently available items (*able to be sorted by any attribute*)
- money spent (*this week and today*)
- % healthy vs. unhealthy items currently available

### 5.2.2 Complex View

Meant to allow you to view all of your data, organized how you want it. All of the data is able to be viewed for any unit of time – *all time, year, month, week, day*. Some things you might find in this view are:

- money spent
- most frequently bought items
- price data over time for each item (like a line graph, y axis is price, x axis is time, available for any item when clicked)
- pie chart of categories of items (%dairy, %produce, etc)
- history (list of items bought)