

CPSC-471 Project(Winter 2022)

Allergy Database Management System of Group-14

—Final Report—

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CONTENT LIST:

1) Abstract

2) Introduction

3) Project Design

4) Implementation

5) SQL queries

6) User-Guide

Abstract

The purpose of this project is to emphasize the commonality of allergies in Canada and how they influence the comfortability of daily tasks like grocery shopping or eating out. And aims to provide support for those who already know what their allergies are and just need to find out a simple fact about a particular product.

For the reasons above, we introduce a database that will allow organizations to participate by specifying allergic components in their products, that way users can make better-informed decisions on what products they want to purchase/use. This renders a user-friendly platform for both consumers and businesses to communicate important information about allergens in their products as it is not uncommon for product ingredients to change without warning, which can cause serious consequences depending on the severity of the allergy. As a result, it can be helpful and even life-saving for those with allergies to get an update when the ingredients of a product change.

Thus, the notion of a centralized resource that contains information about allergen presence in common products to effectively find and share products that are safe to use provides a customized experience for easier access and better decision making. That way Caregivers and loved ones will be able to quickly and easily see if a product/service they intend on using with the person in their care poses a health risk and will allow an adequate evaluation of the dangers involved.

Introduction

Having allergies is one of the most common, but overlooked, diseases worldwide and it can become a struggle for people with multiple allergies to manage their daily tasks. Constantly trying to stay aware and alert for the possibility of suffering an allergic reaction bears a heavy burden on a person, especially when they have trouble keeping track of what they're allergic to. For those with allergies, there is no central system for managing all the information necessary to keep them safe. There is only their brain, the memory of those around them, and a personal system for keeping lists of safe products and locations, to be relied on. All of these systems, notably, come with the crucial flaw of inconsistency - none of them are fully reliable systems nor do they allow for quick,

concise communication of vital information in a widely-mobile format. Our task will be facing the challenge of creating a centralized resource for those with food allergies to easily and effectively find products that are safe for them to use and, when needed, share that information with those around them.

The system that we created offers services to three main kinds of users including registered users (mainly people with allergies), manufacturers of products, and administrators that oversee product-related activities in the database. Registered users that access the system will be able to log in and have access to a user-friendly interface with minimum keyboard input which allows them to comfortably interact with the system to access their personal allergy information, information about products posted by certain manufacturers, products that contain or don't contain certain ingredients, and receive alerts when ingredients for products in personal collection changes.

All of these features provide a customized experience for easier access to necessary information which allows for a better decision-making process. That way caregivers, loved ones, and those with allergies themselves, will be able to see if a product or service they intend on using poses a risk of triggering an allergic reaction, without being too complex to learn to use.

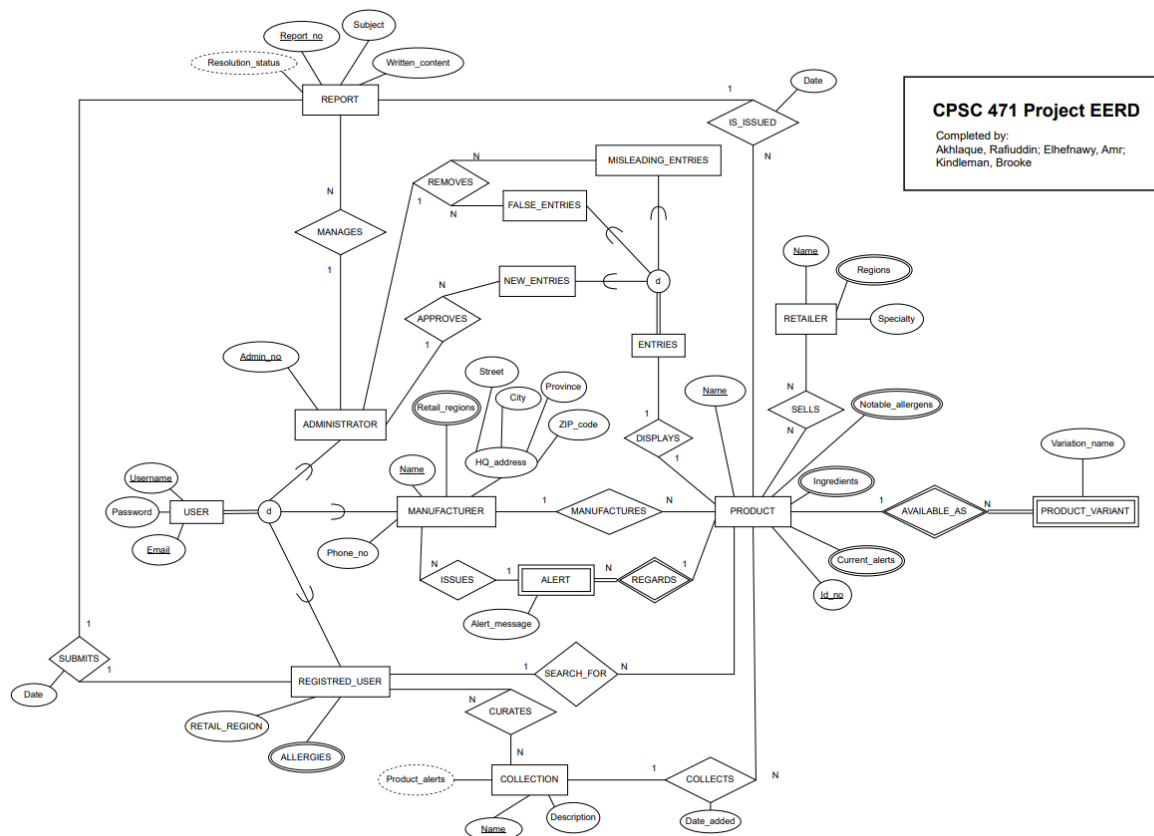
Project Design

The system we created recognizes three different kinds of users, Regular (registered) Users, Manufacturers, and Administrators. The targets of this project are ultimately the regular users (mainly, but not limited to, people with multiple allergies) who will be able to sign up using an email, username, password, and retail region. Next, the user will be able to log in and access the home page for regular users where they can easily access their personal collection and add/delete information about their allergens. In addition, multiple collections can be created to store information about different types of allergens. They also have the ability to search for a product based on its name, ingredients it contains, does not contain, allergens it contains, and allergens it does not contain which accommodates people with convenience. If users no longer wish to use the service they also have the option to delete their account which will wipe all information related to them from the database excluding reports filed by that user.

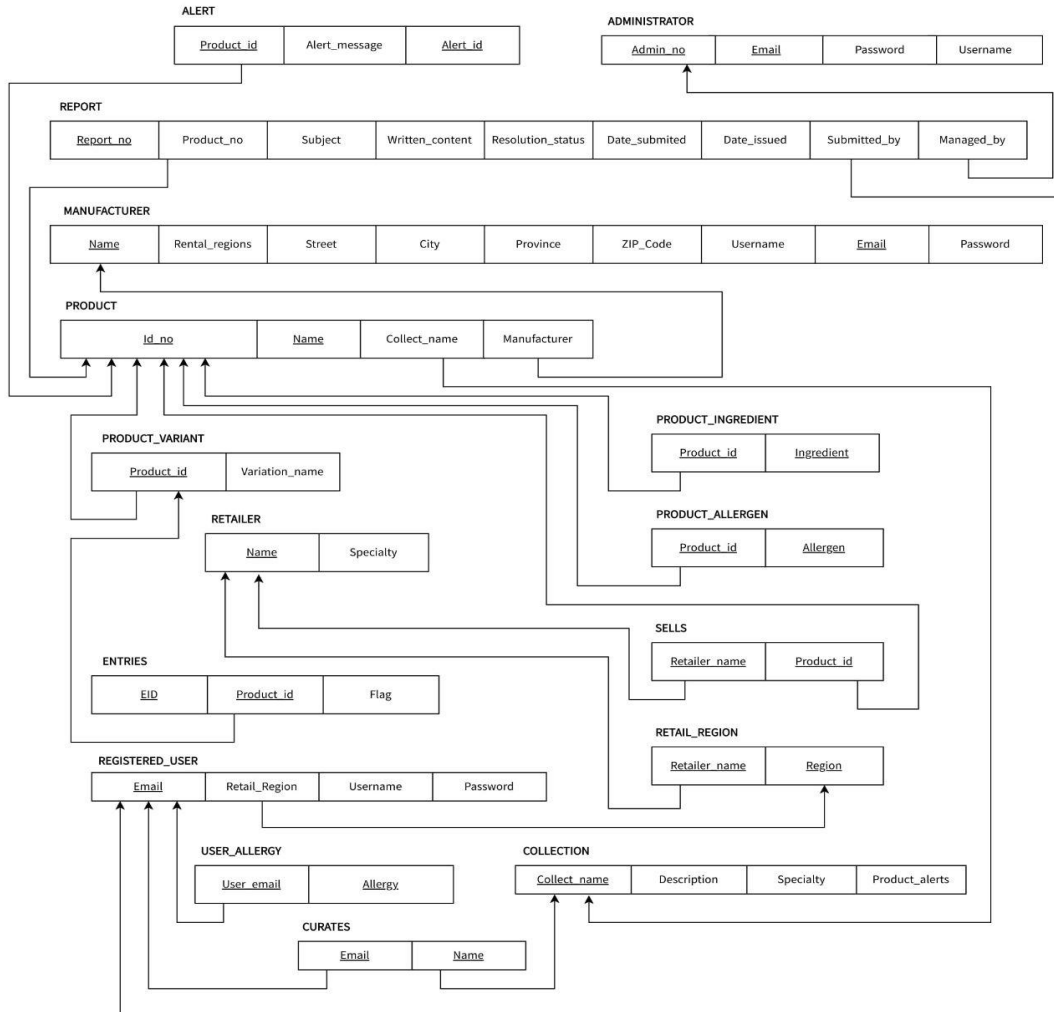
The Administrators make sure that the database is functioning as intended and have tasks to ensure that. Admins will be able to sign up as administrators where they will receive an AdminID which will be used to log in and, if requested, have the option to get all Regular/Admin/Manufacturer users' information modify all user accounts such as editing users' emails and usernames excluding other admins' usernames. Admins also

handle product-related activities such as removing false/misleading entries by using the products pID and managing product-related reports filed by regular users.

The Manufacturers can use the sign up as a Manufacturer option and sign up using an email, username, password, name, phone_no, hq_address, street, city, province, and zip_code. Once the manufacturer signs up they can log in and interact with the system by adding their products/ingredients to the project's database, updating and removing existing products they have registered, and providing disclaimers in certain products by specifying the notable allergens they contain.



IMPLEMENTATION



CPSC 471 Project RM

Completed by:

Akhlaque, Rafiuddin; Elhefnawy, Amr;
Kindleman, Brooke

Examples of Queries:

To check all products:

```
SELECT*  
FROM PRODUCT;
```

To check a single product:

```
SELECT*  
FROM PRODUCT  
WHERE Id_no=searched Id_no
```

Insert new product:

```
INSERT INTO PRODUCT  
VALUES Unique_Id_no, Name, Collect_name, Manufacturer;
```

Update product:

```
UPDATE PRODUCT  
SET "attribute=new value"  
WHERE Id_no=searched Id_no
```

To check product ingredients of a product:

```
SELECT*  
FROM PRODUCT_INGREDIENT as pi, PRODUCT as p  
WHERE p.Id_no=pi.Product_Id AND searched Id_no=p.Id_no
```

To check product allergens of a product:

SELECT*
FROM PRODUCT_ALLERGEN as pa, PRODUCT as p
WHERE p.Id_no=pa.Product_ID and searched Id_no=p.Id_no

To check all manufacturers:

SELECT*
FROM MANUFACTURER;

To check a single manufacturer:

SELECT*
FROM MANUFACTURER
WHERE Name=searched name

Insert new manufacturer:

INSERT INTO MANUFACTURER
VALUES Name, Retail_regions, Street, City, Province, ZIP_code,
Username, Email, Password

Update manufacturer:

UPDATE MANUFACTURER
SET "attribute=new value"
WHERE Name=searched name

To check products that a manufacturer is making:

SELECT*
FROM PRODUCT as p, MANUFACTURER as m
WHERE m.Id_no=p.Manufacturer AND searched Id_no=m.Id_no

To check all administrators:

```
SELECT*  
FROM ADMINISTRATOR;
```

To check a single administrator:

```
SELECT*  
FROM ADMINISTRATOR  
WHERE Admin_no=searched Admin_no
```

Insert new administrator:

```
INSERT INTO ADMINISTRATOR  
VALUES Admin_no, Email, Password, Username
```

Update administrator:

```
UPDATE ADMINISTRATOR  
SET "attribute=new value"  
WHERE Admin_no=searched Admin_no
```

To check reports that a ADMINISTRATOR is working on:

```
SELECT*  
FROM REPORT as r, ADMINISTRATOR as a  
WHERE a.Admin_no=r.Managed_by AND searched Admin_no=a.Admin_no
```

To check all registered users:

```
SELECT*  
FROM REGISTERED_USER;
```

To check a single registered user:

```
SELECT*  
FROM REGISTERED_USER  
WHERE Email=searched email
```

Insert new user:

```
INSERT INTO REGISTERED_USER  
VALUES Email, Retail_Region, Username, Password
```

Update registered user:

```
UPDATE REGISTERED_USER  
SET "attribute=new value"  
WHERE Email=searched Email
```

To check user_allergy that a registered user has :

```
SELECT*  
FROM USER_ALLERGY as u, REGISTERED_USER as ru  
WHERE ru.Email=u.User_email AND searched Email=ru.Email
```

Deletion queries

DELETE FROM PRODUCT

WHERE ID_no = "PLU-4027" (//Assuming that "PLU-4027" is the product to be deleted//)

DELETE FROM MANUFACTURER

WHERE Name = "Bob" (//Assuming that "Bob" is the manufacturer to be deleted//)

DELETE FROM ADMINISTRATOR

WHERE Admin_no = "721" (//Assuming that "721" is the administrator to be deleted//)

DELETE FROM REGISTERED_USER

WHERE Email = "rufus201@gmail.com" (//Assuming that this is the registered user to be deleted)

USER-GUIDE
(from next page)

***THE SIGNUP AND LOGIN PROCESSES
ARE SHOWN FIRST***

SIGN UP

Select Account Type

Individual



Username

Username

Email Address

Email

Password

Password

Retail Region

- Select Region -



SIGN UP

[Go to Log In](#)

SIGN UP

Select Account Type

Manufacturer



Manufacturer Name

Name

Username

Username

Email Address

Email

Phone Number

Phone Number

Password

Password

Headquarters Address

Street Number

City

- Select Province/Territory



Zip Code

SIGN UP

[Go to Log In](#)

SIGN UP

Select Account Type

Administrator



Username

Username

Email Address

Email

Password

Password

SIGN UP

[Go to Log In](#)

LOG IN

Select Account Type

Non-Admin



Username

Username

Email Address

Email

Password

Password

LOG IN

[Go to Sign Up](#)

LOG IN

Select Account Type

Administrator

Username

Username

Email Address

Email

Administrator ID Number

Administrator ID

Password

Password

LOG IN

[Go to Sign Up](#)

LOG IN

Select Account Type

Non-Admin



Username

PostDemo

Email Address

demopost@email.com

Password

LOG IN

[Go to Sign Up](#)

Home

Search Products

Manage Products

Search by Manufacturer

Manage Users

Manage Profile

Log Out

Welcome, Brooke

ADMIN HOME

Home

Search Products

Manage Products

Search by Manufacturer

Manage Users

Manage Profile

Log Out

PRODUCT SEARCH

Exclude the Selected Allergens:

Egg☐

Milk☐

Mustard☐

Peanut☐

Crustacean☐

Mollusc☐

Fish☐

Sesame☐

Soy☐

Sulphite☐

Nut☒

Wheat☒

Triticale☐

Gluten☐

Ingredient

Add Ingredient

Add to "Contain"

Add to "Exclude"

Allergen

Add Allergen

Add to "Include"

Add to "Exclude"

(Optional) Product Name

(Optional) Product Manufacturer

(Optional) Product ID

Added "OATS"

Ingredients to Include

Ingredients to Exclude

Allergens to Include

Allergens to Exclude

BELL PEPPERS

ONIONS

OATS

NUT

WHEAT

Reset Inputs

View All Products

Search Matching Products

SEARCH RESULTS

0 matching products were found

Name	Allergens	Ingredients	Manufacturer	Product ID Number
------	-----------	-------------	--------------	-------------------

End of Results

SEARCH RESULTS

5 matching products were found

Name	Allergens	Ingredients	Manufacturer	Product ID Number
NO	fun	beans, fun	man3	26a04107-1e13-48da-8a51-c1286b34f87a
Product A	ABC	ABC, XYZ	man1	e691f098-988f-4926-b9d5-02a7da398dfd
new_name	ABC	ABC, XYZ	man1	c3395680-6a5d-4114-9641-5396dff4bc5b
Sunday Product	ABC, NewestAllergen, SecondNewAllergen	ABC, XYZ, NewIngredient	man1	37e84223-d88c-4904-b30c-01875a0e4495
Demo Product	EGGNOG, PEANUT BUTTER, PCB BOARD	COFFEE, EGGNOG, PEANUT BUTTER, PCB BOARD	man1	4efc528f-dab9-4922-abae-fc09228c2991

End of Results

(second one shows all available products)

Home

Search Products

Manage Products

Search by Manufacturer

Manage Users

Manage Profile

Log Out

UPDATE PRODUCT INFORMATION

Product ID

ID Number

New Product Name

New Name

New Manufacturer Name

New Name

New Product Ingredients

Ingredients, separated with a semicolon (;)

New Product Allergens

Allergens, separated with a semicolon (;)

Delete Product By ID

Update Product By ID

All Products

Refresh Product Information

Name	Manufacturer Name	ID Number	Ingredients	Allergens
NO	man3	26a04107-1e13-48da-8a51-c1286b34f87a	beans, fun	fun
Product A	man1	e691f098-988f-4926-b9d5-02a7da398d0d	ABC, XYZ	ABC
new_name	man1	c3395680-6a5d-4114-9641-5396df4bc5b	ABC, XYZ	ABC
Sunday Product	man1	37e84223-d88c-4904-b30c-01875a0e4495	ABC, XYZ, NewIngredient	ABC, NewestAllergen, SecondNewAllergen
Product B	man1	f51c95c9-205b-41d0-bb2f-d43459e0563d	ABC, XYZ, LMN	
Product D	man1	8bbe817f-c35d-42a8-901a-45330c03491	LMN	
Demo Product	man1	4efc528f-dab9-4922-abae-fc09228c2991	COFFEE, EGGNOG, PEANUT BUTTER, PCB BOARD	EGGNOG, PEANUT BUTTER, PCB BOARD
Beans	PostmanManufact	c5100799-59a0-473e-9e5a-f82aa5f5f3d	BEENS	
MoreBeans	PostmanManufact	63c6580b-b131-46e8-b873-c81a7e01d2d7	BEENS BEENS	

All the products are displayed here

SEARCH MANUFACTURERS

Search for manufacturer by name

Manufacturer Name

Search

Search for manufacturer by username

Manufacturer Username

Search

Search for manufacturer by email address

Manufacturer Email

Search

View All Manufacturers

SEARCH RESULTS

NAME	Username	Email	Address	Phone Number	Listed Products
man1	man1	man1@1.man	1,2,Prince Edward Island, Canada44	123457889	"Product A", "new_name", "Sunday Product", "Product B", "Product D", "Demo Product"
man3	man3	3man@mm.m	5,02,Ontario, Canada21	123457889	"NO"
PostmanManufact	PostmanManufact	postmanufact@email.com	35 Maple Street,Toronto,Ontario, Canada9A3C6V	904-382-1948	"Beans", "MoreBeans"
SundayCraft	Monday	mondaymail@email.com	35 Example St.Edmonton,Alberta, CanadaT4C1A3	8903741832	
PostDemo	PostDemo	postdemo@email.com	35 Maple Street,Toronto,Ontario, Canada9A3C6V	904-382-1948	

Here the manufacturers can be searched up by name, username and email address and sample results are shown.

User information can be updated by the users (for example, as shown below, the current username can be updated to a new username)

Home

Search Products

Manage Products

Search by Manufacturer

Manage Users

Manage Profile

Log Out

UPDATE USER INFORMATION

Data to Update

Update Username

User's Current Username

Username

User's Current Email

Email

User's New Username

Username

Update User Information

All Allergy Manager Users

Refresh User Information

Regular Users

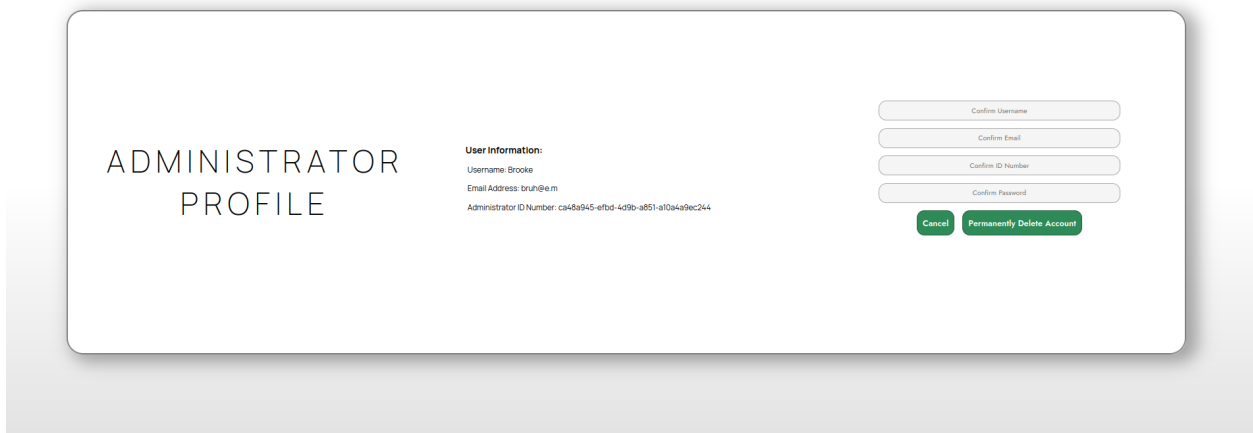
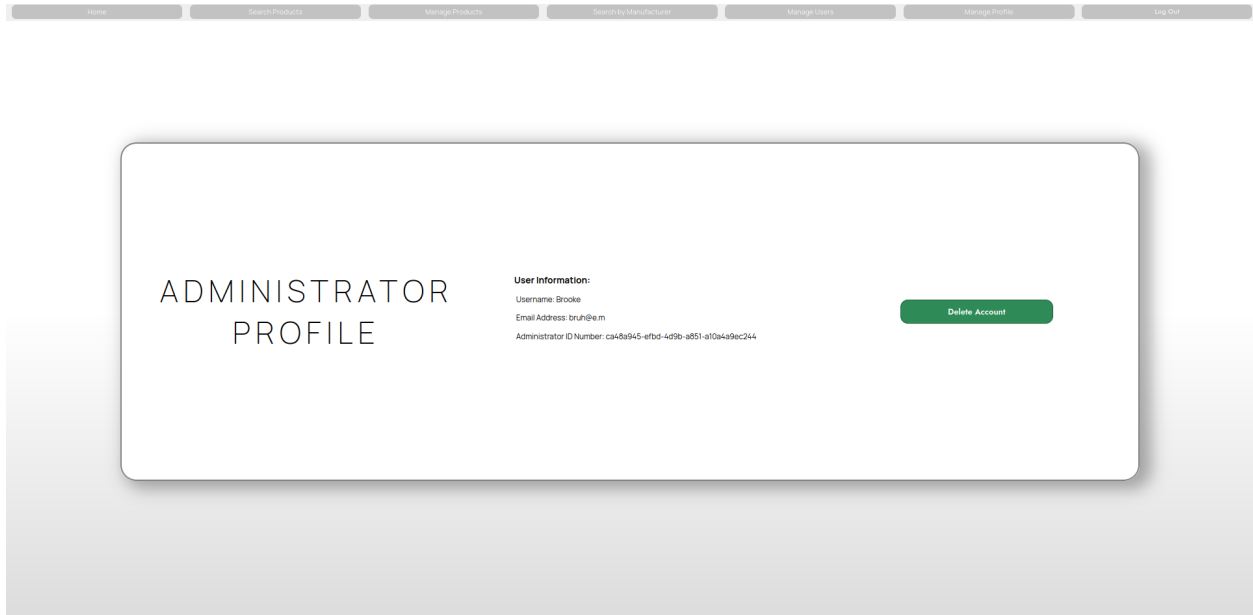
Username	Email
ManOfThePost	regularpost@email.com

Manufacturer Users

Username	Email	Name	Phone Number	Address
man11	man1@1man	man1	123457899	1, 2, Prince Edward Island 4
man3	3man@mm.m	man3	123457899	5, 02, Ontario 21
PostmanManufact	postmanufact@email.com	PostmanManufact	904-382-1948	35 Maple Street, Toronto, Ontario 9A3C6V
Monday	mondymail@email.com	SundayCraft	8903741912	35 Example St, Edmonton, Alberta T4C1A3
PostDemo	postdemo@email.com	PostDemo	904-382-1948	35 Maple Street, Toronto, Ontario 9A3C6V

Admin Users

Username	Email
Brooke	bruh@e.m
a	a@a.a
PostmanAdmin	postadmin@email.com



As shown above, administrators (as well as others) can delete their accounts permanently.

Manufacturer

[Home](#)[Search Products](#)[Search by Manufacturer](#)[Add Product](#)[Manage Products](#)[Manage Profile](#)[Log Out](#)

ADD PRODUCT

Name

Product Name

menuName

Manufacturer Name

Variant Name

Product Variant (Optional)

Add New Ingredient

Ingredient is an allergen ☐

+

Reset Ingredients

Current Ingredients:

Current Allergens:

Add Product To Database

Only the manufacturers can add new products and also can notify the users which ingredients are allergens.