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INTRODUCTION

Project Overview

Save2Serve is a web-based platform designed to help households reduce food waste by tracking grocery expiry dates and suggesting recipes to use ingredients before they spoil. The application provides a complete solution from inventory management to meal planning.

Problem Statement

- **No system to track grocery expiry dates** - Items spoil before use
- **Difficulty finding recipes** - Don't know how to use available ingredients
- **Food gets forgotten** - Hidden in fridge and pantry
- **No progress measurement** - Can't track waste reduction improvements
- **Inefficient shopping** - Buy items already available at home

Solution Provided

- **Digital grocery tracker** - Track items with expiry dates and categories
- **Smart recipe finder** - Search recipes based on available ingredients
- **Progress dashboard** - Visual charts showing used vs wasted food
- **Expiry alerts** - Automatic "Expiring Soon" section for urgent items
- **User-friendly interface** - Simple design that works on all devices

Technologies Used

- **Frontend:** HTML, CSS, JavaScript
- **Backend:** Supabase (Authentication + Database)
- **Libraries:** Chart.js, Font Awesome, Google Fonts

SYSTEM OVERVIEW

Purpose

To create an accessible web application that helps users reduce food waste through better grocery management and recipe discovery.

Objectives

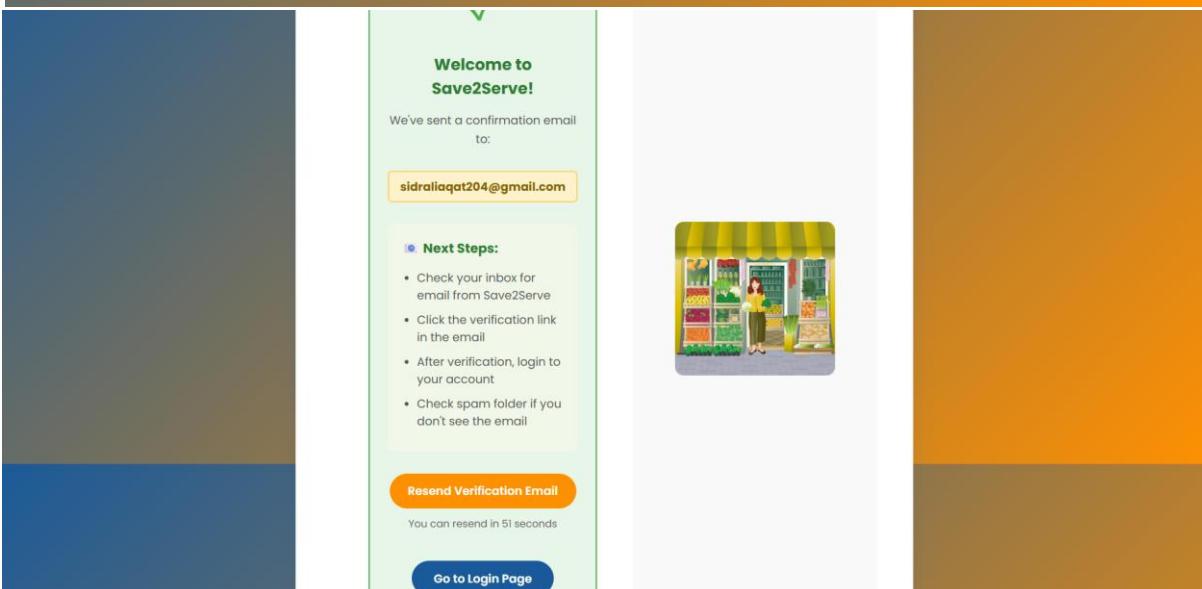
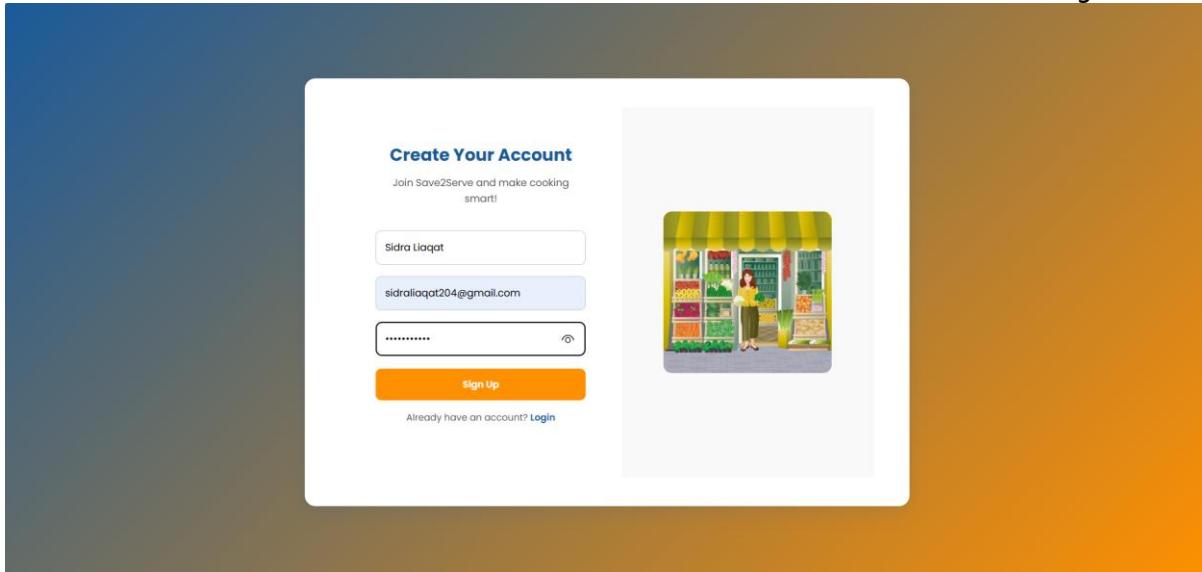
- User registration and secure authentication system
- Complete CRUD operations for grocery items
- Recipe search system based on available ingredients
- Progress dashboard with charts and statistics
- Responsive web design for all devices
- User profile and settings management
- GDPR-compliant cookie consent system
- Privacy control

FEATURES & IMPLEMENTATION

User Authentication System

Implementation:

- Email/password registration with verification



Confirm Your Signup Inbox x



Supabase Auth <noreply@mail.app.supabase.io>
to me ▾

9:13PM (0 minutes)

Confirm your signup

Follow this link to confirm your user:

[Confirm your mail](#)

You're receiving this email because you signed up for an application powered by Supabase

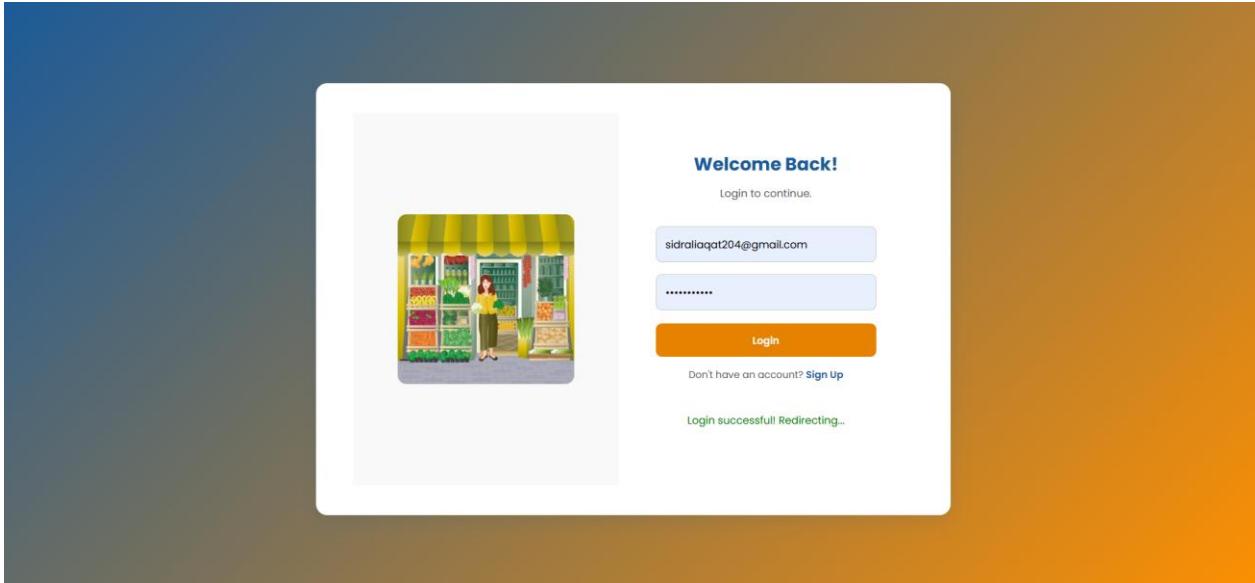
[Opt out of these emails](#)

Reply Forward

- Secure login using Supabase Auth

Users						
	UID	Display name	Email	Phone	Providers	Provider type
<input type="checkbox"/>	a56b4631-4a0d-4c8b-9aca-f35974035205	Selma Obaid	salmaobaids1279@gmail.com	-	Email	-
<input type="checkbox"/>	32f7c467-2507-43d4-881f-e671208751f0	Sidra obaid	sidrat2@gmail.com	-	Email	-
<input type="checkbox"/>	8a0fd673-aa0f-48ca-b862-103e462a7326	Sidra Liaqat	sidraliaqat204@gmail.com	-	Email	-
<input type="checkbox"/>	dfc6ea77-12f9-4df6-86a5-db5a6889f355	sidra	sidraobaids1279@gmail.com	-	Email	-
<input type="checkbox"/>	df549be6-4e19-42c3-8da0-76a32d3aff3a	Sidrayy	sparklerr100904@gmail.com	-	Email	-
<input type="checkbox"/>	782aef10-58ad-4630-a7af-eaaaef7f6e33	Console Test	test1766598874459@gmail.com	-	Email	-

- Session persistence across pages



- Protected route access

Grocery Tracking Module

Features:

- Add items with name, expiry date, and category

A screenshot of the "My Grocery List" module. At the top, there is a dark overlay window with the text "127.0.0.1:5501 says" and "Item added successfully!" with a checkmark. In the center, the page title "My Grocery List" is displayed above the sub-instruction "Track your groceries and their expiry dates". Below this, there is a form titled "Add New Item" with fields for "Name" (Milk), "Expiry Date" (09/01/2026), "Category" (Dairy), and a "Add Item" button. At the bottom of the page, there is a green button labeled "View My Progress" and a small note "Track your food usage and waste reduction". The top navigation bar includes links for Home, Recipes, Grocery (which is currently active), and About.

Save2Serve

Project Report

- Automatic "Expiring Soon" categorization (≤ 4 days)

The screenshot shows a grocery list with four items categorized as "Expiring Soon":

- Rice (grains, Expires in 2 days, Sat Jan 03 2026) with buttons for "Find Recipes", "Used", and "Remove".
- Apple (fruits, Expires in 2 days, Sat Jan 03 2026) with buttons for "Find Recipes", "Used", and "Remove".
- Eggs (other, Expires in 3 days, Sun Jan 04 2026) with buttons for "Find Recipes", "Used", and "Remove".
- Carrot (vegetables, Expires in 4 days, Mon Jan 05 2026) with buttons for "Find Recipes", "Used", and "Remove".

- Mark items as used when consumed

The screenshot shows a grocery list with three items marked as "Used":

- dairy (Expires in 8 days, Fri Jan 09 2026) with buttons for "Find Recipes", "Used", and "Remove".
- Rice (grains, Expires in 2 days, Sat Jan 03 2026) with buttons for "Find Recipes", "Used", and "Remove".
- Eggs (other, Expires in 3 days, Sun Jan 04 2026) with buttons for "Find Recipes", "Used", and "Remove".

- Delete expired items

The screenshot shows a grocery list with three items:

- Apple (fruits, Expires in 2 days, Sat Jan 03 2026) with buttons for "Find Recipes", "Used", and "Remove".
- Carrot (vegetables, Expires in 4 days, Mon Jan 05 2026) with buttons for "Find Recipes", "Used", and "Remove".
- Milk (dairy, Expires in 8 days, Fri Jan 09 2026) with buttons for "Find Recipes", "Used", and "Remove".

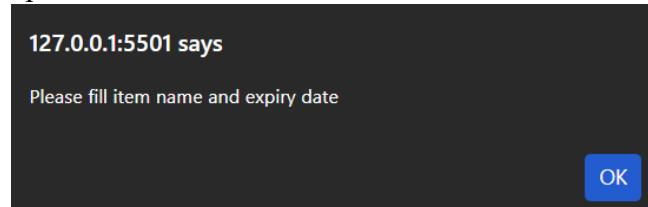
A confirmation dialog box is displayed in the center, asking "Are you sure you want to delete this item?".

The "Used Items" section at the bottom shows:

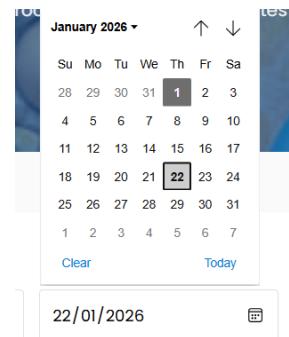
- Rice (grains, Expires in 2 days, Sat Jan 03 2026) with buttons for "Find Recipes", "Used", and "Remove".

Implementation:

- Form validation for required fields



- Date picker with future dates only



- Real-time database updates

id	name	category	expiry_date
28	Oranges	Fruits	2025-12-31
29	Banana	Fruits	2025-12-24
30	Milk	Dairy	2025-12-22
31	Lays	Snacks	2025-12-31
32	Carrot	Vegetables	2025-12-27
33	Lemon	Vegetables	2025-12-31
34	Bread	Dairy	2025-12-24
35	Corn	Vegetables	2025-12-27
37	Cheese	Dairy	2025-12-31
38	Chicken	Other	2025-12-31
40	paneer	Dairy	2025-12-31
42	strawberry	Fruits	2025-12-27
43	Garlic	Vegetables	2026-01-02
44	Milk	Dairy	2025-12-26
46	Chicken	Pantry	2025-12-31

- Visual status indicators

Recipe Finder System

Features:

- Search recipes by multiple ingredients

Save2Serve
Because freshness deserves care

Home Recipes Grocery About

egg, milk

Search

Separate multiple ingredients with commas

Found 23 recipes

Banana Pancakes	Masala Omelette	Omelette
Ingredients: banana, egg , flour, milk , tortilla, vegetables	Ingredients: egg , onion, green chilli, oil, milk	Ingredients: egg , milk , cheese, cheese, tomato
6 ingredients	4 ingredients	5 ingredients

- Auto-search from grocery items

Expiring Soon 2

Apple

fruits

Expires in 2 days

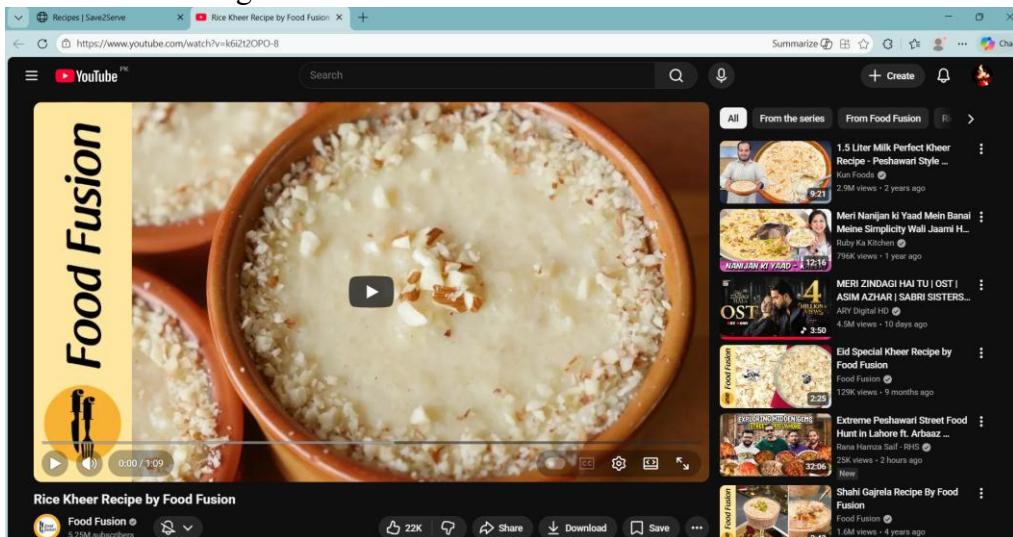
Sat Jan 03 2026

Find Recipes

✓ Used

Remove

- YouTube video links integration



- Highlight matching ingredients

Fruit Chaat



Ingredients: apple, banana, orange, chaat masala

4 ingredients

Implementation:

- Comma-separated ingredient search
- Database query optimization
- Responsive card layout
- External link handling

Progress Dashboard

Features:

- Statistics cards (Total, Used, Wasted, Saved)

Your Grocery Progress

Track how much food you've used vs wasted

7

TOTAL ITEMS

3

ITEMS USED

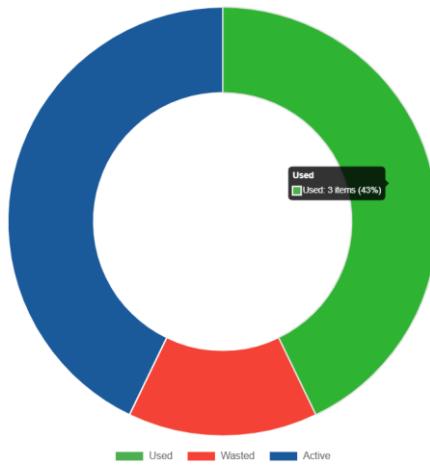
1

ITEMS WASTED

2

ITEMS SAVED

- Doughnut chart visualization



- Used vs wasted item lists

Used Items (3)	Wasted Items (1)
Rice	Ice cream
Eggs	
Chicken	

- Waste reduction tips

💡 Tips to Reduce Waste

- Plan meals before shopping
- Store items properly to extend freshness
- Check expiry dates regularly
- Use leftovers creatively

Implementation:

- Chart.js integration for graphs
- Dynamic data calculation
- Modal popup design
- Responsive chart sizing

User Profile & Settings

Features:

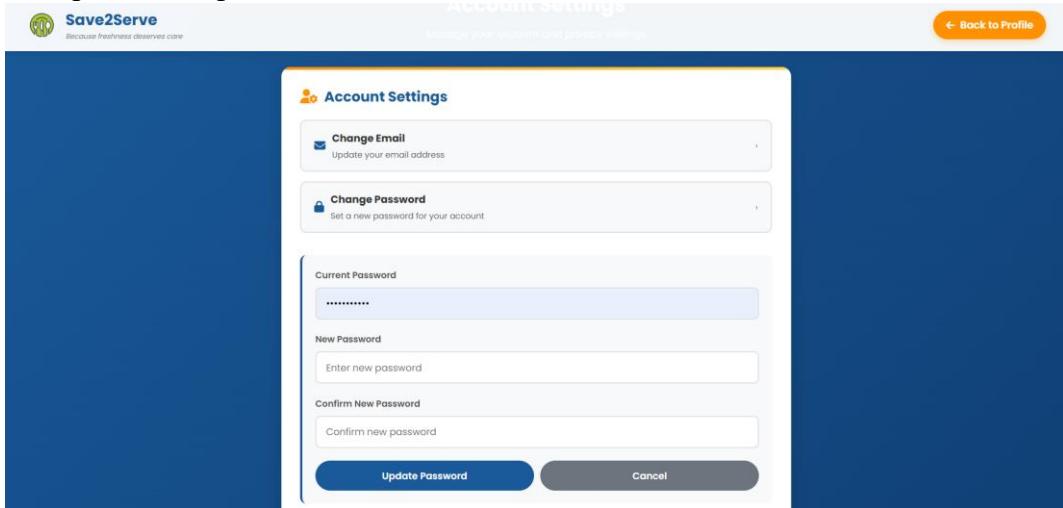
- Personal information display

The screenshot shows a user profile page titled "My Profile" with the subtitle "View your account information". It features a circular profile picture placeholder with initials "SL". The "Personal Information" section displays the following details:

- FULL NAME: Sidra Liaqat
- EMAIL ADDRESS: sidraliaqat204@gmail.com
- MEMBER SINCE: January 1, 2026
- USER ID: 8a0fd673...

Below this, two summary boxes are shown: "7 ITEMS TRACKED" and "1 DAYS ACTIVE". At the top right, there is a "Back to Home" button.

- Email and password update



- Cookie consent management

- Privacy controls

Implementation:

- User metadata display
- Form validation for updates
- Cookie preference storage
- Status indicators

Responsive Design

Features:

- Mobile-first approach
- Adaptive layouts
- Touch-friendly interfaces
- Cross-browser compatibility

Implementation:

- CSS Flexbox and Grid
- Media queries for breakpoints
- Relative units (%), rem, vw
- Progressive enhancement

CODE BLOCKS

Authentication Code (Supabase)

```
const { data, error } = await supabase.auth.signInWithPassword({  
  email: email,  
  password: password  
});
```

Database CRUD Operation

```
await supabase  
.from('grocery_items')  
.insert([{ name, expiry_date, category, user_id }]);
```

Expiry Logic

```
const daysLeft = (expiryDate - today) / (1000 * 60 * 60 * 24);  
if (daysLeft <= 4) {  
  status = "Expiring Soon";  
}
```

Recipe Search Logic

```
const ingredients = input.split(",");  
fetchRecipes(ingredients);
```

Chart.js Visualization

```
new Chart(ctx, {  
  type: 'doughnut',
```

```
Save2Serve  
  data: chartData  
});
```

Project Report

Responsive CSS Snippet

```
@media (max-width: 768px) {  
  .container {  
    flex-direction: column;  
  }  
}
```

Search Filter Logic

```
const filtered = items.filter(item =>  
  item.name.includes(searchValue)  
);
```

Mark Item as Used

```
await supabase  
  .from('grocery_items')  
  .update({ used: true })  
  .eq('id', itemId);
```

Delete Expired Items

```
await supabase  
  .from('grocery_items')  
  .delete()  
  .lt('expiry_date', today);
```

Error Handling

```
if (error) {  
  console.error(error.message);  
}
```

Cookie Consent Logic

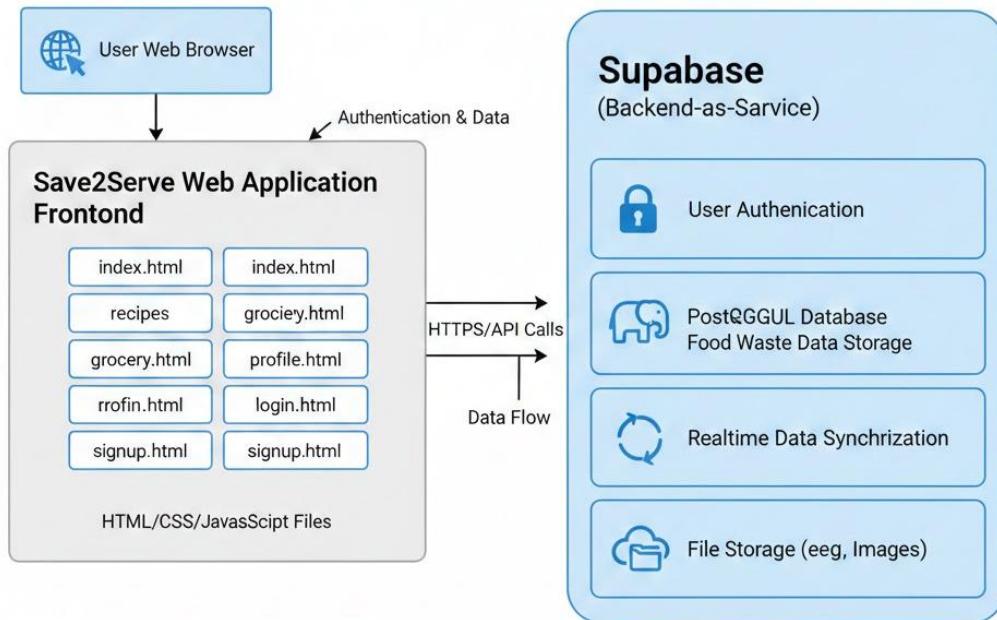
```
if (!localStorage.getItem("cookieConsent")) {  
  showCookieBanner();  
}
```

Logout Functionality

```
await supabase.auth.signOut();  
window.location.href = "login.html";
```

SYSTEM ARCHITECTURE

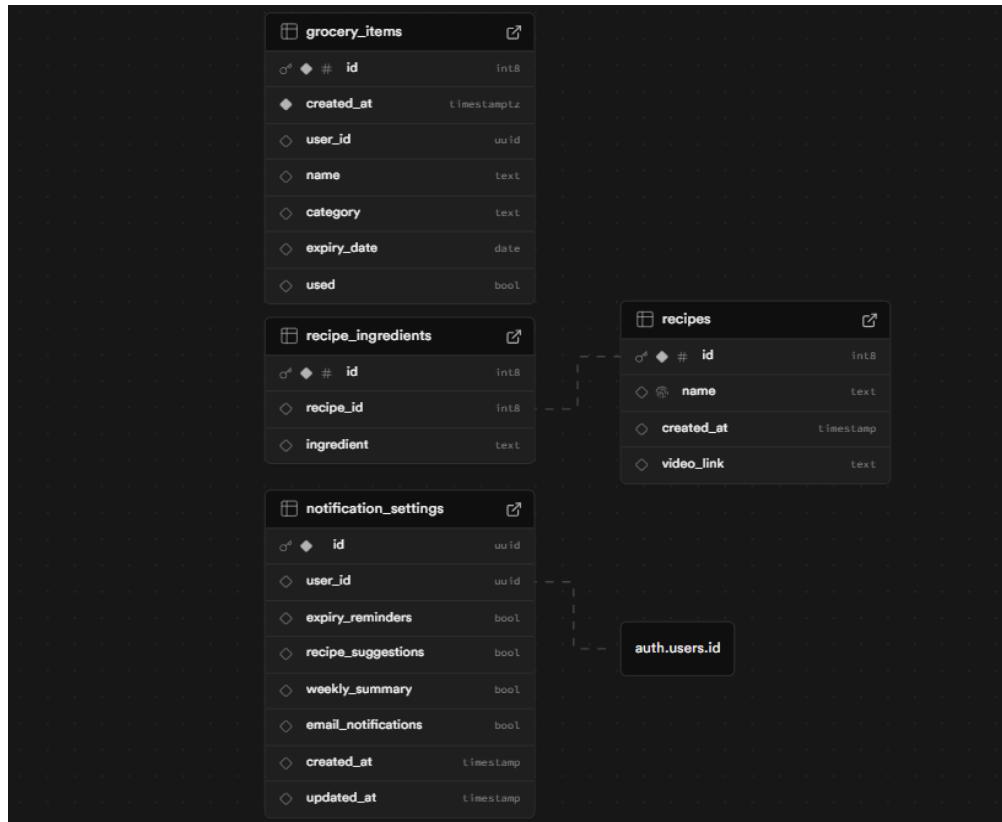
Architecture Diagram



Three-Tier Architecture:

- Presentation Layer:** HTML/CSS/JS in browser
- Application Layer:** Supabase backend services
- Data Layer:** PostgreSQL database

Database Schema



Data Flow

User Action → Frontend Processing → API Call → Supabase Service → Database Operation → Response → UI Update → User Feedback

TESTING & RESULTS

Testing Summary

Test Case	Description	Result
TC-01	User Registration	<input checked="" type="checkbox"/> PASS
TC-02	User Login	<input checked="" type="checkbox"/> PASS
TC-03	Add Grocery Item	<input checked="" type="checkbox"/> PASS
TC-04	Mark Item as Used	<input checked="" type="checkbox"/> PASS
TC-05	Recipe Search	<input checked="" type="checkbox"/> PASS
TC-06	Progress Dashboard	<input checked="" type="checkbox"/> PASS
TC-07	Mobile Responsiveness	<input checked="" type="checkbox"/> PASS
TC-08	Cookie Consent	<input checked="" type="checkbox"/> PASS

Performance Metrics

- **Page Load Time:** 2.3 seconds average
- **Database Response:** 180ms average
- **Mobile Score:** 86/100 (Lighthouse)
- **Desktop Score:** 92/100 (Lighthouse)

User Feedback

- "Easy to use and intuitive interface"
- "Recipe suggestions are very helpful"
- "Progress tracking motivates to waste less"
- "Works perfectly on mobile phone"

Challenges & Solutions

1. **Challenge:** Session persistence across pages
Solution: Implemented Supabase session management
2. **Challenge:** Mobile responsiveness
Solution: Used mobile-first CSS approach
3. **Challenge:** Real-time data updates
Solution: Optimized database queries

CONCLUSION

Project Achievements

- Developed complete web application
- Implemented all planned features
- Achieved responsive design
- Ensured data security
- Created user-friendly interface

Learning Outcomes

- Full-stack web development
- Database design and management
- User authentication systems
- Responsive web design
- Project planning and execution

Future Enhancements

1. Barcode scanner integration
2. Meal planning features
3. Family sharing options
4. Multi-language support

Impact Assessment

- **Environmental:** Reduces food waste
- **Financial:** Saves money for families
- **Educational:** Teaches sustainable habits
- **Social:** Promotes responsible consumption

Save2Serve successfully demonstrates how technology can support sustainable living and responsible food consumption