



Saver Serve

**FOOD EXPIRY AND
RECPIE SAVER**

Submitted to:

Ms. Qurat-ul-Ain Majid

Submitted by :

Sidra Liaqat (2023-BCS-083)

Sidra tul Muntaha (2023-BCS-084)

Contents

INTRODUCTION	2
Project Overview	2
Solution Provided.....	2
Technologies Used.....	2
SYSTEM OVERVIEW	2
Purpose.....	2
Objectives	2
FEATURES & IMPLEMENTATION	2
User Authentication System	2
Grocery Tracking Module.....	4
Recipe Finder System	6
Progress Dashboard	7
User Profile & Settings.....	8
Responsive Design.....	10
CODE BLOCKS.....	10
SYSTEM ARCHITECTURE	12
Architecture Diagram.....	12
Three-Tier Architecture:.....	12
Database Schema	12
Data Flow.....	13
TESTING & RESULTS	13
Testing Summary	13
Performance Metrics	13
User Feedback.....	13
Challenges & Solutions.....	13
CONCLUSION.....	14
Project Achievements	14
Learning Outcomes.....	14
Impact Assessment.....	14

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

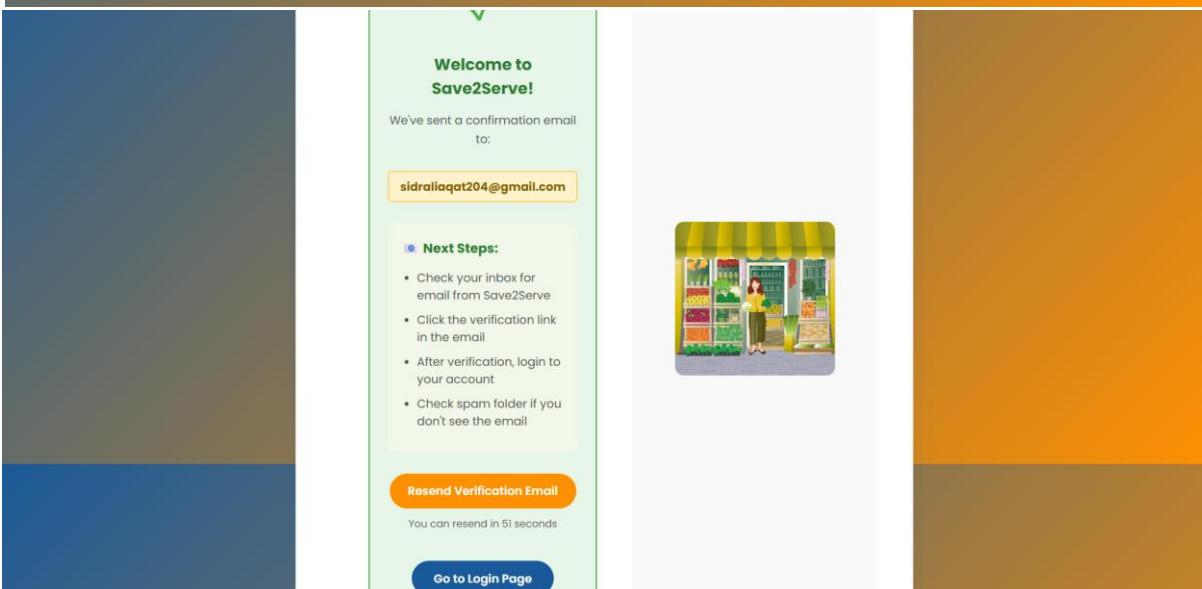
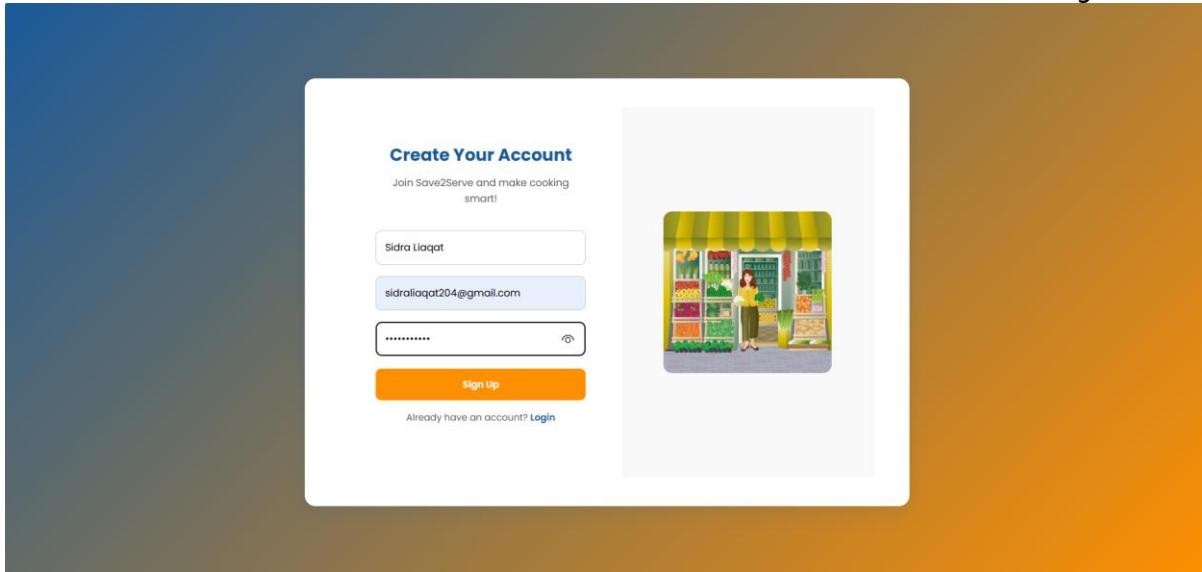
- User registration and secure authentication system
- Complete CRUD operations for grocery items
- Recipe search system based on available ingredients
- Progress dashboard with charts and statistics
- Responsive web design for all devices
- User profile and settings management
- GDPR-compliant cookie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

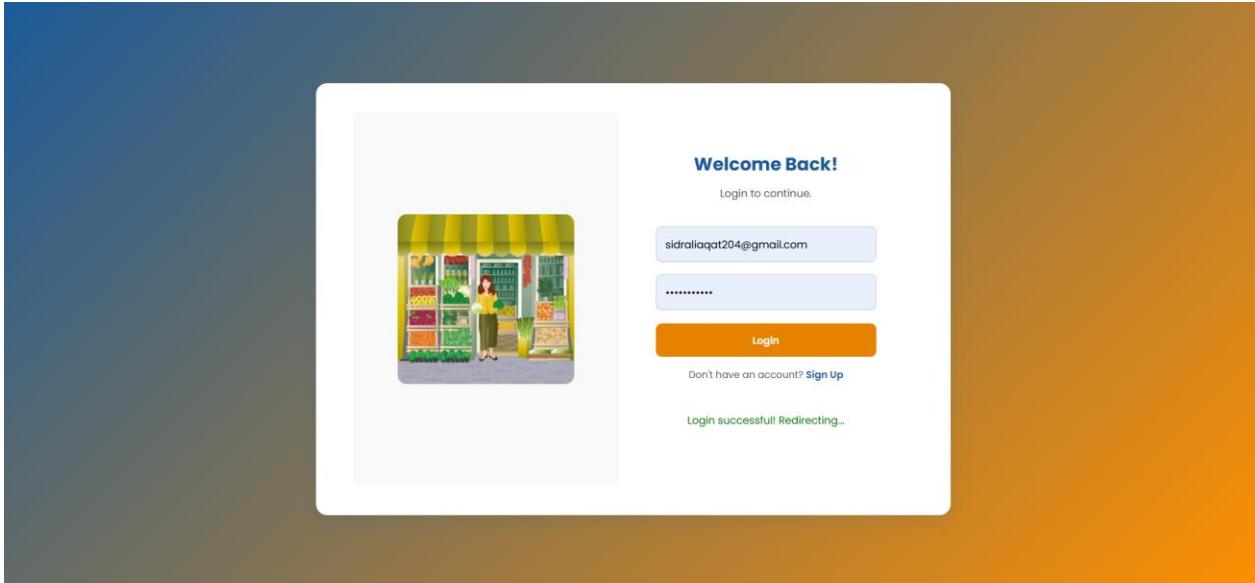
[Opt out of these emails](#)

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 success message from "127.0.0.1:5501 says": "Item added successfully!" with an "OK" button. Below this, the main title "My Grocery List" and subtitle "Track your groceries and their expiry dates" are visible. A "Add New Item" form is present, with fields for "Milk", "09/01/2026", "Dairy", and an "Add Item" button. At the bottom, there is a green button labeled "View My Progress" and a small note: "Track your food usage and waste reduction".

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".

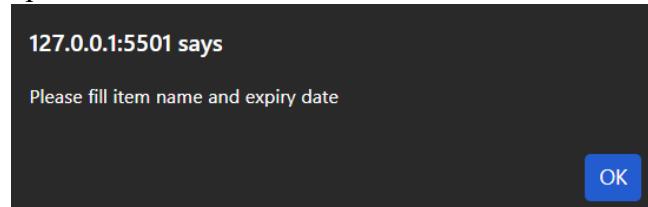
A confirmation dialog box is displayed in the center, asking "Are you sure you want to delete this item?".

The "Used Items" section at the bottom shows:

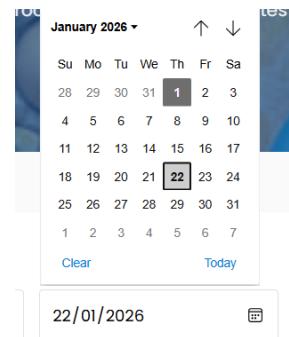
- Rice (grains, Expires in 2 days, Sat Jan 03 2026) with buttons for "Find Recipes", "Used", and "Remove".

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

- Auto-search from grocery items

Expiring Soon 2

Apple

fruits

Expires in 2 days

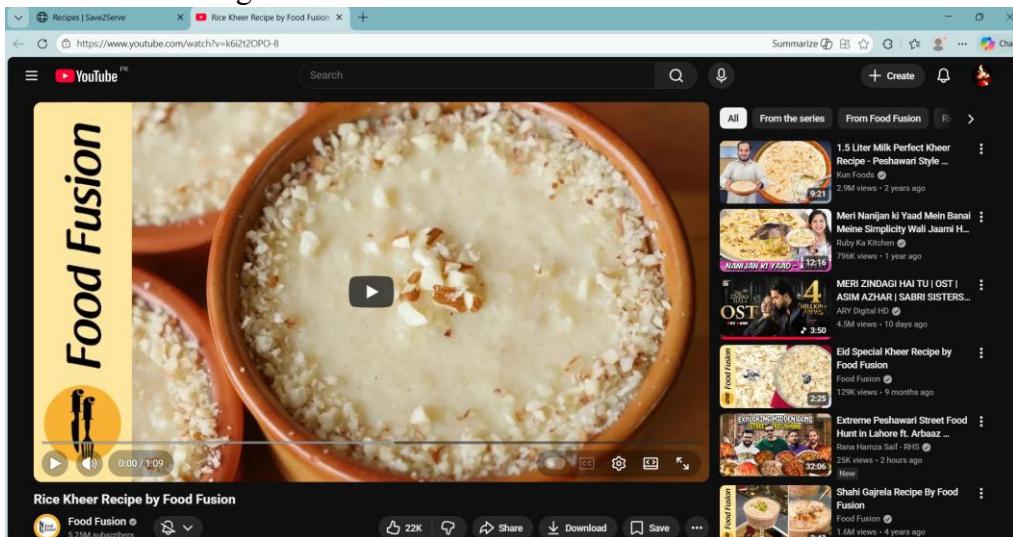
Sat Jan 03 2026

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

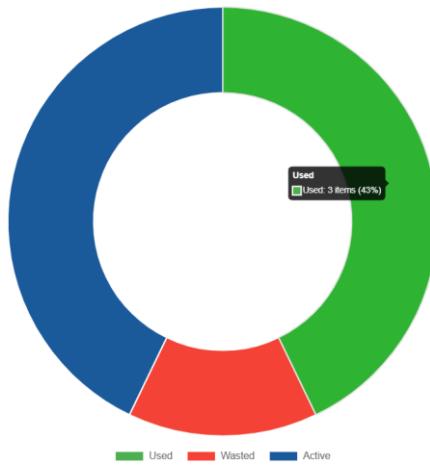
1

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

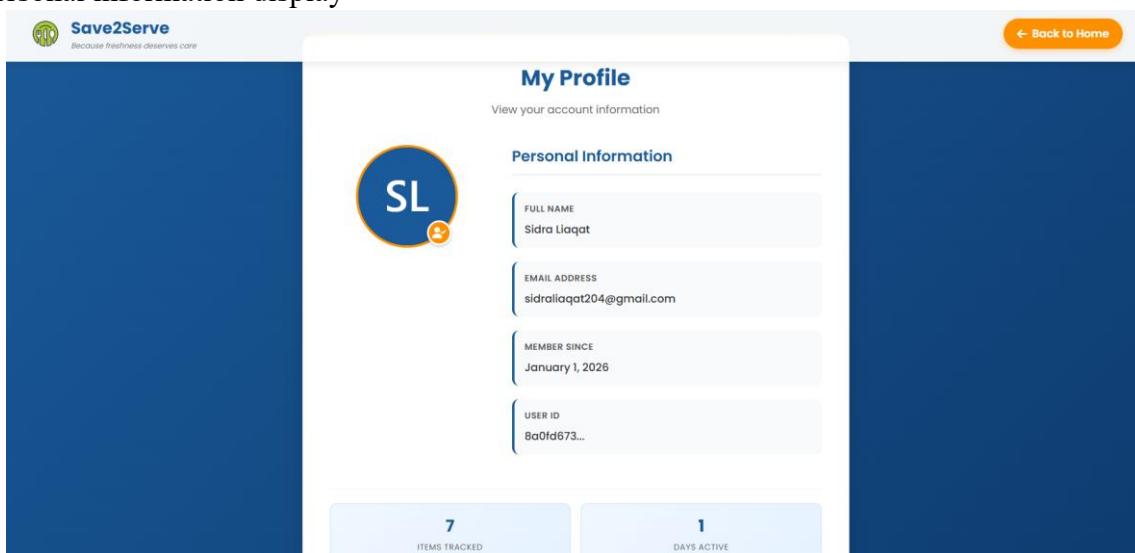
Implementation:

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

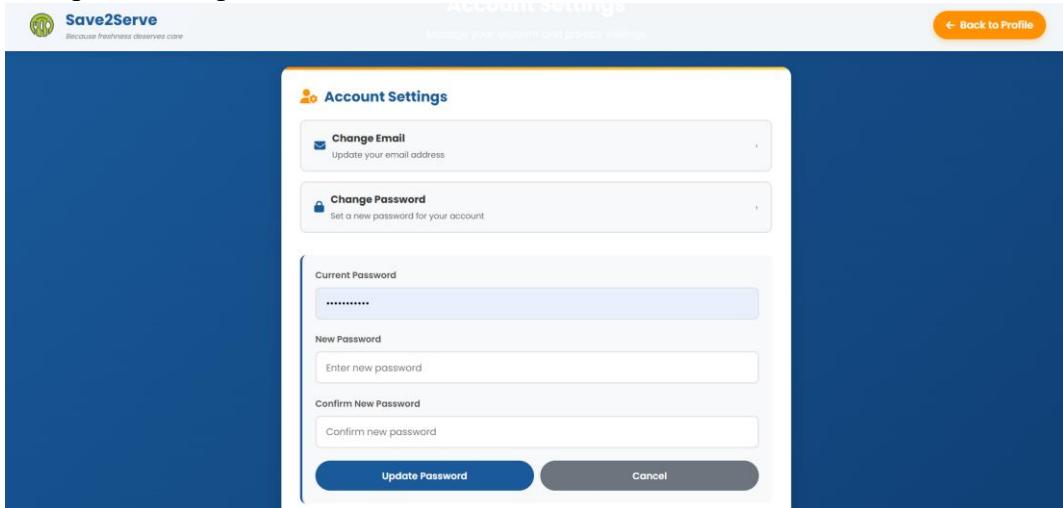
User Profile & Settings

Features:

- Personal information display



- 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

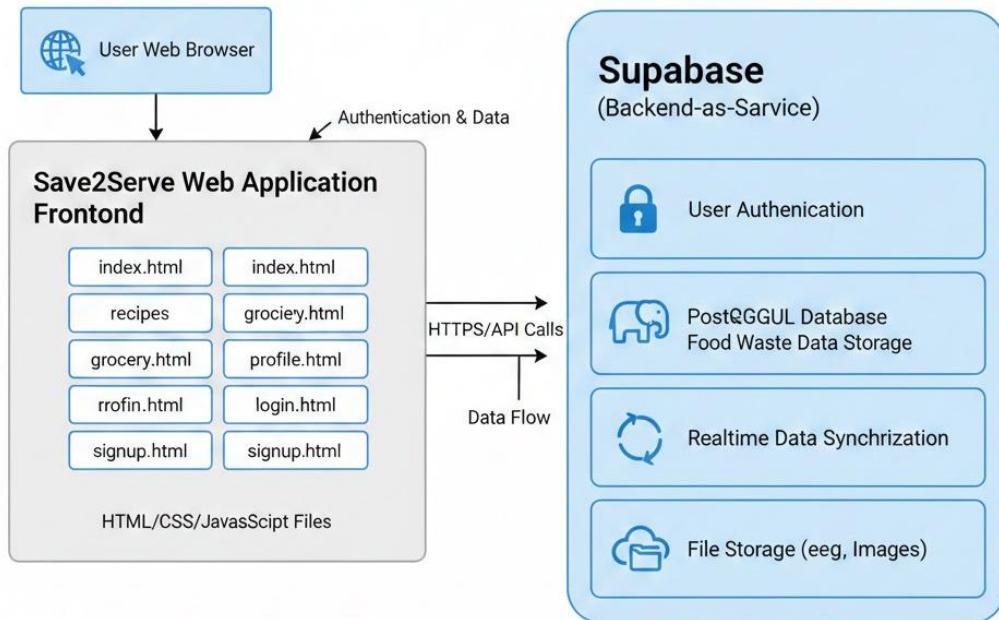
```
if (!localStorage.getItem("cookieConsent")) {  
  showCookieBanner();  
}
```

Logout Functionality

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

SYSTEM ARCHITECTURE

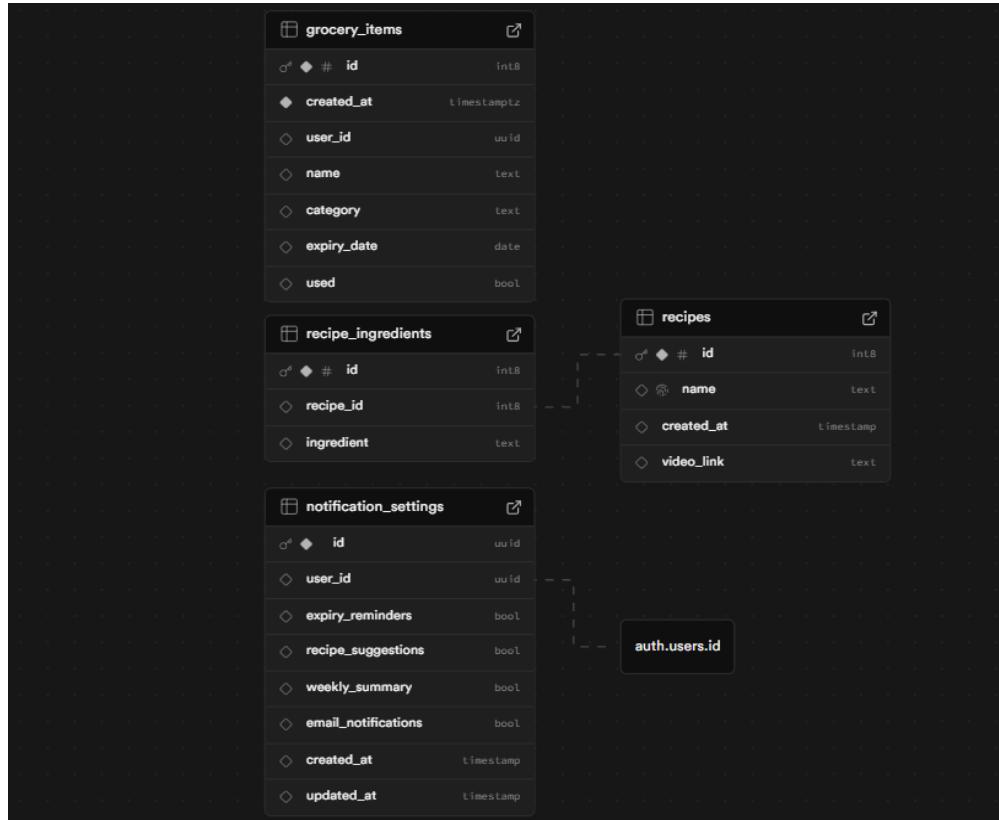
Architecture Diagram



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