Mess Management System (ManageIt)

Date: August 17, 2025

Contents

1. Website and Login Credentials

- **Live Demo:** `https://manage-jv4o.onrender.com`

- **Admin Login:**
  ID: `user@123`
  Password: `dontseeit`

- **Mess Food Sutra Login:**
  ID: `hello`
  Password: `hi@123`

- **Mess Shakti Login:**
  ID: `check@123`
  Password: `see@12345`

- **Student Login:**
  ID: `cs21b1001`
  Password: `cs21b1001`

2. Core Features

The system is designed to cover all aspects of mess management:

- **Dynamic Menus:** Veg/Non-Veg menus updated in real time.

- **Payments:** Online and manual payment tracking with history.

- **Feedback with AI:** SGDC model classifies feedback as *Critical* or *Normal*.

- **Food Waste Tracking:** Data on prepared, consumed, and wasted food.

- **Notifications:** Admins broadcast updates instantly.

- **Analytics:** Visual reporting for feedback, waste, payments, and ratings.

3. Security Features

Security is a major component of ManageIt. Key implementations include:

- **Multi-layer Authentication:** Session-based secure login.

- **CSRF Protection:** Tokens with a 1-hour lifetime.

- **Rate Limiting:** 100 requests/day, 20 requests/hour.

- **IP Blocking:** Suspicious activity is blocked and logged.

- **Content Security Policy (CSP):** Mitigates XSS.

- **Input Validation:** Strict sanitization of all form fields.

- **Audit Logging:** Records all sensitive operations.

- **HTTPS Enforcement:** TLS and HSTS enabled.

4. Home Page

The Home Page provides dynamic interaction for students.

- **Live Ratings:** Real-time food ratings for Breakfast, Lunch, Snacks, and Dinner.

- **Today's Menu:** Only the current meal is displayed.

- **Special Meals:** Highlights veg and non-veg specials.

- **Non-Veg by Floor:** Non-veg items vary by floor.

- **Notifications Panel:** Latest admin announcements.

- **Login Access:** Students, Mess Officials, Admins.
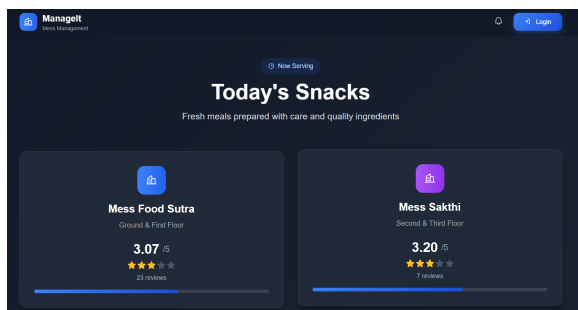
(a) Live Ratings
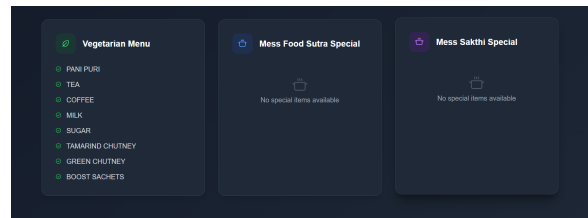
(b) Special Meals

Figure 1: Home Page

5. Role-Based Dashboards

5.1. Admin Dashboard

- Update global veg menu.
- Send notifications.
- Review feedback with AI classification.
- Analyze waste and payments.
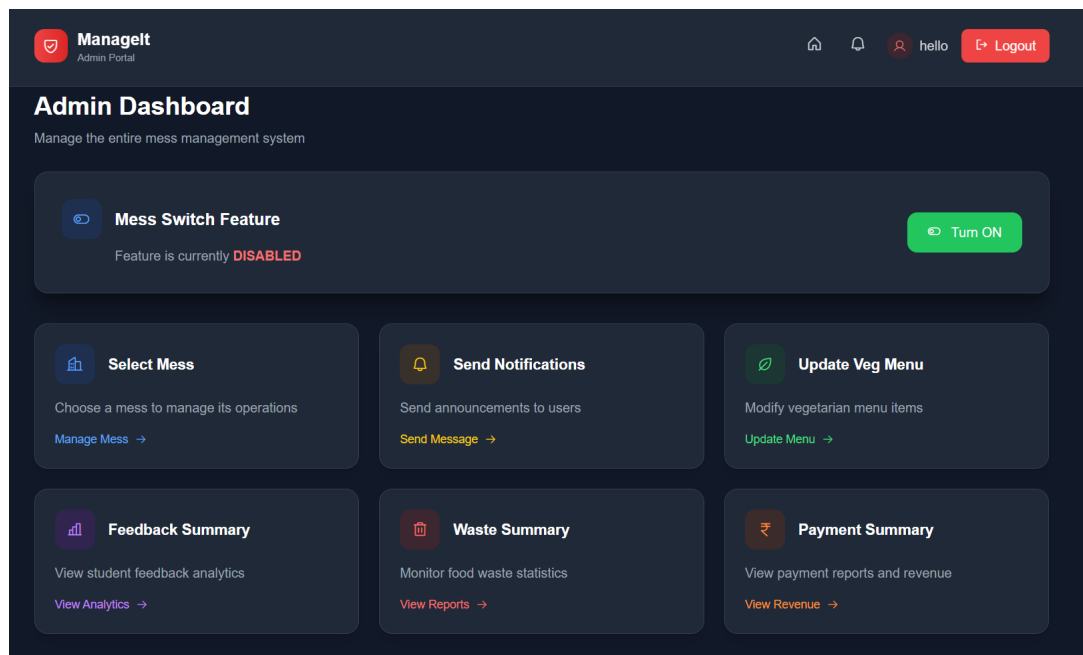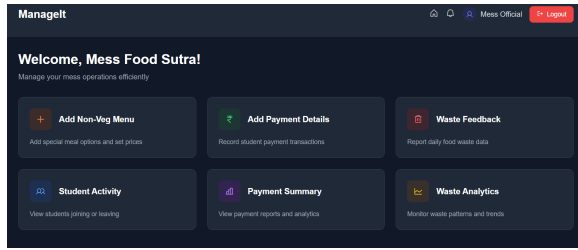- Enable/disable mess switching.

Figure 2: Admin Dashboard

5.2. Mess-Specific Dashboard (Food Sutra / Shakti)

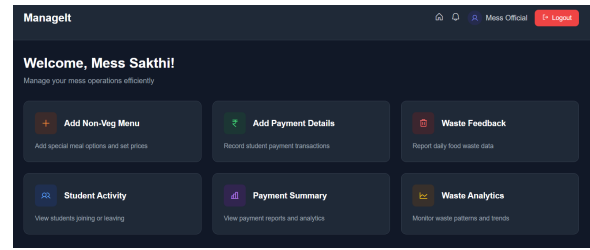- Manage non-veg menus by floor.
- Add manual payments.
- Submit waste feedback.
- Analyze payments and waste.

5.3. Student Dashboard

- View payment history.
- Submit feedback (classified by SGDC model).
- Access past month ratings.
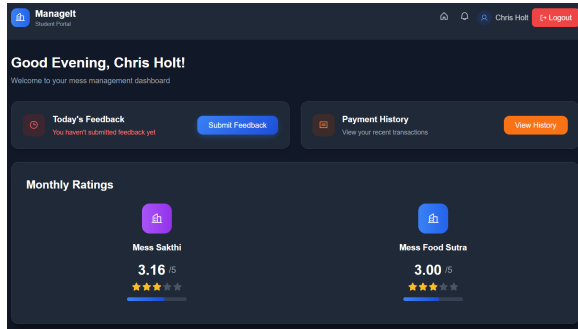- See top-rated food items.
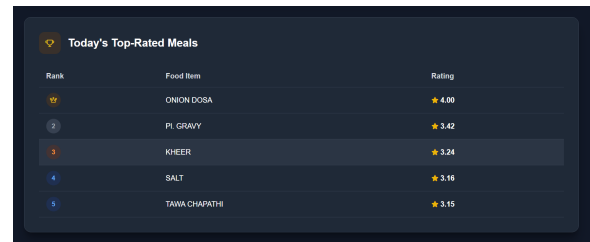
(a) Mess Food Sutra

(b) Feedback Overview

Figure 3: Mess Dashboards

(a) Feedback Submission

(b) Top Rated Items

Figure 4: Student Dashboard

6. Advanced Functionalities

- **Mess Switching:** Students switch based on capacity.

- **Alternate Week Logic:** Odd/Even week logic for planning.

- **Temporary Menu Override:** Admins can override veg menu for a day.

- **Background Scheduler:** Handles cleanup and automated tasks.

- **Caching with Redis:** Speeds up sessions and rate limiting.

7. Technologies Used

- **Frontend:** HTML5, CSS3, TailwindCSS, JavaScript

- **Backend:** Flask 2.3.3 (with Gunicorn for production)

- **Database:** MySQL 8.0

- **Caching/Rate Limiting:** Redis 6.0

- **AI/ML:** SGDC Classifier for feedback analysis

- **Hosting:** Render (Backend + Frontend), FreeSQLDatabase (DB)

- **Version Control:** Git, GitHub
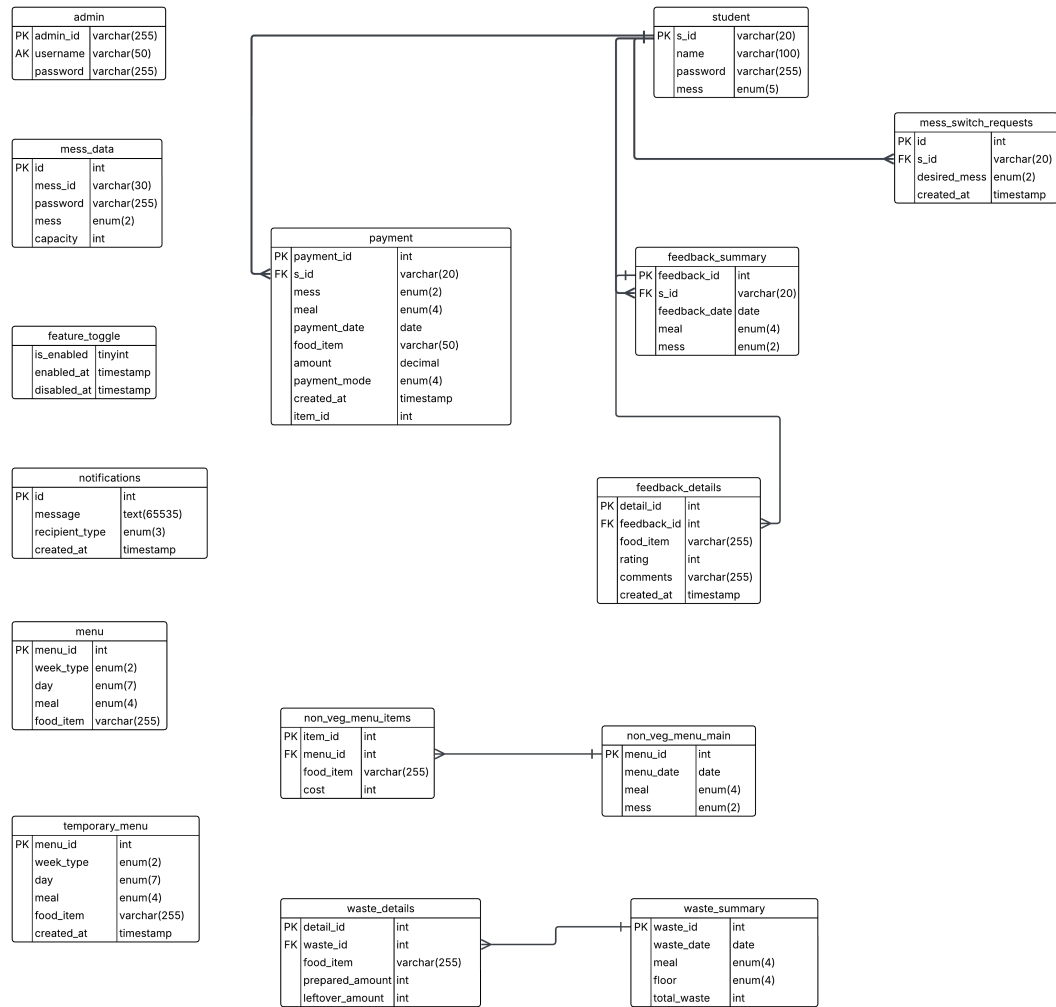
8. Database Schema

Figure 5: Database Schema

9. Conclusion

The Mess Management System (ManageIt) delivers a complete digital ecosystem for student mess operations. It improves communication, enhances security, reduces waste, and integrates AI for smarter feedback handling. With robust security (CSRF, IP blocking, CSP), analytics, and role-specific dashboards, ManageIt is a production-ready, scalable solution.