Food Ordering System (Full Stack)

MCA (OL) Semester 3 Mini Project

CAPOL 510 – Information System Development Laboratory

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Introduction: Addressing Campus Food Challenges

Our campus food mess, with only 25 seats, faces long queues and customer drop-offs during peak hours, leading to revenue loss. The goal is to serve more patrons without expanding physical space.

The solution is a web-based system offering online food delivery and dine-out reservation with pre-ordering, allowing tables and menus to be booked in advance.

Problem Statement: Overcoming Operational Hurdles

Limited Seating (25)

Causes overcrowding and long wait times.

Manual Order Handling

Leads to slow service and frequent order errors.

Lost Walk-in Customers

Results in significant revenue and reputation loss.

No Reservation System

Creates unpredictable rushes and kitchen overload.

Project Abstract: Food Ordering System

Project Name	Food Ordering System
Overview	Unified platform for delivery orders and dine-in reservations.
Tech Stack	React JS, Node JS/Express, MongoDB, Tailwind CSS
Key Benefits	Reduced crowding, faster service, higher customer satisfaction, real-time admin control.

Software Project Plan: Phased Development

2 Days : Requirement Analysis

Deliverable: SRS document.

2 Days: System & DB Design

Deliverable: ER & DFD diagrams.

5 Days: Front-end Development

Deliverable: React UI pages.

6 Days: Back-end API Development

Deliverable: REST endpoints.

2 Days: Integration & Testing

Deliverable: Full system demo.

1 Day: Deployment & Review

Deliverable: Vercel/Render live app.

Software Requirements Specification

Functional Requirements

- User sign-up / login / logout.
- View menu & live availability.
- Add items to cart, place delivery order.
- Select table, time-slot & pre-order for dine-in.
- Admin dashboard: orders, reservations, menu CRUD.

Non-Functional Requirements

- Responsive across devices.
- $\leq$ 3 sec average page load.
- JWT-based secure sessions.
- Scalable cloud deployment.
- Daily automated DB backups.

System Analysis: Data Flow and Use Cases

The system operates with a core interaction between User ⇔ System ⇔ Admin.

1

Place Delivery Order

Users can order food for delivery.

2

Reserve & Pre-Order

Users can book tables and pre-order meals.

3

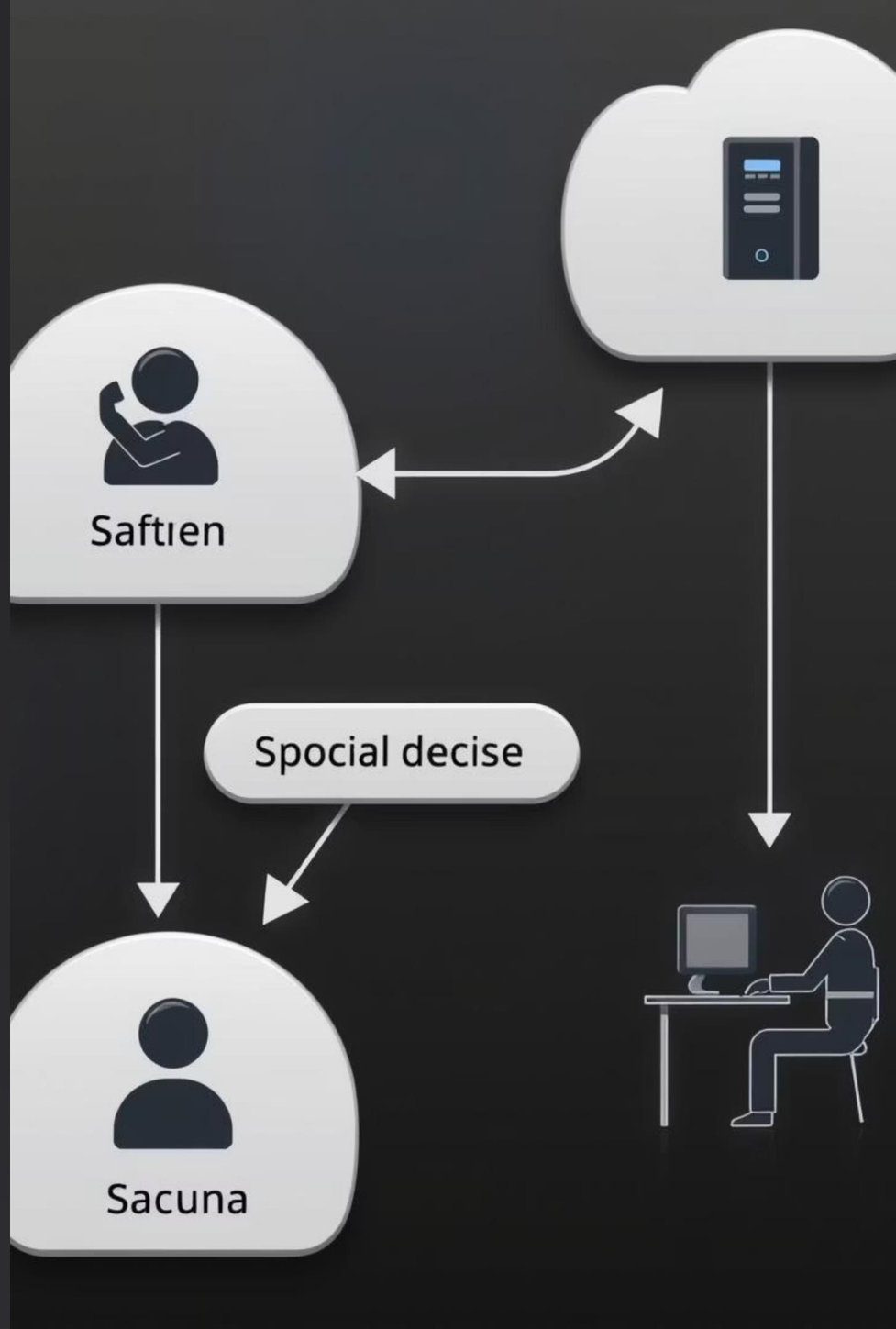
Manage Orders (Admin)

Admins oversee and process all orders.

4

Update Menu (Admin)

Admins can modify menu items and availability.



Design: Front-End, Back-End, and Interface

Front-End

Built with React components and styled using Tailwind CSS. Key pages include Home, Menu, Cart, Reservation, and Admin.

Back-End

Powered by Express REST API, with controllers for Authentication, Orders, Reservations, and Menu. Features JWT authentication middleware for secure sessions.

Interface Highlights

Features a minimalist UI with clear Calls to Action (CTAs), real-time seat availability indicators, and an admin panel with charts and filters for efficient management.

Coding and Testing

```
// POST /api/reserverouter.post('/reserve', verifyToken, async (req, res) => {  const { userId, tableId, slot, items } = req.body;  const reservation = await Reservation.create({ userId, tableId, slot, items });  res.status(201).json({ message: 'Table reserved', reservation });});
```

Sample reservation endpoint in Node JS.

Unit	Jest, React Testing Library	Components & utils
Integration	Supertest	API endpoints
Validation	Joi, Front-end form checks	Inputs & edge cases
Debugging	Chrome DevTools, Postman	Runtime & API tracing

Implementation and Future Plans

Current Implementation

- Frontend deployed on Vercel.
- Backend on Render with CI/CD.
- MongoDB Atlas cluster (shared tier).
- HTTPS, custom domain, daily logs & monitoring.
- Live demo link available for evaluation.

Future Enhancements

- Integrate Razorpay/Stripe for online payments.
- Real-time order tracking via WebSockets.
- Customer ratings & feedback analytics.
- Android/iOS app using React Native.
- AI-driven demand forecasting for kitchen prep.

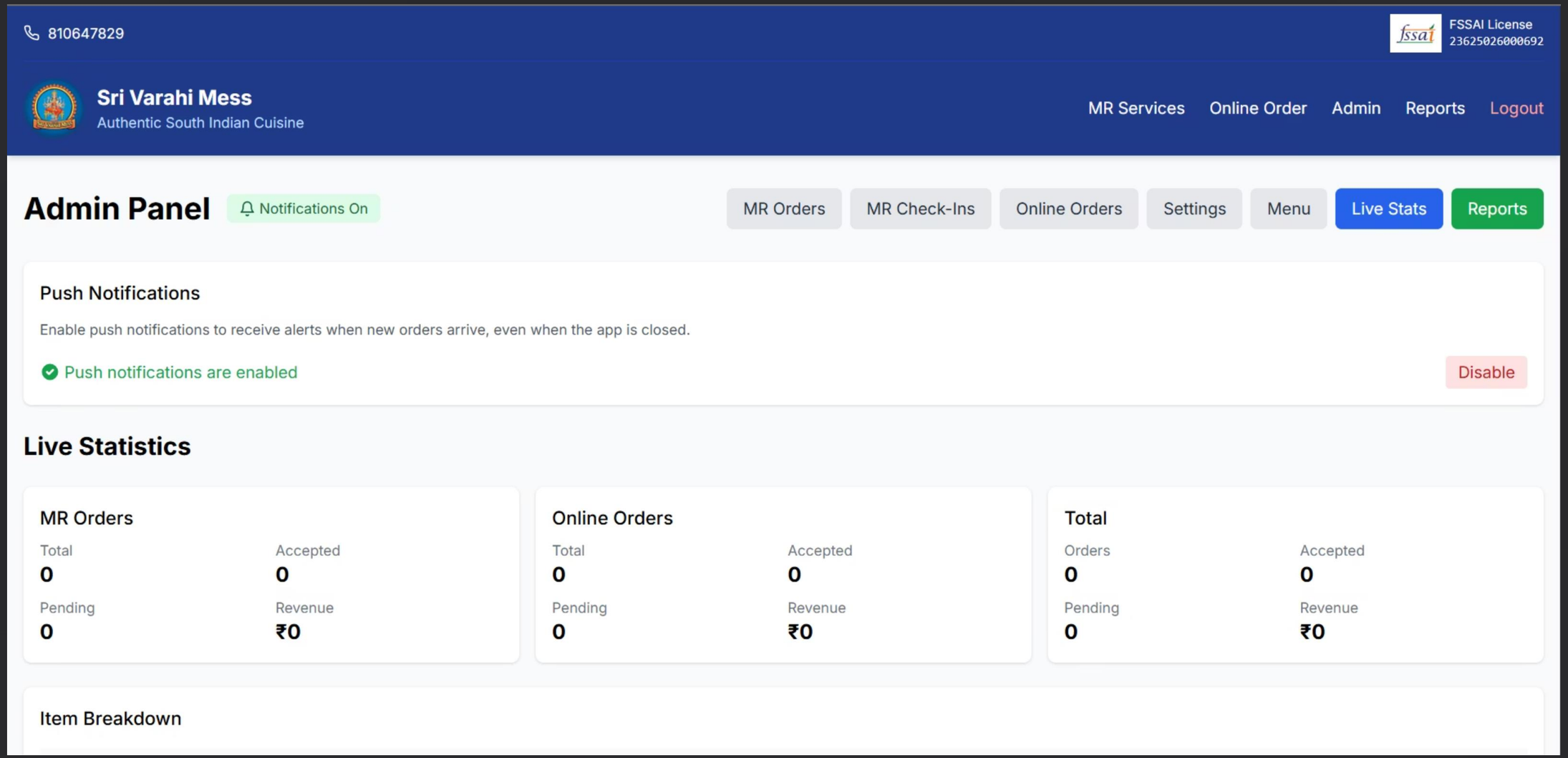
Admin Login

Username

Password

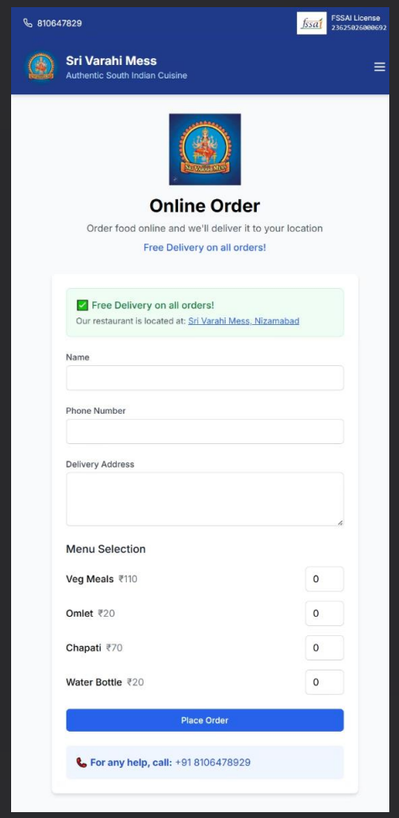
Sign in

ADMIN LOGIN

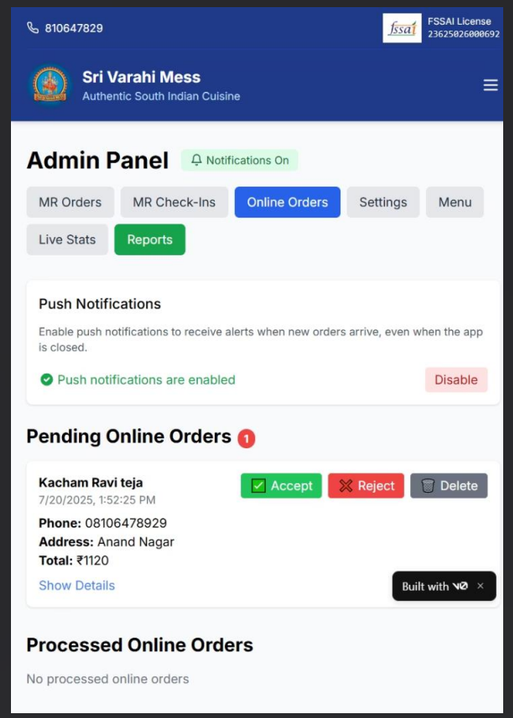


ADMIN DASHBOARD

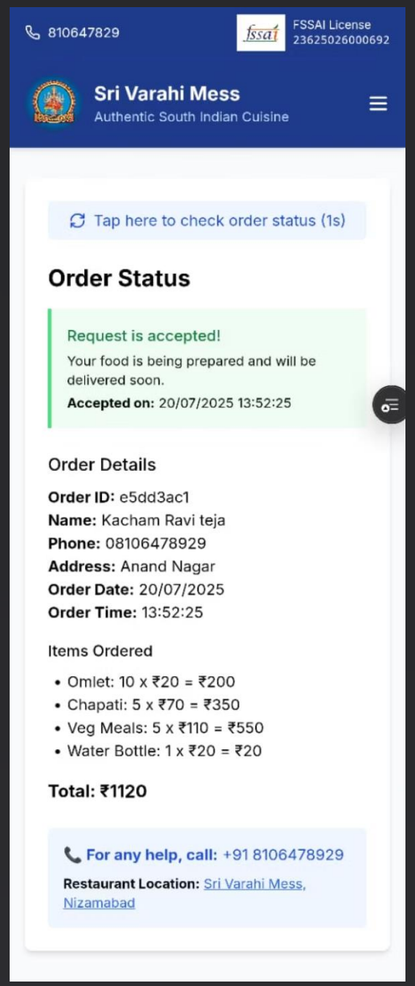
DEMO



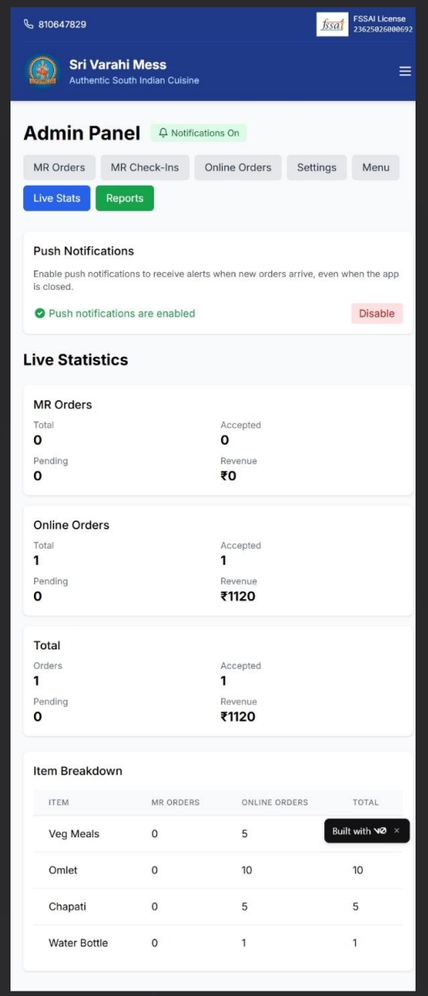
ONLINE ORDERING PAGE



ADMIN NOTIFICATION



ORDER ACCPECTED



ADMIN LIVE STATS

FOR TESTING SCAN THE QR BELOW

LINK: https://sri-varahi-mess.vercel.app/online

THANK YOU