Final project Self-assessment report

Team: 20120450-23120256-23122056

GitHub repo URL: https://github.com/Hidebray/smart-restaurant

TEAM INFORMATION

MSSV	Họ và Tên	Git account	Contribution	Commits	Tỷ lệ
20120450	Phạm Hữu Đan	danhuupham	Frontend Developer, UI/UX Designer, Integration	120	51.9%
23120256	Trần Đại Hiệp	Hidebray	Backend Developer, Database Architect, Real-time Features	51	22.1%
23122056	Lâm Hoàng Vũ	vtpy23	Full-stack Developer, Git Manager, QA & Code Review	60	26.0%

FEATURE LIST

Project: Smart Restaurant - QR Menu Ordering System

Students must input minus points to every uncompleted feature in the SE column.

*SE: Self-evaluation

*TR: Teacher review

ID	Features	Grade			Notes
		Point	SE*	TR*	
1	**Overall requirements**				
	User-centered design	-5	0		Built with user experience in mind, not just feature list. Focus on solving real restaurant problems: seamless QR ordering, efficient waiter workflow, real-time kitchen coordination, and convenient payment options
	Database design	-1	0		Database with tables: users, restaurants, menus, menu_items, categories, modifiers, tables, orders, order_items, payments
	Database mock data	-1	0		Sample restaurants, menu items, categories, tables, and test orders

ID	Features	Grade		Notes
	Website layout	-2	0	Two layouts: Customer mobile ordering interface and Admin dashboard
	Website architect	-3	0	Based on MVC architecture. Clear separation of concerns with controllers, services, repositories. Client-side validation, Input validation, Business rule validation
	Website stability and compatibility	-2	0	Mobile-first responsive design, tested on Chrome and Safari
	Document	-1	0	Clear documentation for developers and users: setup guide, API endpoints, database design, system architecture, user guide
	Demo video	-5	0	Video demonstrating all features: restaurant signup, menu management, QR ordering, payment, KDS
	Publish to public hosts	-1	0	Deployed to a public hosting service with accessible URL
	Development progress is recorded in Github	-7	0	Git history with meaningful commits, branches for features, pull requests
2	**Guest features (Customer Ordering)**			
	Home page (Menu page)	-0.25	0	Restaurant menu page loaded via QR code scan with categories and items
	View list of menu items	-0.25	0	Display menu items with images, prices, descriptions
	Filter menu items by			A combination of the criteria
	› Item name	-0.25	0	Search menu items by name
	› Category	-0.25	0	Filter by food categories (Appetizers, Main Dishes, Drinks, Desserts)
	Sort menu items by popularity	-0.25	0	Sort by most ordered items
	› Chef recommendation	-0.25	0	Filter/highlight items marked as chef's recommendations
	Menu item paging	-0.75	0	Pagination for large menus with infinite scroll. URL updated on search/filter/paging

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	View menu item details	-0.25	0	Item detail page with full description, modifiers, allergen info
	View menu item status	-0.25	0	Display item availability status (Available, Unavailable, Sold out)
	Show related menu items	-0.25	0	Suggest items from same category or popular pairings
	View list of item reviews	-0.5	0	Customer reviews for menu items with pagination
	Add a new item review	-0.25	0	Logged-in customers can review items they ordered
	Shopping cart (Order Cart)			
	› Add a menu item to the Cart	-0.25	0	Add items with quantity selection
	› View and update items in the Cart	-0.5	0	Cart summary with items, quantities, modifiers, prices. Update quantity with auto-update totals
	Ordering and payment (Dine-in)			
	› Bind the shopping cart to the table session	-0.25	0	Cart persists for table session
	› Input order details (notes, special requests)	-0.25	0	Guest name, special instructions field
	› Add items to current order	-0.25	0	Customers can add more items to their unpaid order (single order per table session)
	› View order status	-0.25	0	Guest can track order status (Received → Preparing → Ready)
	› View order details	-0.25	0	Order confirmation with items, total, table number
	› Request bill	-0.25	0	Customer requests bill when ready to pay
	› Process payment after meal	-0.25	0	Stripe payment processing after dining

ID	Features	Grade		Notes
3	**Authentication and authorization**			
	Use a popular authentication library	-1	0	Passport.js with JWT strategy
	Registration (Customer Signup)	-0.5	0	Customer registration with email/password. Real-time email availability check
	Verify user input: password complexity, full name	-0.25	0	Password rules, required fields validation
	Account activation by email	-0.25	0	Email verification link sent on signup
	Social Sign-up/Sign-In	-0.25	0	Google OAuth integration
	Login to the website	-0.25	0	JWT-based authentication for admin/staff
	Authorize website features	-0.25	0	Role-based access control (Admin, Waiter, Kitchen Staff, Customer)
	Forgot password by email	-0.25	0	Password reset via email link
4	**Features for logged-in users (Customers)**			
	Update user profile	-0.25	0	Customer can update name, preferences
	Verify user input	-0.25	0	Input validation on profile updates
	Update the user's avatar	-0.25	0	Profile photo upload
	Update password	-0.25	0	Change password with old password verification
	Order history and tracking			

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	› View order history	-0.25	0	List of past orders linked to user account
	› View item processing status	-0.25	0	Track individual item status within an order (Queued, Cooking, Ready)
	› Real-time Order Updates	0.5	0	WebSocket-based live order status updates for customers
5	**Administration features (Restaurant Admin)**			
	Create Admin accounts	-0.25	0	Admin creates additional Admin accounts
	Manage Admin accounts	-0.25	0	View, edit, deactivate Admin accounts
	Update admin profile	-0.25	0	Restaurant admin profile management
	Create Waiter accounts	-0.25	0	Admin creates accounts for waiters
	Create Kitchen Staff accounts	-0.25		Admin creates accounts for kitchen staff
	Manage menu categories	-0.25	0	Create, edit, delete food categories
	View menu item list	-0.5	0	List all menu items with filters and pagination
	Filter menu items by name, category	-0.25	0	Search and filter menu items
	Sort menu items by creation time, price, popularity	-0.25	0	Sortable menu item list
	Create a new menu item	-0.25	0	Add item with name, price, description, category, prep time
	Upload multiple menu item photos	-0.5	0	Multi-image upload for menu items

ID	Features	Grade		Notes
	Add menu item to category with modifiers	-0.25	0	Assign categories and create modifier groups (Size, Extras)
	Menu Item Modifiers	0.5	0	Modifier groups (Size, Extras) with price adjustments
	Specify menu item status	-0.25	0	Available, Unavailable, Sold out
	Verify user input	-0.25	0	Input validation for menu items
	Update a menu item	-0.25	0	Edit existing menu items
	Add, remove menu item photos	-0.25	0	Manage item images
	Change menu item category, modifiers	-0.25	0	Update item categorization
	Update menu item status	-0.25	0	Toggle availability
	Verify user input	-0.25	0	Validation on updates
	Customer orders (Order Management)			
	› View list of orders sorted by creation time	-0.25	0	Order list in KDS sorted by time
	› Filter orders by status	-0.25	0	Filter: Received, Preparing, Ready, Completed
	› View order details	-0.25	0	Full order details with items, modifiers, notes
	› Update order status	-0.25	0	Progress order through states: Received → Preparing → Ready → Completed
	› Kitchen Display System (KDS)	-0.5	0	Real-time order display for kitchen staff with sound notifications
	› Order Timer and Alerts	-0.25	0	Highlight orders exceeding item's configured prep time

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	Table Management			
	› Create, edit, deactivate tables	-0.5	0	Create, edit, deactivate tables with capacity and location
	› QR Code Generation	-0.5	0	Generate unique QR codes per table with signed tokens
	› QR Code Download/Print	-0.25	0	Download QR as PNG/PDF for printing
	› QR Code Regeneration	-0.25	0	Regenerate QR and invalidate old codes
	Reports			
	› View revenue report in time range	-0.25	0	Daily, weekly, monthly revenue reports
	› View top revenue by menu item in time range	-0.25	0	Best-selling items report
	› Show interactive chart in reports	-0.25	0	Chart.js/Recharts for analytics dashboard (orders/day, peak hours, popular items)
7	**Waiter features**			
	View pending orders	-0.25	0	List of new orders waiting for waiter acceptance
	Accept/Reject order items	-0.25	0	Waiter can accept or reject individual order items
	Send orders to kitchen	-0.25	0	Forward accepted orders to Kitchen Display System
	View assigned tables	-0.25	0	See tables assigned to the waiter
	Mark orders as served	-0.25	0	Update order status when food is delivered to table
	Bill Management			
	› Create bill for table	-0.25	0	Generate bill with all order items, subtotal, tax, and total
	› Print bill	-0.25	0	Print bill to thermal printer or download as PDF

ID	Features	Grade		Notes
	› Apply discounts	-0.25	0	Apply percentage or fixed amount discounts to bill
	› Process payment	-0.25	0	Mark bill as paid (cash, card, or e-wallet)
8	**Advanced features**			
	Payment system integration	0.5	0.5	Payment gateway integration (ZaloPay, MoMo, VNPay, Stripe, etc.) - at least 1 required
	Fuzzy search	0.25	0.25	Fuzzy matching for menu item search with typo tolerance
	Use memory cache to boost performance	0.25	0	Redis for menu caching and session management
	Analyze and track user actions	0.25	0	Google Analytics for QR scan tracking, order conversion metrics
	Dockerize your project	0.25	0.25	Docker containers for backend, frontend, database
	CI/CD	0.25	0	GitHub Actions for automated testing and deployment
	Monitoring and logging	0.25	0	Centralized application logs, metrics, dashboards, and alerting (e.g., ELK/EFK, Prometheus/Grafana)
	BI integration	0.25	0	Connect operational data to BI tools for reporting and dashboards (e.g., Power BI, Tableau, Metabase)
	Advanced authorization (RBAC)	0.25	0	Fine-grained role/permission management for Admin/Chef/Waiter and other staff roles
	WebSocket real-time updates	0.5	0.5	Socket.IO for real-time features: KDS order notifications, customer order status tracking, waiter new order alerts, kitchen ready notifications, table status updates
	Multi-tenant support	0.5	0	Multiple restaurants (tenants) with strict data isolation; tenant-scoped RBAC and configuration
	Multilingual support	0.25	0.25	i18n for English/Vietnamese language selection

PROJECT SUMMARY

System Overview

Smart Restaurant is a QR-based menu ordering system for **dine-in service** that enables restaurants to:

- Manage digital menus with categories, items, and modifiers
- Generate unique QR codes for each table
- Allow customers to scan QR, browse menu, and place orders from their phones
- Customers can add items to their current order during their visit (single order per table session)
- Process payments after the meal via payment gateway integration (ZaloPay, MoMo, VNPay, Stripe, etc.) - pay-after-meal model
- Track orders in real-time via Kitchen Display System (KDS)
- View analytics and performance reports

Note: This is a single-restaurant system. Multi-tenant support is not included.

Technology Stack

- **Architecture:** Single Page Application (SPA)
- **Frontend:** ReactJS / NextJS
- **Backend:** NodeJS with Express/similar framework
- **Database:** SQL or NoSQL database
- **Authentication:** Passport.js with JWT
- **Payment:** Payment Gateway (ZaloPay, MoMo, VNPay, Stripe, etc.)
- **Real-time:** Socket.IO / WebSocket
- **Caching:** Redis (optional)
- **Hosting:** Public hosting service

Key User Flows

1. **Restaurant Setup:** Admin account creation → Admin login → Menu Creation → Table Setup → QR Generation
2. **Customer Registration:** Sign up → Email Verification → Login → Access order history
3. **Customer Ordering (Dine-in):** Scan QR → View Menu → Add to Cart → Submit Items → Track Order → Add More Items → Request Bill → Payment
4. **Waiter Order Acceptance:** Customer Places Order → Waiter Receives Notification → Waiter Reviews → Accept/Reject → Send to Kitchen
5. **Order Processing (Kitchen):** Waiter Accepts Order → Kitchen Receives → Preparing → Ready → Waiter Serves → Completed