Software Requirements Specification (SRS)

Project: TapNOrder – Table-Side Digital Ordering System

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1. Introduction

1.1 Purpose

This document defines the software requirements for **TapNOrder**, a table-side digital ordering and service management system. The purpose of this SRS is to clearly describe what the system will do so that it can be designed, developed, and evaluated correctly.

1.2 Scope

TapNOrder is designed for dine-in restaurants. It allows customers to scan a QR code placed on their table to view the menu, place food orders, request services, and make digital payments. The system also provides dashboards for kitchen staff, service staff, and administrators to manage orders, update order status, customize the menu, and view analytics.

The product aims to reduce service delays, minimize dependency on waiters, and improve overall restaurant efficiency.

1.3 Definitions, Acronyms, and Abbreviations

Term	Meaning
SRS	Software Requirements Specification

QR Code	Scannable code to access the system
Admin	Restaurant manager with full access
Staff	Kitchen or service staff
KDS	Kitchen Display System
Session	Time a customer spends at a table

1.4 Reference Documents

- IEEE Std 830-1998 – Software Requirements Specification
- Course material on Requirements Engineering

1.5 Overview

This document follows the IEEE standard format for SRS. Section 2 gives an overall description of the system. Section 3 explains the detailed functional and non-functional requirements. Remaining sections describe interfaces, data storage, constraints, and future improvements.

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QR Code	A scannable code that opens the digital menu
Admin	Restaurant manager with full system access
Staff	Kitchen staff and service staff
Session	Active dining time of a customer at a table
Dashboard	Screen showing live system information
KDS	Kitchen Display System for managing orders

1.4 Intended Audience

- Software developers
- Testers and evaluators
- Project managers
- Faculty reviewers
- Restaurant owners

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2. Overall Description

2.1 Product Perspective

TapNOrder is a web-based system that works as a standalone restaurant solution. It connects customers, kitchen staff, service staff, administrators, and payment gateways through a single platform. The system replaces manual ordering and billing processes with a digital workflow.

2.2 Product Functions

Major functions of TapNOrder include:

- QR-based table identification
- Digital menu display
- Online food ordering and customization
- Kitchen order management through KDS
- Service request handling
- Digital payment processing
- Analytics and reporting for management

2.3 User Characteristics

User Type	Characteristics
Customer	No technical knowledge required
Kitchen Staff	Basic tablet/screen usage
Service Staff	Basic digital skills
Admin	Familiar with management systems

2.4 Constraints

- Web-based only (no mobile app)
- Requires internet connection
- Limited budget and semester timeline
- Must follow payment security standards

2.5 Assumptions and Dependencies

- Customers have smartphones with cameras
- Restaurant has stable Wi-Fi
- Payment gateway services are available
- Menu data is prepared in advance

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Customer	View menu, place orders, track status, pay bill
Kitchen Staff	View and update order preparation status
Service Staff	Handle service requests and serve orders
Admin	Manage menu, tables, users, and analytics

2.3 System Requirements

- Smartphones/tablets with camera
- Stable restaurant Wi-Fi
- Modern web browser
- Cloud-based server
- Integrated payment gateway

2.4 Constraints

- One-semester academic project
- Internet-dependent system
- Limited hosting budget
- Web application only

2.5 Assumptions

- Customers own smartphones
- Restaurant has stable internet
- Staff can use tablets or screens
- Menu is finalized before deployment

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3. System Features

3.1 Customer Features

- Scan QR code to access table-specific menu
- Browse menu with images, prices, and dietary info
- Add items to cart with special instructions
- Track live order status
- Request services (water, bill, help)
- Pay digitally and receive receipt

3.2 Kitchen Display Dashboard (KDS)

The Kitchen Display Dashboard is a dedicated screen used by kitchen staff.

Features:

- View all incoming orders in real time
- Orders grouped by table number
- Clear display of items, quantity, and instructions
- Color-coded order status (New, Preparing, Ready, Served)
- Ability to update order status with one click
- Filter orders by priority or time

This reduces confusion, avoids missed orders, and improves kitchen coordination.

3.3 Staff Features

- Receive notifications for service requests
- View table-wise ordered items
- Mark service requests as completed
- Coordinate with kitchen using live status updates

3.4 Admin Features

- Full menu management (add/edit/delete items)
- Allow staff-level menu customization (mark items unavailable)
- Manage tables and QR codes
- Create and manage staff accounts
- View analytics and reports

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3. Specific Requirements

3.1 Functional Requirements

ID	Requirement Description	Priority
FR1	Generate unique QR code for each table	High
FR2	Identify table automatically after QR scan	High
FR3	Display digital menu with details	High
FR4	Allow customers to place and customize orders	High
FR5	Send orders instantly to kitchen dashboard	High
FR6	Allow kitchen staff to update order status	High
FR7	Show real-time order status to customers	High
FR8	Allow customers to request services	High
FR9	Notify staff about service requests	High
FR10	Process secure digital payments	High
FR11	Generate digital receipts	High

FR12	Allow admin to manage menu items	High
FR13	Allow staff to mark items unavailable	Medium
FR14	Show table-wise order details	High
FR15	Provide analytics and reports	Medium

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FR1	Generate unique QR code per table	High
FR2	Identify table on QR scan	High
FR3	Display digital menu	High
FR4	Place and customize orders	High
FR5	Send orders to kitchen dashboard	High
FR6	Update order status from KDS	High
FR7	Reflect live order status to customers	High
FR8	Allow service requests	High
FR9	Process digital payments	High
FR10	Generate digital receipts	High
FR11	Allow admin to manage menu	High
FR12	Allow staff to mark items unavailable	Medium
FR13	Show table-wise order summary	High
FR14	Provide analytics dashboard	Medium
FR15	Store order and payment history	High

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5. Non-Functional Requirements

5.1 Performance

- Menu loads within 2 seconds
- Orders reach kitchen within 1 second
- Supports 50+ concurrent users

5.2 Security

- Encrypted payment transactions
- Role-based access control
- Secure authentication for staff and admin

5.3 Usability

- Simple and intuitive UI
- Mobile-friendly design
- Minimal training required

5.4 Reliability

- 99% uptime during business hours
- No loss of order or payment data

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6. System Interfaces

6.1 User Interface

- **Customer UI:** Clean, responsive, restaurant-branded
- **Kitchen UI:** Large text, high contrast, status colors
- **Admin UI:** Charts, tables, filters, export options

6.2 External Interfaces

- Payment Gateway (Razorpay/Stripe/PayPal)
- Cloud Database (MySQL/PostgreSQL)

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7. System Diagrams

The following diagrams will be included:

- Context Diagram
- Use Case Diagram
- Data Flow Diagram (DFD Level 0 & 1)
- ER Diagram

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8. Data Storage

- Users (staff, admin)
- Tables and QR codes
- Menu items
- Orders and order status
- Payments and receipts
- Service requests

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9. Future Enhancements

- Kitchen performance analytics
- AI-based dish recommendations
- Loyalty programs
- Mobile apps
- Multi-restaurant support

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10. Conclusion

TapNOrder provides a complete digital solution for dine-in restaurants by connecting customers, kitchen staff, service staff, and management on one platform. With features like live kitchen display, staff-level menu control, and analytics, the system improves efficiency, transparency, and customer satisfaction.