SYSTEM REQUIREMENT SPECIFICATION (SRS)

This document describes the requirements of a **digital wallet system** designed specifically for an Entertainment (Enjoyment) Facility and Event, where customers can top up money into their in-app wallet and spend it across different services (e.g., bars, swimming pool, games, etc.) using **QR Code Scanning**.

System Overview

Purpose: The system is aimed to enable visitors of the entertainment(enjoyment) facility to make fast, cashless payments for all available services (e.g., bars, swimming pool, games) through a digital wallet mobile app.
Core Concept: Each customer maintains a prepaid digital wallet that can be topped up with real money (via mobile money, bank card, or cash at the counter). All transactions inside the facility are done by scanning a QR code that deducts money directly from their wallet balance.

Key Functional System Requirements

1. **User Management**
   i. User Registration & Login
      The system will allow users to register and login using phone number or email and password. User will get OTP verification via SMS or email for account activation.

   ii. Profile Management
      The system will allow user to view and update personal details (name, phone, email, photo, password etc.).

2. **Wallet Management**
   i. **Wallet Top-Up**
      The system will allow users to add money to their wallet using: Mobile Money (M-Pesa, Tigo Pesa, Airtel Money, Halopesa, etc.), Bank Card (Visa/MasterCard) and Cash at the reception counter (staff-assisted top-up)
   ii. **Wallet Balance**
      The system will track real-time user wallet balance and user will be able to view transaction history.

   iii. **QR Code Payment**

The system shall support QR code–based payments between users and service points (e.g., bar, swimming pool, games area, etc.) through two possible modes of operation:

1. Merchant-Initiated Payment (Merchant Scans User QR Code)
- Each service point attendant or merchant can use the app to enter the total bill amount that the user needs to pay.
- The merchant then scans the user's unique QR code (displayed within the user's app).
- The system automatically displays the following information to both parties:
  - Service point name
  - Amount to be paid
- The user reviews and confirms the payment request on their app.
- Upon confirmation, the specified amount is instantly deducted from the user's wallet and credited to the merchant's account within the system.

2. User-Initiated Payment (User Scans Merchant QR Code)
- Each service point has a unique, system-generated QR code that identifies the merchant.
- The user scans the merchant's QR code using their app.
- The app retrieves and displays:
  - Merchant/service point name
  - Amount to be paid
- After the user reviews and confirms the payment, the amount is immediately deducted from the user's wallet and credited to the merchant's account.

3. General Requirements
- All QR code transactions shall include proper validation and confirmation steps to prevent unauthorized payments.
- Payment confirmations (success or failure) shall be instantly displayed to both the user and the merchant.
- The transaction history (including service name, merchant ID, amount, date, time) shall be recorded in the system for audit/reporting purposes.

iv. Digital Receipt

The system will also show digital receipt for each transaction on the app; the receipt can be shared and saved as a file. Merchant will also receive payment confirmation on their device.

3. **Merchant/Service Point Management**

The system will allow each service (bar, swimming pool, games, etc.) to be registered as a **merchant account**.
Merchants can:

    i.   Generate a static or dynamic QR code for payment
    ii.   View daily transactions and earnings

4. **Admin Portal**
   The system will provide an admin dashboard for facility management team to:

    i.   Manage users, merchants, and staff accounts
    ii.   View and approve wallet top-ups
    iii.   Monitor all transactions and revenue analytics
    iv.   Set service fees
    v.   Generate financial and operational reports
    vi.   Admin can reverse transactions or handle disputes

5. **Reports & Analytics**

    i.   User Reports: Top users, spending frequency, average balance
    ii.   Service Reports: Revenue per service
    iii.   Financial Reports: Total inflows and outflows

Non-Functional Requirements

The following are the system's non-function requirements:

1. **Performance**: Transactions must complete in < 3 seconds
2. **Scalability**: System should handle 1,000+ users concurrently.
3. **Availability**: 99.5% uptime
4. **Security**: End-to-end encryption (SSL/TLS), secure API tokens, Email-Password authentication, also all QR code transactions shall include proper user validation and confirmation steps to prevent unauthorized payments.
5. **Usability**: Simple and friendly UI for both customers and staff.

The System Architecture (Conceptual)

Components: the system will comprise the following components (subsystems):

1. **Mobile App (Android & iOS)**
   For User registration, wallet access, top-up, and payment functions (displaying QR code, QR scanning and payment confirmation)
2. **Backend Server**
   This is the cloud server for handling user authentication, transactions, wallet logic, and API integration. It hosts Database that Stores users, transactions and wallets.
3. **Payment Gateway**
   This connects to Mobile Money and Bank Payment APIs