Coding Assignment

Web API Requirements Document

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1. Project Overview

The Ticket Management System Web API is designed to facilitate event management, ticket reservations and sales, and venue capacity tracking. This system will serve as a backend for administrative interfaces and customer-facing applications.

*The scope for the current sprint is to produce a POC that covers the following requirements.*

1. Event management
2. Ticket Reservations and Sales
3. Venu Capacity Management

Domain Features:

1. Create /update concert events
2. Set Ticket types and pricing
3. Manage Available capacity
4. Basic event details (date, venue, description)

Tickets:

1. Reserve Tickets for a time window
2. Purchase tickets (can assume there is already a payment processing system that can be leveraged)
3. Cancel Reservations
4. View Ticket Availability
5. Use Cases
   1. **Create Event**
      * **Actor**: Event Manager / Admin
      * **Description**: Create a new concert or event with details like name, date, venue, performers, and available ticket types.
   2. **Update or Cancel Event**
      * **Actor**: Event Manager / Admin
      * **Description**: Modify event details or cancel events. Triggers notifications to affected ticket holders.
   3. **Set Ticket Types and Pricing**
      * **Actor**: Event Manager
      * **Description**: Define ticket categories (e.g., General, VIP), set prices, and specify availability.
   4. **View Event Listings**
      * **Actor**: Public User
      * **Description**: View upcoming concerts or events, with filtering and sorting options by date, location, or category.
   5. **Reserve Tickets**
      * **Actor**: Registered or Guest User
      * **Description**: Select a number of tickets and reserve them temporarily while proceeding to payment.
   6. **Purchase Tickets**
      * **Actor**: Registered User / Guest
      * **Description**: Complete payment to confirm ticket purchase. Generate digital ticket/QR code and email confirmation.
   7. **Cancel or Refund Ticket**
      * **Actor**: Customer / Admin
      * **Description**: Allow user to cancel a ticket within a permitted window. Trigger refund and update availability.

Authenticate and Register Users

* + - **Actor**: All Users
    - **Description**: Users sign up or log in to manage bookings, receive offers, and track their ticket history.
  1. **Download or Email Tickets**
     + **Actor**: Customer
     + **Description**: Retrieve digital tickets in printable or mobile-friendly format. Optionally email to user.
  2. **View Ticket Purchase History**
     + **Actor**: Customer
     + **Description**: See a list of past and upcoming ticket purchases.
  3. **Check-in at Venue**
     + **Actor**: Event Staff
     + **Description**: Scan ticket QR code to verify entry at the venue and update attendance in real-time.
  4. **Monitor Venue Capacity**
     + **Actor**: Event Manager / System
     + **Description**: Prevent overbooking by tracking how many tickets have been sold relative to venue capacity.
  5. **Generate Sales and Attendance Reports**
     + **Actor**: Admin / Analytics Staff
     + **Description**: View real-time reports and analytics on sales, revenue, attendance, and customer behavior.
  6. **Send Notifications**
     + **Actor**: System
     + **Description**: Automatically notify users about ticket confirmations, changes, cancellations, or promotional offers.

1. Questions

* What security is to be used? => POC Windows
* Should we use Memory Caching? => POC: no
* Should we use Endpoint Caching? => POC: no
* Should Venues have an owner? => POC: no
* Should Events have an owner? => POC: no
* Are there specific roles tied to endpoints? System Admin, Event Admin, User, => POC: no
* Do Venues need to have an approval process? => POC: no
* Can Venues be suspended? => POC: no
* Do Events need to have an approval process? => POC: no
* Can Events be cancelled? Suspended? => POC: no
* Can someone reserve tickets in two different tiers? => POC: no
* Can more than one Event be scheduled on the same day? => POC: no
* Should there be an opening/closing date for ticket purchases? => POC: no
* Should there be a separate endpoint to update capacity on Venues or TicketTypes? => POC: no
* Is ticket availability based on purchased tickets or purchased and reserved? => POC: purchased only.
* Should there be a scheduled process that cancels reserved tickets after the reservation period expires. => POC: no
* Can purchased tickets be cancelled? => POC: no