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EventEase - Football

COVER PAGE

Documentation

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1. Introduction

1.1 Project Overview

EventEase is a Java-based desktop application designed to help football stadium organizers efficiently manage ticket bookings, sales, and event data. Unlike online ticketing platforms, EventEase is built for internal administrative use, where customers contact the organizers directly for ticket reservations. The system ensures smooth event tracking, ticket booking, and reporting using Object-Oriented Programming (OOP) principles.

1.2 Technologies Used

- **Programming Language:** Java (Swing for GUI)
- **Database:** SQLite
- **File Handling:** CSV, JSON, PDF for import/export functionality
- **Concurrency:** Java Multithreading for UI performance

2. Features

2.1 Admin Authentication & User Management

- **Secure Admin Login:** Restricts access to authorized personnel.
- **Role-Based Access Control:** Different roles (Admin, Manager, Cashier) with defined permissions.
- **Password Management:** Securely stored admin credentials with a password reset option.
- **User Credentials Database:** Admin account details are stored securely in SQLite.

2.2 Event Management

- **Event CRUD Operations:** Create, update, and delete events.
- **Event Listings:** Display events in a tabular or calendar format.
- **Advanced Filtering & Searching:** Search by team, date, and location.
- **SQLite Storage:** All event data is persistently stored in SQLite.

2.3 Ticket Booking System

- **Admin-Only Booking:** Only authorized personnel can book tickets.
- **Ticket Categories & Pricing:** Supports multiple ticket categories (e.g., VIP, Standard).
- **Booking Confirmation:** Pop-up notifications upon successful booking.
- **Receipts & Booking Details:** Print or save booking receipts.

2.4 Booking Management

- **Booking Overview:** View all bookings per event.
- **Booking History & Customer Details:** Maintain past booking records and customer contact information.
- **Cancellation & Refund Management:** Admins can cancel bookings and manage refunds.
- **Manual Adjustments:** Modify bookings manually if necessary.

2.5 In-App Notifications & Alerts

- **Real-Time Alerts:** Notifications for confirmations, sold-out tickets, etc.
- **Automatic Communication:** Sends email confirmations or SMS to customers.
- **Availability Indicators:** Displays ticket availability in real time.

2.6 Data Persistence & Import/Export Functionality

- **SQLite Integration:** Ensures persistent storage of events, bookings, and users.
- **Import Capability:** Load event and ticket data from CSV/JSON files.
- **Export Functionality:** Export reports and booking data in CSV, JSON, or PDF formats.
- **Automatic Backups:** Scheduled database backups for data security.

2.7 Sales Reporting & Analytics

- **Revenue Tracking:** Monitor ticket sales and revenue for each event.
- **Customizable Reports:** Generate sales, bookings, and revenue reports.
- **Graphical Insights:** Utilize bar charts, pie charts, and other visualizations.
- **Daily & Monthly Summaries:** Breakdown of sales performance.

2.8 Exception Handling & Validation

- **Input Validation:** Ensures correct data entry (e.g., mandatory fields, email format checks).
- **User-Friendly Error Handling:** Displays clear error messages instead of system crashes.
- **Duplicate Booking Prevention:** Alerts admins to prevent duplicate bookings.

2.9 Multithreading for UI Performance

- **Background Data Loading:** Prevents UI freezing by loading data in the background.
- **Real-Time Updates:** Ensures ticket availability is dynamically updated.

3. System Architecture

3.1 High-Level Architecture

- **GUI Layer:** Java Swing-based graphical user interface.
- **Business Logic Layer:** Java OOP principles implemented for data handling.
- **Database Layer:** SQLite for persistent data storage.

3.2 Database Schema

Tables

- **CUSTOMER:** Stores customer details.
- **TEAM:** Stores team details.
- **VENUE:** Stores stadium venue details.
- **EVENT:** Stores event details.
- **TICKET_CATEGORY:** Defines different ticket types.
- **BOOKING:** Stores ticket booking information.
- **ADMIN:** Stores admin user data.
- **REPORT:** Stores sales and revenue reports.
- **NOTIFICATION:** Manages real-time notifications.

4. User Guide

4.1 Installation

1. **Download and Install Java (JDK 17 or higher).**
2. **Clone the Repository** or Download the Project Files.
3. **Run the Application** using `java -jar EventEase.jar`.
4. **Ensure SQLite Database** is properly initialized.

4.2 How to Use

Admin Login

1. Open the application and enter admin credentials.
2. Select the appropriate role (Admin, Manager, Cashier).

Event Management

1. Navigate to the Event Management section.
2. Click "Add Event" to create a new event.
3. Use search and filter options to find specific events.

Ticket Booking

1. Select an event and choose "Book Ticket."
2. Enter customer details and confirm the booking.
3. Print or save the booking receipt.

Sales Reports

1. Open the Reports section.
2. Select the desired date range.
3. View revenue summaries or export data.

5. Development Guide

5.1 Setting Up the Development Environment

- **IDE:** Recommended: IntelliJ IDEA or Eclipse.
- **Dependencies:**
 - SQLite JDBC Driver
 - Apache POI (for Excel exports)
 - iText (for PDF generation)
- **Version Control:** GitHub for code management.

6. Future Enhancements

- **Integration with an Online Portal** for customer self-service.
- **Mobile App Version** using JavaFX or Kotlin.
- **Cloud-Based Database** support for scalability.

7. Conclusion

EventEase provides an efficient and user-friendly solution for football stadium organizers to manage ticket bookings, sales, and events.