



THE DEPARTMENT OF “CSE & CA” PROJECT SYNOPSIS

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Project Guide Details:

Guide Name: Dr. Avinash Kumar

Designation: Associate Professor, CSE, SBU

Project Information

1. Course Title: Major Project

2. Courses Code: MCA-P2401

3. Credit Unit: 6

4. Project/ Internship Duration:

a) **Date of Project Commencement:** 10th March, 2025

a) **Date of Project Completion:** 16th April, 2025

5. Approved Project Title: EventTix – Ticket Management System

6. Objectives:

The **EventTix Ticket Management System** is designed to provide a **comprehensive solution** for event organizers and attendees. The objectives of this project are as follows:

1. Simplify Event Management for Admins:

- Provide a robust **Admin Dashboard** that enables easy creation, management, and deletion of events. Admins can easily update event details, such as event title, description, location, date, time, and ticket availability.
- Empower admins to **track ticket sales** and monitor overall event performance in real time, offering insights into event success and areas that may need attention.

2. Streamlined Ticket Booking for Users:

- Develop a **user-friendly platform** that allows attendees to browse through available events by categories, date, location, or popularity.
- Provide an efficient **ticket booking system** where users can reserve tickets for events, view available slots, and select the number of tickets they wish to purchase.

3. Secure and Reliable Ticket Verification:

- Implement **dynamic QR code generation** for each ticket booked. These QR codes will be unique to the user and event, ensuring that each ticket is **non-duplicable** and preventing unauthorized access to events.
- Admins can easily **verify tickets** during event entry, either by scanning the dynamic QR code using a mobile device or by manually entering the ticket ID into the system.

Real-Time Updates:

- Utilize **Firebase** as a real-time backend to ensure that data such as ticket bookings, event updates, and user information are synchronized immediately across all users and administrators.
- Implement real-time Updates to keep users updated on ticket availability, upcoming events, or changes to event details, enhancing user engagement.

Seamless User Authentication:

- Integrate **Firebase Authentication** to offer a secure login and registration process for users and admins. This ensures that both admins and users can access their accounts with a safe and reliable authentication process.
- Users will be able to securely log in, view their past bookings, and manage their tickets, while admins can access advanced features, such as managing events and viewing detailed reports.

Ensure a Scalable and Flexible System:

- Design the system architecture with scalability in mind, ensuring that the platform can handle increasing traffic, events, and bookings as the user base grows.
- The system will be designed to accommodate future enhancements, such as integration with payment gateways, multi-language support, and additional user features, to enhance the overall experience.

7. Methodology to be adopted:

The EventTix Ticket Management System will be developed following an agile methodology, focusing on incremental development, user feedback, and constant refinement. The methodology will consist of the following stages:

1. Requirement Gathering and Analysis:

- **Feature Prioritization:** Based on these interviews, we will prioritize the most important features, such as event creation, user registration, ticket booking, and ticket verification.
- **System Requirements:** Define system architecture, technology stack (Firebase, HTML/CSS/JS), and third-party APIs (e.g., for dynamic QR code generation). The project will be developed using a cloud-native architecture, focusing on real-time data management.

2. System Design and Prototyping:

- **Database Design:** The backend will use Firebase Firestore as the real-time database to store user data, event details, and ticket information. We will define entities such as Users, Events, Bookings, and Tickets, as well as relationships between these entities.
- **Security Design:** Firebase's security rules will be configured to ensure that data is only accessible to authorized users. Admin access will be restricted to specific functions, while users will only have access to their own bookings.

3. Frontend and Backend Development:

- **Frontend Development:** The frontend will be developed using HTML, CSS, and JavaScript, with a focus on creating a responsive design that works seamlessly across both desktop and mobile devices.
- **Backend Development:** Firebase will handle the authentication, real-time data management, and hosting of the application. We will use Firebase Authentication for user login and registration, Firebase Firestore for event and ticket data storage, and Firebase Hosting to deploy the web application.
- **QR Code Integration:** A third-party QR code generation API will be integrated to dynamically generate unique QR codes for each user's ticket.

4. Integration and Testing:

- **Unit Testing:** Testing individual components of the system, such as the event creation form, ticket booking process, and user login functionality.
- **Integration Testing:** Testing the end-to-end functionality of the application to ensure that the frontend communicates correctly with the backend, including user registration, event creation, ticket booking, and QR code generation.
- **Usability Testing:** Conduct user testing sessions to identify usability issues and improve the user interface based on feedback. This ensures that the system meets the needs of both admins and users.
- **Bug Fixing and Debugging:** Identify and resolve any bugs or performance issues that arise during testing.

5. Deployment and Post-Deployment Monitoring:

- **Deployment on Firebase Hosting:** Once the application is ready for production, it will be deployed to Firebase Hosting, providing secure and fast delivery of content to users.
- **Post-deployment Monitoring:** Continuously monitor system performance, user activity, and error logs to ensure the application is running smoothly. User feedback will be gathered to inform future updates and improvements.

6. Future Enhancements and Updates:

- **Feature Expansion:** Future updates will focus on adding features such as multi-language support, payment gateway integration, and the ability for admins to generate advanced reports.
- **Mobile App Version:** Eventually, we will develop a mobile app version of EventTix Platform.

8. Brief Summary of the project:

The **EventTix Ticket Management System** is a **comprehensive web application** designed to manage and streamline the process of event creation, ticket booking, and ticket verification for both event organizers and attendees. By leveraging **Firebase** for backend services such as real-time data storage, authentication, and hosting, the system ensures high performance, security, and ease of use.

For Admins, EventTix provides a full suite of management tools:

- **Event Management:** Admins can create new events, edit event details, and delete events once completed.
- **Ticket Management:** Admins can view bookings, track ticket sales, and verify tickets using **dynamic QR codes**.
- **Event Statistics:** Admins can access a dashboard displaying real-time data about ticket sales, booked tickets, and event attendance, helping them make data-driven decisions.

For Users, the system offers a simple and efficient booking experience:

- **Event Browsing and Ticket Booking:** Users can easily browse through available events, select tickets, and complete the booking process in a few steps.
- **Dynamic QR Code Generation:** Once a ticket is booked, the user receives a **unique QR code** that acts as a digital ticket, ensuring a secure and seamless entry to events.
- **Instant Confirmation:** Users receive an **email** and on-screen confirmation with event details and their ticket information after booking.

The system is designed to be **fully responsive**, allowing users to access and interact with the platform across multiple devices (desktop, tablet, mobile). The use of **Firebase** guarantees **real-time updates** and ensures that event and booking data is always up-to-date, improving both the user experience and administrative

control.

The future of EventTix includes **enhancing reporting tools, payment gateway integration** for online payments, and providing **event reminders and notifications**. These features will provide a more complete and seamless solution for event organizers and attendees alike, enhancing the overall ticketing experience.

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(Student)

Signature with date
(Project Guide)