Software Requirements Specification (SRS)

Project Title: Movie Ticket Booking Application

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Author: [Your Name]

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# 1. Introduction

## 1.1 Overview

This document describes the functional and non-functional requirements for the "Movie Ticket Booking" mobile application. The app enables users to browse currently showing movies, view showtimes, select seats, order food, and pay for tickets through an integrated payment system.

## 1.2 Scope

The Movie Ticket Booking App is designed for Android users. Its main modules include:  
- User Authentication  
- Movie Listings  
- Showtimes and Cinema Info  
- Seat Selection  
- Food Ordering  
- Ticket Booking and Payment  
- Booking History and Ticket Detail Views

# 2. Functional Requirements

## 2.1 User Registration and Authentication

- Users can register with email or sign in with Google/Facebook.  
- Login credentials are validated in Firebase Authentication.

## 2.2 Movie Listings Screen

- Displays list of movies fetched from Firestore `movie` collection.  
- Each movie includes: title, image, director, genre, duration, synopsis.  
- Clicking a movie opens `DetailsMovieActivity`.

## 2.3 Movie Details Screen

- Shows expanded movie info.  
- Shows trailer and photo list.  
- Realtime updates using Firestore snapshot listeners.

## 2.4 Showtime Selection

- User selects date and showtime.  
- Data is fetched from `showtimes/{showtimeId}/timelines`.

## 2.5 Seat Selection

- Grid layout shows seats with availability status (`AVAILABLE`, `UNAVAILABLE`).  
- Multiple seat selection allowed.

## 2.6 Food Ordering

- Food list displayed from Firestore `food` collection.  
- Bottom sheet allows selection of quantity.  
- Cart summary bar updates with total quantity and price.

## 2.7 Payment Processing

- VietQR integration shown in dialog with bank info and QR image.  
- On confirmation, tickets are uploaded to `users/{userId}/tickets`.  
- Seats marked as `UNAVAILABLE` in Firestore in batch update.

## 2.8 Booking History

- `ListTicketActivity` fetches ticket list from `users/{userId}/tickets`.  
- Clicking a ticket opens `TicketDetailActivity`.

## 2.9 Ticket Detail View

- Loads movie details using movieId.  
- Loads ticket info (seats, showtime, amount).  
- Realtime Firestore updates if ticket data changes.

# 3. Non-Functional Requirements

## 3.1 Performance

App must load movie list and seat layout within 3 seconds on Wi-Fi.

## 3.2 Reliability

Data consistency guaranteed using Firestore snapshot listeners and atomic batch writes.

## 3.3 Usability

Modern UI with image sliders, calendar pickers, and clear navigation.

## 3.4 Compatibility

Supported on Android 7.0+.

## 3.5 Security

Uses Firebase Auth and Firestore security rules for user data protection.

# 4. External Interfaces

## 4.1 Firebase Firestore

Stores movies, showtimes, food, and tickets.

## 4.2 Firebase Authentication

User login and management.

## 4.3 VietQR API

Generates payment QR codes.

# 5. Future Enhancements

- Push Notifications for booking reminders.  
- In-app wallet or reward system.  
- Support for different languages.

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