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# Final Project Report - ReelEasy

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# User Manual

## About ReelEasy

ReelEasy is a web-based movie ticket booking system for SDSU theaters. It supports desktop and mobile devices, multiple languages, secure payments, and accessibility features.

## System Requirements

Hardware:

- Desktop, laptop, tablet, or smartphone
- Screen resolution 1024 × 768 or higher
- Internet connection (5 Mbps or faster recommended)

Software:

- Modern browser: Chrome, Safari, Edge, Firefox
- JavaScript and cookies enabled

## Main Features

- Search and browse movies
- View details, reviews, and showtimes
- Select seats (dining and accessibility included)

- Pay securely via credit/debit card or SDSU CASHNET
- Ticket delivery by email or SMS
- Multi-language support

Steps to Use ReelEasy

1. Login or Sign Up – Enter username/password or create a new account.
2. Search for a Movie – Use the search bar or browse the list; filter by genre/date/time.
3. View Details & Select Showtime – Check description, reviews, and choose showtime.
4. Select Seats – Choose available seats from the seat map.
5. Pay for Tickets – Select payment method, confirm payment.
6. Get Ticket – View confirmation with QR code, receive by email/SMS, or print at box office.

Tips: Keep browser updated, book early for popular shows, save ticket confirmation.

# Design Documents

## Requirements & Validation

- Browse/Search Movies – Tested with keyword/filters.
- Seat Reservation – Verified with live seat map updates.
- Payment – Tested with SDSU CASHNET mock transactions.
- Accessibility & Languages – Verified in UI.

## Design & Verification

- Front-End: Web UI for customers/admin.
- Back-End: APIs for accounts, movies, seating, payments.
- Database: SQL for structured data (accounts, seats, tickets) and NoSQL for reviews.
- Testing: Unit + integration tests.

## Planned Future Features

- Loyalty rewards & discount codes
- Food ordering in-app
- Mobile app with push notifications
- More payment options

Security – CIA Model

- Confidentiality Threat: Data theft → HTTPS, password hashing, role-based access.
- Integrity Threat: Unauthorized ticket changes → Admin-only edits, audit logs.
- Availability Threat: Downtime → Uptime monitoring, backups, DDoS protection.

## Life-Cycle Model

We used Incremental Development:

- Planning: Goals, roles, repo setup.
- Design: Database models, wireframes, diagrams.
- Development: Features built in stages – login, browsing, seating, payment.
- Testing: Checked features after each stage.
- Deployment: Final system pushed to production.

Why it worked: Early testing reduced risks, progress was steady.

Challenges: Integrating multiple developers' code, keeping UI consistent.

Improvements: Use Agile sprints, start security testing earlier.

# Summary

ReelEasy is a complete online movie ticket booking platform created for SDSU's School of Theatre, Television, and Film. The system is designed to provide an easy and convenient way for users to search for movies, view details, reserve seats, and make secure payments from any device. Its focus is on a smooth customer experience and reliable, secure operations for theater administrators.

The customer-facing side offers features like advanced search, detailed movie information, customizable seat selection with accessibility options, and secure checkout using multiple payment methods including SDSU CASHNET. Tickets are delivered electronically through email or SMS and can also be printed at the theater. The interface is responsive, making it work equally well on desktops, tablets, and smartphones.

The admin side of the system allows theater staff to add or remove movies, update schedules, manage seating availability in real time, and track sales data. Role-based access ensures that only authorized personnel can make system changes. All sensitive data is protected using encryption, and communications between users and the server are secured with HTTPS.

From a development perspective, ReelEasy was built using an incremental approach, allowing the team to deliver functional parts of the system early and build on them in manageable steps. This process supported continuous testing, faster bug detection, and flexibility to adapt features based on feedback.

The system meets the functional requirements set by the client and follows accessibility guidelines to ensure inclusivity. Looking forward, ReelEasy can be expanded with loyalty programs, food ordering integration, mobile push notifications, and deeper reporting tools for management.

## Conclusion

The ReelEasy project successfully delivers a functional and user-friendly movie ticket booking platform that meets the requirements outlined at the beginning of the semester. By focusing on both the customer and administrative experience, the system provides real value to its intended audience. Customers can quickly find and book tickets, while theater staff benefit from a straightforward management interface.

The choice of incremental development was effective for this project. Building in small, functional increments allowed the team to test features thoroughly before moving forward, which reduced integration issues. However, one challenge was ensuring consistency in user interface design across different increments, especially when multiple developers worked on separate features.

Overall, ReelEasy demonstrates solid software engineering principles, effective teamwork, and practical application of course concepts. It is a foundation that can be built upon to create a more advanced, commercially viable ticket booking system.

# TA Feedback Implementation

Feedback: “Clear writing, but ethical analysis more thorough for one case than the other. Audience coverage is present but lacks detail.”

Changes Made:

- Balanced ethical analysis between both cases.
- Expanded audience details for customers, staff, and critics.
- Clarified missing use cases.
- Improved diagrams for clarity.
- Added input/output examples to the test plan.