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| design specifications  A solution for cinema movies booking | Abstract  Design specifications document about all requirements and functional aspects of a movie booking app created for the subject Mobile Development Web Applications as part of the second year of software development HND in the Edinburgh College.  Sanel Contreras EC2133160 |

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# 1. Introduction

This document outlines the design specifications for a movie booking and management system. Developed as a comprehensive solution, it aims to streamline the process of booking movie tickets, managing showtimes, and user interactions. The approach focuses on delivering a user-friendly experience while addressing key functional and technical aspects of the system.

# 1.1 Project Overview

The project involves the creation of a web-based movie booking system, allowing users to view movie details, select showtimes, and book tickets. It encompasses a variety of features including a movie database, user authentication, and a dynamic booking interface. The system is designed to be intuitive, ensuring ease of navigation and interaction for all users.

# 1.2 Scope and Objectives

The primary objective of this project is to provide a seamless and efficient movie booking experience. The scope includes developing a secure login system, a user-friendly interface for movie selection, an integrated booking system, and a backend database to manage movies, showtimes, and user data. Additionally, the system aims to provide insights on user preferences and booking patterns.

# 1.3 Target Audience

The target audience for this movie booking system includes movie enthusiasts and general cinemagoers. It caters to individuals seeking a convenient way to explore movie options, check showtimes, and secure tickets online. The system's design considers users of varying technical proficiencies, ensuring accessibility and ease of use for a diverse audience.

# 1.4 Document Purpose

This document serves as a comprehensive guide for the development and implementation of the movie booking system. It details the system's design, architecture, functional requirements, and user interface elements. This document may be useful for the development team, stakeholders, and any parties involved in the project to ensure alignment and clarity of the project goals and deliverables. Please note that the full aspects of the design may not be yet represented in the prototype.

# 2. Participants

The development of the movie booking system incorporated valuable insights from a card sorting exercise conducted in a classroom setting. This methodology involved the participation of approximately seven students who contributed significantly to shaping the system's design and functionality. The card sorting exercise allowed these participants to categorise and prioritise features, enhancing the system's user experience and navigational structure, ensuring it aligns with actual user preferences and needs.

The project will benefit at alter stages of participation from end-users who will add their feedback on the usability of the web, allowing this feedback to shape further adjustments and improvements of the app.

# 2.1 Development Team

This movie booking system is a solo project, showcasing my capabilities in full-stack development. While the project was primarily an individual endeavour, it benefited from the guidance and support of my professor. This collaborative approach allowed me to refine my skills and knowledge, ensuring the development of a robust, efficient, and user-friendly system. My role encompassed all aspects of the project, from initial concept to final implementation, highlighting my ability to manage and execute a comprehensive software development project.

# 2.2 End Users

End users of the movie booking system are the final and key participants in this project. This group consists primarily of moviegoers who utilise the system to browse movies, book tickets, and manage their bookings. Their feedback and user experience are vital for ongoing improvements and adaptations, ensuring the system remains relevant, user-centric, and market-competitive.

# 3. Methodology

The methodology adopted for the development of the movie booking system is a structured approach that combines best practices in software development with user-centred design principles. This section outlines the overall methodology, including the development approach, design principles, and user experience strategy, ensuring a systematic and efficient path to project completion.

# 3.1 Development Approach

The development approach for the movie booking system is an iterative and incremental process. This approach allows for flexibility in adapting to changes and incorporating feedback at various stages. Key steps include requirement analysis, system design, implementation, testing, and deployment. Emphasis is placed on writing clean, maintainable code and employing a modular architecture. This approach facilitates easier updates and scalability of the system in the future.

# 3.2 Design Principles

The design principles guiding this project centre around simplicity, consistency, and responsiveness. The user interface is designed to be intuitive and straightforward, minimising cognitive load and enhancing user engagement. Consistency in design elements such as colour schemes, typography, and button styles are maintained throughout the application to provide a cohesive user experience. Additionally, the system is responsive, ensuring compatibility and optimal viewing across various devices and screen sizes.

# 3.3 User Experience Strategy

The user experience (UX) strategy for the movie booking system is focused on providing a seamless and enjoyable experience for the users. This involves understanding the users’ needs and expectations through techniques like the card sorting exercise conducted with students. The strategy also includes regular user testing and feedback loops to identify and address usability issues. A significant aspect of the UX strategy is to ensure that the system is accessible to users with different levels of technical proficiency and to those using assistive technologies.

# 4. Movie Booking System Overview

The movie booking system is designed as a comprehensive platform to facilitate easy and efficient movie ticket booking. It encompasses various components, a streamlined user interaction flow, and meets specific functional requirements to cater to the needs of cinemagoers.

# 4.1 System Components

The system is composed of several key components:

**User Interface:** A clean and intuitive web interface for users to interact with the system.

Database: A robust database to store movie details, user information, bookings, and showtimes.

**Server-Side Logic:** Backend logic to handle processes like booking transactions, user authentication, and data retrieval.

# 4.2 User Interaction Flow

The user interaction flow is designed to be straightforward and user-friendly:

**Landing page:** Allow the visitor to create an account or to sign-in.

**Home Page:** Users start at the home page, showcasing available movies and features.

**Movie Selection:** Users can browse and select movies, viewing details like synopsis, showtimes, and ratings.

**Checkout:** Users complete their booking with payment and receive confirmation.

**Booking Process:** After selecting a showtime, users proceed to book tickets, with options to choose seats and quantities.

# 4.3 Functional Requirements

The system's functional requirements include:

**User Registration and Login:** Secure user accounts for personalised experiences and booking history.

**Movie Management:** Admin capabilities to add, update, and remove movie listings.

**Booking and Payment Processing:** Real-time booking with integrated payment solutions.

**Responsive Design:** Compatibility across various devices and screen sizes.

# 4.4 Navigation map

# 5. Database Tables

**Booking Table:**

Stores booking transactions with a unique booking ID, the associated user ID, the total price of the booking, and the date when the booking was made.

**Booking Contents Table:**

Holds the details of each booking, including a unique content ID, the booking ID it relates to, the movie ID of the movie being booked, the quantity of tickets, and the price of the movie at the time of booking.

**Movies Table:**

Contains information about movies with a unique movie ID, title, release date, director, genre, a text synopsis of the plot, a URL to the trailer, an image URL, times for three different shows, and the price of the movie.

**Users Table:**

Manages user data with a unique user ID, first name, last name, email address, password hash, and the date when the user registered.

**User Credit Cards Table:**

Stores credit card information linked to a user, with a unique card ID, user ID, card number, expiry date of the card, and the cardholder's name.

Each table is set up with primary keys to ensure the uniqueness of each entry and has appropriate foreign keys to establish relationships between related data points. The AUTO\_INCREMENT attribute is applied to primary keys to automatically generate a unique identifier for new entries. Constraints are used to enforce referential integrity between tables.

A screenshot of a computer

Description automatically generated

# 8. Wireframes and User Interface

# 8.1 Login Page (login.php)

A login page with tickets

Description automatically generated

# 8.1.1 Preconditions

- The user is not logged in and is accessing the system for the first time or after logging out.

- The user has access to their login credentials, including email and password.

# 8.1.2 Postconditions

- Upon successful login, the user is redirected to their personalised movie dashboard.

In case of incorrect credentials, the user is prompted with an error message and the opportunity to re-enter their login information or reset their password.

# 8.2 Movie Selection (movies.php)

A screenshot of a movie

Description automatically generated

# 8.2.1 Preconditions

* The user has successfully logged in.
* The system has successfully retrieved all the relevant data for the available movies.

# 8.2.2 Postconditions

- The user can choose a movie a see movie detail.

- The user can check dashboard in the navbar, booking history, shopping chart and log out of the session.

# 8.3 Movie Selection (movies\_details.php)

A screenshot of a movie

Description automatically generated

# Preconditions

- The user has selected a movie from the available listings or search results.

- The system has successfully retrieved all the relevant data for the chosen movie.

# 8.3.2 Postconditions

* The user is presented with the full details of the movie, including synopsis, cast, and showtimes.
* The user has the option to proceed to the booking process or return to the movie listings page.

# Booking Confirmation (confirm.php)

A screenshot of a computer

Description automatically generated

# Preconditions

* The user has already made movie selections and they appear in the shopping cart.

# 8.4.2 Postconditions

- the user can update the current quantities of tickets in the cart or remove films.

- The user can confirm booking to get a confirmation ticket.

# 9. Mood Board

# 9.1 Design Elements

* Cinematic UI Components: Utilize dark themes and high-contrast elements that evoke the ambiance of a movie theatre.
* Engaging Icons: Craft icons that are indicative of film and entertainment, such as ticket stubs, popcorn, and clapperboards.
* Dynamic Textures: Incorporate textures or patterns that mimic cinema screens or red velvet curtains to enhance the visual experience.

# 9.2 Mood and Atmosphere

Strive to create an inviting and exciting atmosphere reminiscent of a premiere night, blending the anticipation of new releases with the nostalgia of classic cinemas.

# 9.3 Inspiration Words

Entertaining, Engaging, User-Friendly, Cinematic, Modern, Exciting, and Welcoming.

# 9.4 Chosen Colour Palette

Primary Colour: Midnight Black (#000000) to reflect the cinema screen and the mystery of film.

Secondary Colour: Popcorn Yellow (#F5E50A) for a pop of energy and to represent the quintessential movie snack.

Accent Colour: Red Carpet Red (#AA0114) to add a dash of glamour and excitement.

# Chosen Typography:

Font Family: Montserrat for its versatility and contemporary feel, ensuring legibility and a modern touch to the user interface.

# Additional Concepts:

Integrate imagery that showcases the magic of movies, such as film reels or iconic cinema scenes.

Elements that underscore the seamless booking experience, perhaps through stylised calendars or clocks to denote showtimes.

Security features might be subtly suggested through imagery like curtains unveiling, denoting transparency and trust.

# Appendix

## Plan for Card Sorting Exercise for Movie Booking System Development

**Objective:** To refine the user interface and navigation of the movie booking system by incorporating feedback from potential end-users. The exercise aims to understand user preferences and expectations regarding the system's features and organisation.

**Method:** A card sorting exercise will be conducted to gather insights into how users categorise and prioritise various features of the movie booking system. This method will help in designing an intuitive and user-friendly interface.

**Participants:** Approximately seven students will participate in the initial card sorting exercise. These participants, being representative of the system's end-users, will provide diverse perspectives and preferences.

**Materials:**

* Cards labelled with features and elements of the movie booking system (e.g., movie categories, booking options, user reviews, payment methods).
* Large table or flat surface for sorting cards.
* Recording materials (notepads, pens) and a camera for documenting the exercise.

**Procedure:**

1. **Introduction:** Brief the participants about the purpose of the exercise and the movie booking system.
2. **Sorting Task:** Distribute the labelled cards among participants and ask them to sort these cards into groups that make sense to them. Encourage them to think aloud as they perform the task.
3. **Discussion:** Once the sorting is complete, engage participants in a discussion about their rationale for the groupings. Note down any patterns, similarities, or differences in their approaches.
4. **Feedback Collection:** Collect additional feedback on the system's proposed features, usability, and overall user experience.
5. **Documentation:** Photograph the final card arrangements and make detailed notes of the discussions and feedback.

**Outcome:** The card sorting exercise will yield valuable data on user preferences for organizing and accessing features within the movie booking system. This data will guide the design process, ensuring that the system's layout and navigation align with user expectations and enhance usability.

**Follow-Up:** Upon implementing the insights from the card sorting exercise, further user testing will be conducted. This will involve actual end-users interacting with the system and providing feedback on its usability. Their input will be critical in making final adjustments and improvements to ensure the app's success and user satisfaction.

**Final Note:** This card sorting exercise is a crucial step in a user-centred design approach. It ensures that the movie booking system is not only functionally robust but also aligns with the intuitive and natural user interactions, leading to a more satisfactory user experience.

## Card sorting evidence



