

# Movie Ticketing

## Software Requirements Specification

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Group 13

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## Revision History

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## Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

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# Movie Ticketing Project

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# **1. Introduction**

## **1.1 Purpose**

The purpose of this document is to outline the design and development requirements of the Movie Ticketing product. This document describes the customer needs, product functionality, and development requirements to evaluate development efforts, validation, and provides overall familiarization.

## **1.2 Scope**

This product will be a Movie Ticket purchasing system. It will inform users of current movies playing in theaters and facilitate ticket purchasing. The site will allow for account creation, payment information storage, and ticket downloading for ease of access.

This product is designed to optimize the ticket purchasing workflow through a fluid and efficient user interface increasing ticket sales and customer loyalty.

## **1.3 Definitions, Acronyms, and Abbreviations**

HTML – Hyper Text Markup Language

CSS – Cascading Stylized Sheets

AWS – Amazon Web Services

RDS – Relational Database Services

API – Application Programming Interface

## **1.4 References**

1. IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998.

## **1.5 Overview**

The following content elaborates on each software requirement component required for the software to be successfully implemented. This information involves product functionality, constraints, external and non-functional requirements, use cases, and analysis models. This information covers multiple disciplines, but each is crucial to the success of this system.

## **2. General Description**

### **2.1 Product Perspective**

The product allows for movie tickets to be purchased online.

### **2.2 Product Functions**

The product is an online website that displays available theater movies and allows secure purchasing of tickets over the web. Users can create an account and save their information online.

### **2.3 User Characteristics**

The product shall be operatable by people with a basic reading level and basic computer knowledge.

### **2.4 General Constraints**

Constraints to consider are the user's available bandwidth. Slow internet providers or mobile device services in a poor coverage area may cause slow connections or loss of connection to database server.

### **2.5 Assumptions and Dependencies**

It shall be assumed every time the page is accessed, users with accounts will be purchasing at least one movie ticket.

The system depends on Amazon Web Services for database handling, Square APIs for purchasing, and Google APIs for maps and location services.

## 3. Specific Requirements

### 3.1 External Interface Requirements

#### 3.1.1 User Interfaces

Front-end: HTML, CSS

Backend: JavaScript, PHP

#### 3.1.2 Hardware Interfaces

Windows

iOS

Internet Browsers with HTML & JavaScript interpreters

#### 3.1.3 Software Interfaces

Operating System: Windows, iOS

Database: AWS

APIs: Google Maps Embed API, Square Payments API , and Square Customer API

#### 3.1.4 Communications Interfaces

Project is supported on any browser with HTML and & JavaScript interpreters. Basic forms will be utilized to handle, save, and process data entry.

### 3.2 Functional Requirements

*This section describes specific features of the software project. If desired, some requirements may be specified in the use-case format and listed in the Use Cases Section.*

#### 3.2.1 Purchasing of Tickets

##### 3.2.1.1 Introduction

The user shall be able to purchase movie tickets.

##### 3.2.1.2 Inputs

The product shall accept text and numerical values to obtain credit card information.

##### 3.2.1.3 Processing

The product shall process credit card payment.

##### 3.2.1.4 Outputs

The product shall output a confirmation email.

##### 3.2.1.5 Error Handling

The product shall handle invalid credit card information.

The product shall not process payment due to insufficient funds.

## **3.2.2 Obtaining Tickets**

### **3.2.2.1 Introduction**

The product shall make the tickets accessible to the user.

### **3.2.2.2 Inputs**

The user should be able to retrieve tickets with user's account information.

### **3.2.2.3 Processing**

The product provides the ticket in a format that is downloadable.

The product shall allow users to retrieve their tickets when requested.

### **3.2.2.4 Output**

The product shall output the movie ticket as a pdf.

## **3.2.3 Movie Availability**

### **3.2.3.1 Introduction**

The product shall display which movies are available.

### **3.2.3.2 Inputs**

The product shall accept a list of movies from the database and add them to the website.

### **3.2.3.3 Processing**

The product shall notify users that all tickets for a movie have been purchased.

### **3.2.3.4 Outputs**

The product shall show that the movie has been sold out.

### **3.2.3.5 Error Handling**

The product shall notify the user if they are trying to purchase a ticket from an unavailable movie.

## **3.2.4 Display Seating**

### **3.2.4.1 Introduction**

The product shall display which seats are available.

### **3.2.4.2 Inputs**

The product shall allow users to select which seats to pick.

### **3.2.4.3 Processing**

The product shall assign the selected seat to the user.

### **3.2.4.4 Outputs**

The product shall output the selected seat to the user's ticket.

### **3.2.4.5 Error Handling**

The product shall ensure that the user has selected seats.

The product shall ensure the user can only select available seats.



### **3.2.5 Location Selection**

#### **3.2.5.1 Introduction**

The product shall allow users to select their desired theater location.

#### **3.2.5.2 Inputs**

The product shall accept the user's address.

#### **3.2.5.3 Processing**

The product shall utilize the user's address to search for nearby theaters.

#### **3.2.5.4 Outputs**

The product shall display theaters near the entered address.

#### **3.2.5.5 Error Handling**

The product shall validate addresses.

The product shall notify the user when there are no nearby theaters.

### **3.2.6 Profile Creation**

#### **3.2.6.1 Introduction**

The product shall allow users to create an account.

#### **3.2.6.2 Inputs**

The product shall accept the users' email address.

The product shall accept a unique username.

The product shall accept the users' password.

The product shall ensure the users' password length is greater than or equal to 8 characters.

#### **3.2.6.3 Processing**

The product shall save the entered information into a database.

#### **3.2.6.4 Outputs**

The product shall send an email to the user to confirm their account was created.

#### **3.2.6.5 Error Handling**

The product shall ensure the user has entered a valid email address.

The user shall ensure that the entered username is unique.

The product shall ensure that the password meets the minimum required length.

### **3.2.7 User Interface**

#### **3.2.7.1 Introduction**

The product shall ensure easy navigation between pages and purchases.

#### **3.2.7.2 Inputs**

The product shall handle button clicks and text input.

#### **3.2.7.3 Processing**

The product shall process button clicks for navigating between pages and submitting information.

#### **3.2.7.4 Outputs**

The product shall output the user requested pages.

#### **3.2.7.5 Error Handling**

The product shall notify missing required entries.

## 3.2.8 Security

### 3.2.8.1 Introduction

The product shall encrypt user data.

The product shall ensure to sign out user after 2 minutes of inactivity.

## 3.2.9 Data Storage

### 3.2.1.1 Introduction

The product shall save all user data to a database.

### 3.2.1.2 Inputs

The product shall accept the users' full name.

The product shall accept the users' home address.

The product shall accept the users' email address.

The product shall accept the users' phone numbers.

### 3.2.1.3 Processing

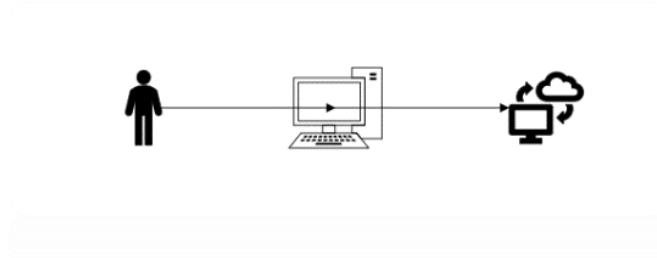
The product shall process information from the online form and save it to the database.

### 3.2.1.5 Error Handling

The form shall only save valid information.

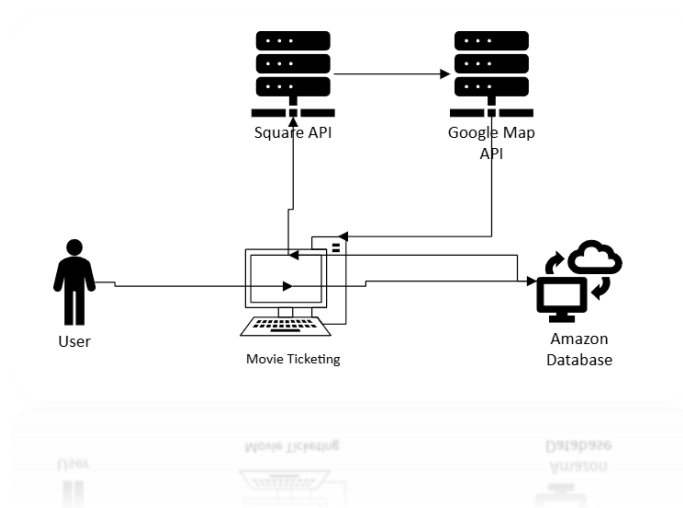
## 3.3 Use Cases

### 3.3.1 User creates account



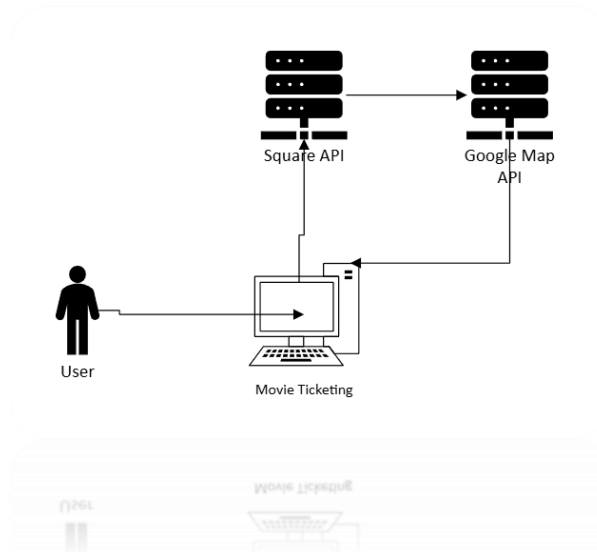
User connects to website and creates an account. Account information is saved to the database.

### 3.3.2 User purchases ticket as account holder



The user logs into their account, purchases a ticket for their selected theater. The ticket is then sent to them.

### 3.3.3 User Purchases ticket as guest



The user purchases a ticket from their selected theater. Account information will not be saved, and the user will have to re-enter all information on next purchase.

## **3.4 Classes / Objects**

### **3.4.1 Movie Ticket**

- 3.4.1.1 Movie Name
- 3.4.1.2 Ticket Number
- 3.4.1.3 Show times
- 3.4.1.4 Purchase Data
- 3.4.1.5 Expiration Date

### **3.4.2 User**

- 3.4.2.1 Username
- 3.4.2.2 Password
- 3.4.2.3 First Name
- 3.4.2.4 Last Name
- 3.4.2.5 House Number
- 3.4.2.6 Street Name
- 3.4.2.7 City
- 3.4.2.8 State
- 3.4.2.9 Zip code

## **3.5 Non-Functional Requirements**

### **3.5.1 Performance**

The product shall ensure API calls execute only when required,  
The product shall connect to the database only when required.

### **3.5.2 Reliability**

The product shall ensure that transactions are performed in a timely manner.

### **3.5.3 Availability**

The product shall be accessible by current internet browsers.  
The product shall be available to all users with an internet connection.  
The product shall be available 24/7.

### **3.5.4 Security**

The database shall be an encrypted Amazon RDS DB instance utilizing industry standard AES-256 encryption algorithm.

### **3.5.5 Maintainability**

The product's versioning shall be tracked to reduce conflicts and inconsistencies.  
The product shall support regular updates.

### **3.5.6 Portability**

The product shall operate on all operating systems with internet browsers.

### **3.6 Inverse Requirements**

*State any \*useful\* inverse requirements.*

### **3.7 Design Constraints**

*Specify design constraints imposed by other standards, company policies, hardware limitation, etc. that will impact this software project.*

### **3.8 Logical Database Requirements**

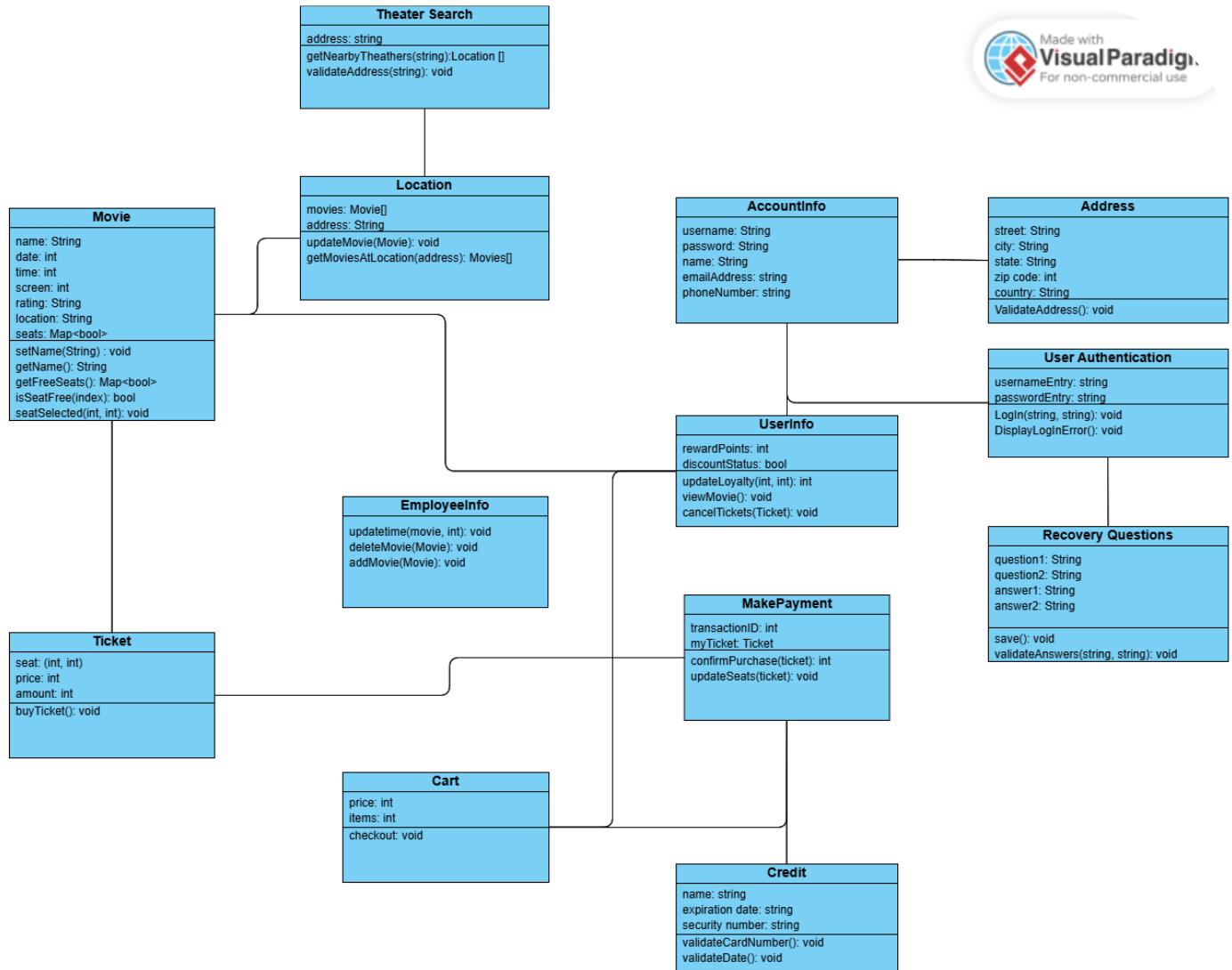
*Will a database be used? If so, what logical requirements exist for data formats, storage capabilities, data retention, data integrity, etc.*

### **3.9 Other Requirements**

*Catchall section for any additional requirements.*

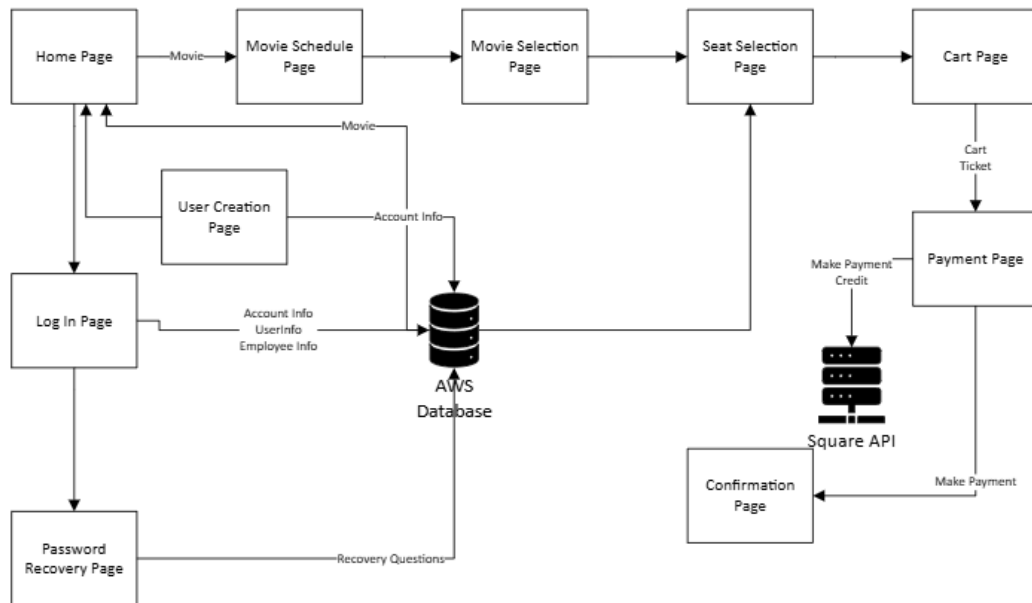
## 4. UML Diagram

Below is the visual representation of the classes and objects used within the Movie Ticket application. The UML Diagram aims to show the relationship between classes and identify class attributes. The operations displayed below the attributes illustrate the actions required to properly pass parameters and validate user inputs to ensure system functionalities.



## 5. Architectural Design

The following graphic represents the architectural design of the software. The purpose of the architectural design is to showcase the navigation and data transfer that occurs as the user navigates within the system. Class objects are passed and handled as dictated by user clicks and navigation.



## **6. Test Plan**

### **6.1 Purpose**

The test plan assesses the application's ability to perform as intended by verifying the product meets design specifications and user requirements.

### **6.2 Overview**

The test plan is comprised of various test cases each evaluating a different part of the architecture. The following tests evaluate the application's ability to perform efficiently. Tests focus on navigation, data validation, data storage, user creation and overall stability of the system. A copy of the test plan can be found at <https://github.com/davidmht1/CS250-Repo>.

### **6.3 Tests**

#### **6.3.1 Functional Test Case**

Users can navigate to the home page.  
Users can create an account  
Users can log in to their account  
Users can navigate to the selected movie's schedule page  
Users can navigate to movie show times page  
Users can select seats  
Users can select ticket quantities  
Users can navigate to the cart  
Users can pay with a credit card  
Users receive payment confirmation  
Users receive payment error  
Users selected seats are assigned to seats  
Users can search for theaters near them

#### **6.3.2 Unit Test Cases**

Test user account creation function  
Test user log in function  
Test seat update function  
Test seat assignment function  
Test seat availability function  
Test return movie's function  
Test send confirmation function



### **6.3.3 Validation Test Cases**

Validate user home address  
Validate user date of birth  
Validate user credit card information  
Validate user password  
Validate user email address  
Validate user's name  
Validate users' password  
Notify user when inputs are blank

### **6.3.4 System Test Cases**

Test application operates during high traffic hours  
Test application can recover after network connection loss.  
Test pages load under 2 minutes with a minimum internet connection speed of 10 Mbps.

### **6.3.5 Security Test Cases**

User password shall not be displayed  
Test database encryption  
Test user is logged out after 2 min of inactivity

## **7. Analysis Models**

*List all analysis models used in developing specific requirements previously given in this SRS. Each model should include an introduction and a narrative description. Furthermore, each model should be traceable the SRS's requirements.*

### **7.1 Sequence Diagrams**

### **7.2 State-Transition Diagrams (STD)**

### **7.3 Data Flow Diagrams (DFD)**

## **8. Change Management Process**

*Identify and describe the process that will be used to update the SRS, as needed, when project scope or requirements change. Who can submit changes and by what means, and how will these changes be approved.*

## **A. Appendices**

*Appendices may be used to provide additional (and hopefully helpful) information. If present, the SRS should explicitly state whether the information contained within an appendix is to be considered as a part of the SRS's overall set of requirements.*

*Example Appendices could include (initial) conceptual documents for the software project, marketing materials, minutes of meetings with the customer(s), etc.*

### **A.1 Appendix 1**

### **A.2 Appendix 2**