PS9: Movie Complex Specs.

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Abstract

The goal is to design a Java application that will manage the sales of movie tickets in a cinema complex. The complex consists of several theaters that show movies at different times. The same movie may be showing in more than one theater. The ticket prices may be different for children, adults, and seniors. There may also be a different price for the matinees. The cinema complex wants to be able to analyze its sales by various criteria —tickets sold to seniors, tickets for a specific movie, matinee ticket sales, etc.

Some cinema complexes may also have luxury theaters with higher fixed price for all patrons.

1 Requirements

1.1 Use Cases

Following information describes the functionality of the systems under certain scenarios.

1.1.1 Customer wants Movie Information

1. Customer selects Movie and date to get times for.
2. System gets list of unfilled Movie times on the given date.

1.1.2 Customer Wants to Know which Movies are Showing

1. Customer clicks 'Current Movies' Button
2. System generates list of current movies and displays it.

1.1.3 Customer buys a ticket

1. Customer finds a movie and time that they want.
2. Customer clicks 'buy' button.
3. System displays buy screen.
4. Customer selects number and type of tickets.
5. Customer clicks 'Finish' button
6. System stores sale to Billing and increases number of people attending the event by the number of tickets.
7. System displays theater number for user.

1.1.4 Customer buys a ticket, but SOLD OUT

1. Customer finds a movie and time that they want.
2. Customer clicks 'buy' button.
3. System displays buy screen.

4. Customer selects number and type of tickets.
5. Customer clicks 'Finish' button
6. System does not store ticket sale or increase attendees.
7. System displays "SOLD OUT" Error for user.

1.1.5 Billing wants Sales Information

1. Accountant clicks get 'CSV file' button.
2. System returns a CSV file of all Sales

1.1.6 Manager adds a Movie

1. Manager clicks 'Add Movie' button.
2. Manager enters Movie information.
3. Manager clicks 'Enter'
4. System adds movie to list of Movies.

1.1.7 Manger adds an event

1. Manager clicks 'Add Event' button.
2. Manager selects Movie to show, time, date, prices, and theater.
3. Manager clicks enter.
4. System adds new event to correct Theater object.

1.1.8 Manger adds an event but time overlaps another

1. Manager clicks 'Add Event' button.
2. Manager selects Movie to show, time, date, prices, and theater.
3. Manager clicks enter.
4. 'Overlap' error displayed to Manager.

1.1.9 Manager edits a Movie

1. Manager clicks 'Edit Movie' button.
2. Manager selects Movie to edit.
3. Manager clicks 'Enter'
4. Manager changes Movie information or clicks 'Delete' button.
5. Manager clicks 'Enter'
6. System changes information of movie.

1.1.10 Manger edits an event

1. Manager clicks 'Edit Event' button.
2. Manager selects Event to edit
3. Manager clicks enter.
4. Manager enters edits or clicks 'delete button'
5. Manager clicks 'Enter'
6. System makes changes or returns 'Overlap'

1.2 Domains/Relations/Constraints

1.2.1 Domains

ComplexController Manages data and ensures data requirements are met. Provided access and ability to edit data.

CustomerView Allows Customer to see movie and event information, and purchase tickets.

ManagerView Allows manager to see and edit movie\event information and sales.

AccountantView Allows accountants to access sales information and get a CSV file of sales.

1.2.2 Relations

CustomerView Interacts with the Customer. Provides a list of current movies and events to see. Allows user to purchase tickets. Gets data from the ComplexController and provides sale information to the ComplexController.

ManagerView Interacts with the Manager. Provides a list of movie and event information, and allows Manager to add/edit/delete events and movies.

BillingView Interacts with the Accountants. Provides accountants with CSV file of sales.

ComplexController Interacts with all other components. Manages information for Complex, and ensures requirements are met. Provides access to lists of events, movies, theaters, sales, and allows ability to edit or add information using various user views.

Movie Stores Movie data such as title, length, rating.

Event Stores event info such as Movie to show, time, date, and theater.

Theater Represents a Theater in the complex, contains Events, but cannot have more than one event at a time. May have an additional price due to luxury status.

Sale Stores data for a single sale.

Ticket Stores price and demographics and Event info for a single ticket.

1.2.3 Constraints

- System should function with 1 or more theaters.
- System should be able to function for many movies.
- System should allow edits, purchases, additions within a second.

1.3 Requirements

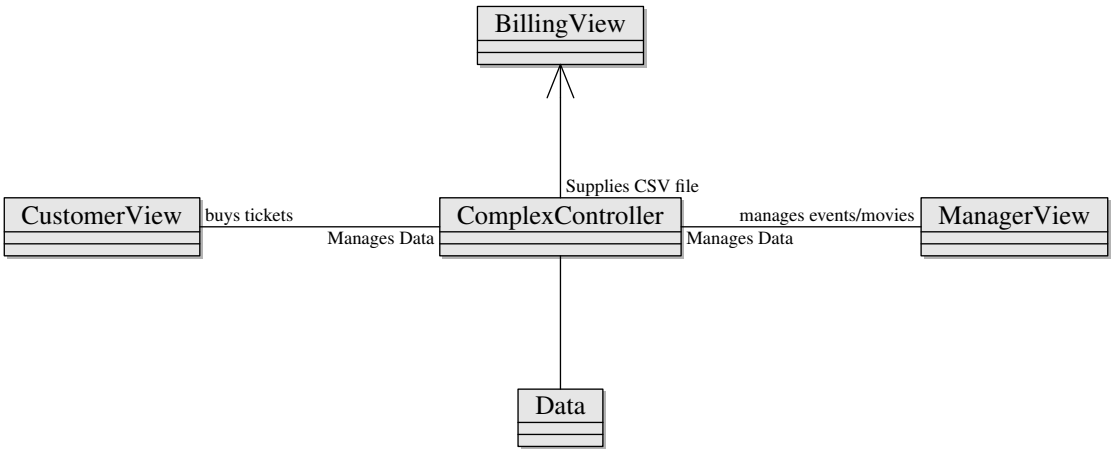
1.3.1 Functional Requirements

- Customers must be able to buy tickets.
- Manager must be able to add,edit,remove Events/Movies
- Billing needs access to Ticket sale information in a CSV file.

1.3.2 Nonfunctional Requirements

- No two events can be in the same theater at the same time.
- One movie can be played in more than one theater at a time.
- There must be option for several theaters
- There must be options for different ticket prices for children, adults, seniors
- Some theaters may be luxury and cost more.

2 Module Dependency Diagram



3 CRC Cards

3.1 CustomerView

• Allows Customer to view Movie information by date and time. • Allows Customer to buy tickets.	• ComplexController • Movie • Event • Ticket • Theater • Sale

3.2 ManagerView

• Allows Manager to change Movie and Event information.	• ComplexController • Event • Movie • Theater • Ticket

3.3 BillingView

• Allows Accountants to get a CSV file of Sales.	• ComplexController

3.4 ComplexController

- Manages data and preserves data requirements
- provides data for various views
- knows the theaters of the complex
- knows the movies shown in the complex
- knows the sales made
- Accepts new sales
- Accepts changes to information if valid
- Reports errors if information not valid
- generates CSV file for BillingView

- Movie
- Event
- Ticket
- Theater
- Sale
- BillingView
- ManagerView
- Customerview

3.5 Theater

- Represents a single Theater
- preserves requirement that no two events can show at the same time in one theater.
- knows planned future events in this theater
- knows base price for events in this theater
- knows the number of seats in the room (i.e. max people)

- Movie
- Event
- Ticket

3.6 Movie

- Stores information for a movie.
- knows movie title
- knows movie length
- knows movie rating
- knows movie release date

3.7 Event

• knows which tickets are available for this event • knows the movie to be shown • knows the time of the movie • knows the date of the movie • knows which theater the event is in	• Theater • Ticket • Movie

3.8 Sale

• knows the tickets in this sale	• Ticket

3.9 Ticket

• knows the price of the ticket • knows the Event that the ticket is for. • knows the demographic for this ticket (Student, Senior, Adult, Child...)	• Event