

Spring 2025 CS 234

**Team 5**

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**Project**

Movie Theater Management System

**Overview**

We intend to create a functional, demonstration-level Java program intended for use by movie theater management personnel. Using the program, a manager should be able to access and manipulate basic information related to their business. This information will include staff records, movie times/sales, and customer data among other relevant topics. Descriptions and examples of the program's capabilities will be given in the next section.

**Details**

Required classes:

- Customer
  - The Customer class in our program will track common customer interactions. For example, a manager may view the number of customers who have called over a given period of time. Attendance should also be accessible to a manager.

Properties of Customer...	Functions/Methods of Customer...
... date of interaction ... # of calls / live chats ... # attended theater	... get/display total # of customers ... get/display # of customers in a specified screen ... purchase ticket, concession items

- Movie
  - The Movie class will give managers the ability to browse and select films for screening. A manager should be able to sort films by cost or genre.

If a manager decides to screen a new movie, they will make their selection and determine how long to screen it (which can be changed later, also through the movie class). The movie and screen classes will ideally interact. If a movie is selected, the manager can also easily choose an available screen.

Properties of Movie...	Functions/Methods of Movie...
... title ... genre ... cost in \$/week ... status (is being screened or not) [... time to expiration (amount of time remaining before movie needs to be renewed or replaced)]	... sort/filter movies by property ... get/display movie properties ... set movie status [... choose to show or renew movie]

- Payment

- This class will serve to provide managers with ticket payment information. Each payment will be recorded with a date, location and type (such as cash or mobile app).

By means of the payment class, a manager can view payment totals for a date or date range.

Properties of Payment...	Functions/Methods of Payment...
... date ... location (box office, online etc.) ... type [... balance]	... get/display payment properties [... set payment properties] [... alter balance]

- Screen

- The Screen class will cover information on a given screening room's status. The manager should be able to close a screening room, and to add notes. IE If a manager discovers a screen has faulty speakers, they can close it and note the issue by means of this class.

Properties of Screen...	Functions/Methods of Screen...
... # (the 'ID' of the screen) ... status (is available?) ... optional notes [... properties of movie being shown at screen]	... set screen status ... add/remove notes for a screen

- Showtime

- This class will allow managers to view and set movie showtimes. They can adjust the length of time between screenings, and create schedules for available screens.

Properties of Showtime...	Functions/Methods of Showtime
... schedule type (weekday, weekends, irregular) ... start and end times ... downtime between screenings	... get/display schedule information (type, start/end times) ... set downtime

- Staff

- The Staff class will function as a database of employee information. Managers will have relatively free reign to modify employee info.

Properties (Staff...)	Functions/Methods of Staff...
... name ... date of birth ... position ... pay grade ... sick days	... get/display all properties ... freely modify all properties (set name, dob...)

Additional Classes (under consideration, subject to change):

- Concession Sales

- Related to Payment class. Allows managers to view sales information by date or date range.

Properties of Concession Sales...	Functions/Methods of Concession Sales...
... concession type (food/drink) ... cost ... inventory (amount remaining)	... sort/filter by properties ... get/display properties ... restock concessions

- Maintenance

- Managers can create 'service tickets' for theater maintenance and repairs.

Properties of Maintenance...	Functions/Methods of Maintenance...
... service ticket should be a kind of form with fillable fields: <ul style="list-style-type: none"> <li>▪ Date</li> <li>▪ Request</li> <li>▪ Location (screen #, lobby etc.)</li> </ul>	... modify maintenance properties (possibly excluding date – i.e. timestamps will be unalterable) ... sort/filter information

<ul style="list-style-type: none"> <li>▪ Priority (urgent, routine etc.)</li> <li>▪ Status (open, closed)</li> </ul> ... keeps a log of above service tickets	
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- Promotion
  - Promotions class will display ongoing promotions and allow a manager to implement pre-set (?) promotions: ½ off weekend etc.

Properties of Promotion...	Functions of Promotion
... this class may override price/cost properties of other entities: ticket and concession sales ... will feature promotional pricing options (default, selectable options) ... status (active/inactive)	... get/display promotion information ... set promotion status

- Scheduling
  - Related to/complements Staff class. Allows creation and modification of staff schedules.

Properties of Scheduling...	Functions of Scheduling...
... shift schedules ... schedules to include start/end times, lunches and breaks [... sick day tracking]	... modify schedules ... assign schedules to employees [... modify sick days – used by Staff class]

- Seating
  - Related to Screen class. Allows managers to view seats in a given screen along with their type (standard, luxury, luxury+). Managers can specify a particular seat and alter its type.

Properties of Seating...	Functions/Methods of Seating
... arrays for screen seating 'layout' ... each individual seat has location and type (standard, luxury etc.) properties	... get/display seating information ... modify seating types

- Special Events
  - Non-standard film events can be viewed and selected – expansion of Movies class?

Properties of Special Events...	Functions/Methods of Special Events...
... Type (live event, special screening hours) ... Status (active/inactive)	... get/display special event info ... set status

### **Collaboration Sense**

The required classes will be assigned to team members so that each person has at least one class which complements a different member's class. For example, the Customer and Payment classes are related, as are Showtime and Screen.

Andrew

Showtime

Staff

Adrienne

Customer

Screen

Ghandi

Payment

Movie