

CS 234 Project

Team 6 - Kahden Vienna, Alberto DeLeon, Lazo McCarroll

Lazo

Kahden

Alberto

Team 6 has selected the movie theater management system for their semester project. This system will include the nine following classes:

The system will allow the user to choose to enter as a customer or a staff member. In the former case they will be prompted for membership information, which movie they would like to see, at what time, and whether they would like concessions. After purchasing a ticket, there will also be an option to check one's ticket in case they would like to make modifications to it. In the latter case, they will be prompted to enter login information, and from there they can view sales reports, sold seats, and a list of all available movies and showtimes.

1. Master Class

- Represents the central management of system-wide operations.
- **Attributes:**
 - systemID: Unique identifier for the system.
 - currentUsers: List of users currently logged in.
 - activeSessions: Number of active user sessions.
 - systemLogs: Records of system activities.
- **Methods:**
 - **Other:**
 - initializeSystem(): Sets up the system.

- shutdownSystem(): Closes the system.
- generateReports(): Compiles reports.
- manageUsers(): Handles user roles.
- logSystemActivity(): Tracks system actions.

2. Customer Class

- Represents how a customer interacts with the movie theater (e.g., purchasing tickets, browsing movies, and managing memberships).
- **Attributes:**
 - customerId: Unique identifier for the customer.
 - name: Customer's full name.
 - email: Contact email address.
 - membershipStatus: Indicates if the customer is a member.
 - purchaseHistory: List of previous purchases.
- **Methods:**
 - **CRUD:**
 - createAccount(name, email): Registers a new customer.
 - updateAccountDetails(customerId, newDetails): Updates personal information.
 - deleteAccount(customerId): Removes customer data.
 - **Search:**
 - searchMovie(title): Searches for movies by title.
 - **Other:**
 - purchaseTicket(movieId, showtimeId): Completes ticket purchase.
 - modifyTicket(ticketId, newShowtimeId): Updates ticket details.

3. Staff Class

- Handles staff authentication and management operations.
- **Attributes:**
 - staffID: Unique identifier for staff members.
 - name: Full name of the staff member.

- role: Job position (e.g., manager, cashier).
- email: Contact email address.
- phoneNumber: Staff member's phone number.
- **Methods:**
 - **CRUD:**
 - manageShowtimes(): Update movie showtimes.
 - modifyMovies(): Update movies being shown.
 - **Other:**
 - login(): Enter login information.
 - viewSalesReports(): Print out sales records for the day.
 - generatePayroll(): Print out pay information.

4. Movie Class

- Represents movies available in the theater.
- **Attributes:**
 - movieID: Unique identifier for each movie.
 - title: Name of the movie.
 - genre: Movie category (e.g., action, drama).
 - duration: Length of the movie in minutes.
 - rating: Age rating (e.g., PG, R).
 - releaseDate: Date the movie was released.
- **Methods:**
 - **CRUD:**
 - updateMovieInfo(): Update existing film in list of movies.
 - addMovie(): Add film to list of movies.
 - removeMovie(): Remove film from list of movies.
 - **Search:**
 - getMovieDetails(): Return information about a specific movie.
 - **Other:**
 - listMoviesByGenre(): Print list of movies

5. Showtime Class

- Manages movie showtimes and availability.
- **Attributes:**
 - showtimeID: Unique identifier for a showtime.
 - movieID: Links to the associated movie.
 - screenID: Identifies the screen where the movie is shown.
 - time: Scheduled time of the show.
 - availableSeats: Number of remaining seats.
- **Methods:**
 - **CRUD:**
 - addShowtime(): Add new show date for a film.
 - updateShowtime(): Change existing show date for a film.
 - removeShowtime(): Remove existing show date for a film.
 - **Search:**
 - listAvailableShowtimes(): Print list of show dates.
 - getShowtimeDetails(): Get details of specific show date.

6. Ticket Class

- Handles ticket purchasing and modifications.
- **Attributes:**
 - ticketID: Unique identifier for a ticket.
 - customerID: Links the ticket to a customer.
 - showtimeID: Links the ticket to a showtime.
 - seatNumber: Assigned seat for the ticket.
 - ticketPrice: Cost of the ticket.
 - status: Ticket status (e.g., active, canceled).
- **Methods:**
 - **CRUD:**
 - purchaseTicket() : Add new ticket information
 - modifyTicket(): Change existing ticket information.
 - cancelTicket(): Remove ticket.
 - **Search:**

- viewTicketDetails(): Print ticket information.

7. Concession Class

- Manages snack and beverage purchases.
- **Attributes:**
 - concessionId: Unique identifier for the concession item.
 - itemName: Name of the concession item (e.g., popcorn, soda).
 - price: Price of the concession item.
 - customerId: Identifier for the customer (to check ticket purchase).
- **Methods:**
 - **CRUD:**
 - addItem(itemId, itemName, price): Add new concession item.
 - removeItem(itemId): Remove concession item.
 - updateItem(itemId, itemName, price): Change concession item.
 - **Search:**
 - checkTicketPurchase(customerId): Validate customer information.
 - searchItem(itemId): Look for concession item.
 - **Other:**
 - processSale(itemId, customerId): Ask customers additional questions about customer order.

8. Payment Class

- Handles financial transactions for tickets and concessions.
- **Attributes:**
 - paymentID: Unique identifier for a transaction.
 - customerId: Links payment to a customer.
 - amount: Total amount paid.
 - paymentDate: Date of payment
 - paymentMethod: Type of payment (e.g., credit card, cash).
 - transactionStatus: Status of the transaction (e.g., completed, refunded).
- **Methods:**

- **CRUD:**
 - refundPayment(paymentId): Remove payment info.
 - updatePaymentStatus(paymentId, status): Change payment info.
- **Other:**
 - processPayment(amount, customer Id): Ask customers additional questions about payment.
 - generateReceipt(paymentId): Print new payment information.
 - validatePaymentMethod(): Validate customer information.

9. Screen Class

- Represents individual theater screens.
- **Attributes:**
 - screenID: Unique identifier for the screen.
 - capacity: Total number of seats available.
 - screenType: Type of screen (e.g., IMAX, standard).
 - isAvailable: Availability status of the screen.
 - showTimes: List of assigned showtimes
- **Methods:**
 - **CRUD:**
 - assignMovie(): Add new movie to theater.
 - assignShowTime(showTime): Add new movie show time to theater.
 - updateAvailableSeats(seatCount): Change amount of seats per theater.
 - updateScreenInfo(): Update additional information about theater.
 - **Search:**
 - getAvailableSeats(): Get amount of seats per theater.
 - checkScreenAvailability(): Get amount of screenings per theater.
 - **Other:**
 - listScreens(): Print list of screens within cinema.