OBTAIN the new event name SET event name to the new event name

CO567
Object-Oriented Systems Development
Coursework 1

The BUCKS Centre for the Performing Arts
Design & Implementation

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Summary

Section A

Design

Use Case Models

A The Consumer

A.1 Register

Pre-conditions: The consumer does not have an existing customer profile.

Post-conditions: A new customer profile exists in the system, with a name, email and password and the consumer is logged in.

Purpose: The consumer wants to book tickets for an upcoming show.

Description: The consumer fills in a registration form with their desired name, email and password. Once complete, they press the register button and they will be automatically logged in after their customer profile has been created on the system.

A.2 Login

Pre-conditions: The consumer has a customer profile.

Post-conditions: The consumer is logged in.

Purpose: The consumer has previously bought tickets for a show and wants to buy tickets for an upcoming show.

Description: The consumer enters their email and password. The details are verified on the system and if they are valid, the user is logged in. If the credentials are invalid, the consumer is prompted to re-enter their email and password.

A.3 Update User Profile

Pre-conditions: The consumer has a customer profile and is logged in.

Post-conditions: The stored customer profile information is modified.

Purpose: The consumer wants to change their email, shipping address or password.

Description: The consumer updates the fields they wish to change (e.g, their shipping address). Once they are happy with the changes, they click the save button and their customer profile will be modified on the system.

A.4 View Upcoming Events

Pre-conditions: Zero or more events exists.

Purpose: The consumer wants to see all the upcoming events that they can book tickets for.

Description: The consumer is presented with a list of events. Selecting an event will show the list of shows assigned to the event. If there are no upcoming events, then the list will be empty with a message indicating there are no events on.

A.5 View Shows by Date

Pre-conditions: Zero or more shows exist.

Purpose: The consumer wants to see all the shows on over a range of days.

Description: The consumer is presented with a list of shows that are taking place within their specified date range. Selecting a show will allow the consumer to book tickets for the show. If there are no shows taking place in this date range, the list will be empty with a message indicating there are no shows.

A.6 Purchase Tickets

Pre-conditions: The consumer is logged in and one or more shows exist.

Post-conditions: A new ticket exists in the system.

Purpose: The consumer wants to buy one or more tickets for a selected show.

Description: The consumer is asked how many tickets they wish to purchase. After selecting the amount, the system displays the best available seat(s) with their price. The consumer also has the option of manually picking their seats via a button. The manual option displays a seating chart with the available seats highlighted. The consumer can then select the needed amount of seats. With both methods, the currently selected seats are reserved and not available to other consumers that are booking tickets for the same show. The reservation is cancelled once the transaction is cancelled or has not been completed after 5 minutes.

Once they are happy with the selected seats, the consumer is shown the total cost of the tickets. Here they are able to add a valid promotion for the show. The consumer can then enter their credit card information and confirm the purchase.

Upon confirmation of the purchase, the ticket(s) are added to the system and displayed again to the user as a receipt.

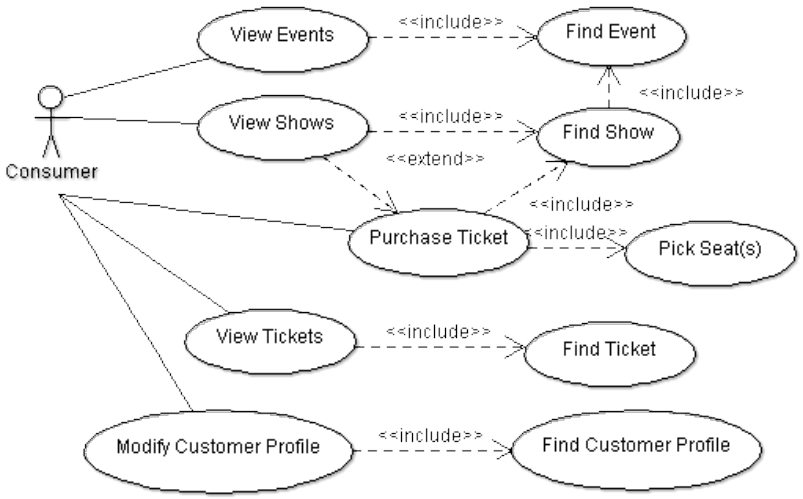
A.7 View Tickets

Pre-conditions: The consumer is logged in.

Purpose: The consumer wants to see their past purchases.

Description: The consumer is presented with a list of their tickets, showing the price, date and seat number.

A.8 Diagram


View Events
<<include>>
Find Event
<<include>>
View Shows
<<include>>
Find Show
<<extend>>
Consumer
<<include>>
Purchase Ticket
<<include>>
Pick Seat(s)
View Tickets
<<include>>
Find Ticket
Modify Customer Profile
<<include>>
Find Customer Profile

B The Venue Manager

B.1 Add Event

Pre-conditions: The venue manager is logged in into the system.

Post-conditions: A new event exists in the system, with a start and end date and a name.

Purpose: The venue manager wants to add an event to the ticket selling system in order to allow customers to buy tickets for it and to promote it.

Description: The venue manager fills in the form for the creation of a new event with the name of the event and a description of it, then selects a start and end date from the "calendar menus". When they are satisfied with all the details, they press the save button and the changes are saved in the system.

B.2 Reschedule Event

Pre-conditions: The venue manager is logged in into the system and at least one event exists in the system that hasn't been cancelled already

Post-conditions: An existing event has either a new start date, a new end date or both

Purpose: The venue manager wants to change the dates an event runs for in order to allow customers to have the accurate dates the event will be occurring and for them to be able to buy tickets for it

Description: The manager selects the event from a list of events, then a screen with the event's information displayed in a form style appears, allowing the manager to make the changes he needs to make to the dates, then they press the save button and the changes are saved into the system.

B.3 Cancel Event

Pre-conditions: The venue manager is logged in into the system and at least one event exists in the system.

Post-conditions: A previously existing event will be displayed as cancelled in the system and no more tickets will be available for sale for that event (the event won't be deleted from the system though, in case customers have already seen the event in the system and/or bought tickets for it)

Purpose: The venue manager wants to cancel an event that was scheduled to occur for any reason in order to inform the customers that the event is no longer occurring.

Description: The venue manager selects the event they wish to cancel from a list and then the system prompts them with a message to confirm they wish to cancel that event. If the user selects yes, the changes are saved into the system and the event will then appear as cancelled to the users.

B.4 Add Show

Pre-conditions: The venue manager is logged in into the system and at least one event exists in the system.

Post-conditions: A new showing for an event exists in the system, with a date and start time and a maximum-seats-per-customer value.

Purpose: The venue manager wants to add a showing to an event that is planned to inform the customers and agents of the show occurrence and allow for tickets to be sold.

Description: The manager selects the event for which they want to add a show from a list, then enters the details of the show in a form (date the show is happening and start and end time as well as the maximum-seats-per-customer value) and then presses save which will save the changes in the system and inform the user of the changes.

B.5 Reschedule Show

Pre-conditions: The venue manager is logged in into the system and at least one event with a least one show exists in the system.

Post-conditions: Either the date or the time or both of a show will be modified in the system.

Purpose: The venue manager wants to reschedule a showing of an event for whatever reason, in order to inform customers and sell tickets for the show with accurate time and date information.

Description: The manager selects the event for which they want to reschedule the show from a list and then a list of the shows for that event appear, from which the user selects the show that they want to reschedule. After selecting the show, a form displaying the current date and times of the show is shown in the screen, and the user can then select the new date and/or times. When they are satisfied with the new details for the show, they press the save button. The system will then save the changes and notify the users that the changes have been saved.

B.6 Cancel Show

Pre-conditions:The venue manager is logged in the system and at least one event and one show that hasn't been cancelled for that event exist in the system.

Post-conditions: The show will be marked as cancelled in the system and no more tickets will be available for sale for that show (the show won't be deleted from the system though, in order to allow customers to see that the event has been cancelled).

Purpose: The venue manager wishes to cancel a show for whatever reason is order to inform the customers that the show is no longer occurring and block the sale of tickets for that showing of the event.

Description: The user selects the event that the showing relates to from a list, then a list appears with the possible shows. The user selects the show they wish to cancel. After that, the system displays a confirmation message to make sure that it is that show that the user wants to cancel. After the user confirms that it is that show that they want to cancel, the systems saves the changes and notifies the user that the changes have been saved.

B.7 Change Maximum-Seats-Per-Customer Value

Pre-conditions: The venue manager is logged into the system and at least one event and one show exist in the system.

Post-conditions: The show will have a different maximum-seats-per-customer value.

Purpose: The venue manager wants to change the amount of seats a customer can buy of a single show in order to adapt the number of tickets that can be sold to a single customer according to the current demand for that show.

Description: The user selects the event from a list and the system then displays a list with the shows for that event. After selecting the show the user wants to change, the system displays a form that user uses to change the maximum-seats-per-customer value. After changing the value, the user presses the save button. The system saves the changes in the system and then notifies the user that the changes have been saved.

B.8 Add Promotion

Pre-conditions: The venue manager is logged into the system

Post-conditions: A promotion (pricing structure) is created in the system, with a name, price structure for different types of tickets and applicable discounts (volume discounts and others)

Purpose: The venue manager wants to set a new promotion for an upcoming event, or for a particular time of the day, with specific prices and applicable discounts.

Description: The system displays a form with the information that needs to be filled in by the user to create the new promotion(name, prices for children, students, adults and seniors, as well as a section to add different types of discounts that is optional). The user fills in the form and presses the save button. The system saves the changes and notifies the user that the campaign has been added when all the changes have been saved.

B.9 Assign Promotions

Pre-conditions: The venue manager is logged into the system, and at least one event with one show and one promotion exist in the system.

Post-conditions: A promotion is assigned to some (if not all) seats of the selected show.

Purpose: The venue manager wishes to assign a promotion to the seats of a show so that the correct amount of money is charged to customers when they want to buy tickets for that show and in order to be able to sell tickets for the show.

Description: The user selects the event to which the show belongs from a list, then the system displays a list with the shows for that event. After the user selects the show, the system displays the seats of the room where the show is occurring. The user selects the seats to which the user wants to add a promotion, then the system displays the available promotions. The user selects the promotion to add to those seats. In that screen, the user can also select other ranges of seats and attribute a promotion to each of them. When satisfied with the changes, the user presses the save button. The system saves the changes and notifies that the promotions have been assigned when all the changes are stored.

B.10 Change Promotion

Pre-conditions: The venue manager is logged into the system, and at least one promotion exists in the system.

Post-conditions: The details of a promotion have been changed (either the name, or the pricing structure or available discounts for that promotion).

Purpose: The venue manager wants to change a promotion to update its prices, or modify discounts available for it.

Description: The user selects the promotion they want to change from a list. The system displays then a form containing the current information for the promotion and that also allows the user to change the information they want to change (except the name of the promotion). After they made the changes, they press the save button. The system saves the changes and notifies the user of that when all changes are stored.

B.11 Delete Promotion

Pre-conditions: The venue manager is logged into the system and at least one promotion exists on the system.

Post-conditions: The selected promotion is deleted from the system.

Purpose: The venue manager wishes to delete an irrelevant promotion from the system.

Description: The user selects the promotion they wish to delete from a list. The system displays a confirmation message to make sure that is the promotion that the user wishes to delete, and if the user confirms then the system saves the changes and notifies the user that the changes have been saved.

B.12 Create Agent's Contract

Pre-conditions: The venue manager is logged into the system.

Post-conditions: A new agent's contract is created.

Purpose: The venue manager wishes to create a new agent's contract to allow an agent to use the OTS and sell tickets with their own seats assigned and the right commission.

Description: The user fills in the form with all the details about the agent's contract (name, email, seats to be assigned, commission that they earn, start date of the contract and duration of the contract). The user then clicks on the save button and the system saves the changes. When all the changes are saved, the system will notify the users that the contract has been added successfully.

B.13 Modify Agent's Contract

Pre-conditions: The venue manager is logged into the system and there is at least one agent's contract in the system.

Post-conditions: The agent's contract has been changed and has now new values (assigned seats, commission, duration of the contract and/or start date if the contract hasn't started yet).

Purpose: The venue manager wishes to change an agent's contract for whatever reason so that the agent has access to the platform throughout the duration of their actual contract and no longer and to have a range of seats available for them to sell that is accurate to their sales, as well as to take the right commission.

Description: The user selects the name of the agent whose contract's details need to be changed. The system sends back a form with the details of the agent's contract. The user changes the details that need to be changed and, when finished, presses the save button. The system saves the changes and notifies the user when the changes have been applied.

B.14 Cancel Agent's Contract

Pre-conditions: The venue manager is logged in into the system and at least one agent contract is in the system.

Post-conditions: The agent's contract is terminated, the seats they had reserved are available to all non-agent customers, and the details of the contract are deleted from the system.

Purpose: The venue manager wishes to terminate the Contract the BCPA has with an agent for whatever reason in order to release the seats back to sale for general customers and to end their access to the system.

Description: The user selects a agent from a list, and a confirmation message appears to make sure that the user has chosen the right agent. When confirmed, the system removes the agent contract from the system and notifies the user when all the changes have been processed.

B.15 Renew Agent's Contract

Pre-conditions: The venue manager is logged into the system and there is at least one agent's contract in the system.

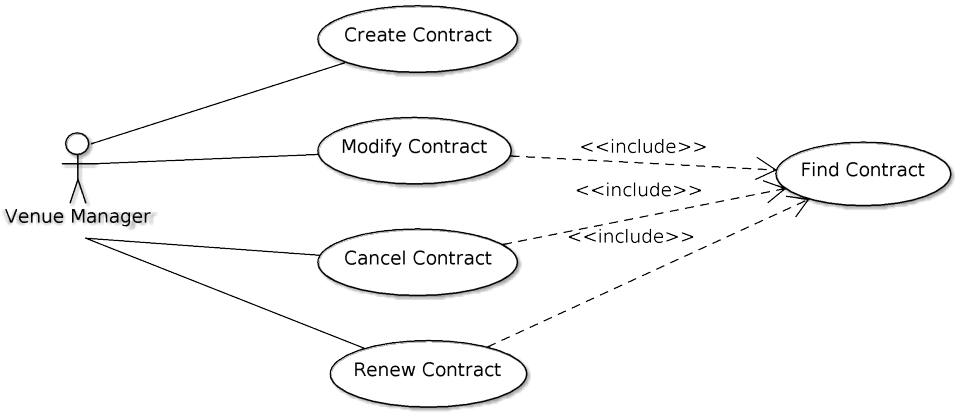
Post-conditions: The contract's end date is extended to the end of the current contract plus another duration of the contract.

Purpose: The venue manager wishes to renew a contract with an agent in order to allow them to sell tickets on the OTS for longer.

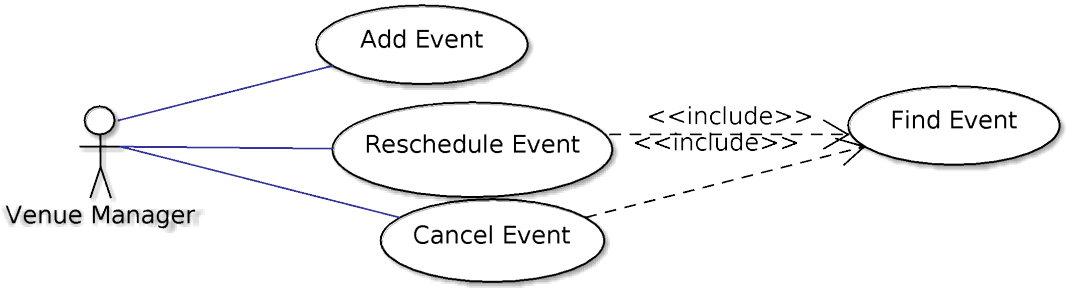
Description: The user selects an agent from a list, and a confirmation message appears to make sure that the user has chosen the right agent. When confirmed, the system will then change the end date of the contract in the system to that of the end of the current contract plus the duration of the contract and notify the user when the changes have been processed.

B.16 Diagrams

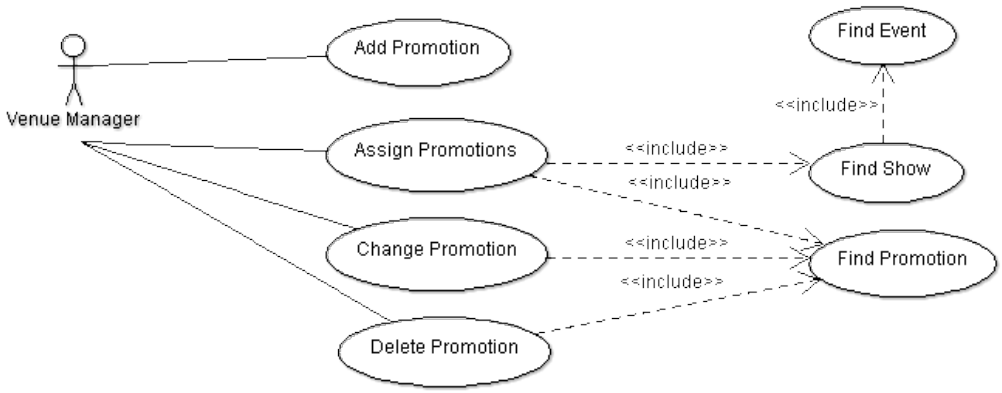
Contract-related Use Cases



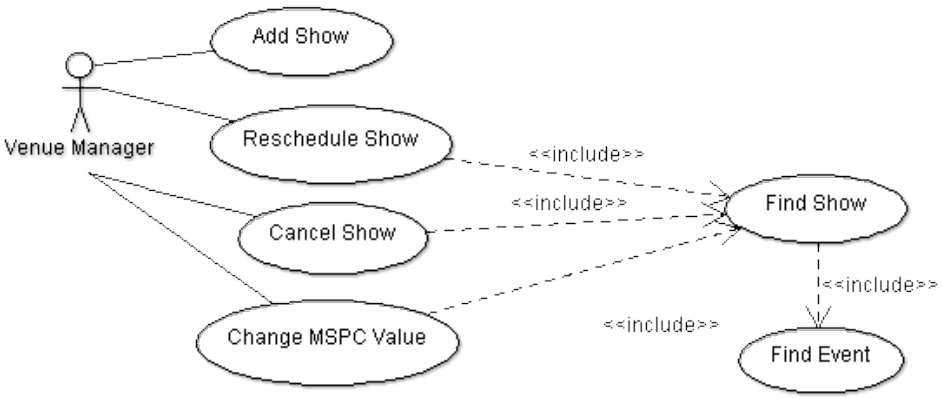
Event-related Use Cases



Promotion-related Use Cases



Show-related Use Cases



C The Agent

C.1 Create Customer Profile

Pre-conditions: The Agent must be logged into the system.

Post-conditions: Customer successfully created a profile.

Purpose: The agent wants to be able to add customers to the system in order to buy tickets for them.

Description: The user fills in the form with the customer details and presses the save button. Once all the details are saved, the system notifies the user that all the changes have been saved.

C.2 Buy tickets

Pre-conditions: An agent must be logged in into the system and at least one event and one show exist on the system, as well as one customer that is managed by the agent.

Post-conditions: Tickets have been bought by an agent on behalf of a customer at the right price with the agent's commission.

Purpose: The agent wants to be able to sell tickets for his customers in order to gain money and commission, and to have the tickets reserved for the right person

Description: The user selects the customer he wants to buy tickets for and presses OK, the system then prompts the user to select the event they want to buy tickets for. The user selects the event and then presses OK, and then a list of the available shows appears with the number of seats available for the agent to sell for this show. The agent then selects the show and presses OK. The user is then prompted to choose the number of tickets that he wants to buy, and the user selects the number and presses OK. The system then displays the seats that are available for the agent to reserve. The agent selects the seats to be reserved according to the number of tickets that they are buying and then select OK. The total price for the tickets then appears in the system, explaining which values are for the tickets and which are for the agent's commission, then the user presses the Pay button to complete the purchase.

C.3 Update Customer Profiles

Pre-conditions: An agent is logged into the system and at least one customer profile managed by this manager exists in the system.

Post-conditions: A profile managed by an agent is updated

Purpose: An agent wants to make changes to the information held in the profile of a customer that they manage (name, address, payment information, etc.)

Description: The system provides to the user a list of the users that they manage and the user selects the user to which they want to change the information. A form then appears holding the current information of the customer. The user changes the information necessary and when they are happy with the changes they press the save button. When all the changes have been saved, the system notifies the user that the changes have been successfully been applied.

C.4 View Sold Tickets

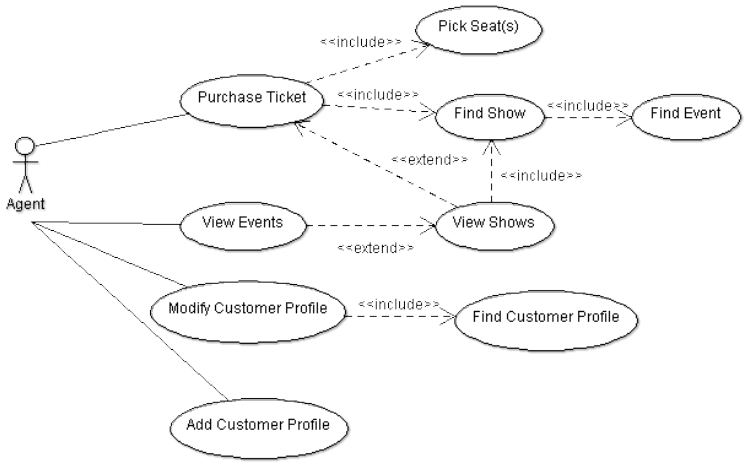
Pre-conditions: An agent is logged into the system.

Post-conditions: A list with the tickets sold and the total number of tickets that the agent has sold either for a show or for a range of dates are displayed to the user.

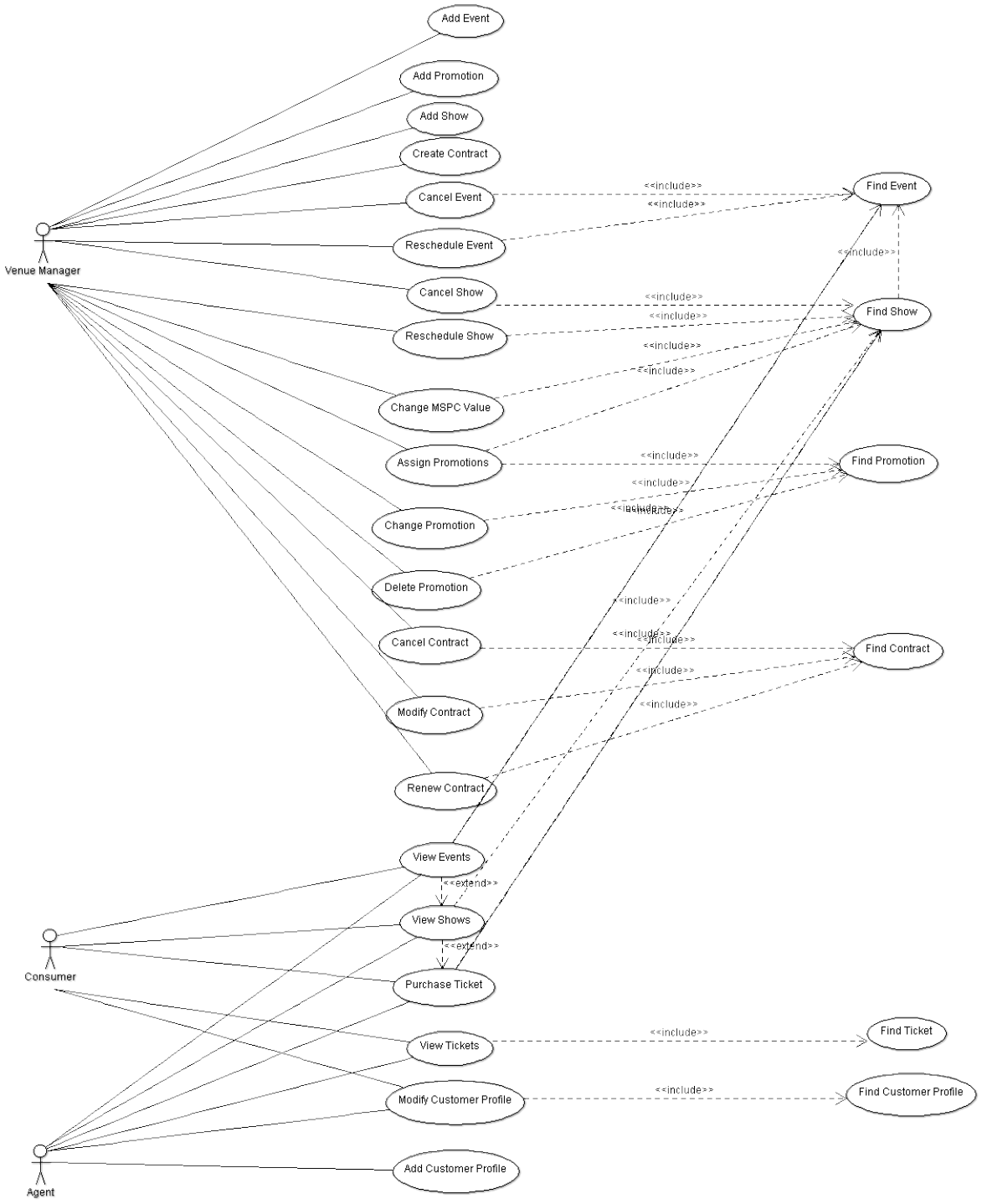
Purpose: An agent wants to see how many tickets they have sold in the platform, either for a particular show or for all shows in a date range.

Description: The system ask the user if they want to see the tickets that they have sold for a show or for a specific date range. The user selects one of the two options. If they have selected a show, the system will display a list of events, from which the user must choose an event, then a list of shows for that event. The user then selects the show and the list of sold tickets and the total number of tickets is shown to the user. In case the user wants to see the tickets that they have sold for a date range, the user selects the begin date of the search and then the end date of the search and the system will then display all the tickets sold and the total number of tickets.

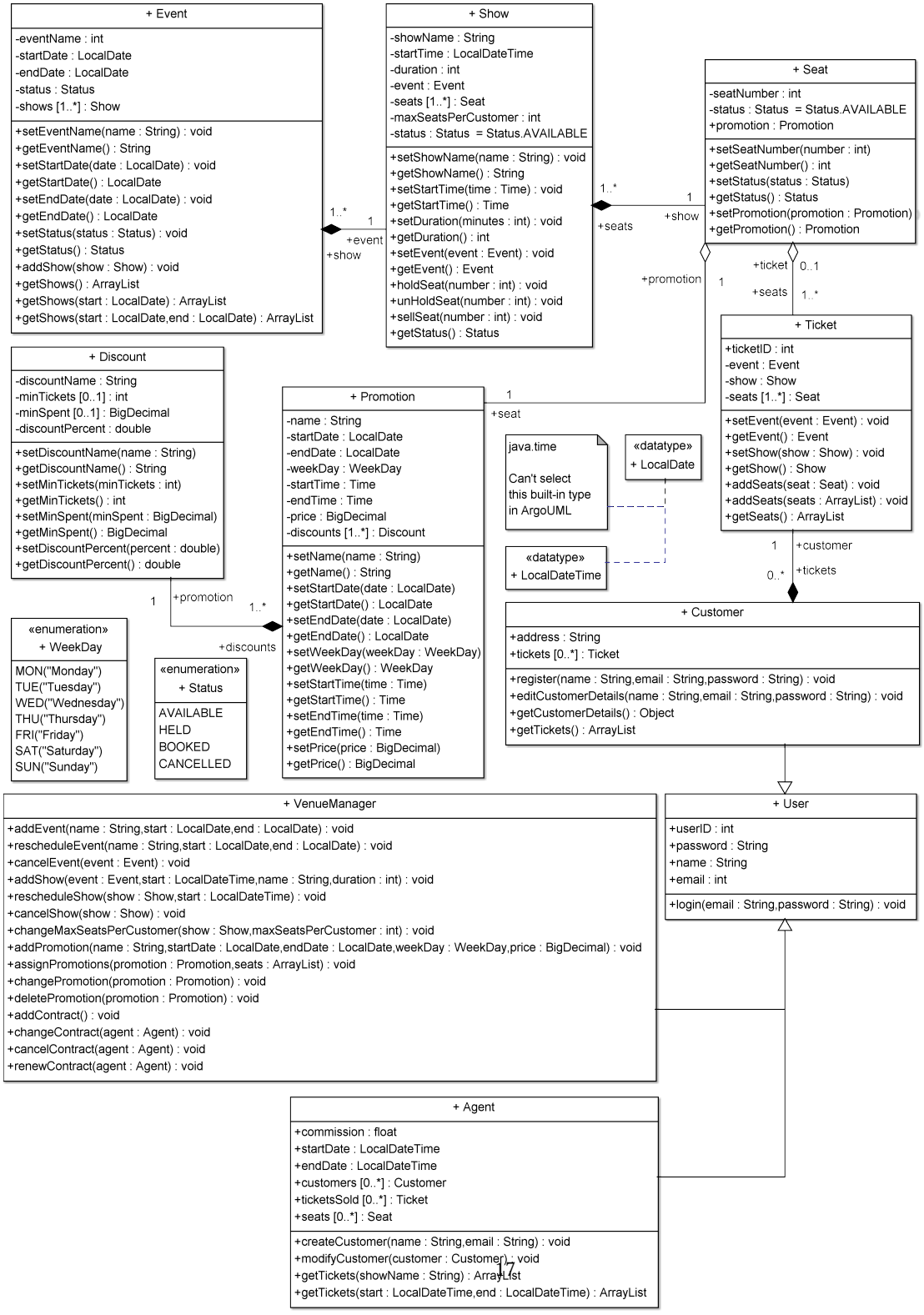
C.5 Diagram



D Consolidated Model



Identifying Classes



Data Dictionary

A Event

Attribute	Type	Description	Example
eventName	String	Name of the Event	The Wizard of Oz
startDate	LocalDate	Date the Event starts	2017-04-09
endDate	LocalDate	Date the Event ends	2017-04-11
status	Status	Status of the event (e.g available/sold out)	AVAILABLE
shows	ArrayList<Show>	Shows part of the event	

B Show

Attribute	Type	Description	Example
showName	String	Name of the Show	The Wizard of Oz (Thu)
startTime	LocalDateTime	Date the Show starts	2017-04-09T19:30:00
duration	Integer	Duration of the show in minutes	125
event	Event	Event the Show is part of	
seats	ArrayList<Seat>	Seats assigned to the show	
maxSeatsPerCustomer	Integer	Number of seats a customer can buy at once	6
status	Status	Status of show, e.g available/sold out	CANCELLED

C Seat

Attribute	Type	Description	Example
seatNumber	Integer	Unique seat number for the show	29
status	Status	Status of the seat, e.g available/booked/held	HELD
promotion	Promotion	Promotion assigned to the seat by the manager	

D Ticket

Attribute	Type	Description	Example
ticketID	Integer	Unique ID of the Ticket	1
event	Event	Event the ticket was purchased for	
show	Show	Show the ticket was purchased for	
seats	ArrayList<Seat>	Seats purchased	

E Promotion

Attribute	Type	Description	Example
name	String	Name of the promotion	Weekend Special
startDate	LocalDate	Date the promotion is valid from	2017-12-23
endDate	LocalDate	Date the promotion is valid until	2017-12-24
weekDay	WeekDay	Day the week the promotion is valid	TUE
startTime	Time	Time the promotion is valid from	15:00:00
endTime	Time	Time the promotion is valid until	18:00:00
price	BigDecimal	Price of the ticket	4.30
discounts	ArrayList<Discount>	Discounts associated to the promotion	

F Discount

Attribute	Type	Description	Example
discountName	String	Name of the discount	25% off 2 or more tickets
minTickets	Integer	Minimum number of tickets required	2
minSpent	BigDecimal	Minimum total cost required	22.50
discountPercent	Double	Percent off of the cost	25

G User

Attribute	Type	Description	Example
userID	Integer	Unique ID of each user in the system	1
password	String	Password for the user to login	hunter2
name	String	First and last name of the user	John Doe
email	String	Email for the user to login	john.doe@gmail.com

H Customer

Attribute	Type	Description	Example
address	String	Address to post tickets to	60 Brook St, High Wycombe, HP11 2EQ
tickets	ArrayList<Ticket>	Tickets the customer has purchased	

I Agent

Attribute	Type	Description	Example
commission	Float		
startDate	LocalDateTime	Start of the agent's contract	2017-01-28T09:00:00
endDate	LocalDateTime	End of the agent's contract	2017-09-28T17:00:00
customers	ArrayList<Customer>	Customers managed by the agent	
ticketsSold	ArrayList<Ticket>	Tickets sold by the agent	
seats	ArrayList<Seat>	Seats managed by the agent	

Report

A Process used

We analysed the study case first and tried to obtain the use cases first so that we could know what exactly the application would have to do. After that, we started to think about how we could implement that functionality and that's how we started to do the class diagrams, since the implementation thinking process helped us identify necessary classes, operations and attributes.

B Constraints and Assumptions

In order to produce the model, we did some assumptions:

- The payments would always be accepted
- An event represents a performance that runs in the theatre for a certain period of time (for example, a musical that is being played at the theatre for two months)
- A show is an individual performance of an event (continuing in the musical example, a show would be a single performance of the musical occurring in an evening)

C Difficulties Encountered

The major encountered difficulties we had was with identifying how the system would work and how all the classes would be linked to each other, as well as what each one would do (responsibility assignment). In order to overcome it, we decided to modulate the operations as much as possible and get every interested party to do a little bit of work towards its completion.

D Contribution and discussions

The log of contributions and discussions from the team can be found in the appendix at the end of the report.

Section B

Implementation

Requirements

A Expected Functional

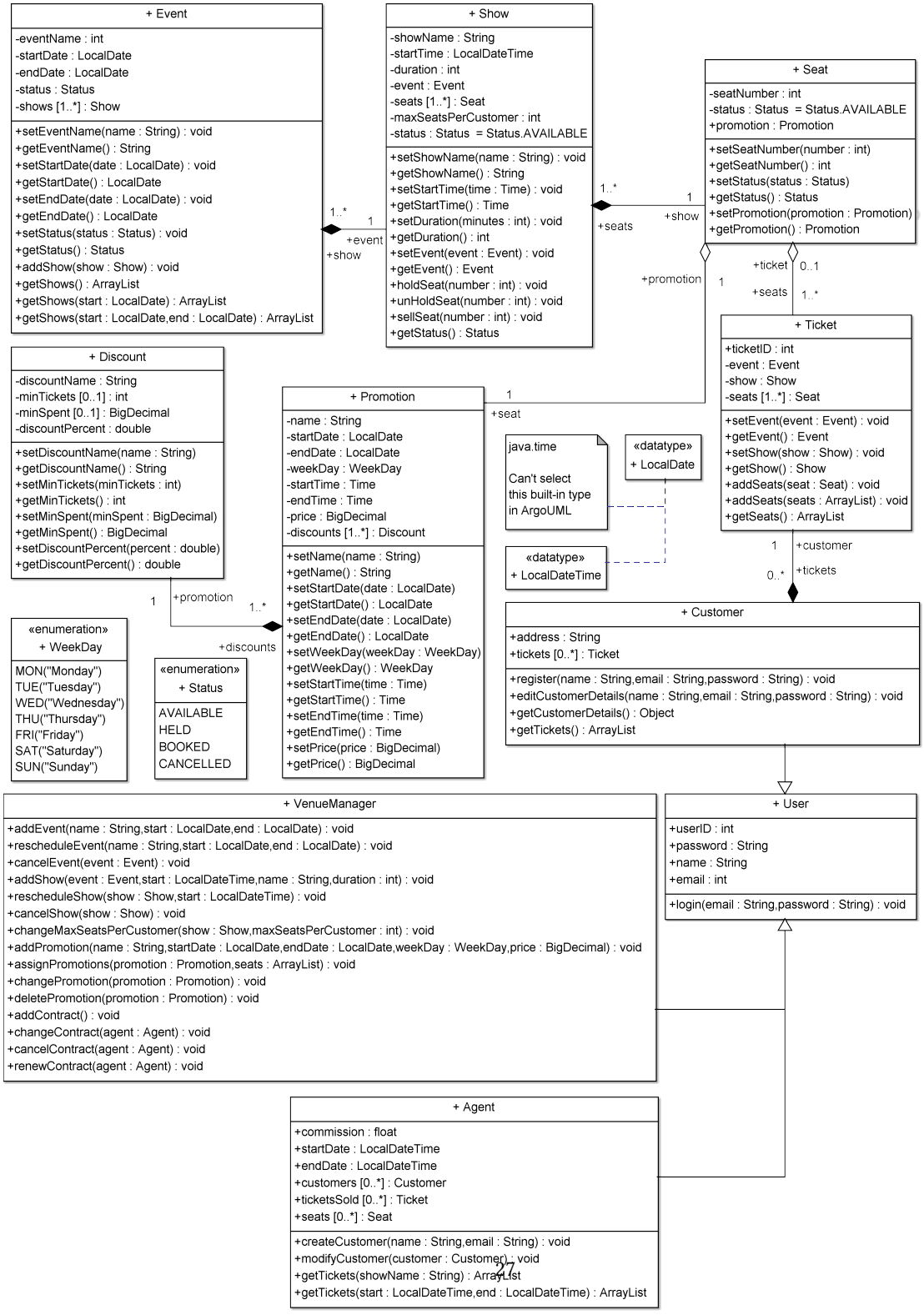
- The system should allow consumers to register and login
- The system should allow consumers to see the upcoming events and shows
- The system should allow consumers to purchase tickets for shows
- The system should allow for specific seats to be reserved when purchasing tickets
- The system should allow the users (agents and consumers) to see the tickets they have purchased
- The system should allow the venue manager to add events and shows
- The system should allow the venue manager to change the events and shows (reschedule and cancel)
- The system should allow the venue manager to change the maximum-seats-per-customer value
- The system should allow the venue manager to add promotions
- The system should allow the venue manager to assign promotions to seats of specific shows
- The system should allow the venue manager to delete promotions
- The system should allow the venue manager to add agent's contracts
- The system should allow the venue manager to cancel an agent's contract
- The system should allow the venue manager to renew an agent's contract
- The system should allow an agent to see the number of tickets they have sold

B Non Functional

- The login operation shouldn't take more than 2 seconds to be completed.
- The search for information shouldn't take more than 5 seconds
- New events should be advertised and appear automatically on the platform only two weeks before the start date
- The login for an agent should start working automatically on the contract start date.
- The login for an agent should stop working automatically after the contract end date.
- After any changes to the data of the system, it should automatically be updated to the system and changes should be noticed in real-time.

Design Class Diagram

Identifying Classes



Sequence Model