Softwa

re Architecture document

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Glossary

Term	Definition
Event Search	when a user searches for a particular event in the database by interacting with the front end search bar.
Event Ticket Purchase	when a user purchases a ticket for an event they found.
Log in	allows the user to verify their information with the database.
Receipt	a confirmation of purchase given to the user.

Vision:

The general vision for this project is providing a user with a simple yet practical event ticket purchasing system. The user will have the ability to purchase tickets and search for tickets that are within the database. There will also be a confirmation of purchases with tickets in form of a receipt, which afterwards will decrement the event amount.

Use Cases:

Purchasing Ticket: Use Case 1

Use Case Section	**Comment**
Use Case Name	Purchasing A Ticket
Scope	Ticket Purchasing Website
Level	User-goal - the ability to purchase a ticket.
Primary Actor	A registered user wishing to purchase a ticket.
Stakeholders and Interests	Registered User: Primary actor who has a user account wishes to purchase a ticket Payment Processor: supporting actor who verifies card information. needs to know credit card number and amount to charge for each purchase Event Host: Offstage actor responsible for organizing the event. Should have a list of users who are attending
Preconditions	User must be logged-into a user account, supply valid credit card information, and click "purchase" on an event that has available seats
Success Guarantee	The ticket is sold (see CO1). If an event has dedicated seats or a maximum capacity, the sale is marked so that the system does not sell the same seat twice or sell too many tickets. An email receipt is sent to the user confirming their purchase (See CO3,CO4)
Main Success Scenario	A user must be logged in, navigate to purchase, and use a valid credit card. (See CO1)
Extensions	If a user isn't logged in, the system requests for them to log in. If the credit card is invalid or the event is full, the request to purchase is denied (see Misuse Case #2).
Technology and Data Variations List	Credit Card Information: A struct containing a credit card number (13-19 digit number) and supplementary information depending on

	credit card type (eg: expiration dates, name on card, CVV code, zip code) Credit Card information is entered via a form on the purchase page (See CO1) Email Receipt: The user's account must have a valid email address so that a digital receipt can be sent upon successful completion (see CO3,CO4)
Frequency of Occurrence	Every time a registered user purchases a ticket

Searching for Ticket: Use Case 2

Use Case Section	**Comment**
Use Case Name	Searching for a Ticket
Scope	Ticket Website.
Level	User-goal - the ability to search for a event
Primary Actor	User - a person wishing to search for an event.
Stakeholders and Interests	User: A registered user or guest wishes to search for events in the system.
Preconditions	User types information into search box and hits submit
Success Guarantee	The system displays a list of events back to the user
Main Success Scenario	A user types in a search box on the website and submits their query for events in the system database.
Extensions	Text given to the user on screen saying "No results" when a query does not yield any events.
Technology and Data Variations List	A database that contains event info
Frequency of Occurrence	Every time a user wishes to search for an event.

Logging in: Use Case 3

Use Case Section	**Comment**
Use Case Name	Logging In
Scope	Ticket Website.
Level	User-goal - the ability to sign into one's account
Primary Actor	A Registered User who wishes to sign into their account
Stakeholders and Interests	User: the person who provides login information to the system
Preconditions	A user must present a valid username (email) and password to the website
Success Guarantee	The user is sent to their homepage
Main Success Scenario	A user types in their username and password, hits enter, and is sent to a homepage.
Extensions	If a user provides an incorrect username/password pair, then they will be denied access, and given a link to create an account
Special Requirements	The password should be salted and hashed so as to be inaccessible by the system

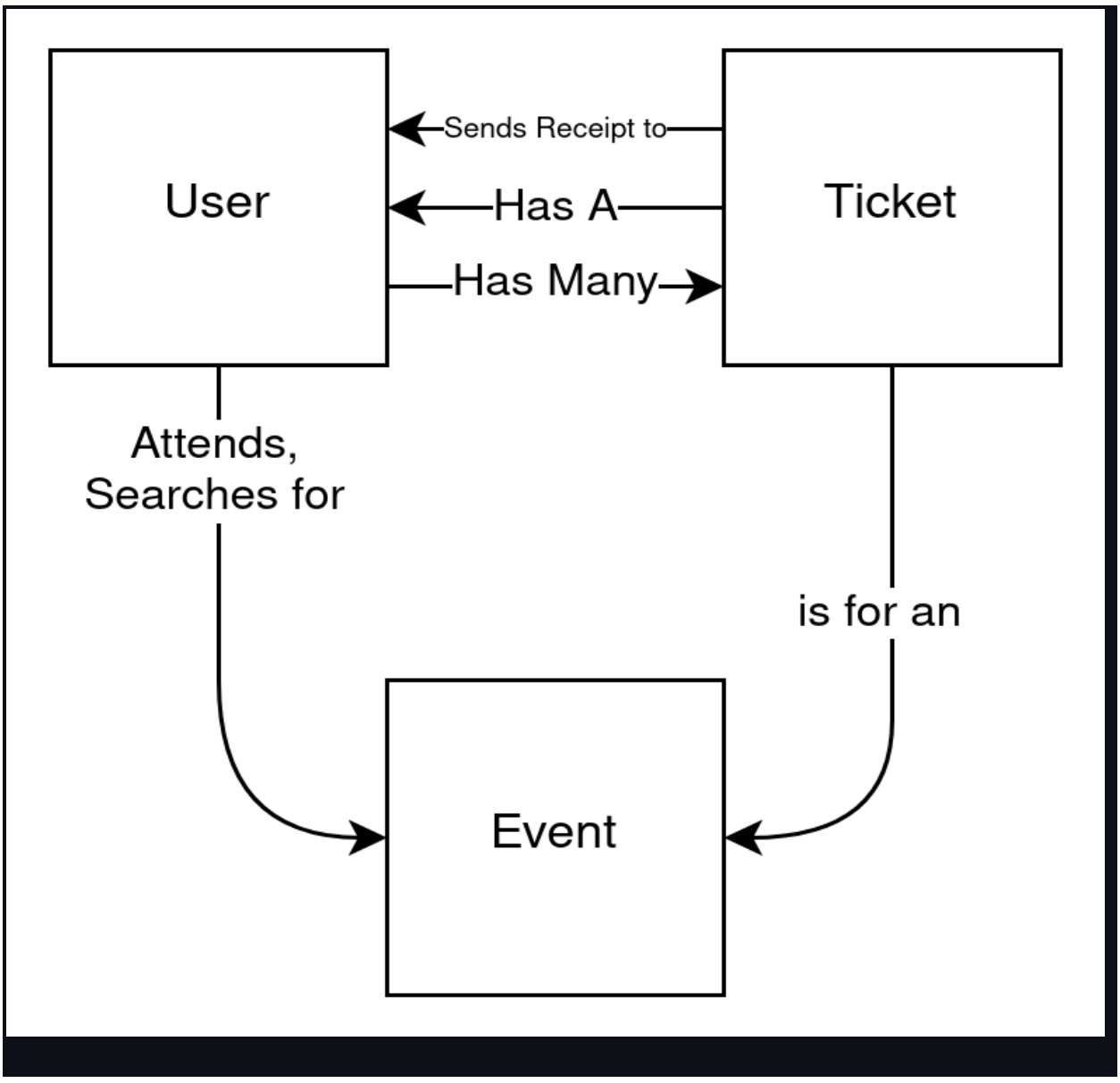
Technology and Data Variations List	A database containing email / salted password pairs
Frequency of Occurrence	Every time a user wishes to purchase a ticket

Creating an Account: Use Case 4

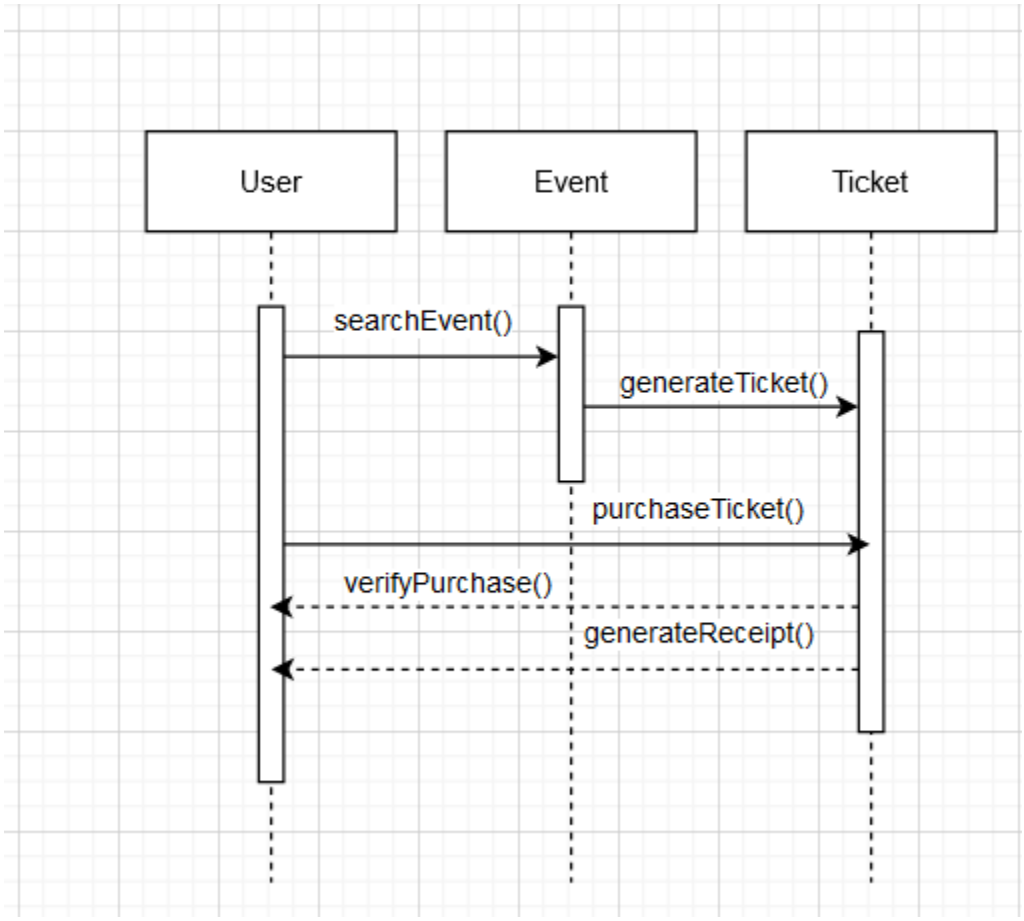
Use Case Section	**Comment**
Use Case Name	Creating an Account
Scope	Ticket Website.
Level	User-goal - the ability to create an account
Primary Actor	a non-user human who wishes to become a user
Stakeholders and Interests	Prospective User - Wishes to register an account
Preconditions	Prospective User provides valid email address and valid password to system
Success Guarantee	A User is created with the information provided by the Prospective User, thereby making the Prospective User a User.
Main Success Scenario	Prospective User provides a valid email address and a valid password to system
Extensions	If the user provides an invalid email / invalid password, the form will not submit and the user will be informed of their error.
Special Requirements	The system should be able to write a new user account into a user database
Technology and Data Variations List	Email Address: an ascii string that corresponds to a specific account on a mail server. Password: An ordered set of fifteen UTF-8

	charachters. Must include at least one lower case letter, one upper case letter, one number, and one special character.
Frequency of Occurrence	Once per user

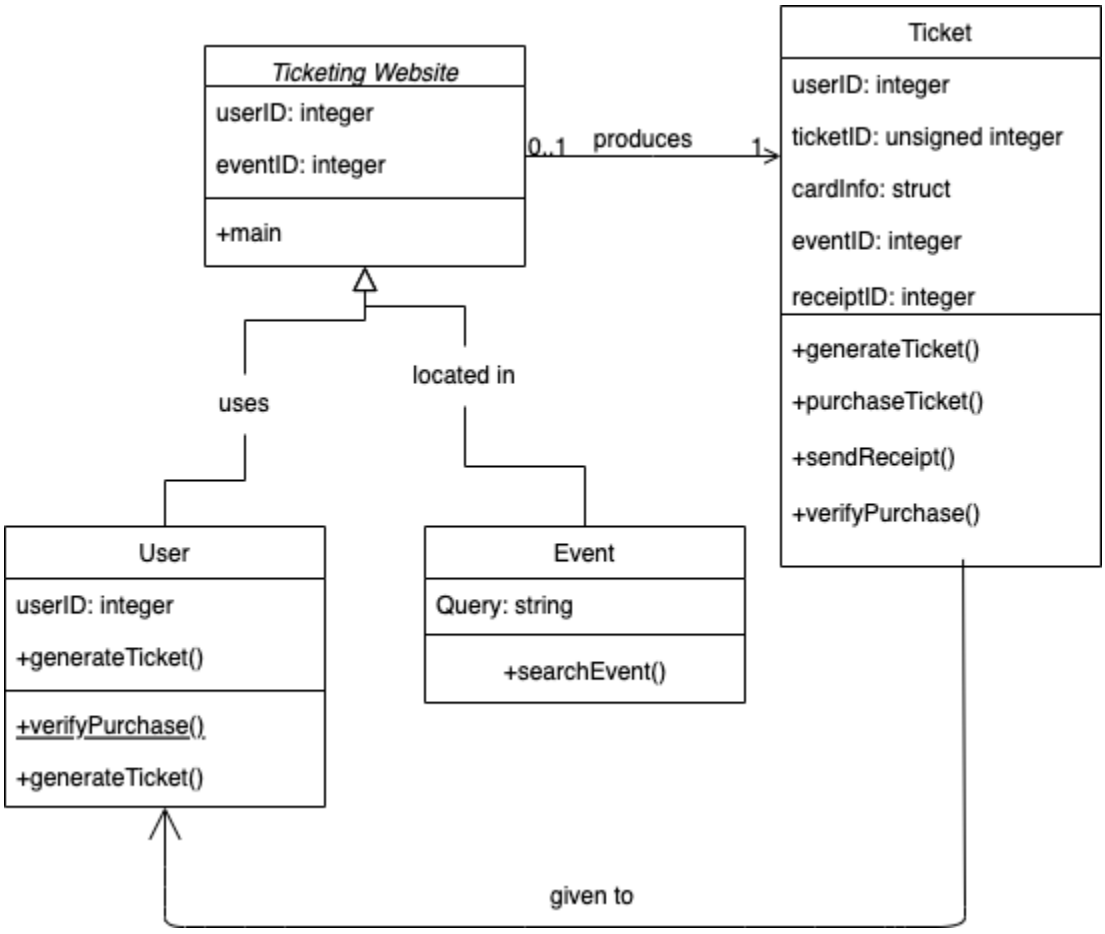
Domain Model:



System Sequence Diagrams:



Class Diagram:



Operation Contracts:

Operation Contract 1:purchaseTicket

Name	**Details**
Operation:	purchaseTicket(userID: integer, ticketID: unsigned integer, cardInfo: struct, eventID)
Cross Reference:	Use Cases: Purchasing a ticket.
Preconditions:	* Buyer must use the application to submit a request to purchase a ticket to the server * Buyer must have filled out the purchase form with credit card information. * Buyer must be logged in.
Postconditions:	- eventID.atendees was incremented by 1 - userID.account.tickets was updated with the ticket information

Operation Contract 2: searchFor

Name	**Details**
Operation:	searchFor(query: String)
Cross Reference:	Use Cases: Searching for a ticket.
Preconditions:	* A user must type into the search bar
Postconditions:	- A query through the database was performed - event.information query results were displayed to the user in a presentable format.

Operation Contract 3: generateReceipt

Name	**Details**
Operation:	generateReceipt(userID: integer)

Cross Reference:	Use Cases: Purchasing a ticket.
Preconditions:	* Buyer must be logged in. * Buyer must have purchased a ticket.
Postconditions:	- ticket.information was generated and associated with the buyer.

Operation Contract 4: sendReceipt

Name	**Details**
Operation:	sendReceipt(receiptID: integer)
Cross Reference:	Use Cases: Purchasing a ticket.
Preconditions:	* Buyer must be logged in. * Buyer must have purchased a ticket.
Postconditions:	- ticket.information was sent to the email of the buyer.

Operation Contracts 5: verifyPurchase

Name	**Details**
Operation:	verifyPurchase()
Cross Reference:	Misuse Case: Declined card
Preconditions:	* Buyer must be logged in. * Buyer must attempt to purchase a ticket. * The card was declined when making a purchase.
Postconditions:	- user.verifyPurchase() was called. - ticket.validTicket was updated if needed.

Abuse/Misuse Cases:

Abuse Case 1: Purchasing ticket with no money on card.

Use Case Section	**Comment**
Use Case Name	Purchasing ticket with no money on card
Scope	Ticket Website.
Level	User-goal - the user tries to get ticket knowing there is no money on card
Primary Actor	User - trying to get a ticket. Card processor- checking card.
Stakeholders and Interests	User: trying to get free tickets. Card processor-this will affect the income
Preconditions	Have ticket in cart
Success Guarantee	Ticket is not given unless the card processor confirms payment information.
Main Success Scenario	Ticket not given until paid for
Extensions	Text given to the user on screen saying "processing payment" when a query does not yield any events.
Technology and Data Variations List	Card processor
Frequency of Occurrence	Everytime a purchase needs to be made.

Misuse Case 1: Spam buying tickets.

Use Case Section	**Comment**
Use Case Name	Spam buying tickets
Scope	Ticket Website.
Level	User-goal - putting tickets into cart
Primary Actor	User - a person wishing to buy an event.

Stakeholders and Interests	User: A registered user or guest wishes to buy events in the system.
Preconditions	User types information into search box and hits submit
Success Guarantee	The system displays a only one event in cart at a time
Main Success Scenario	Users are only able to purchase one ticket at a time.
Extensions	Text given to the user on screen showing one event in the cart at a time.
Technology and Data Variations List	A database that contains event info
Frequency of Occurrence	Every time a user wishes to buy an event.