

SADT Project – Restaurant Ordering System

The concept of the system is to act as an ordering system for food items at a restaurant to be used by customers. The system includes functions such as browsing a menu, ordering food items from the menu, and paying the total for their order. Other functions include giving the customer the ability to reserve a table by either calling the restaurant's phone number or emailing the restaurant and ordering a delivery to their home address.

The restaurant system should operate by presenting the customer with a menu screen and giving them the option to start browsing the menu. They will then be able to add any of the menu items to their order before confirming their order. A waiter will then serve their order when ready. If the customer wishes to reserve a table or order a delivery, then they can contact the restaurant's phone number and the supervisor can set up a reservation for them or set up a delivery to their home address.

User Stories

Story Identifier	US-001
Story Name	Browse Menu
Description	As a customer I need to browse the menu so that I can determine what to order.
Confirmation	The customer can choose the option to browse the menu.

Story Identifier	US-002
Story Name	Order Items
Description	As a customer I need to order food items from the menu so that I can have my order served to my table.
Confirmation	The customer can select any available food items from the menu to add to their order under the condition that they are in stock.

Story Identifier	US-003
Story Name	Pay Bill
Description	As a customer I need to pay the bill for the total of my order so that I can pay for my food.
Confirmation	The customer can select the option to pay the bill and either give their card details or pay by cash.

Story Identifier	US-004
Story Name	Reserve Table
Description	As a customer I need to have the option to reserve tables according to a date and time I specified so that I can have a table reserved for me at the time that I'm available.
Confirmation	The customer can contact the supervisor by either phone or email to ask for a reservation at a desired date and time.

Story Identifier	US-005
Story Name	Order Delivery
Description	As a customer I need to contact the supervisor of the restaurant so that I can place an order to be delivered to my home address.
Confirmation	The customer can contact the supervisor by phone and ask for an order to be delivered to their home address.

Scenario Specifications

Use case name: Browse Menu	UniqueID: 001
Area: Restaurant	
Actor(s): Customer, Supervisor, FoodItemsDatabase, TableDatabase	
Description: A customer browses the menu for the restaurant	
Triggering Event: Customer enters the restaurant	
Trigger type: <input type="checkbox"/> External	
Steps Performed (Main Path)	Information for Steps
1. Supervisor checks for unused tables	The supervisor checks the database for unused seats.
2. Database returns details	Database returns a list of the unreserved tables
3. Supervisor uses a free table	The Supervisor uses any unused table for the customer/s.
4. Customer browses menu	The customers are presented with devices that present the menu.
Preconditions: Customer enters the restaurant.	
Postconditions: Customer is seated and is able to browse the menu	
Assumptions: The restaurant is open and the supervisor is available	
Requirements met: Customer can browse the menu	
Outstanding issues: None	
Priority: High	
Risk: High	

Use case name: Order Items	UniqueID: 002
Area: Restaurant	
Actor(s): Customer, OrderDatabase, Chef, Waiter	
Description: A customer orders items in the restaurant	
Triggering Event: Customer requests to take an order	
Trigger type: <input type="checkbox"/> External	
Steps Performed (Main Path)	Information for Steps
1. Customer adds to order	Customer adds food items to the order
2. Customer confirms order	The customer confirms the order
3. Database receives order	The order is added to the database
4. Chef checks database	The chef checks the newly added order on the database
5. Database returns orders	The database returns a list of all orders that have been made
6. Chef prepares order	The chef prepares the order
7. Chef sends order	The chef sends the order back to the waiter when ready
8. Waiter gives order	The waiter takes the order from the chef and gives it to the customer.
Preconditions: Customer is seated and has browsed the menu	
Postconditions: Customer ordered items in the menu	
Assumptions: McDennies is open and taking orders, the items requested are in stock, waiter is available for taking orders.	
Requirements met: Customer has placed an order	
Outstanding issues: None	
Priority: High	
Risk: High	

Use case name: Pay Bill		UniqueID: 003
Area: Restaurant		
Actor(s): Customer, OrderDatabase, CardDetails, CustomerDatabase		
Description: A customer pays the bill for their order		
Triggering Event: Customer requests the bill		
Trigger type: <input type="checkbox"/> External		
Steps Performed (Main Path)		Information for Steps
1. The customer chooses to pay bill		The customer chooses to pay bill on their device
2. Database returns total		The database proceeds to return the total price of the order
3. Customer makes payment		The customer makes a payment through the credit or debit card.
4. Customer adds card details		The customer adds their card details to the system
5. Card details added to database		The database receives the card details to process the payment.
Preconditions: Customer is finished ordering		
Postconditions: Customer has paid their bill		
Assumptions: The customer has sufficient funds to pay the bill		
Requirements met: Customer can pay for their order		
Outstanding issues: Possibility that the customer has insufficient funds for the bill		
Priority: High		
Risk: High		

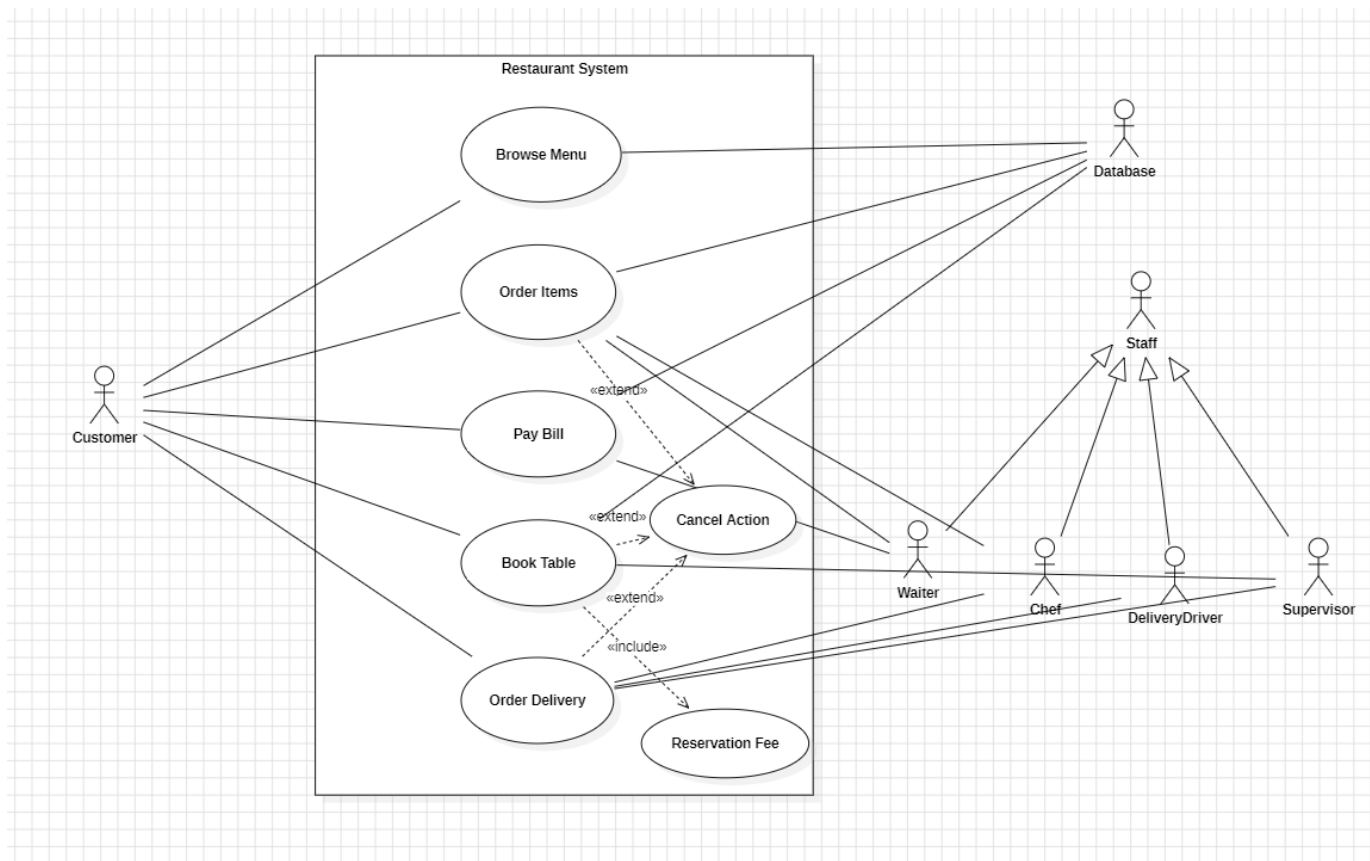
Use case name: Reserve Table		UniqueID: 004
Area: Restaurant		
Actor(s): Customer, Supervisor, TableDatabase		
Description: a customer receives a table at a certain time and date at the restaurant to eat, drink, etc.		
Triggering Event: Customer requests to book a table		
Trigger type: <input type="checkbox"/> External		
Steps Performed (Main Path)		Information for Steps
1. Customer contacts the restaurant		The customer contacts the restaurant's supervisor through a phone call or email.
2. Supervisor receives the request		The supervisor receives the request through the chosen contact method.
3. Supervisor checks database		The supervisor checks the database for an unreserved table.
4. Supervisor assigns customers to an unreserved table on the database		The supervisor assigns customers to an unreserved table on the database
5. Customer pays fee/ Fee added to the total order		The supervisor adds a fee to the customer's future order through the database
Preconditions: Customer must initiate the restaurant		
Postconditions: Booking has been confirmed/denied in the system		
Assumptions: The restaurant is open and accepting bookings, and a supervisor is available to answer the call/email. The customer has five euros for booking fee.		
Requirements met: The customer is able to reserve a table		
Outstanding issues: The booking fee is resolved using another included use case.		
Priority: Medium		
Risk: High		

Use case name: Order Delivery	UniqueID: 005
Area: Restaurant	
Actor(s): Customer, Supervisor, Chef, Delivery Driver, Database	
Description: A customer places an order for delivery from the restaurant.	
Triggering Event: Customer requests an order for delivery.	
Trigger type: <input type="checkbox"/> External	
Steps Performed (Main Path)	Information for Steps
1. Customer orders delivery	The customer contacts the supervisor by either phone or email
2. Customer gives details	The customer gives their address details to the supervisor before making an order
3. Supervisor updates database	The supervisor adds the customers details to the customer database
4. Customer places the order	The customer contacts the restaurant through a phone call.
5. Supervisor receives the order	The Supervisor receives the order details and the customer's details by phone.
6. Supervisor confirms the order	The Supervisor confirms the order with the customer.
7. Supervisor calculates total	The supervisor calculates the total of the order
8. Supervisor sends the order	The Supervisor adds the order to the order database
9. Supervisor checks database	The chef checks the database for a list of all orders
10. Food is prepared	The chef looks at the order on the database and prepares the order
11. Food is sent to the delivery driver	The chef sends the order to the delivery driver.
12. Delivery Driver checks total	The delivery driver checks the total on the database
13. Database returns total	The database returns the total of the order
14. Supervisor gives customer details	The supervisor gives the customers address to the delivery driver
15. Delivery driver is dispatched	The supervisor gives the delivery driver the customer's details from the database and dispatches the delivery driver.
16. Delivery driver delivers the order	The delivery driver delivers the order to the customer.
17. Customer picks up the order	The customer gets the order from the delivery driver
18. Customer receives total	The delivery driver notifies the customer of the total

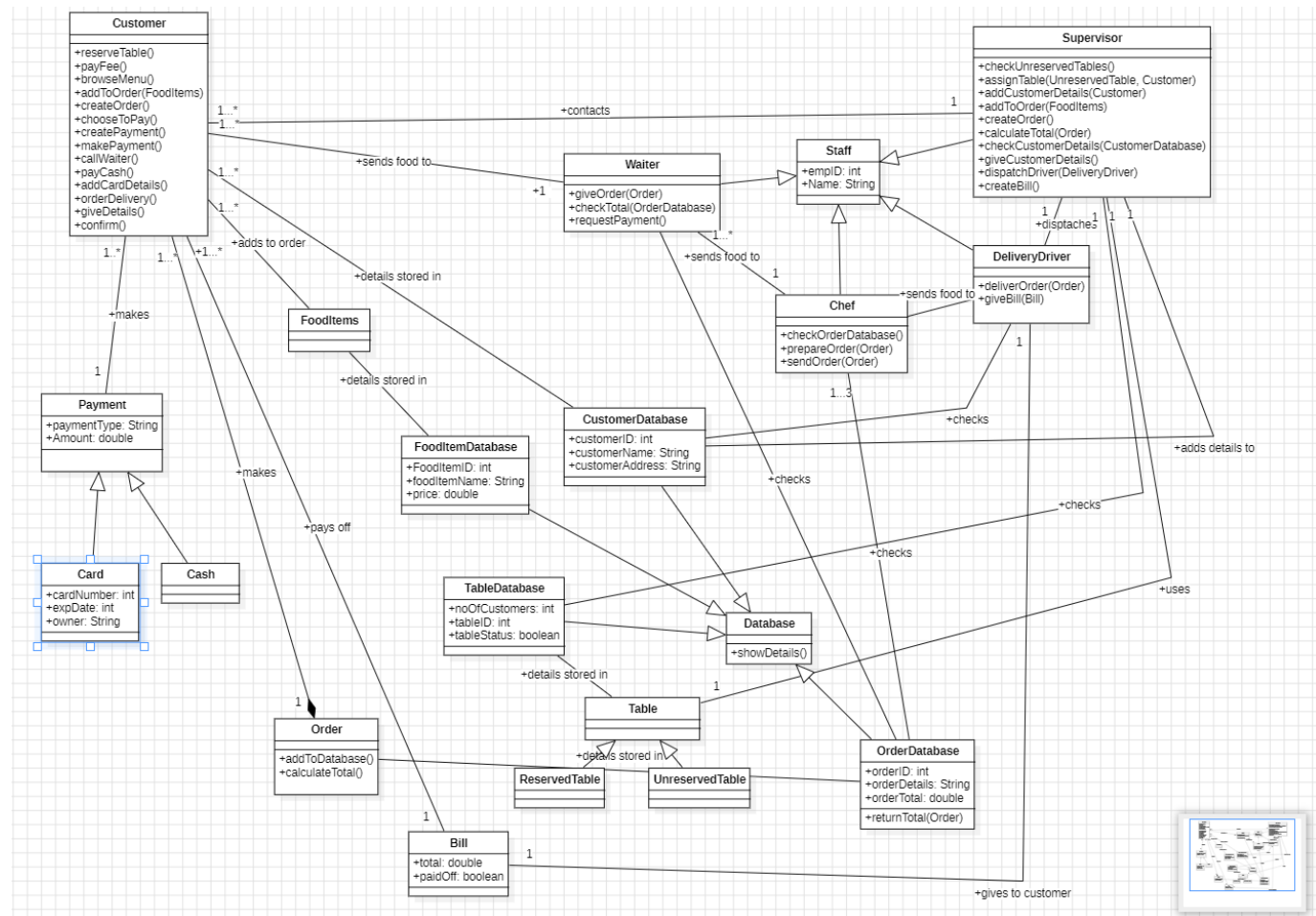
19. Customer pays total	The customer pays off the total for the order by cash, credit card or debit card.
Preconditions: Customer initiates the order.	
Postconditions: Customer receives the order.	
Assumptions: The restaurant is open and taking orders, the items requested are in stock, the supervisor and delivery driver are available.	
Requirements met: Customer placed a valid order & it's paid for.	
Outstanding issues: None	
Priority: Medium	
Risk: High	

Diagrams

Use Case Diagram

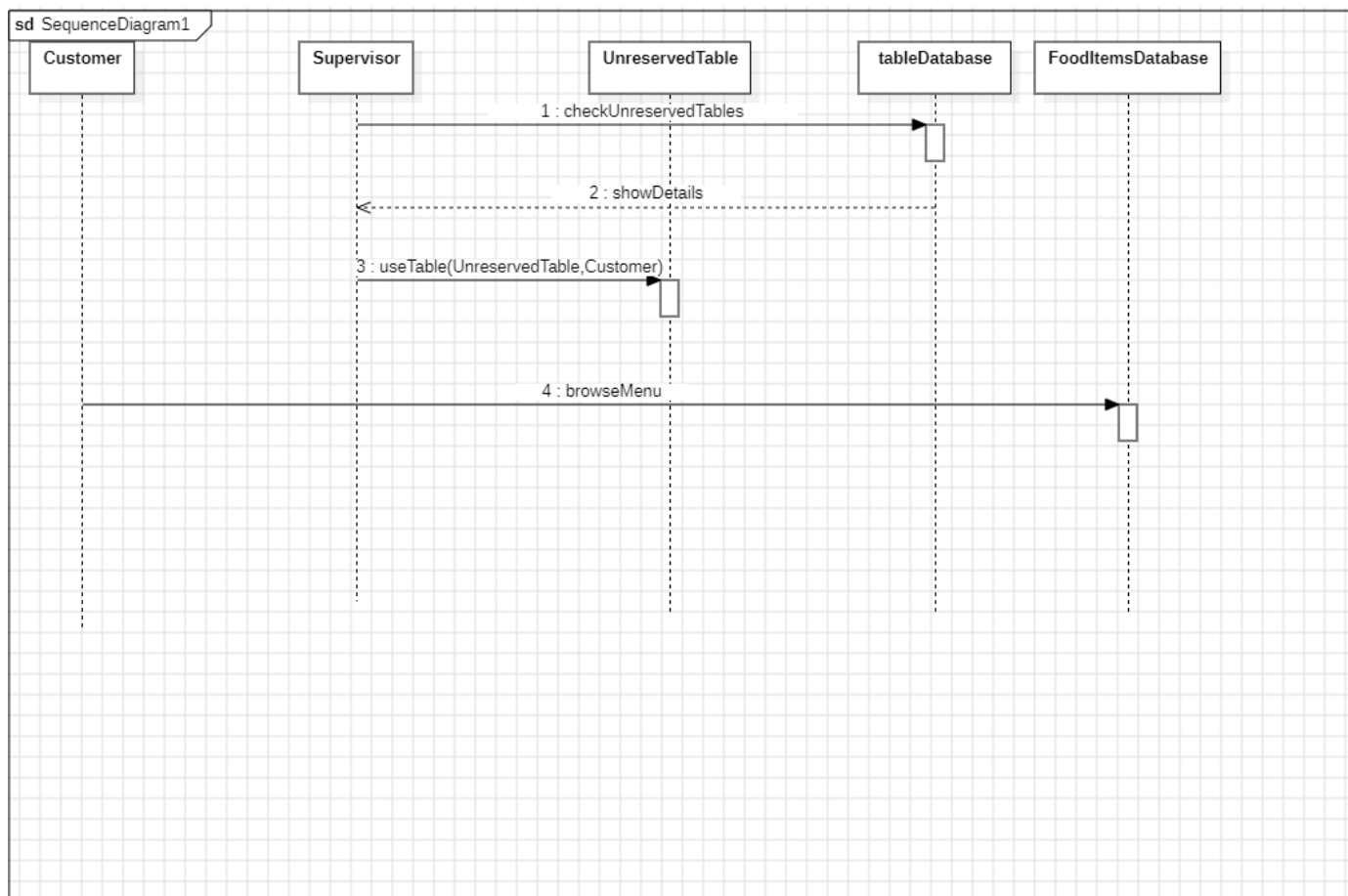


Class Diagram



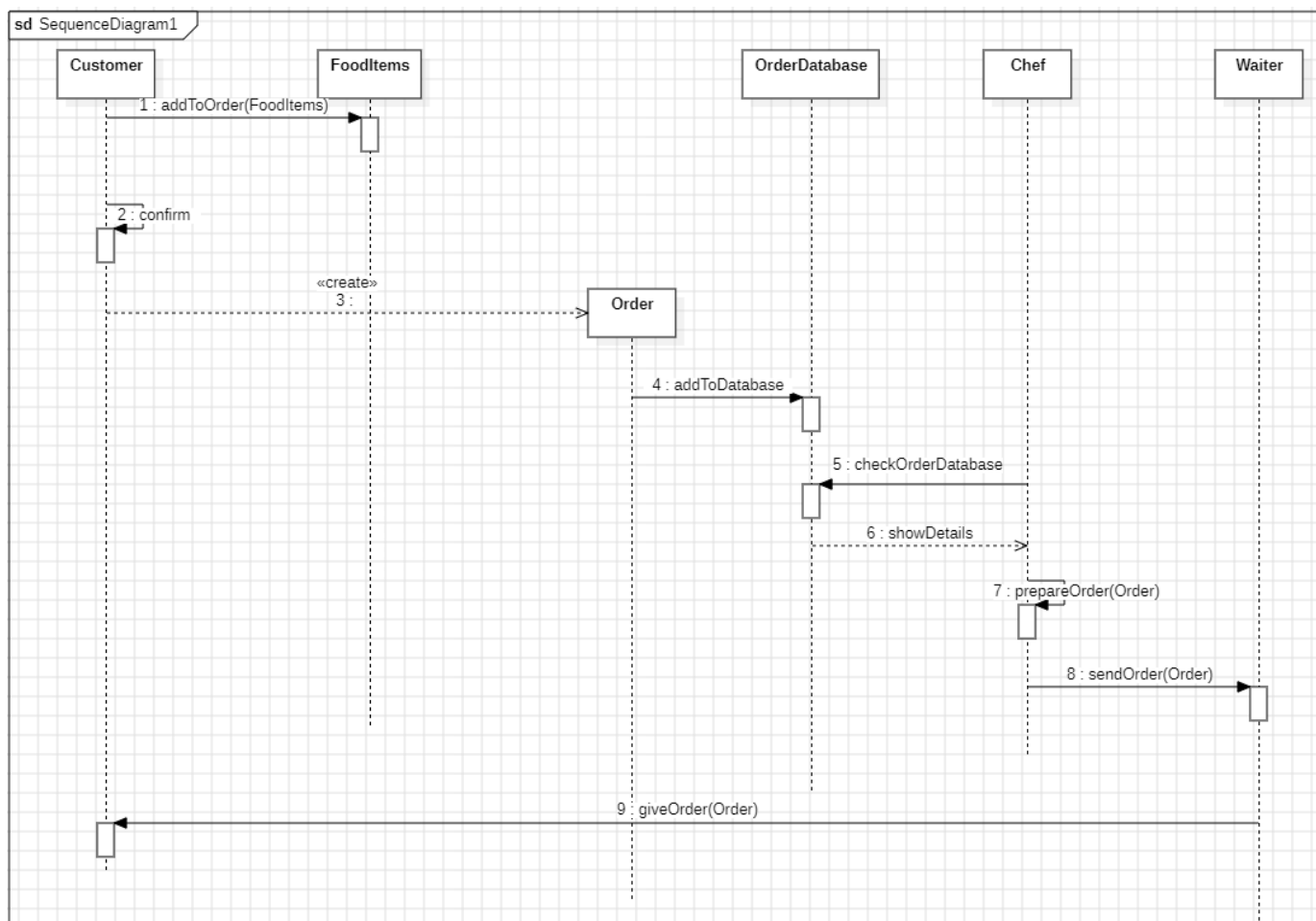
Sequence Diagrams

Browse Menu



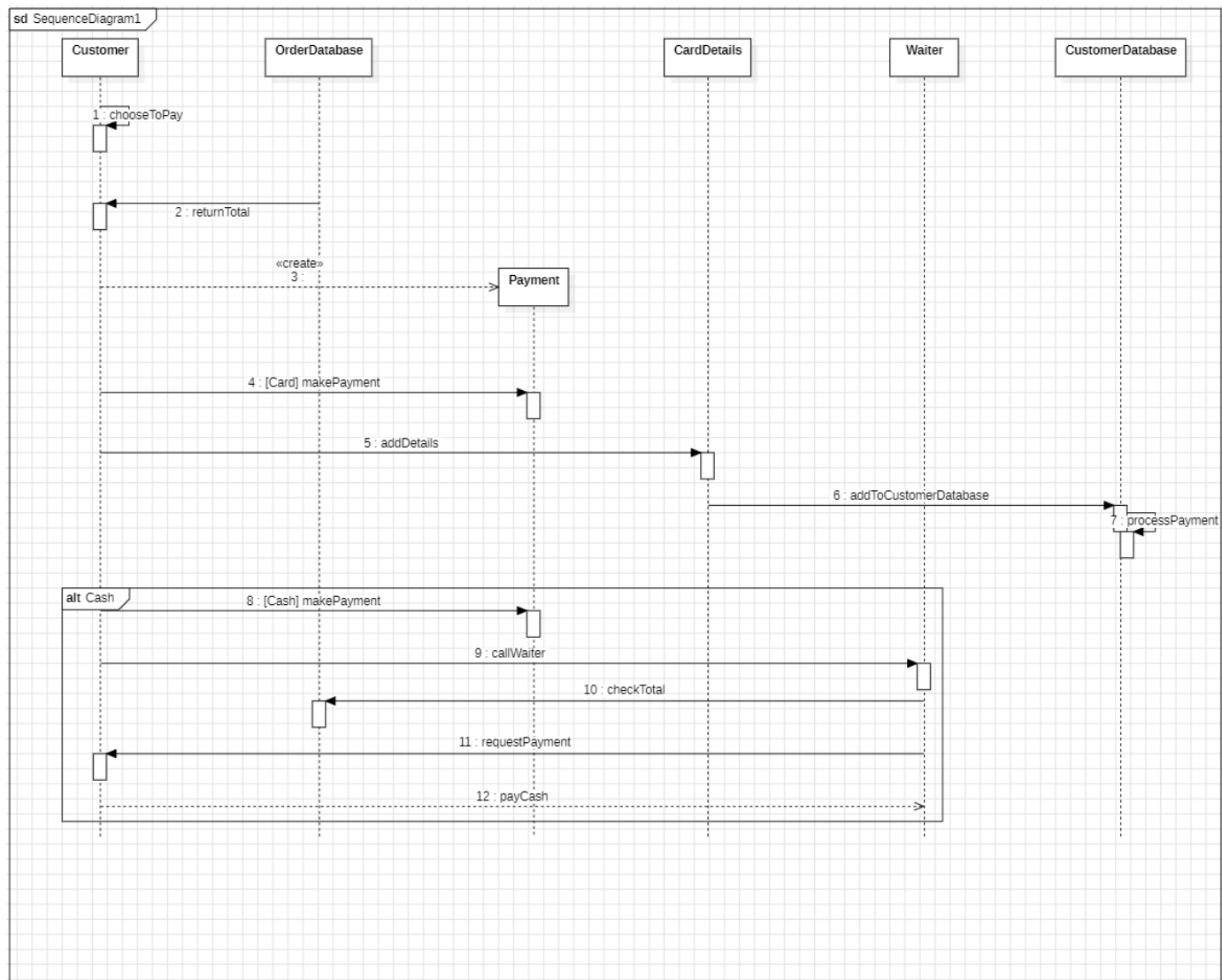
Sequence Num	Caller	Callee	Msg Name	Msg Type	Msg Param	Msg Constrains
1	Supervisor	tableDatabase	checkUnreserved Tables	Synchronous	-	-
2	TableDatabase	Supervisor	showDetails	Synchronous	-	-
3	Supervisor	UnreservedTable	useTable	Synchronous	Unreserved Table, Customer	-
4	Customer	FoodItemsDatabase	createMenu	Asynchronous	-	-

Order Items



Sequence Num	Caller	Callee	Msg Name	Msg Type	Msg Param	Msg Constraint
1	Customer	FoodItems	addToOrder	Synchronous	FoodItems	-
2	Customer	-	confirm	Synchronous	-	-
3	Customer	Order	createOrder	Asynchronous	-	-
4	Order	OrderDatabase	addToDatabase	Synchronous	-	-
5	Chef	OrderDatabase	checkOrderDatabase	Synchronous		-
6	OrderDatabase	Chef	showDetails	Synchronous		-
7	Chef	-	prepareOrder	Synchronous	Order	-
8	Chef	Waiter	sendOrder	Synchronous	Order	-
9	Waiter	Customer	giveOrder	Synchronous	Order	

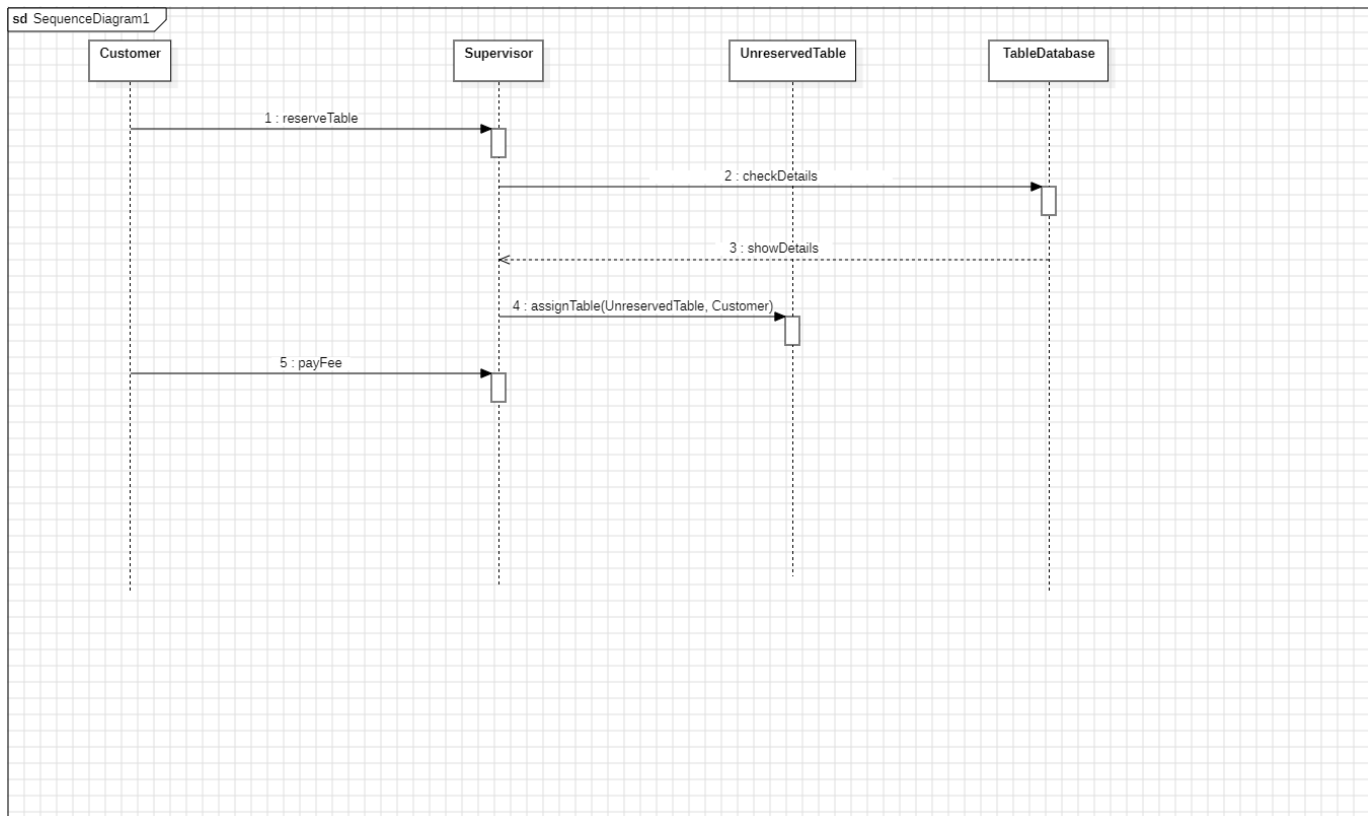
Pay Bill



Sequence Num	Caller	Callee	Msg Name	Msg Type	Msg Param	Msg Constr ain
1	Customer	-	chooseToPay	Synchronous	-	-
2	OrderData base	Customer	returnTotal	Synchronous	-	-
3	Customer	Payment	createPayment	Asynchronous	-	-
4	Customer	Payment	makePayment	Synchronous	-	Card
5	Customer	CardDetails	addDetails	Synchronous	-	-

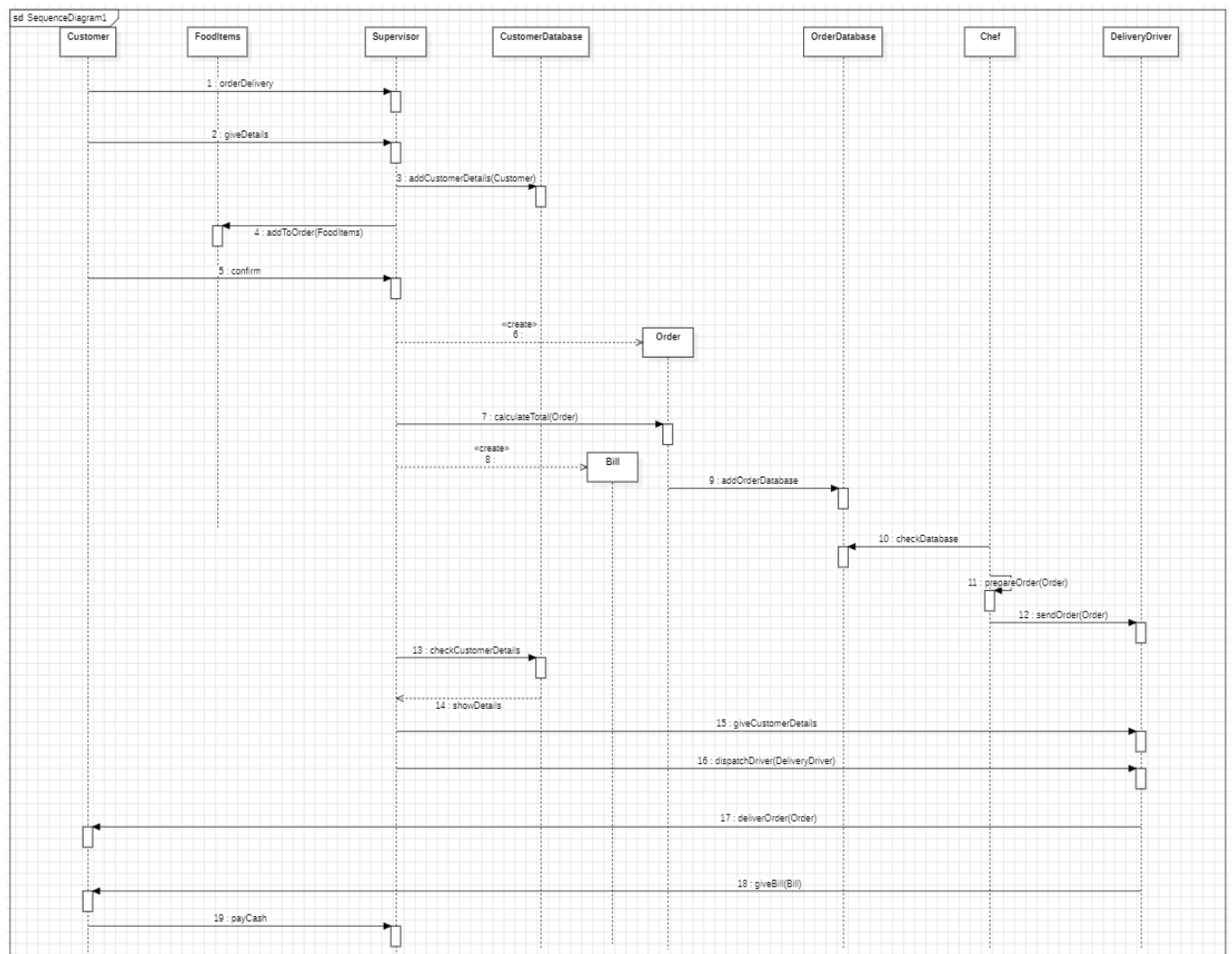
6	CardDetails	CustomerDatabase	addToCustomerDatabase	Synchronous	-	-
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Reserve Table



Sequence Num	Caller	Callee	Msg Name	Msg Type	Msg Param	Msg Constraint
1	Customer	Supervisor	reserveTable	Synchronous	-	-
2	Supervisor	Table Database	check Unreserved Tables	Synchronous	-	-
3	Table Database	Supervisor	show Details	Synchronous		-
4	Supervisor	Unreserved Table	assignTable	Synchronous	Unreserved Table, Customer	-
5	Customer	Supervisor	payFee	Synchronous	-	-

Order Delivery



Sequence Num	Caller	Callee	Msg Name	Msg Type	Msg Param	Msg Constraint
1	Customer	Supervisor	Order Delivery	Synchronous	-	-
2	Customer	Supervisor	giveDetails	Synchronous	-	-
3	Supervisor	Customer Database	Add Customer Details	Synchronous	Customer	-
4	Supervisor	FoodItems	addToOrder	Synchronous	FoodItems	-
5	Customer	Supervisor	confirm	Synchronous	-	-
6	Supervisor	Order	createOrder	Asynchronous	-	-
7	Supervisor	Order	Calculate Total	Synchronous	Order	-

8	Supervisor	Bill	createBill	Asynchronous		
9	Supervisor	Order Database	Add Order Database	Synchronous	-	-
10	Chef	Order Database	Check Database	Synchronous	-	-
11	Chef	-	Prepare Order	Synchronous	Order	-
12	Chef	-	sendOrder	Synchronous	Order	-
13	Supervisor	Customer Database	Check Customer Details	Synchronous	-	-
14	Customer Database	Supervisor	showDetails	Synchronous	-	-
15	Supervisor	Delivery Driver	Give Customer Details	Synchronous	-	-
16	Supervisor	Delivery Driver	Dispatch Driver	Synchronous	Delivery Driver	-
17	Delivery Driver	Customer	Deliver Order	Synchronous	Order	-
18	Delivery Driver	Customer	giveBill	Synchronous	Bill	-
19	Customer	Delivery Driver	payCash	Synchronous	-	-

Test Cases

Name	Test-001-Browse Menu
Requirement	Verify that the search bar on the system returns the right results
Preconditions	The user chooses the option to browse the menu
Steps	<ol style="list-style-type: none"> 1. The user clicks on the search bar. 2. The user searches for any food item from the menu either by name or by its ID. 3. Check the result and verify that it returns the food item that has been searched for.
Expected Results	The database returns the correct food item according to the name or ID used in the search bar.

Name	Test-002-Order Items
Requirement	Verify that chosen food items can be added to an order
Preconditions	The user chooses the option to add food items to an order.
Steps	<ol style="list-style-type: none"> 1. The user picks food items at random to add to an order. 2. The user chooses the option to show their order. 3. The user verifies that all their chosen food items appear on the order. 4. The user chooses the option add more items.
Expected Results	All the chosen food items appear when the user chooses their order.

Name	Test-003-Pay Bill
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Requirement	Verify that the total for an order is calculated properly
Preconditions	The user selects the “Add Items” option when they browse the menu.
Steps	<ol style="list-style-type: none"> 1. The user chooses a random assortment of food items to add to an order. 2. The user then confirms their order. 3. The user will then be shown the total for the order after confirming. 4. The user verifies that the price of the total matches up with the price of the order. 5. The user chooses the option to confirm their order once more after seeing the total for their order
Expected Results	The price of the total matches up with the price of the order and that the total is shown once the user confirms their order.

Name	Test-004-Reserve Table
Requirement	Verify that the list of unreserved tables returned by the database is correct.
Preconditions	The user chooses the “Show Unreserved Tables” option.
Steps	<ol style="list-style-type: none"> 1. The user chooses the “Reserve Tables” option. 2. The user can choose any unreserved table to reserve. 3. The user can then go back and select the option to show the unreserved tables and ensure that it has been updated.
Expected Results	<p>The list of all unreserved tables should change according to which tables have been reserved.</p> <p>The unreserved tables that have been recently reserved appear on the list of reserved tables.</p>

Name	Test-005-Order Delivery
Requirement	Verify that the customer details entered to the customer database are returned properly.
Preconditions	The user chooses the “Show Customer Details” option.
Steps	<ol style="list-style-type: none"> 1. The user selects the “Add Customer Details” option. 2. The user then enters a random name and an address with a combination of letters for the address details. 3. The user goes back to look at the list of the customer details. 4. Verify that the details being returned are the same as the customer details that have been entered. 5. The user can choose to add more details to the database to try again.
Expected Results	<p>The list of customer details returned by the database is the same as the details entered to the database.</p> <p>The list of customer details to be returned is sorted by oldest entries to newest entries.</p>

Credits

Use Case Diagram (Unused): Isaiah/Matthew

Class Diagram (Unused): Isaiah/Matthew

Use Case Diagram (Used): Isaiah

Class Diagram (Used): Isaiah

Sequence Diagram: Isaiah

Message Analysis Table: Isaiah

Summary and User Stories: Isaiah

Test Cases (All): Isaiah

Scenario Specifications:

Browse Menu: Isaiah

Order Items: Isaiah

Pay Bill: Isaiah

Reserve Table (Unused): Matthew

Reserve Table (Used): Isaiah

Order Delivery: Isaiah

Order Take-Out(Unused): Matthew