National University
of computer and emerging sciences

Software Design and Architecture

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Project Deliverable 3: SRS VERSION 2.0

1. Sequence Diagrams
2. Revised System Sequence Diagrams
3. Revised Use Case Diagram
4. Revised Extended Use-Cases

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Flight Reservation
Flight Management
Flight Scheduling
Airport Management

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Flight Management

UC-01: Scheduling a Flight:

Sr. No	Section	Content / Explanation
1	**Designation**	UC-01
2	**Name**	**Schedule a Flight**

Sr. No	Section	Content / Explanation
3	**Authors**	Daniyal, Ayesha, Mehreen
4	**Priority**	Important for system's success: High Technological Risk: High
5	**Scope**	This use case deals with how the Flight manager schedules a flight.
6	**Criticality**	High
7	**Stakeholders and interests**	• Flight Manager: Responsible for the entire scheduling of a flight. He wants correct retrieval of data to avoid any hazard. • Pilot: Responsible for piloting the flight. I Want to get all the necessary info about the flight to correctly pilot it. • Flight crew: Responsible for managing Passengers. • Technical crew: Responsible for maintaining the airplane of the flight. • Navigation system: Responsible for identifying the route of the Airplane. • Company: Wants to give their Passengers a tension free and satisfactory ride, and wants to record all the data for future use. • Passenger: Wants to travel faster and with minimum headaches.
8	**Description**	From the FRS main Screen panel, the Flight manager opens the Flight scheduling panel. The FRS displays a list of routes and date of flight. The Flight manager selects a route and date. The FRS then displays the list of available airplanes that meets the route and date criteria. The flight manager then confirms the Flight by entering the increase or decrease in the ticket price.
9	**Trigger Event**	The flight manager wishes to schedule a Flight.
10	**Actors**	Flight Manager, FRS
11	**Pre-Conditions**	1. The airplane must be available for scheduling. 2. There must be route available for the city of departure and arrival. 3. The Flight Manager must be logged in.
12	**Post-Conditions**	1. Flight is scheduled. 2. Flight records are updated. 3. The fare is generated. 4. Flight is available for booking 5. Airplane Records are updated

<table>
<tr><th>Sr. No</th><th>Section</th><th>Content / Explanation</th></tr>
<tr><td>13</td><td>Result</td><td>Flight scheduled</td></tr>
<tr><td>14</td><td>Main Scenario</td><td>
<table>
<tr><th>Flight Manager</th><th>Flight Scheduling system</th></tr>
<tr><td>1. The Flight Manager opens the Flight scheduling Panel.

0. The flight manager enters the desired departure, arrival and Date and time of the flight.

3. The flight manager may increase or decrease the price.</td><td>1a. The FRS displays the Flight Scheduling options.

1b. The FRS asks the flight manager for city of departure and arrival, Date and time of the flight.

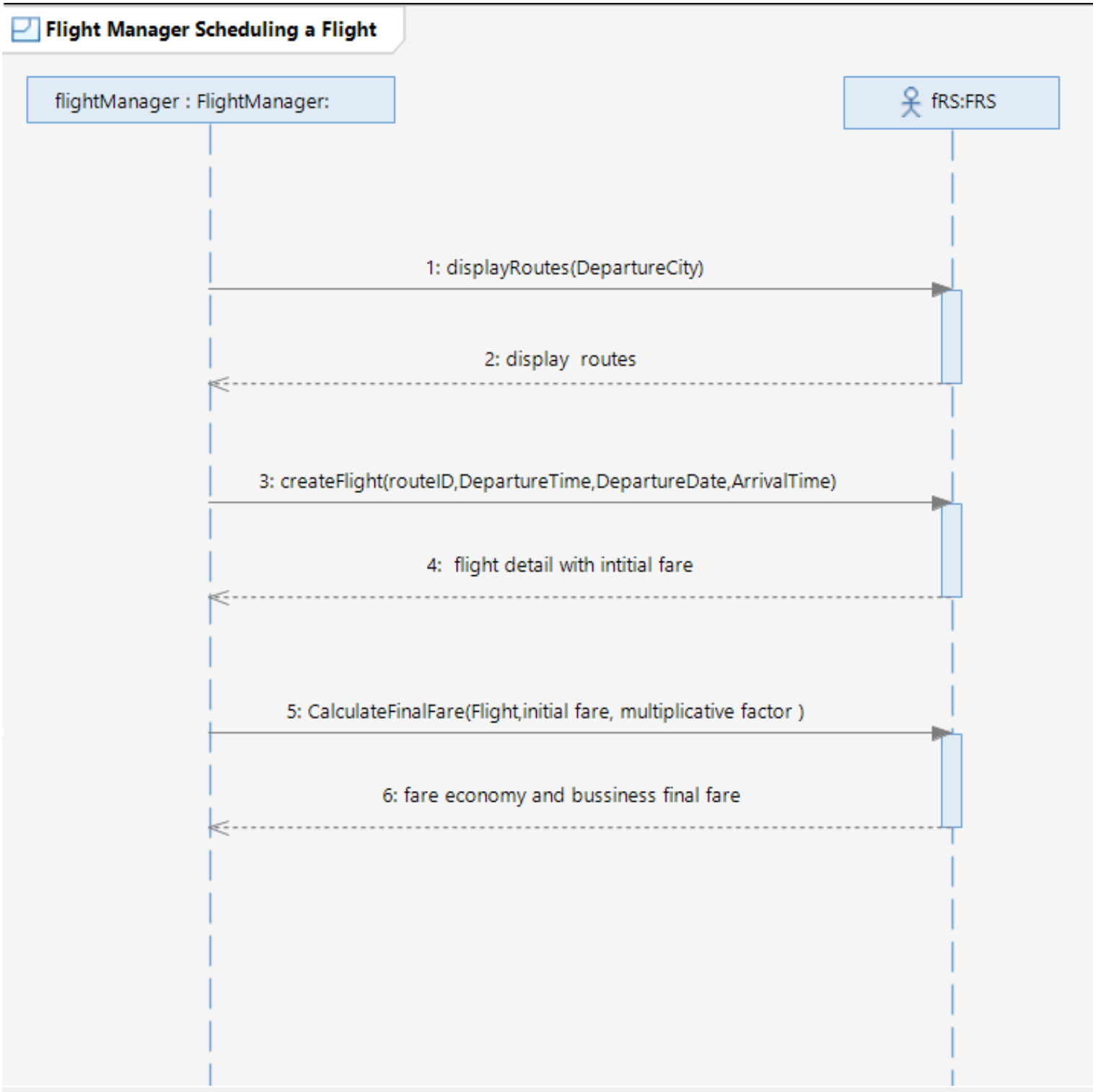
2a. The FRS then displays the Ticket prices (economy, business) and asks for an increase or decrease in price.

3a. The FRS schedules the flight for available airplane.

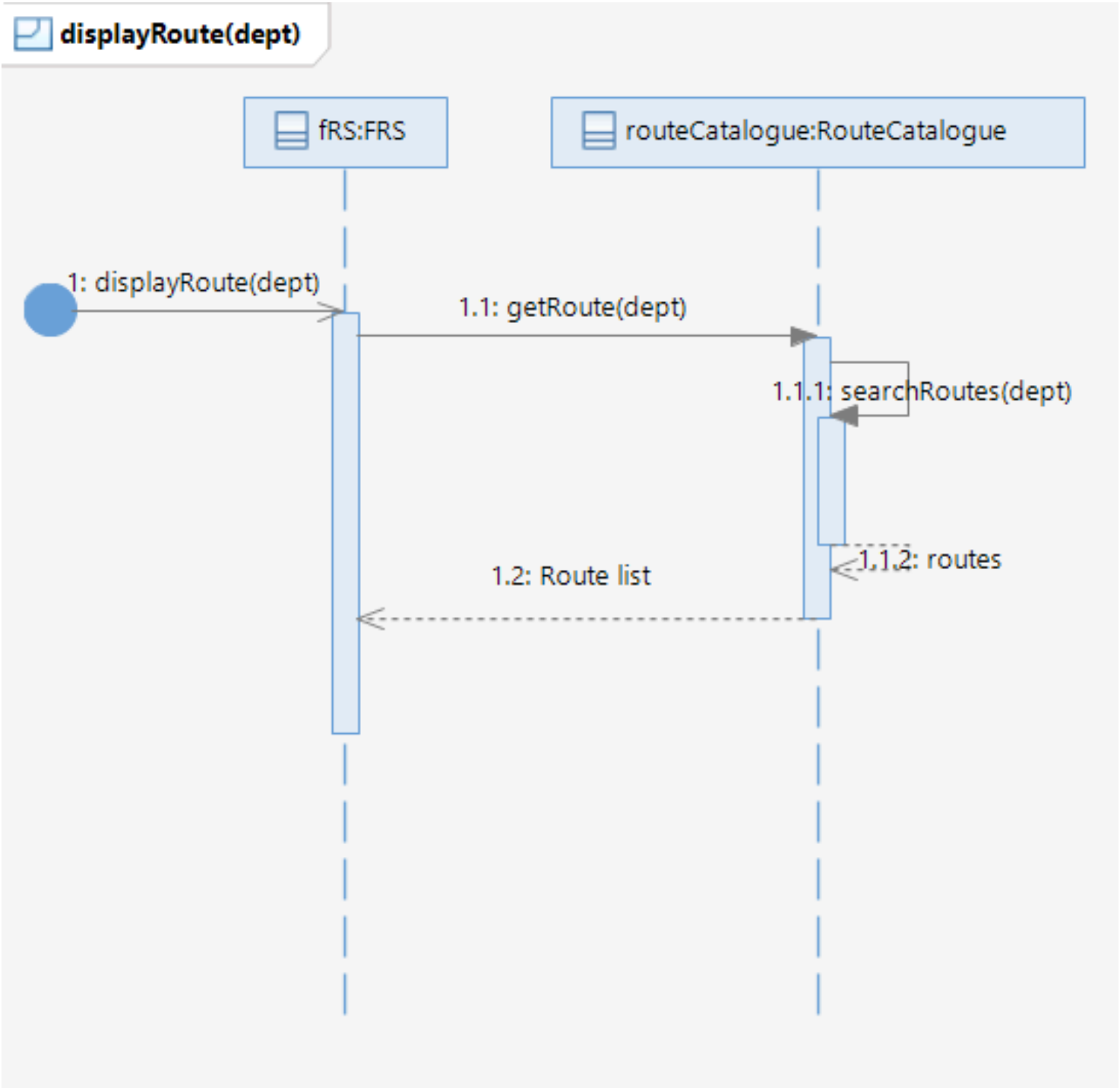
4b. The FRS displays the details (Fare, capacity, Route, Flight ID) of the Flight.</td></tr>
</table>
</td></tr>
<tr><td>15</td><td>Alternative Scenario</td><td>In case of FRS failure before Flight manager saves the data:
1. Flight manager logs in again
2. The FRS will not have any information saved. The Flight manager will have to enter the details again.
In case of unavailability of Airplanes:
a. 1. The Flight manager will have to enter alternative timings for flight departure.</td></tr>
</table>

Sr. No	Section	Content / Explanation
		If there is no route between the departure city and arrival city, the Flight manager will have to add a route first before scheduling. Else, the FRS will automatically add a route.
16	**Exception Scenario**	1. The FRS is unable to log in. 2. The FRS is unable to Airplane Data. 3. The FRS is unable to Route Details. 4. The FRS is unable to fetch airport details.

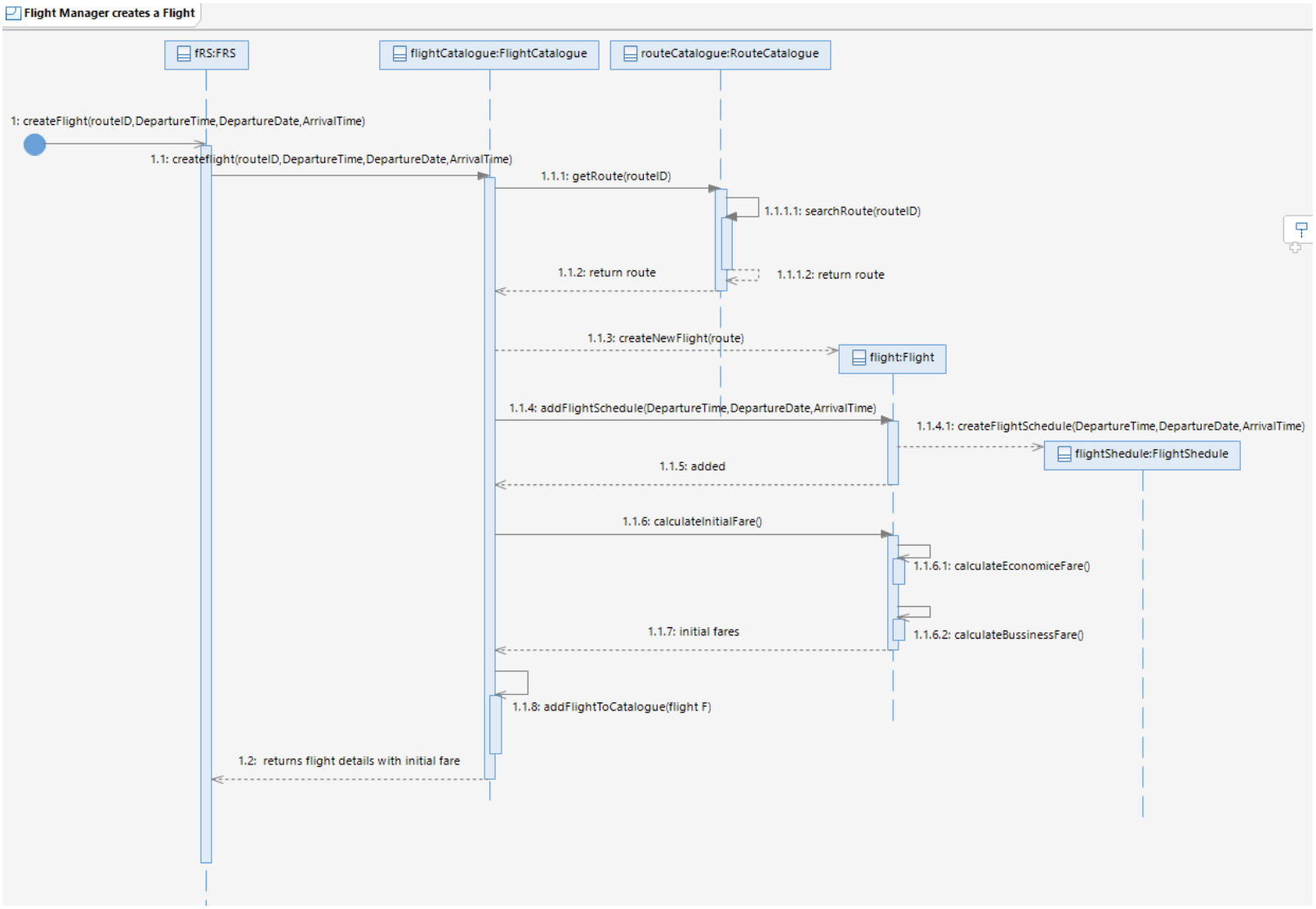
System Sequence Diagram: Scheduling a Flight



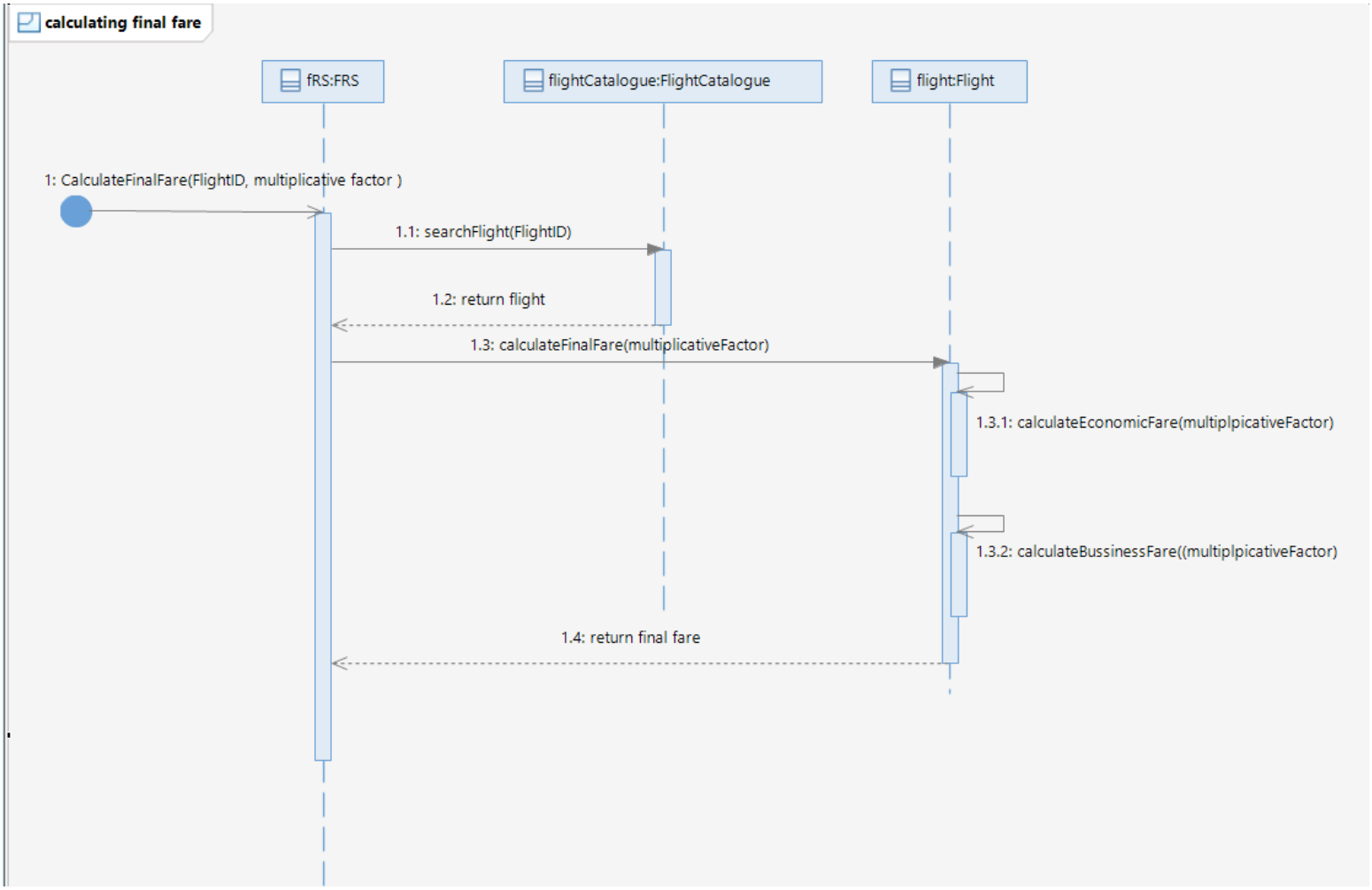
Display Routes:



Create Flight:



Calculate Final Fares:



UC-02: Removing a flight:

Sr.	**Section**	Content / Explanation
1	**Designation**	UC-02
2	**Name**	**Remove a Flight**
3	**Authors**	Daniyal, Ayesha, Mehreen
4	**Priority**	Important for system's success: **High** Technological Risk: **High**
5	**Scope**	This use case deals with how the Flight Manager removes a flight from the schedule.
6	**Criticality**	High
7	**Description**	The Flight Manager removes a flight from the schedule by entering its flight ID in the Flight removing Panel of the FRS.
8	**Trigger Event**	The Flight Manager wants to remove a flight from the schedule.
9	**Actors**	Flight Manager, FRS
10	**Pre-Conditions**	1. Flight has been scheduled. 2. Flight Manager is logged in.
11	**Post-Conditions**	1. Flight is removed from the schedule. 2. Airplane is free to be scheduled for another flight. 3. Flight records are updated 4. Airplane Records are updated

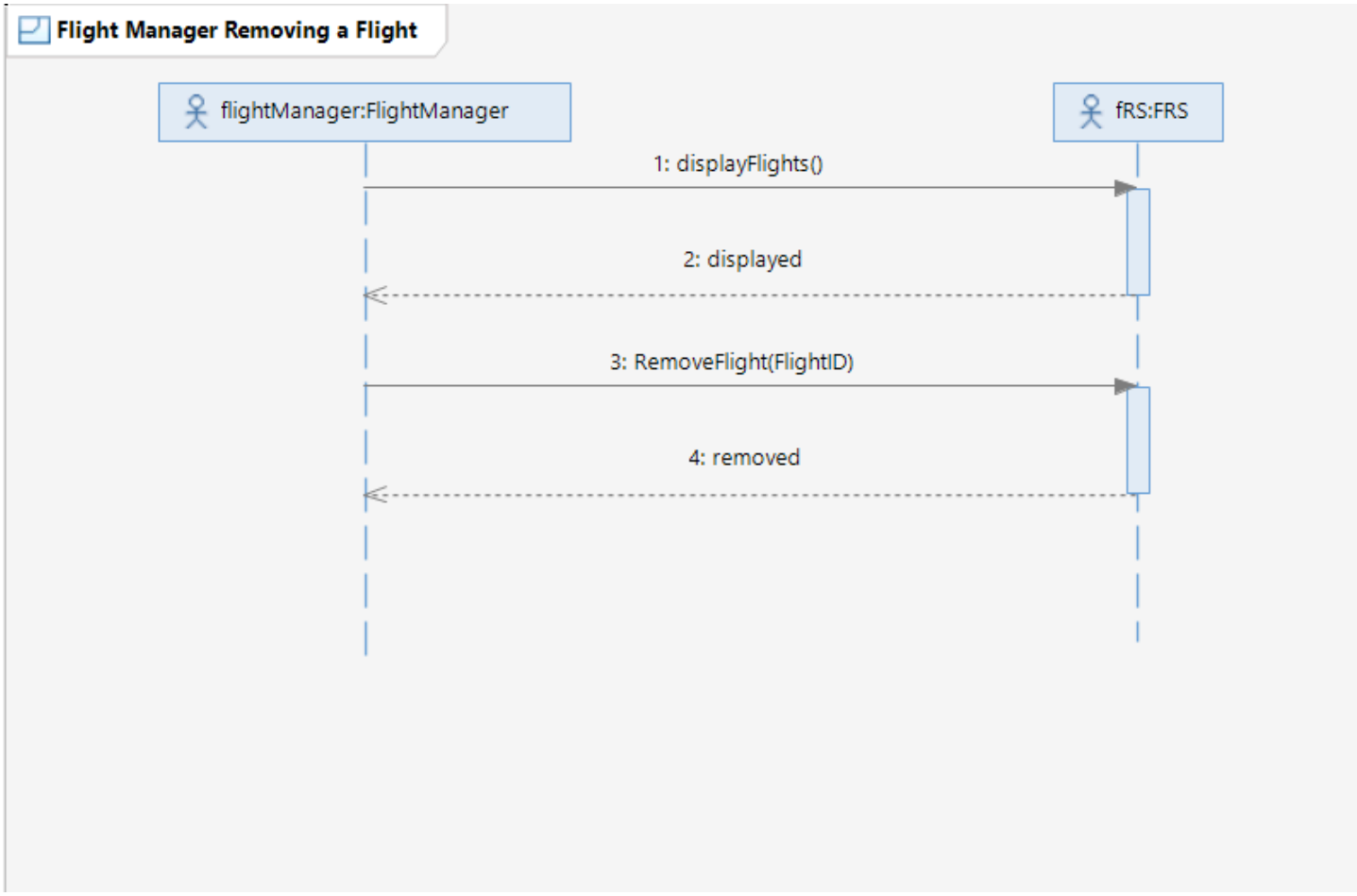
12	**Result**	Flight is removed from the schedule.

13	**Main Scenario**	

Flight Manager Action	System Responsibility
The Flight Manager opens the Flight management Panel and Selects ‘Flight Removing’.	
	The FRS displays management panel.
	FRS displays the Flight Removing Panel.
The Flight manager enters the flight ID of the flight he wants to remove in the Flight removing Panel of the FRS	
	The FRS displays the details (arrival place, date, time and estimated fare) of the scheduled flight.
The Flight manager clicks on the Remove Flight link.	
	The FRS prompts “Do you want to remove the flight?”
The Flight Manager clicks on the Remove button.	
	The FRS displays a message that flight (with flight number) has been removed from the schedule.

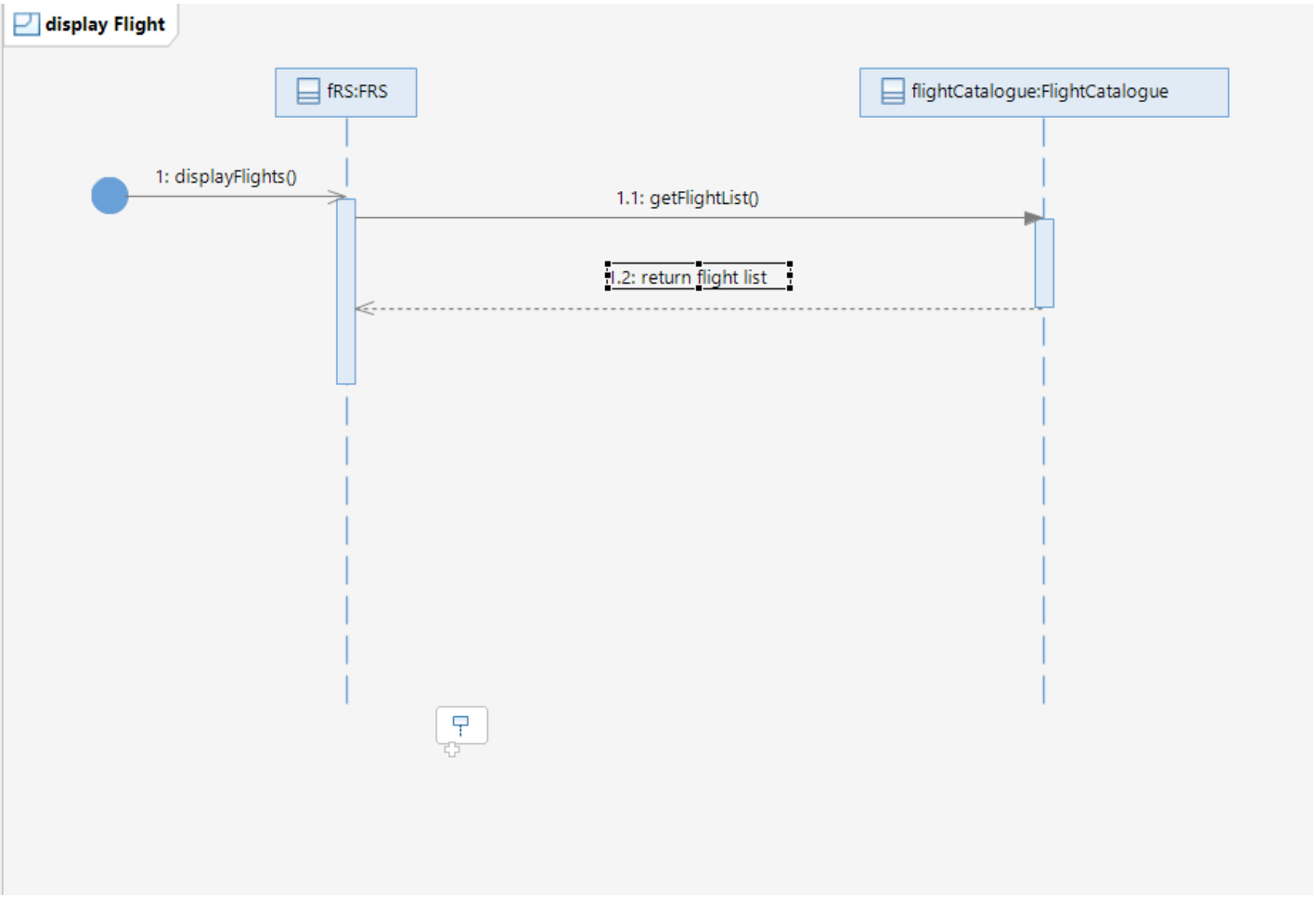
14	**Alternative Scenario**	In case of system failure: To support recovery and correct scheduling, the system shall have saved the sensitive information. 1. Flight manager logs in again 2. The system resumes from the prior state.
15	**Exception Scenario**	1. The FRS is unable to log in. 2. The FRS is unable to Airplane Data. 3. The FRS is unable to Route Details. 4. The FRS is unable to fetch airport details. 5. The FRS is unable to save the updates i.e., the flight removal 6. Flight ID is invalid.

Removing a Flight: System Sequence Diagram

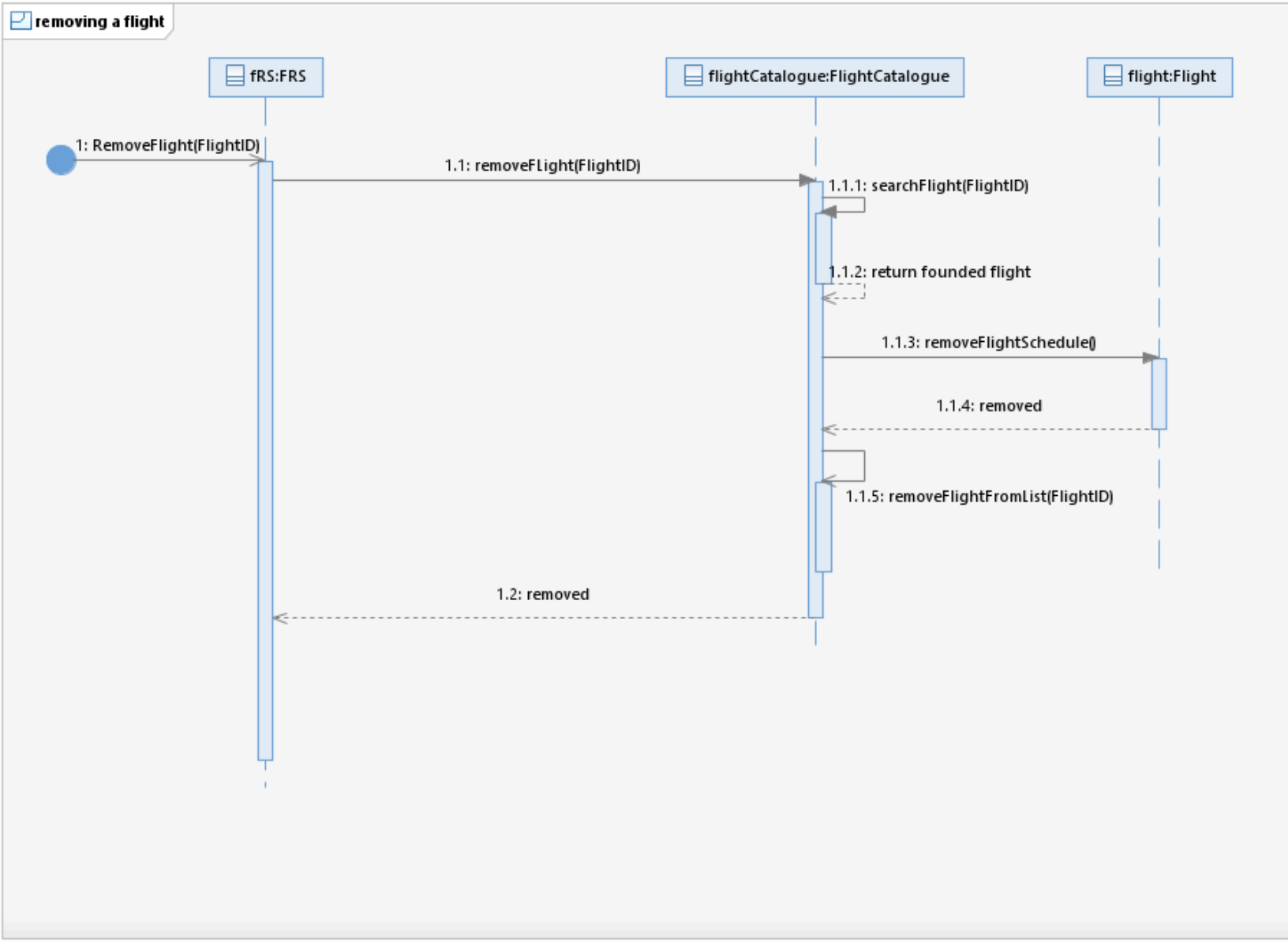


Sequence Diagrams: Removing a Flight

1. Display Flights:



2. Removing A Flight



UC-03: Track Current Flight's Status:

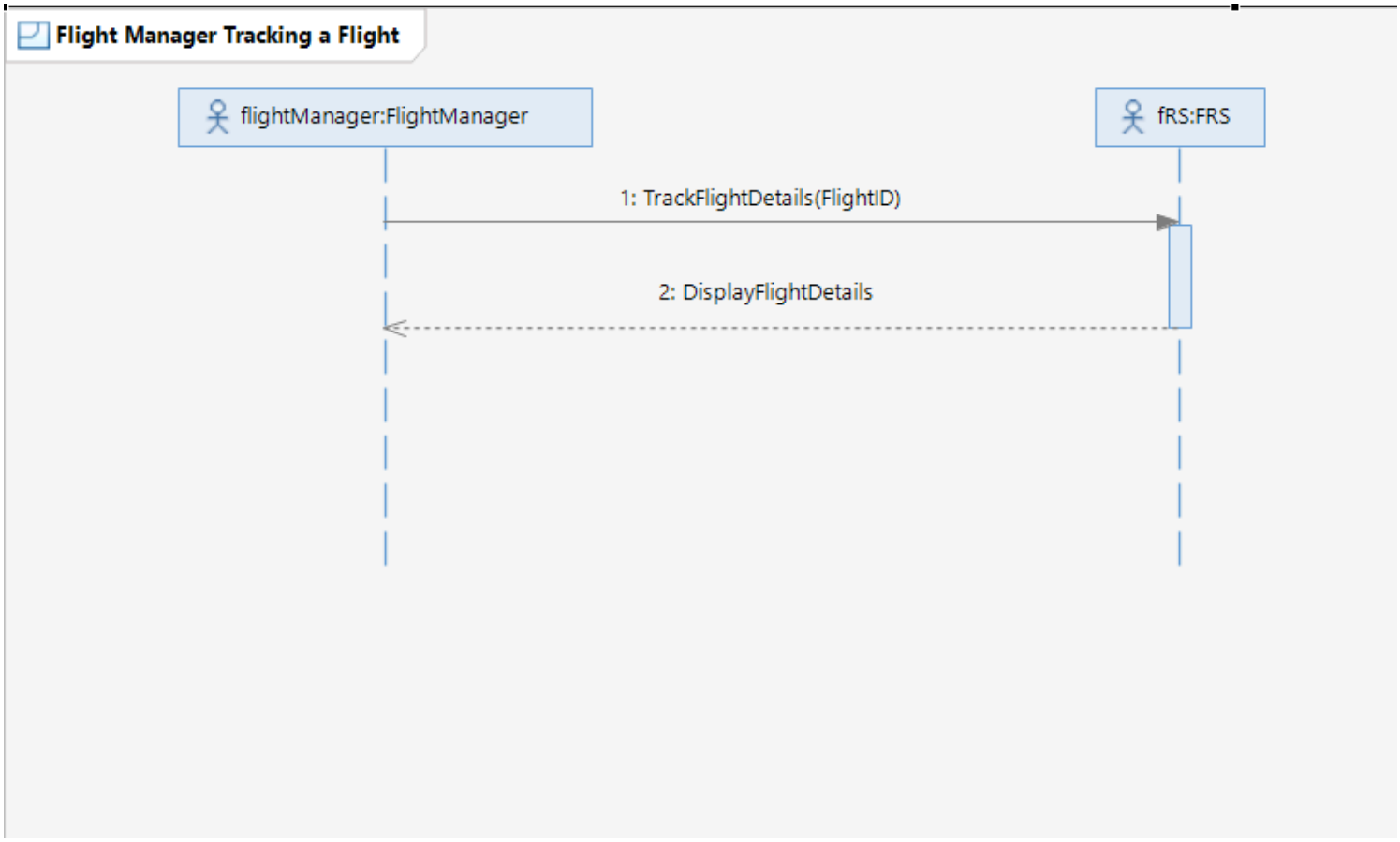
Sr.	**Section**	Content / Explanation

No		
1	**Designation**	UC-03
2	**Name**	**Track Flight Status**
3	**Authors**	Daniyal, Ayesha, Mehreen
4	**Priority**	Important for system's success: **High** Technological Risk: **High**
5	**Scope**	This use case deals with how the Flight Manager tracks the Status of a flight.
6	**Criticality**	High
7	**Description**	The Flight Manager tracks the status of a flight by entering
8	**Trigger Event**	The Flight Manager wants to track the status of a flight.
9	**Actors**	Flight Manager
10	**Pre-Conditions**	Flight has been scheduled. Flight Manager is logged in.
11	**Post-Conditions**	Flight Manager can see the status (the current location of airplane), route of the flight
12	**Result**	Flight Status is displayed.

<table>
<tr><td>13</td><td>Main Scenario</td><td>
<table>
<tr><th>Flight Manager Action</th><th>System Responsibility</th></tr>
<tr><td>The Flight manager opens up the manage flights page.</td><td></td></tr>
<tr><td></td><td>The FRS prompts the flight manager to add the flight ID and departure place of the flight he wants to track.</td></tr>
<tr><td>The Flight manager enters the flight number and the departure place of the flight that he wants to track.</td><td></td></tr>
<tr><td></td><td>The FRS displays the details of the flight such as current location, route, and the time remaining to land the flight.</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>15</td><td>Exception Scenario</td><td>The FRS is unable to fetch data from the GPS Satellite System.

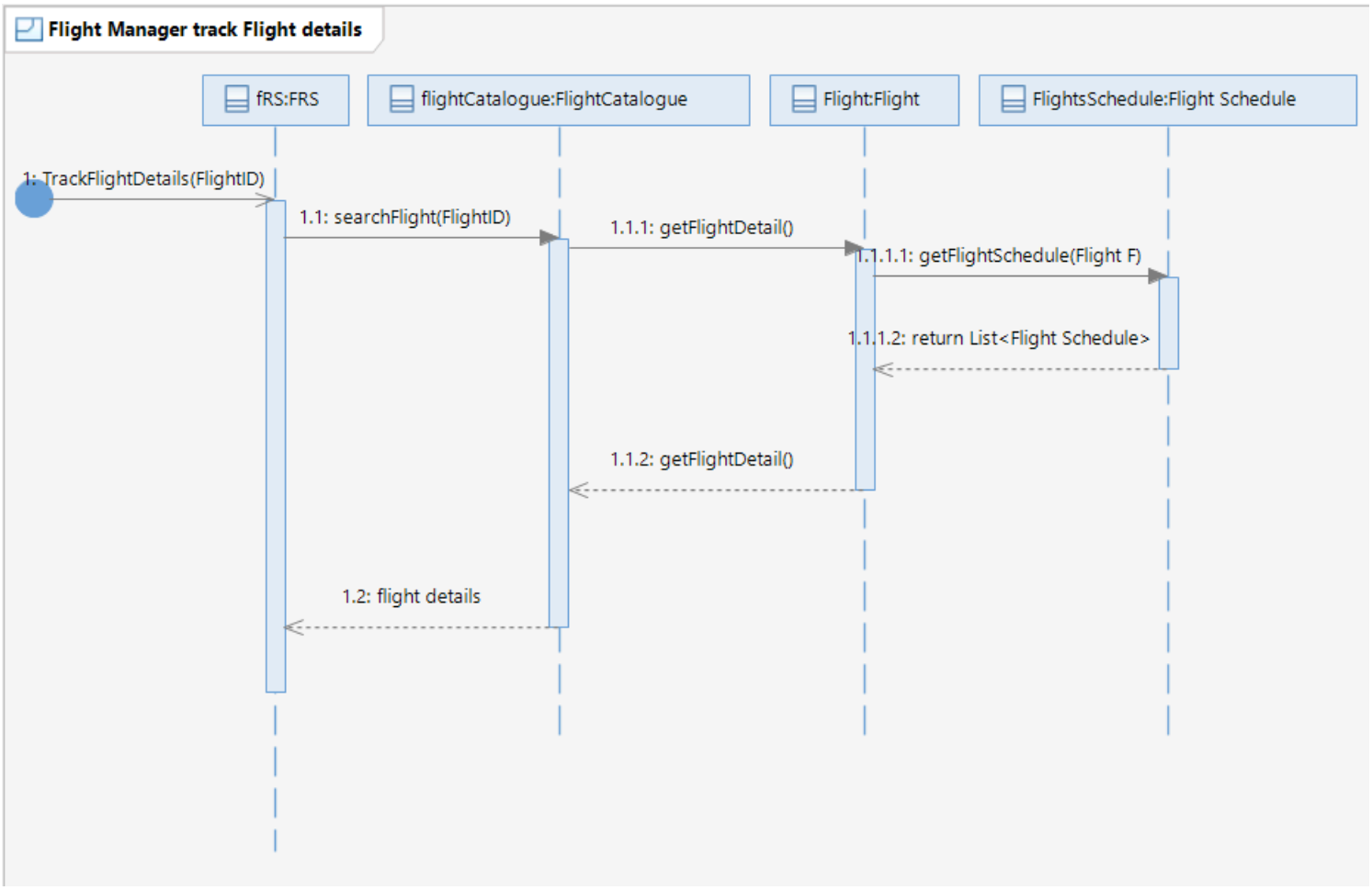
The FRS is unable to save the updates as the airplane changes its location.</td></tr>
</table>

System Sequence Diagram: Tracking Flight's Status



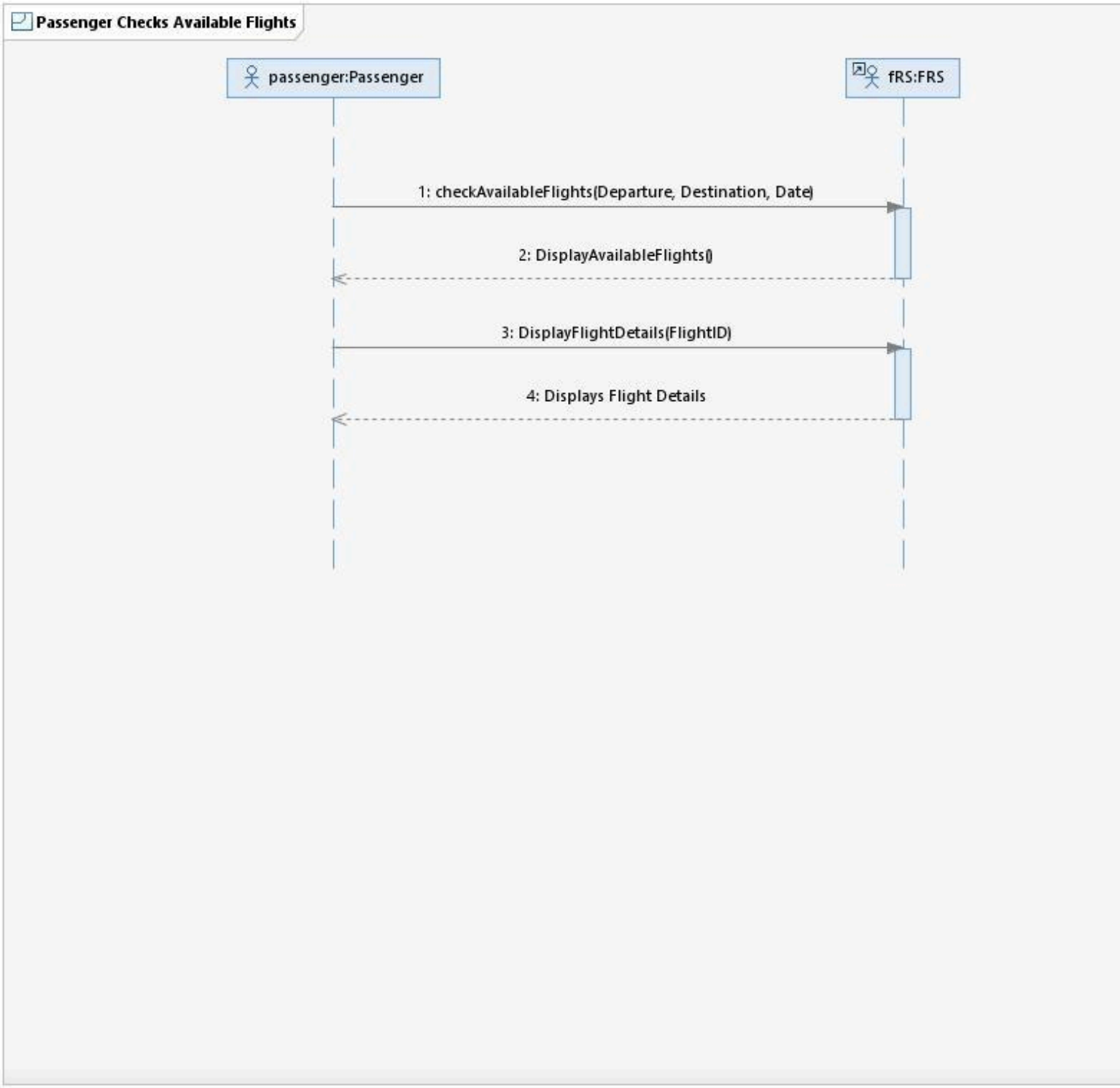
Sequence Diagrams:

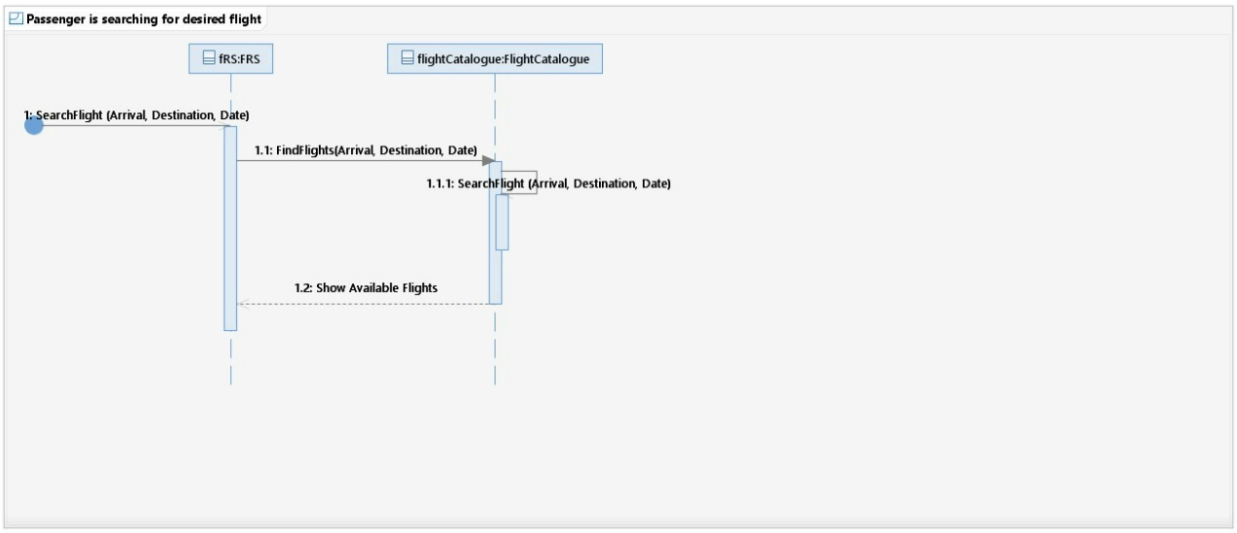
1. Track Flight Details:

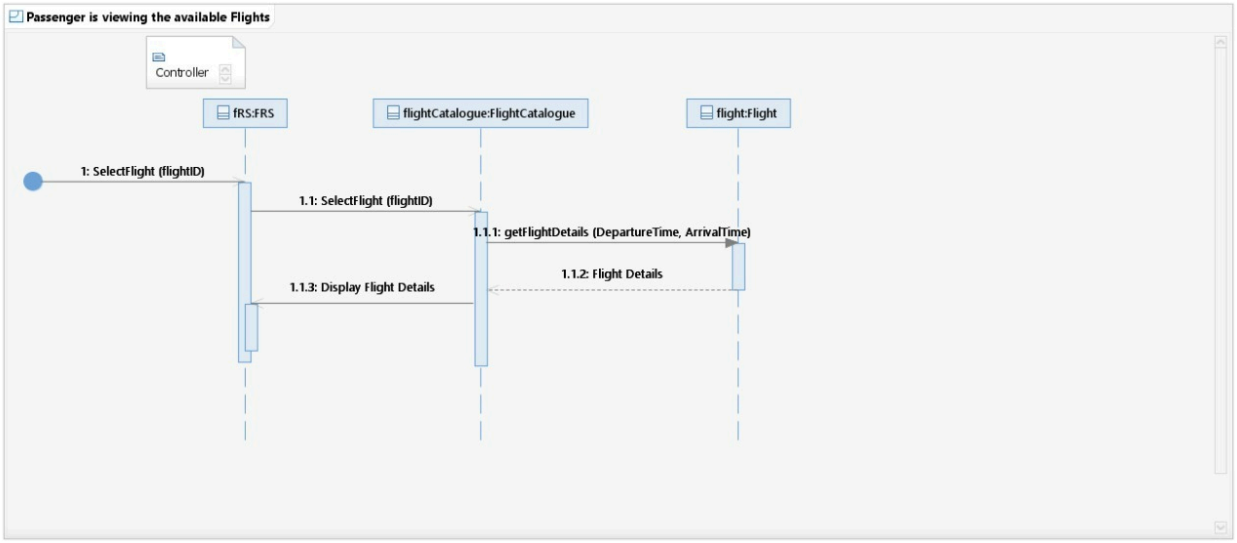


Booking Management

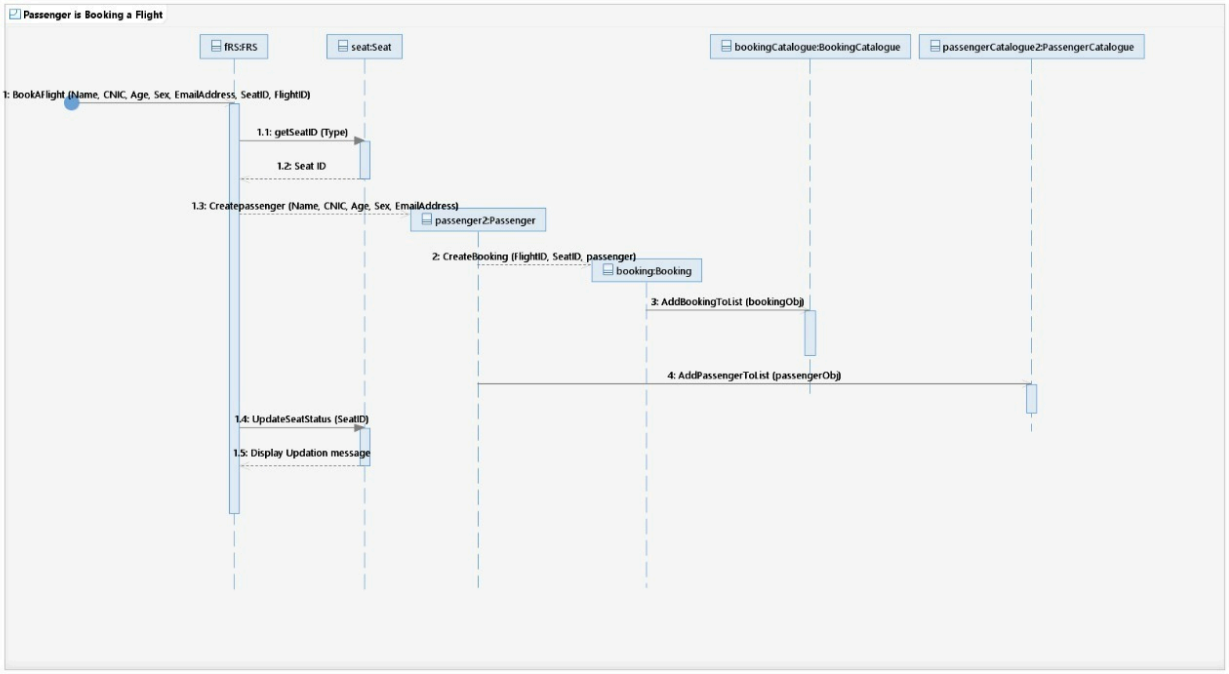
System Sequence Diagram: Booking Management

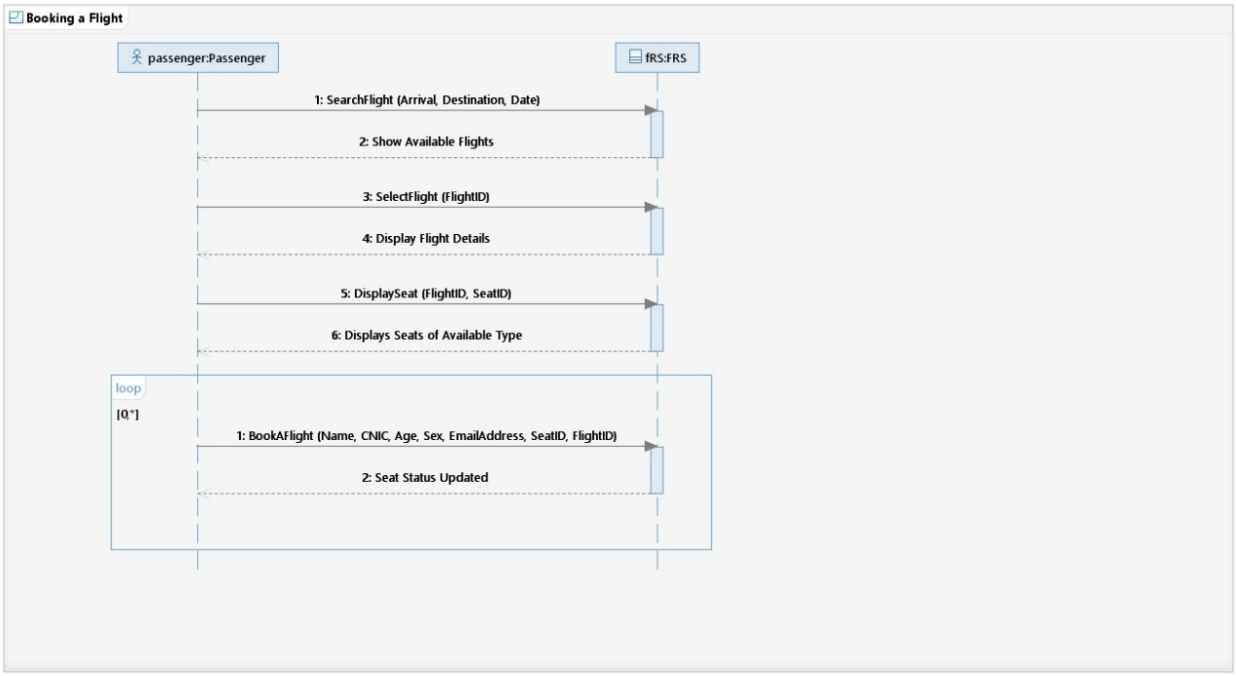


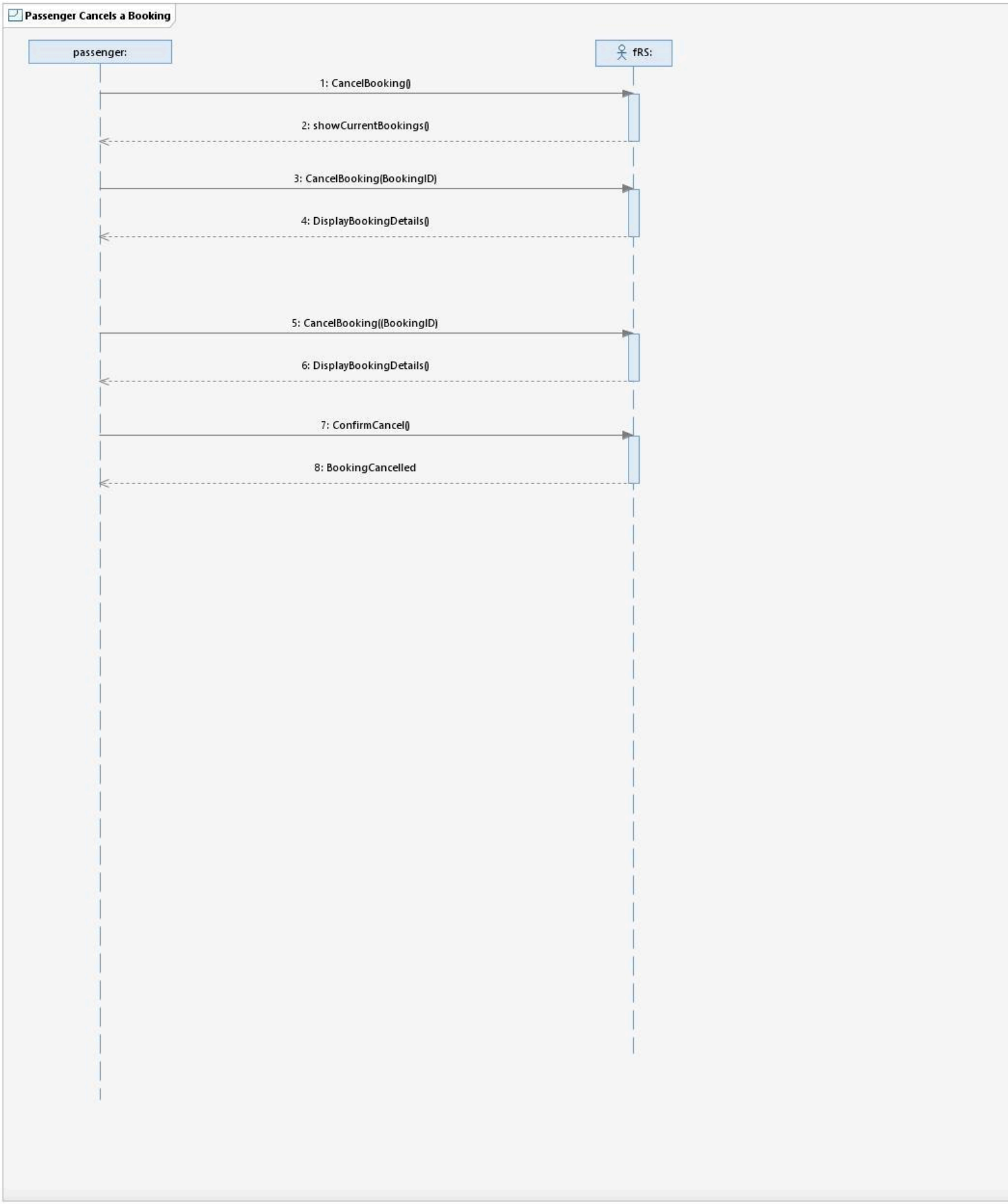

Passenger is searching for desired flight
fRS:FRS
flightCatalogue:FlightCatalogue
1: SearchFlight (Arrival, Destination, Date)
1.1: FindFlights(Arrival, Destination, Date)
1.1.1: SearchFlight (Arrival, Destination, Date)
1.2: Show Available Flights

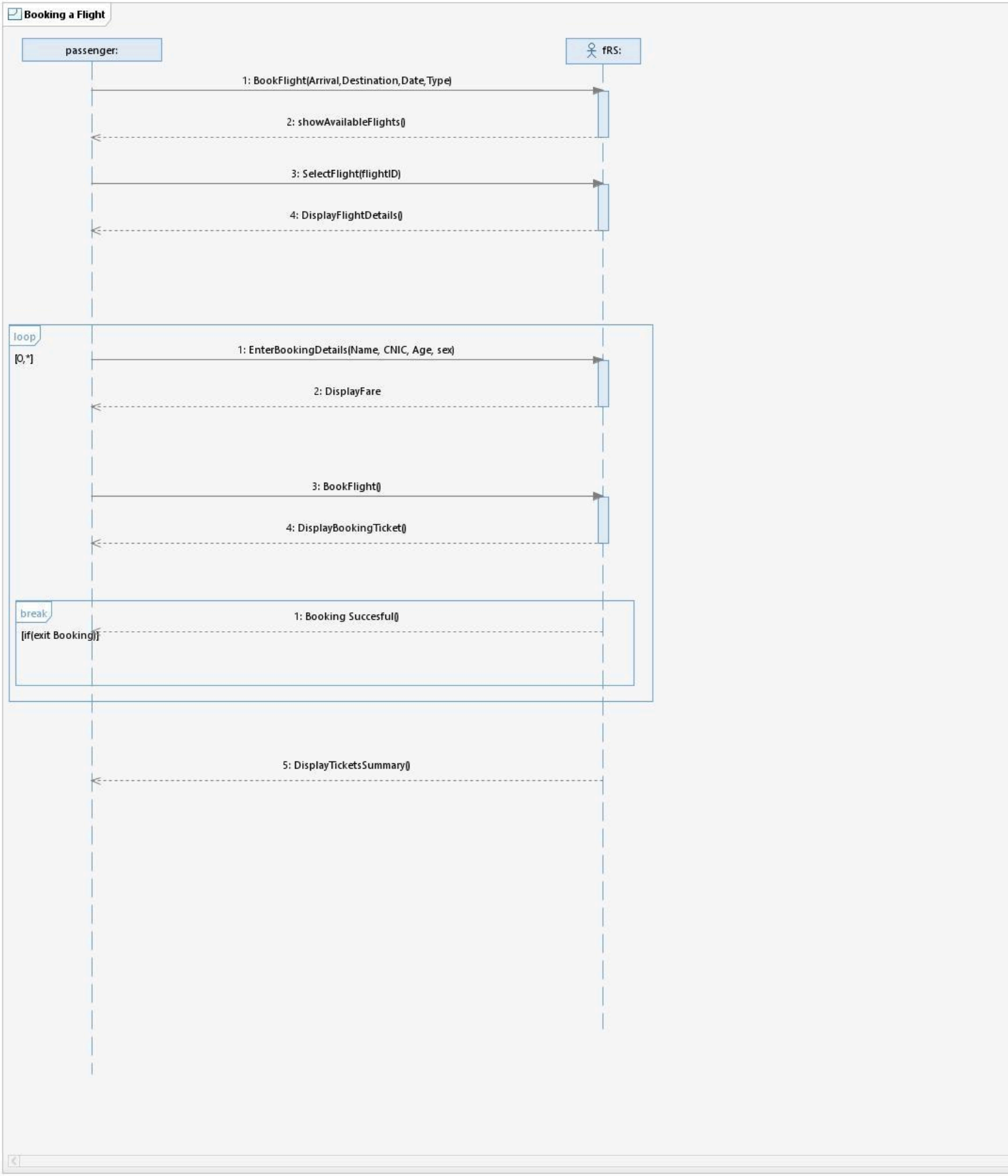

Passenger is viewing the available Flights
Controller
fRS:FRS
flightCatalogue:FlightCatalogue
flight:Flight
1: SelectFlight (flightID)
1.1: SelectFlight (flightID)
1.1.1: getFlightDetails (DepartureTime, ArrivalTime)
1.1.2: Flight Details
1.1.3: Display Flight Details

Passenger is viewing Seats of Available Type
fRS:FRS
flight:Flight
seat:Seat
1: DisplaySeat (flightID, SeatType)
1.1: getFlightDetails (flightID)
1.2: Flight Details
1.3: DisplaySeatsAvailable (SeatType)
1.4: Displays Seats of Available Type

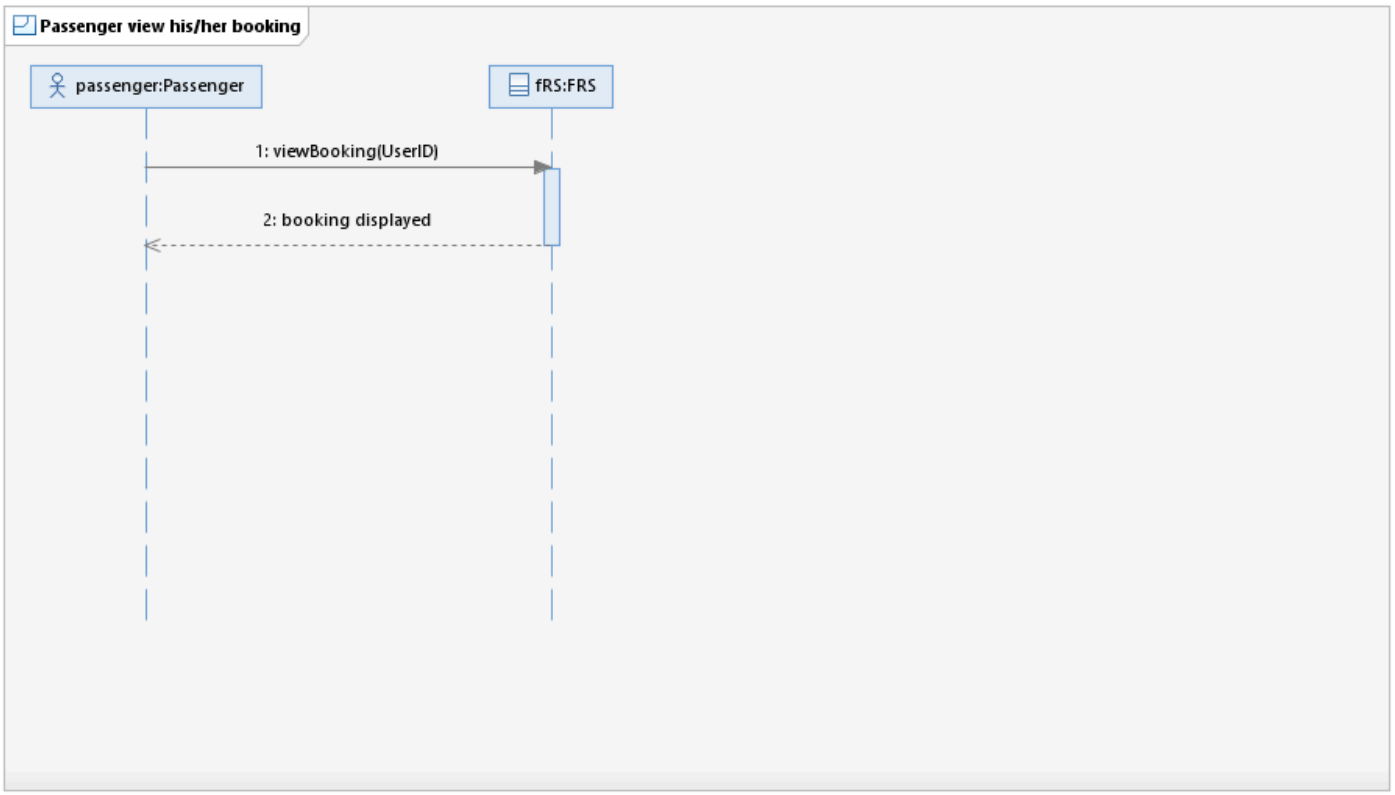

Passenger is Booking a Flight
fRS:FRS
seat:Seat
bookingCatalogue:BookingCatalogue
passengerCatalogue2:PassengerCatalogue
1: BookAFlight (Name, CNIC, Age, Sex, EmailAddress, SeatID, FlightID)
1.1: getSeatID (Type)
1.2: Seat ID
1.3: Createpassenger (Name, CNIC, Age, Sex, EmailAddress)
passenger2:Passenger
2: CreateBooking (FlightID, SeatID, passenger)
booking:Booking
3: AddBookingToList (bookingObj)
4: AddPassengerToList (passengerObj)
1.4: UpdateSeatStatus (SeatID)
1.5: Display Updation message

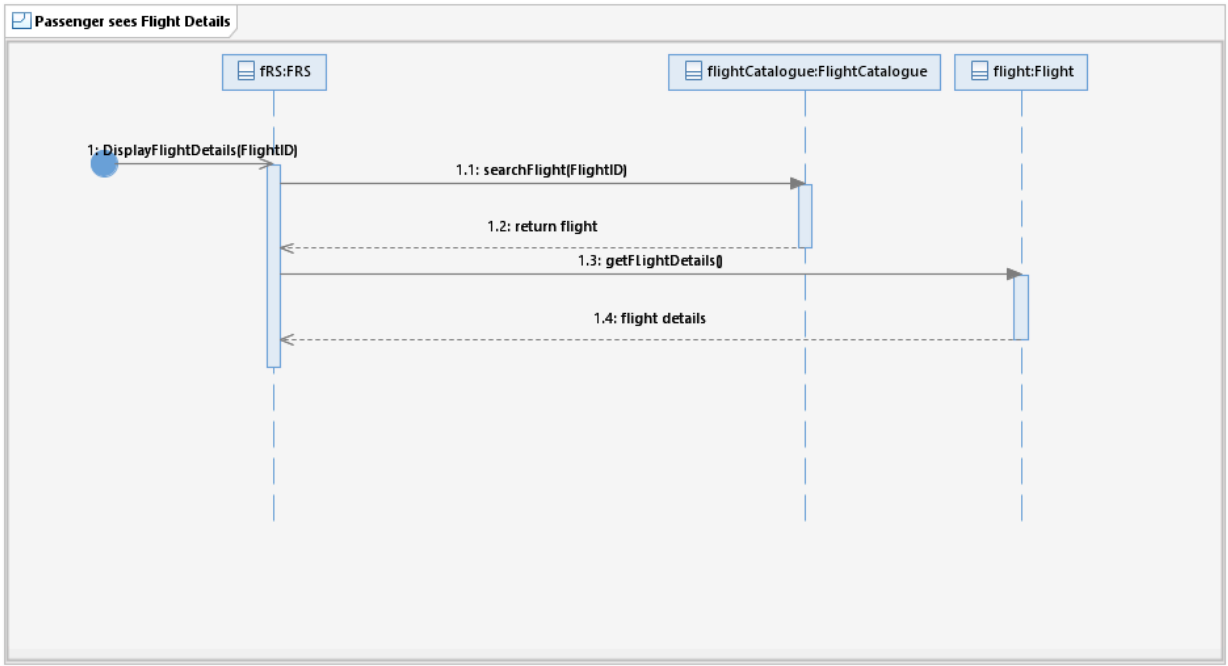

Booking a Flight
passenger:Passenger
fRS:FRS
1: SearchFlight (Arrival, Destination, Date)
2: Show Available Flights
3: SelectFlight (FlightID)
4: Display Flight Details
5: DisplaySeat (FlightID, SeatID)
6: Displays Seats of Available Type
loop
[0,*]
1: BookAFlight (Name, CNIC, Age, Sex, EmailAddress, SeatID, FlightID)
2: Seat Status Updated

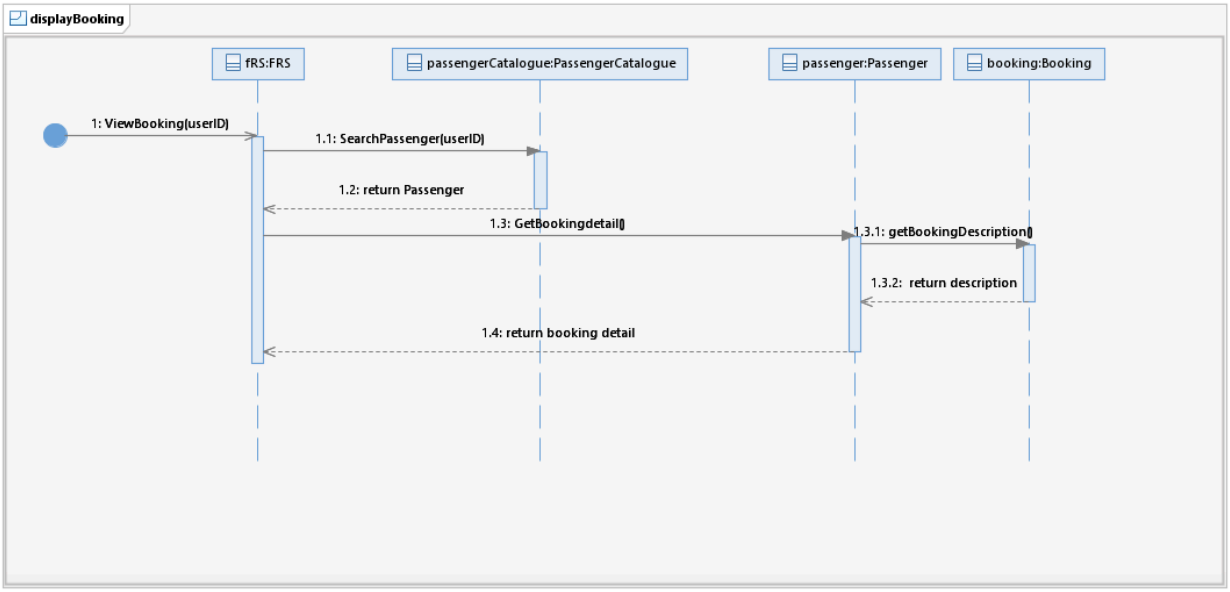

Passenger Cancels a Booking
passenger:
fRS:
1: CancelBooking()
2: showCurrentBookings()
3: CancelBooking(BookingID)
4: DisplayBookingDetails()
5: CancelBooking((BookingID)
6: DisplayBookingDetails()
7: ConfirmCancel()
8: BookingCancelled


Booking a Flight
passenger:
fRS:
1: BookFlight(Arrival,Destination,Date,Type)
2: showAvailableFlights()
3: SelectFlight(flightID)
4: DisplayFlightDetails()
loop
[0,*]
1: EnterBookingDetails(Name, CNIC, Age, sex)
2: DisplayFare
3: BookFlight()
4: DisplayBookingTicket()
break
[if(exit Booking)]
1: Booking Succesful()
5: DisplayTicketsSummary()

Sequence Diagrams: Booking Management







UC-04: Book a flight:

Sr. No	**Section**	Content / Explanation
1	**Designation**	UC-04
2	**Name**	**Book a Flight**
3	**Authors**	Daniyal, Ayesha, Mehreen
4	**Priority**	Important for system's success: **High** Technological Risk: **High**
5	**Scope**	This use case deals with how a Passenger books a flight.
6	**Criticality**	High
7	**Description**	In the Booking panel of the FRS, passenger enters a departure city, arrival city and the date of departure. The FRS displays a list of available flights, and the passenger books one of them.

8	**Trigger Event**	The Passenger wants to book a flight.
9	**Actors**	Passenger
10	**Pre-Conditions**	• Passenger has logged in to the FRS. • Flights have been scheduled by the Flight Manager.
11	**Post-Conditions**	• Seat is reserved. • The Booking Ticket is displayed.
12	**Result**	Seat(s) reserved.

13	**Main Scenario**	

Passenger Action	FRS Responsibility
The Passenger opens up the booking page.	
	The FRS shows Booking page to select departure city, arrival city, and departure date/time.
The Passenger enters departure city, arrival city, and departure date/time.	
	The FRS shows the details of available Flights.
The passenger selects one of the Flight for Booking.	
	The FRS displays all the necessary details of selected Flight (Fare, capacity, Remaining Seats)
	The FRS asks the Passenger to add the personal details (Name, CNIC, Age, Sex email/phone number) of each guest for whom he wants to book a flight.
The Passenger enters the Booking details for reservation (Name, CNIC, Age, Sex, email).	
	The FRS displays all the booking details including the confirmation number and Fare.

14	**Alternative Scenario**	1. In case of unavailability of flights 1. The FRS displays the message “No flight matches your selection” 2. The Passenger goes back to the booking page and makes changes in any of his inputs.
15	**Exception Scenario**	1.. The Passenger is unable to sign in. 2.. The FRS is unable to fetch flight Data.

UC-05: Cancel a booking:

Sr. No	**Section**	Content / Explanation
1	**Designation**	UC-05
2	**Name**	**Cancel a booking**
3	**Authors**	Daniyal, Ayesha, Mehreen
4	**Priority**	Important for system’s success: **High** Technological Risk: **High**
5	**Scope**	This use case deals with how a Passenger cancels a booking of the flight.
6	**Criticality**	High

<table>
<tr><td>7</td><td>Description</td><td>The passenger cancels from his account by selecting a booking from the Cancel Booking Panel of FRS.</td></tr>
<tr><td>8</td><td>Trigger Event</td><td>The Passenger wants to cancel a booking.</td></tr>
<tr><td>9</td><td>Actors</td><td>Passenger</td></tr>
<tr><td>10</td><td>Pre-Conditions</td><td>Passenger has booked a flight.
Passenger is logged in.</td></tr>
<tr><td>11</td><td>Post-Conditions</td><td>• Booking is canceled.</td></tr>
<tr><td>12</td><td>Result</td><td>Booking of the desired flight has been canceled.</td></tr>
<tr><td>13</td><td>Main Scenario</td><td>
<table>
<tr><td>Passenger Actions</td><td>FRS Responsibility</td></tr>
<tr><td>The Passenger opens up the Manage Booking page and clicks on Cancel Reservation.</td><td></td></tr>
<tr><td></td><td>The FRS displays the bookings of that passenger and asks for a Booking ID to be cancelled.</td></tr>
<tr><td>The Passenger enters the Booking ID of the Booking he wants to cancel.</td><td></td></tr>
<tr><td></td><td>The FRS displays necessary booking details of selected booking(s) and shows a dialog box asking “Cancel the reservation?”</td></tr>
</table>
</td></tr>
</table>

		<table><tr><td></td><td></td></tr><tr><td>The Passenger clicks on the Cancel button.</td><td></td></tr><tr><td></td><td>The FRS displays a successful cancellation message upon cancellation.</td></tr></table>
14	**Alternative Scenario**	
15	**Exception Scenario**	The System is unable to find a booked flight.

UC-06: Check available flights (Fare, Capacity, Route (departure, destination, stops)

Sr. No	**Section**	Content / Explanation
1	**Designation**	UC-06
2	**Name**	**Check available Flights**
3	**Authors**	Mehreen

4	**Priority**	Important for system's success: **High** Technological Risk: **High**
5	**Scope**	This use case deals with how a passenger checks available Flight.
6	**Criticality**	High
7	**Description**	The passenger enters departure and arrival city and selects any flight to see its status, date, time, fare, capacity, and route.
8	**Trigger Event**	The Passenger wants to check the status of an available flight.
9	**Actors**	Passenger
10	**Pre-Conditions**	· Passenger has logged in to the FRS.
11	**Post-Conditions**	· The passenger can see the status of the flight and other relevant booking details on the screen.
12	**Result**	The Flight status is displayed on the screen.
13	**Main Scenario**	1. The passenger clicks the flight status option from the homepage. 2. The FRS asks the passenger to add departure city and arrival city. 3. The passenger enters the departure city and arrival city. 4. The FRS shows all the flights of next 2 to 3 days from the selected departure city to the selected arrival city with flight status (On Time, Canceled, or Delayed etc.), date and time. 5. The passenger clicks on any of the flights to see more details related to booking. 6. On clicking a flight number, the FRS shows the fare, capacity and route of the flight.

14	**Alternative Scenario**	0. If the flight is not displayed by entering departure place and arrival, pass
15	**Exception Scenario**	· The system is unable to update the capacity of the airplane/ the number of seats reserved. · The system is unable to fetch route details from Google Maps.

UC-07: View Booking:

Sr.No	**Section**	Content / Explanation
1	**Designation**	UC-07
2	**Name**	**View Booking**
3	**Authors**	Daniyal, Ayesha, Mehreen
4	**Priority**	Important for system's success: **High** Technological Risk: **High**

5	**Scope**	This use case deals with how a passenger checks the booking status of his flight.
6	**Criticality**	High
7	**Description**	The passenger checks the status of his/her booking via FRS.
8	**Trigger Event**	The Passenger wants to check the booking status of a flight.
9	**Actors**	Passenger
10	**Pre-Conditions**	Passenger has logged in to the FRS
11	**Post-Conditions**	Passenger has successfully viewed his/her ticket.
12	**Result**	The Booking status of a flight is displayed on the screen.
13	**Main Scenario**	1. The Passenger logs into the FRS. 2. The FRS displays the UI. 3. Through the UI, the passenger navigates to “View current bookings”. 4. The FRS responds by fetching the passenger’s Booking data from its database and displays the Passenger’s ticket(s) on the terminal that is displayed.
14	**Alternative Scenario**	1. If the passenger is unable to log in, then 1. The admin can also check the flight status of any person through the FRS using the steps in the Main scenario if he is logged in to the FRS. 2. The Accounts Manager can also do 1a.
15	**Exception Scenario**	

Route Management

UC-08: Adding a route:

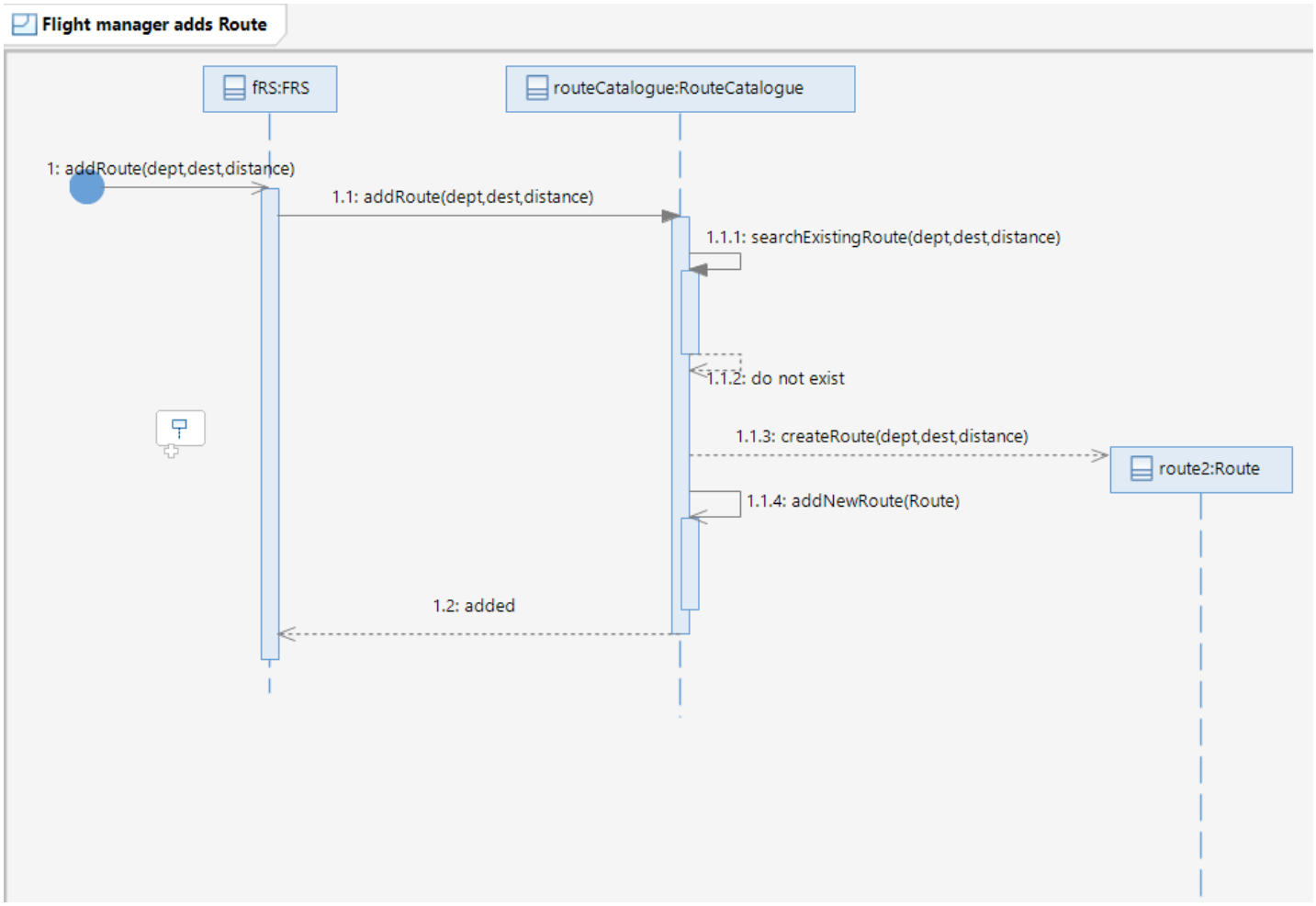
Section	Content / Explanation
Designation	UC-08
Name	Adding a route
Priority	Important for system's success: **High** Technical Risk: **High**
Scope	This use case deals with how the Flight Manager adds a route in the FRS .
Criticality	High
Level	User-goal
Description	The Flight Manager selects flight type, enters destination, stops, departure and makes a route. Route is added in the database.
Trigger event	The Flight Manager wishes to add a new route.
Primary actor	Flight Manager
Stakeholders and interests	Passenger: He wants to look at the routes of flight. Flight Manager: he wants to keep check of every route. He wants to manage the route.
Pre-Conditions	The Amin must be logged in. The Flight Manager must be in the route management portal.
Post-Conditions	Route is added. Route records are updated.
Result	Route added

Main Scenario	1. The Flight Manager selects a route option. 2. The FRS displays an add route screen and gives options for direct or indirect flight. 3. Flight Manager selects direct flight. 4. FRS then asks the Passenger for departure and destination city. 5. The Flight Manager enters departure and destination. 6. FRS gives Flight Manager the option to 6.1 Confirm the route. 6.2 Cancel the route. 6.3 Change the route. 0. The Flight Manager confirms the route. 1. The FRS checks the database if the route is already present in the database and stores the route if it is not found in the database.
Alternative Scenario	3a. The Flight Manager selects indirect flight. 3a.1 The FRS asks the Flight Manager number of stops he wants to enter. 3a.2 The Flight Manager enter the number of the stops he want to add. 3a.3 The FRS asks the Flight Manager to enter the name of stop (city). 5a. The Flight Manager enters departure, stops and destination. 6a. The Flight Manager select cancel the route option. 6a.1 The FRS brings the Flight Manager back to the route management portal. 6b. The Flight Manager selects a change route option. 6b.1 Go to step 4. 8a. The route is already present. 8a.1 The FRS will display message that route is already stored and give Flight Manager the option: 1. Add another route 2. Cancel the route. 8a.2 the Flight Manager select add another route. 8a.3 got to step 4. 8a.2.1 The Flight Manager cancels the route. 8a.2.1.1 The FRS takes Flight Manager to route management portal.
Exception Scenario	The FRS server is down. (2) Refresh and add the route again.

System Sequence Diagram: Adding a Route

Sequence Diagram: Add Route

Add Route



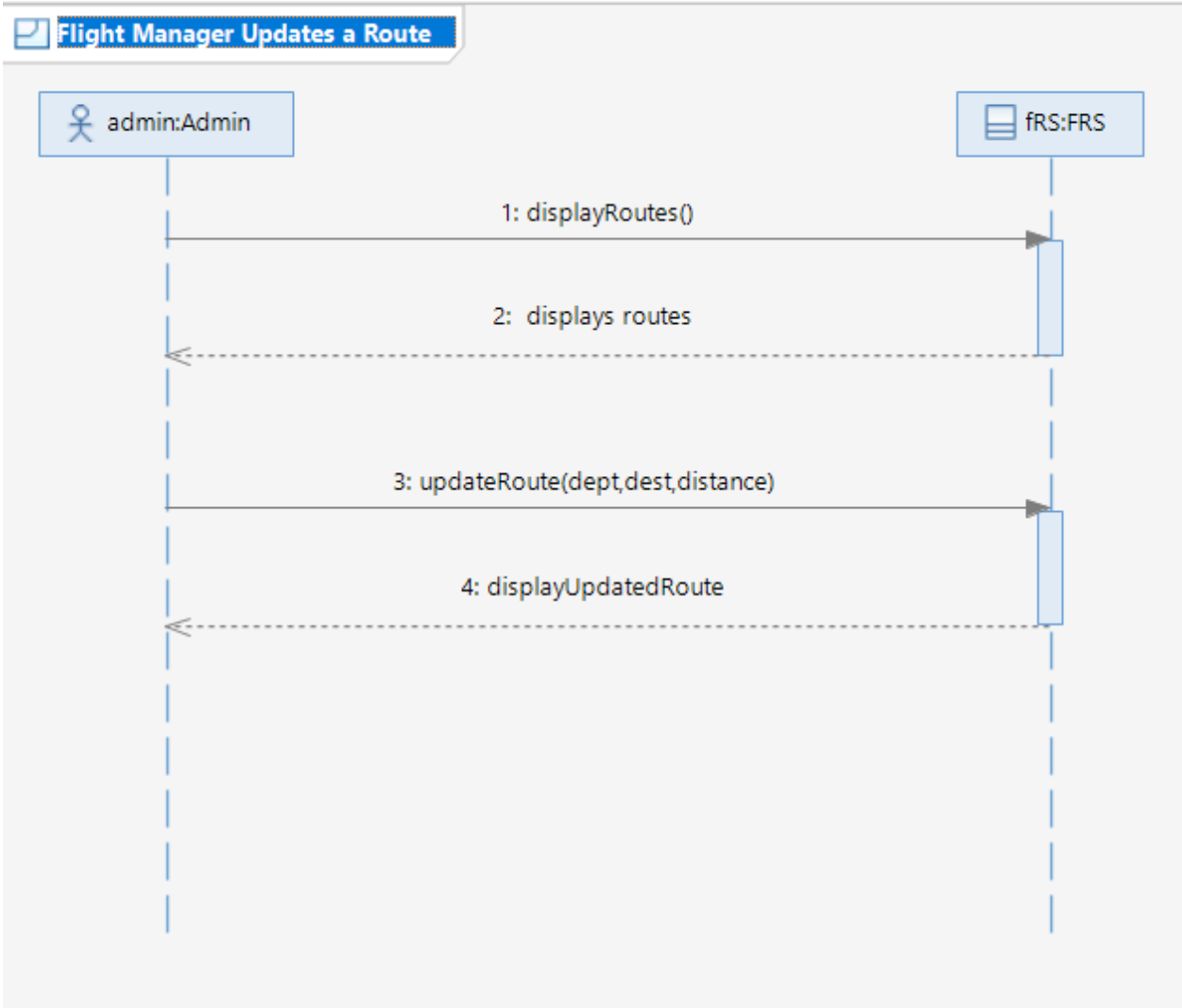
UC-09: Updating a route

Section	Content / Explanation
Designation	UC-09
Name	Updating a route
Priority	Important for system's success: Medium Technical Risk: Medium

Scope	This use case deals with how the Flight Manager updates a route in the FRS .
Criticality	Medium
Level	User-goal
Description	The Flight Manager select the route to change and enter the entries (departure, destinations, stop) he want to change in the route
Trigger Event	The Flight Manager wishes to update route information.
Primary actor	Flight Manager
Stakeholders and interests	Passenger: He wants to check the routes of flight. Flight Manager: he wants to keep checking every route. He wants to manage the route.
Pre-Conditions	The Amin must be logged in. The Flight Manager must be in the route management portal.
Post-Conditions	Route is updated. Route records are updated.
Result	Route updated.
Main Scenario	1. The Flight Manager selects and updates a route option. 2. The FRS will fetch the routes from the database and display routes to the Flight Manager. 3. The Flight Manager selects the route he wants to update. 4. The FRS displays details of route and asks the Flight Manager if he wants to change the departure or not. 5. The Flight Manager selects the change the departure option and enters the new departure. 6. This gives the Flight Manager option if he wants to change the destination or not. 7. The Flight Manager selects to change destination and enters new destination. 8. The systems check if routes contain the stops and ask if the Flight Manager wants to change the stops or not. 9. The Flight Manager changes the stops. 10. FRS display the update route gives Flight Manager the option to 10.1Confirm the route. 10.2 Cancel the route. 10.3Change the route. 0. The Flight Manager confirms the route. 1. The FRS checks the database if the route is already present in the database and updates the route if it is not found in the database.

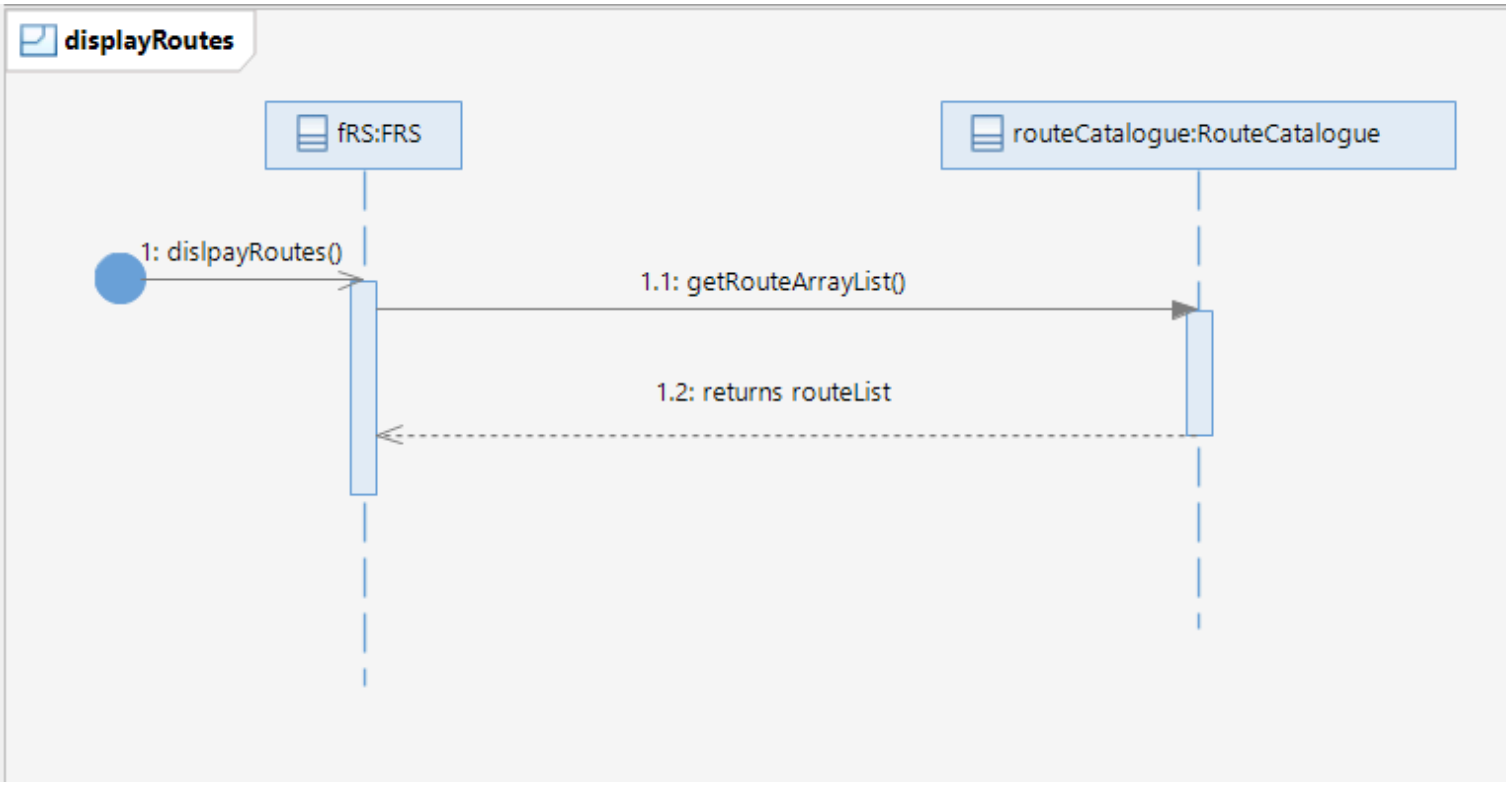
Alternative Scenario	5a. The Flight Manager selects to not change the departure option. 5a.1 Go to step 6. 7a. The Flight Manager selects to not change the destination. 7a.1 Go to step 8. 8a. The route does not contain any stops. cancel the route option. 8a.1 Go to 10 8b. The Flight Manager does not want to change the stop. 8b.1 Go to step 10. 10a. The Flight Manager select cancel the route option. 6a.1 The FRS brings the Flight Manager back to the route management portal. 10b. The Flight Manager selects a change route option. 10b.1 Go to step 4. 12a. The route is already present. 10a.1 The FRS will display message that route is already stored and give Flight Manager the option: 1. Add another route 2. Cancel the route. 10a.2 the Flight Manager select add another route. 10a.3 got to step 4. 10a.2.1 The Flight Manager cancels the route. 10a.2.1.1 The FRS takes Flight Manager to route management portal.
Exception Scenario	The FRS server is down. (1) Refresh and update the route again.

System Sequence Diagram: Updating a route

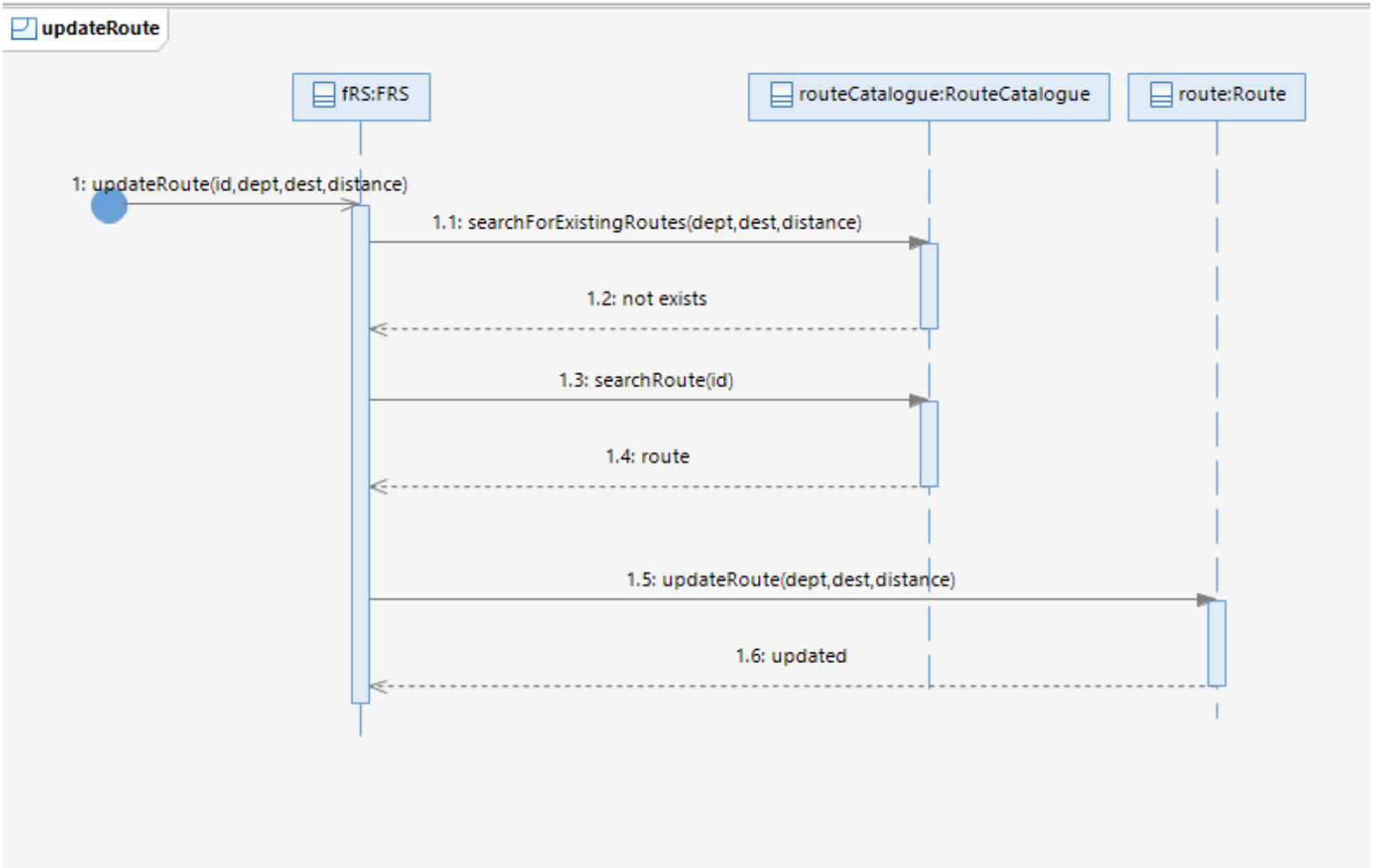


Sequence Diagram: Updating a route

1. Display Routes:



2. Update Route():



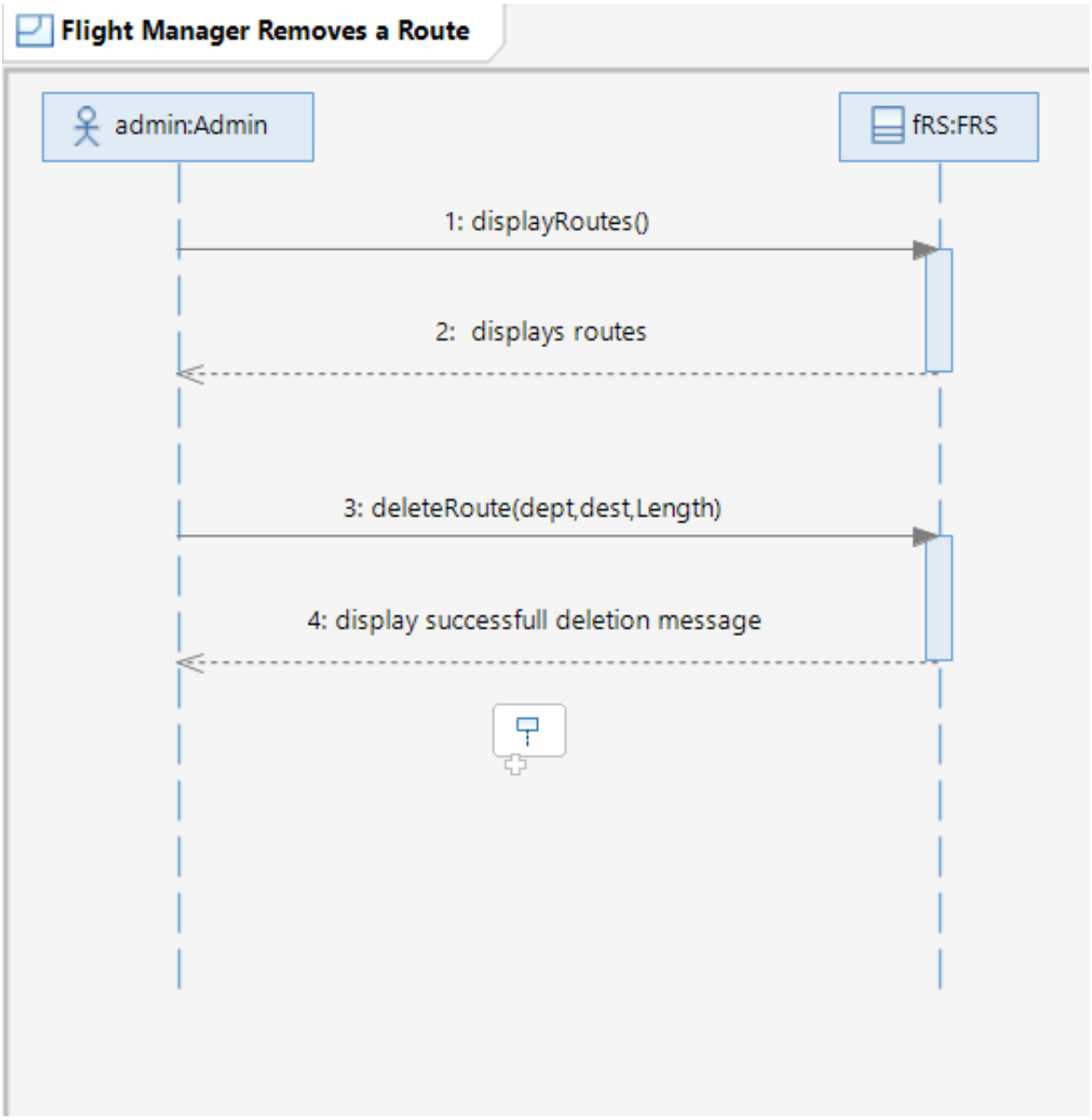
UC-10: Removing a route

Section	Content / Explanation
Designation	UC-10
Name	Remove a route
Priority	Important for system's success: Medium Technical Risk: Medium
Scope	This use case deals with how the Flight Manager removes a route in the FRS .
Criticality	medium
Level	User-goal

Description	The Flight Manager selects the route to remove and the route is removed from the database and information is updated.
Trigger Event	The Flight Manager wishes to remove the route.
Primary actor	Flight Manager
Stakeholders and interests	Passenger: He wants to check the routes of flight. Flight Manager: he wants to keep checking every route. He wants to manage the route.
Pre-Conditions	The Flight Manager must be logged in. The Flight Manager must be in the route management portal.
Post-Conditions	Route is removed. Route records are updated.
Result	Route removed.
Main Scenario	1. The Flight Manager selects a route option. 2. The FRS will fetch the routes from the database and display routes to the Flight Manager. 3. The Flight Manager selects the route he wants to remove. 4. The FRS displays details of the route and asks the Flight Manager for the confirmation. 5. The Flight Manager confirms the deletion. 6. The FRS deletes the route from the database.
Alternative Scenario	2a. The FRS database is empty. 2a.1 The FRS gives the Flight Manager the message that the database is empty and navigates the Passenger to the route management portal. 5a. The Flight Manager select cancel the route option. 5a.1 The FRS brings the Flight Manager back to the route management portal.
Exception Scenario	The FRS server is down. (1) Refresh and remove the route again.

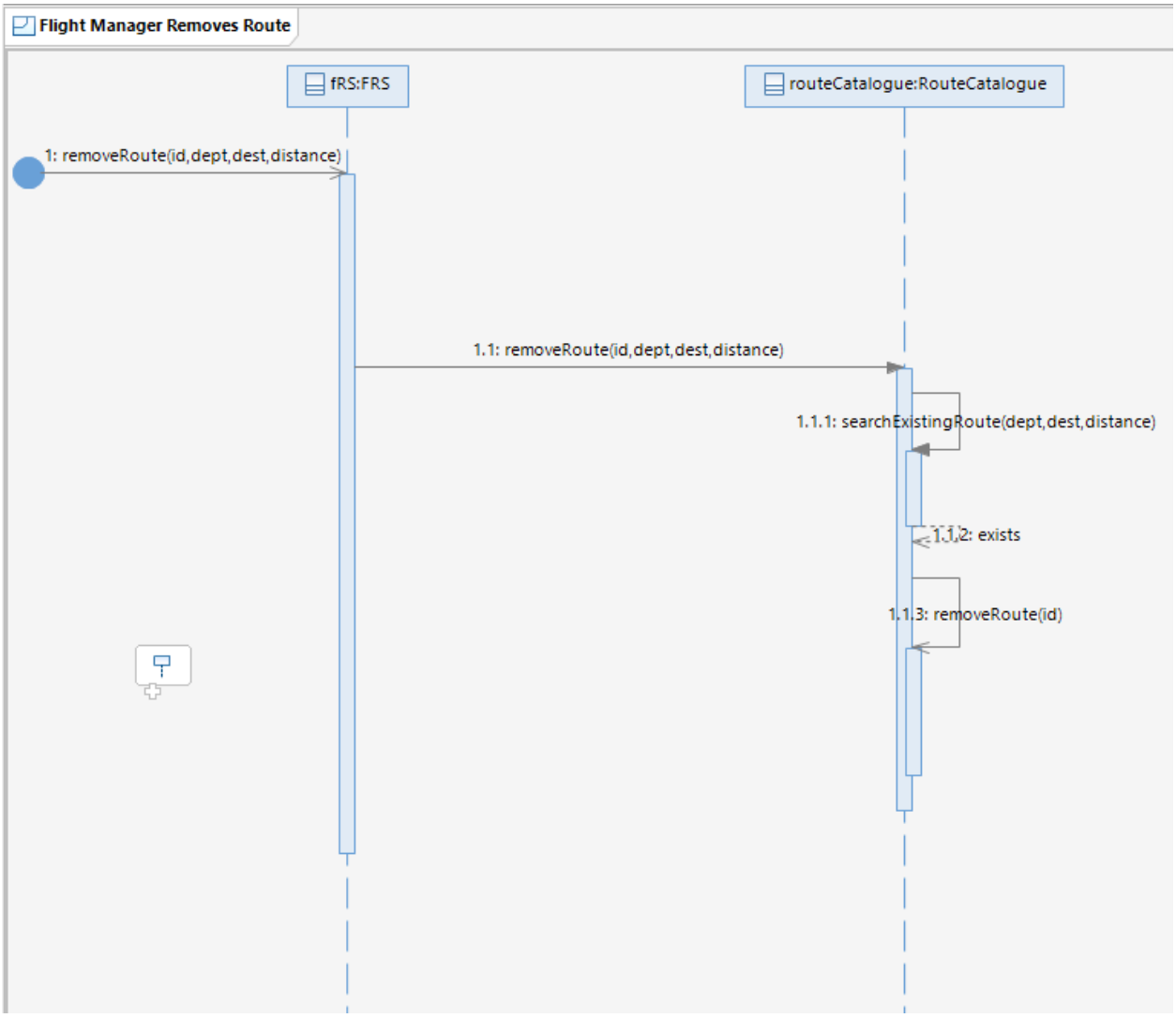
System Sequence Diagram: Route Removing

Removing a route

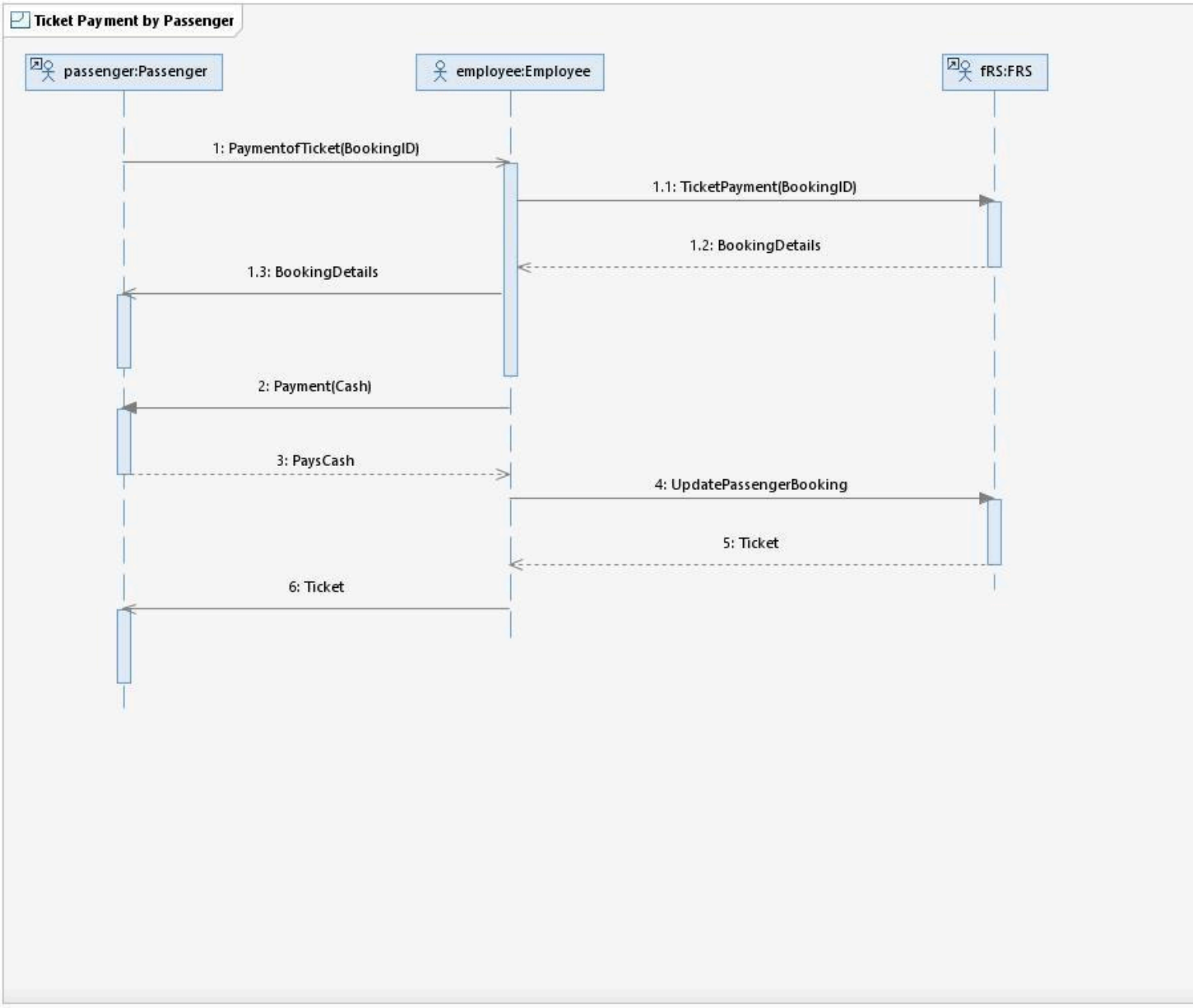


Sequence Diagram: delete Route

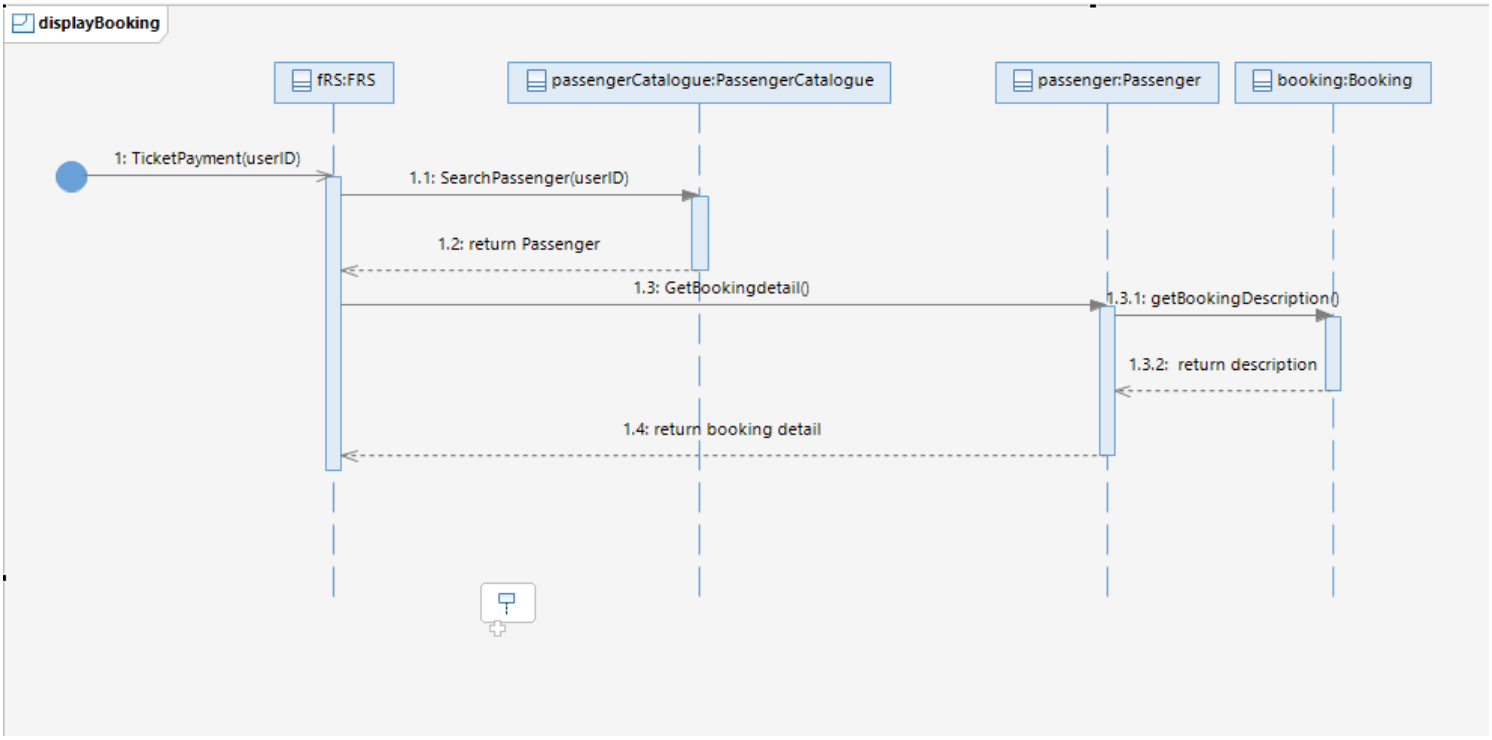
Delete Route



Payment


Ticket Payment by Passenger
passenger:Passenger
employee:Employee
fRS:FRS
1: PaymentofTicket(BookingID)
1.1: TicketPayment(BookingID)
1.2: BookingDetails
1.3: BookingDetails
2: Payment(Cash)
3: PaysCash
4: UpdatePassengerBooking
5: Ticket
6: Ticket

Sequence Diagrams: Payment

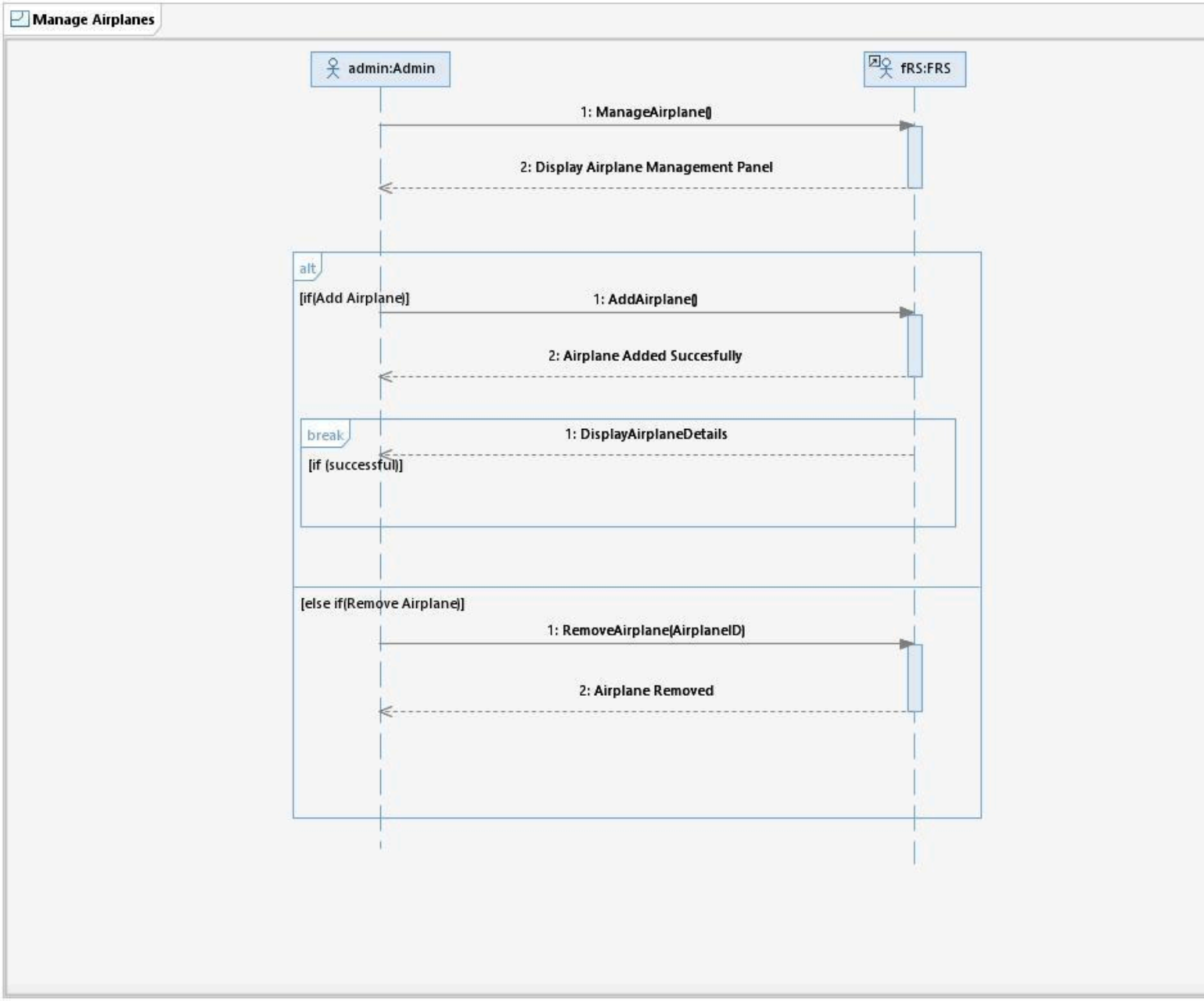


UC-11.1: Payment with cash

Section	Content / Explanation
Designation	UC-11
Name	Payment with cash
Priority	Important for system's success: High Technical Risk: High
Scope	This use case deals with how the Passenger processes payment.
Criticality	High
Level	User-goal

Description	The Passenger selects to pay through cash and the FRS tells the Passenger to pay 3 hours before the flight departure and if the Passenger pays before the time, then the seat is reserved else it is set free to be booked.
Trigger Event	The Passenger wishes to pay through cash.
Primary actor	Admin
Stakeholders and interests	Passenger: He wants to pay for the booked flight. Admin: he wants to keep a check of every Passenger who has reserved and paid for the flight. He wants to manage flight reservations.
Pre-Conditions	The Passenger must have booked a flight. The Passenger must be in the Airline Office The Employee dealing the Passenger must be logged in to the FRS
Post-Conditions	Payment is done. Flight Records are updated. Seating records are updated.
Result	Payment received.
Main Scenario	1. The Passenger goes to the Airline Office. 2. The passenger tells the Employee for Ticket Payment 3. The Employee Selects Ticket Payment from the FRS. 4. The Employee asks for Booking ID of the Passenger. 5. The Employee enters the Booking ID into the FRS. 6. FRS displays the calculated fare, Passenger CNIC and flight time. 7. The Employee collects the Payment from the passenger. 8. The Employee updates the payment of the Passenger.
Alternative Scenario	Main Scenario of UC-11, UC-12.
Exception Scenario	The FRS server is down. The Employee can’t log in.

Airplane Management



UC-14: Update Airplane's Flight Status

Sr.No	Section	Content / Explanation
1	**Designation**	UC-14
2	**Name**	Update Airplane's Flight Status
3	**Authors**	Daniyal
4	**Priority**	Important for system's success: High Technological Risk: High
5	**Scope**	This use case deals with how the FRS updates Airplane Status when a flight lands.
6	**Criticality**	**Medium**
7	**Stakeholders and interests**	• Flight Manager: Responsible for the entire scheduling of a flight. He wants correct retrieval of data to avoid any hazard.
8	**Description**	When the flight lands on any Airport 'X', the FRS automatically updates the status of the flight from "In Air" to "Flight to X completed".
9	**Trigger Event**	The Airplane completes its flight from destination A to Destination B and lands on Airport X successfully.
10	**Actors**	Flight Manager, Pilot, Flight crew, Navigation system, FRS.
11	**Pre-Conditions**	0. The airplane must successfully land the flight on Airport X.
12	**Post-Conditions**	0. Flight is successfully Landed on Airport X. 0. Flight records are updated. 0. The status of the Flight is successfully changed from "In Air" To "Flight to X completed".
13	**Result**	Airplane's Status successfully updated.
14	**Main Scenario**	1. The Airplane Y lands on Airport X. 2. The FRS updates the Flight status from "In Air" to "completed". 3. The FRS updates the Airplane status from "In Air" to "Flight completed and landed successfully on Airport X".

Sr.No	Section	Content / Explanation
15	**Alternative Scenario**	0. If the Flight that is about to land on Airport X is rerouted to any at other Airport Y, then the Flight manager manually overrides
16	**Exception Scenario**	0. The FRS is unable to fetch flight data. 0. The FRS is unable to fetch airport details.

UC-15: Manage Airplanes in FRS

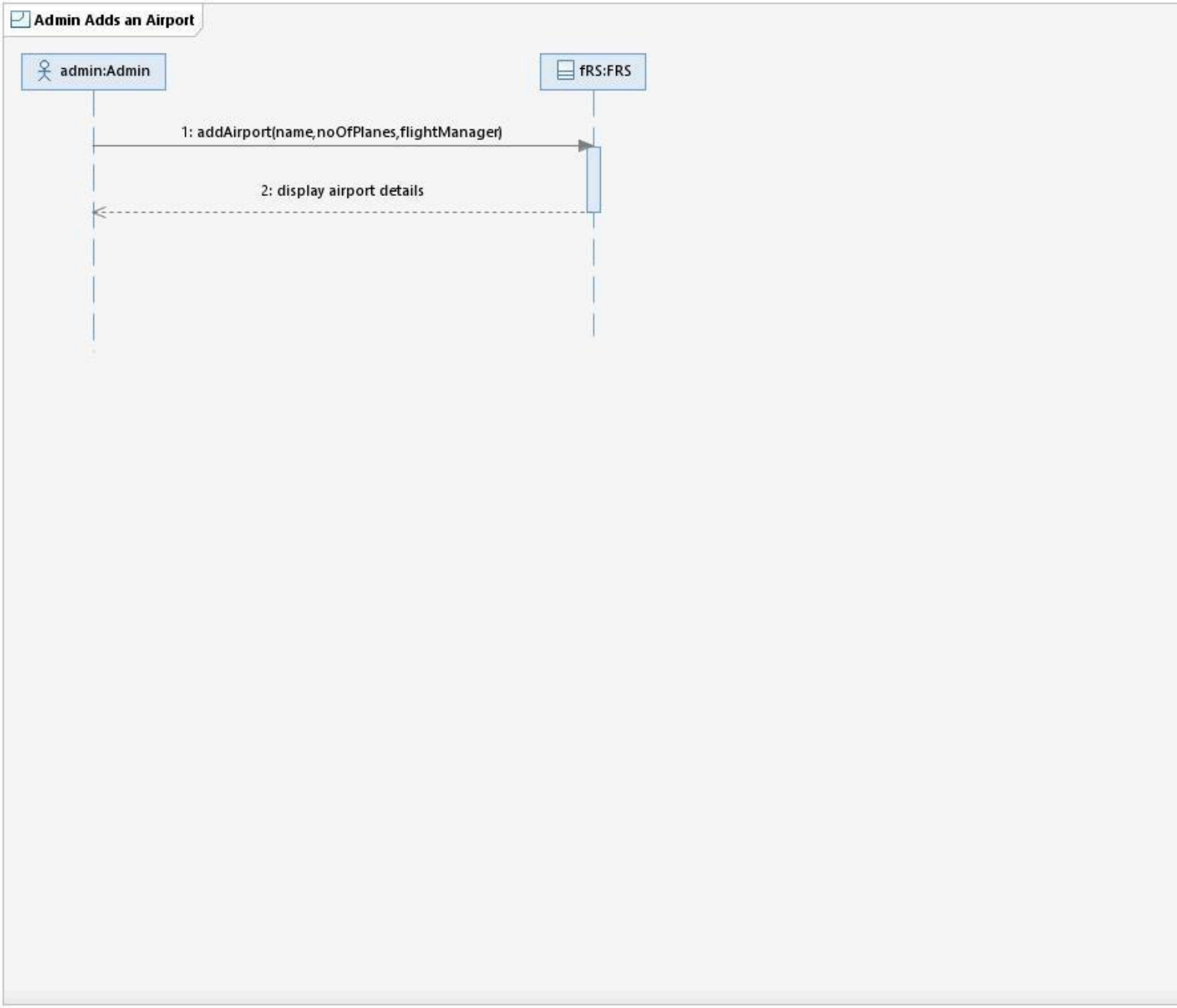
Sr. No	Section	Content / Explanation
1	**Designation**	UC-15
2	**Name**	Manage Airplane in FRS
3	**Authors**	Daniyal
4	**Priority**	Important for system's success: **Medium** Technological Risk: **Medium**
5	**Scope**	This use case deals with how the Admin adds/removes an Airplane to FRS.
6	**Criticality**	**Medium**
7	**Stakeholders and interests**	• Admin: Responsible for entire administration and management of the FRS.
8	**Description**	Admin adds an airplane to the FRS.
9	**Trigger Event**	Admin wants to add a new Airport
10	**Actors**	Admin, FRS..
11	**Pre-Conditions**	1. The Admin must be logged in.
12	**Post-Conditions**	1. The Airplane is successfully added/removed from the FRS.
13	**Result**	Airplane is successfully added to the FRS and is now available for flight scheduling, Airplane is successfully

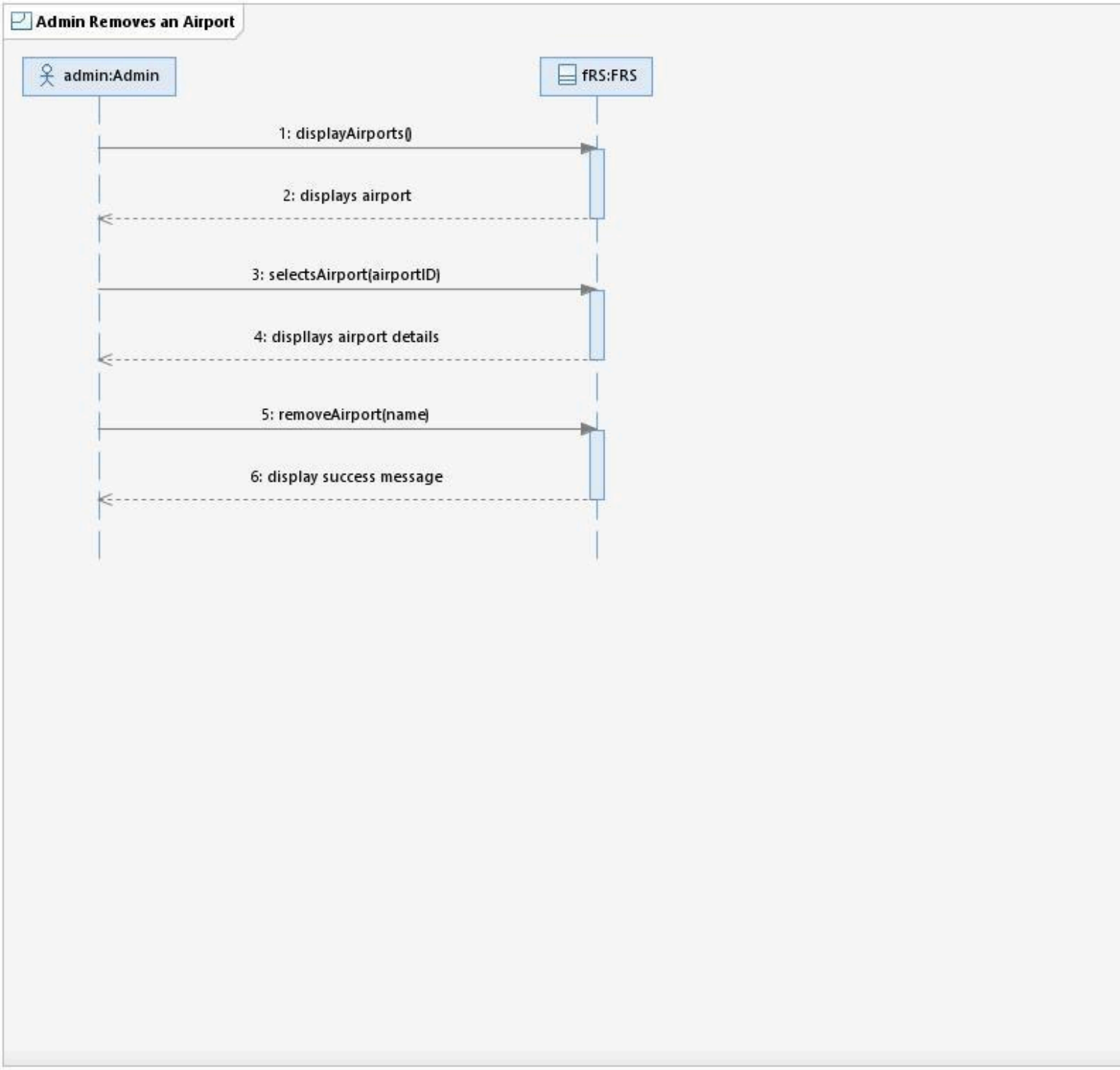
Sr. No	Section	Content / Explanation
		removed from the FRS and won't be available for scheduling. All the flights of that Airplane shall be cancelled.

14	**Main Scenario**	1. The admin opens up the Airplane Management Panel.
		2. The system displays Airplane Management UI.
		3. The Admin opens either of the Following:
		  1. The admin adds an Airplane in the FRS
		  2. The admin removes and Airplane from the FRS

15	**Alternative Scenario**	1. If the Airplane is not found in the FRS, then the Admin won't be able to delete the Airplane from the FRS.
16	**Exception Scenario**	1. The FRS is unable to fetch Airplane Details. 2. The FRS is unable to delete Airplane.

Airport Management




Admin Removes an Airport
admin:Admin
fRS:FRS
1: displayAirports()
2: displays airport
3: selectsAirport(airportID)
4: displlays airport details
5: removeAirport(name)
6: display success message

UC-16: Add Airport

Sr.No	Section	Content / Explanation
1	Designation	UC-16
2	Name	Add Airport
4	Priority	Important for system's success: High Technological Risk: High
5	Scope	This use case deals with how the Admin adds an airport.
6	Criticality	High
7	Stakeholders and interests	Company: The company wants to provide as many airports as possible for Passengers to book a flight. . ● Passenger: Wants to travel faster and with minimum headaches. Passengers want to book a flight at the airport suitable for them.
8	Description	The admin enters the airport name, the no. of planes on the airport, the flight manager responsible for the flight management, the system asks for confirmation and then stores the airport in the database.
9	Trigger Event	The admin wishes to add a new airport.
10	Actors	Admin, FRS (Flight reservation system).
11	Pre-Conditions	Admin must be logged in.
12	Post-Conditions	Airport is added to the FRS database.
13	Result	Airport added

<table>
<tr><th>Sr.No</th><th>Section</th><th>Content / Explanation</th></tr>
<tr><td>14</td><td>Main Scenario</td><td>
<table>
<tr><th>Admin</th><th>Flight Scheduling system</th></tr>
<tr><td>1. The admin clicks on adding the airport option.

3. The Admin enters the name of the airport and numbers of the airplanes in the airport.

0. The admin assigns a flight manager to the airport and clicks on the save button.
7. The admin select confirm</td><td>2. The FRS asks the Passenger to enter the name of the airport, number of the plane in the airport.

4. The FRS asks the admin to assign a flight manager for this airport.

6. The FRS system displays the airport details and give admin option:
6.1 Confirm
6.2 Change the details
6.3 cancel.

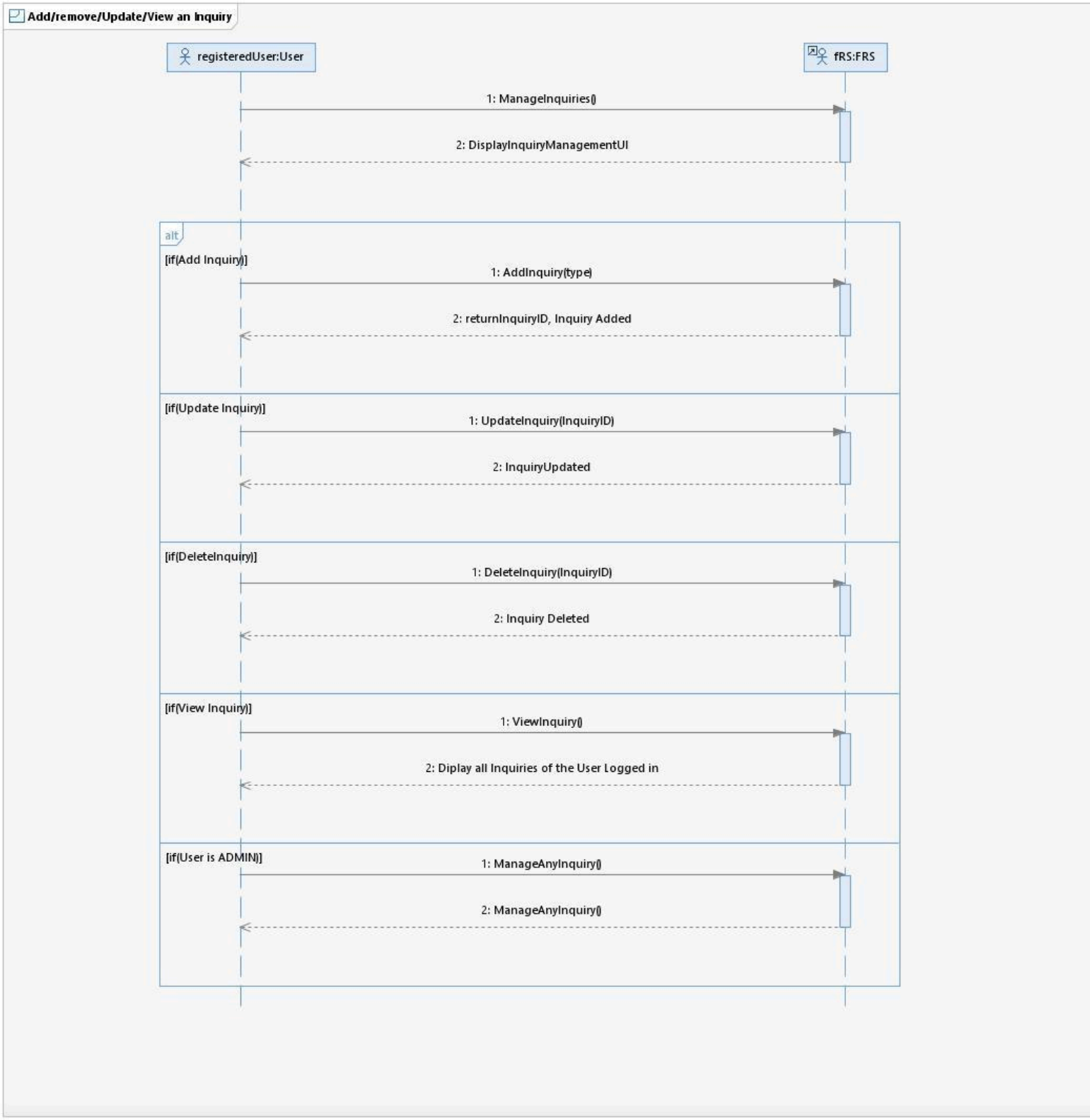
8. The FRS system checks if the airport is already present in the database or not. And saves the airport in the database of FRS if it is not present.</td></tr>
</table>
</td></tr>
<tr><td>15</td><td>Alternative Scenario</td><td>7a. The admin chose to change the details.
7a.1 Go to the 2 step.
7b. The admin chose to cancel the airport.
7b.1 The system navigates the Passenger toward the main screen.
8a. The airport is already present in the database.
8a.1 The system shows the message to the Passenger that the airport is already present and redirects the admin to enter the airport information again.</td></tr>
<tr><td>16</td><td>Exception Scenario</td><td>The FRS server is down.
The FRS will ask Passengers to refresh and enter the airport again.</td></tr>
</table>

UC-17: Remove an Airport

Sr. No	Section	Content / Explanation
1	**Designation**	UC-17
2	**Name**	**Remove a route**
3	**Priority**	Important for system's success: **Medium** Technical Risk: **Medium**
4	**Scope**	This use case deals with how the admin removes an airport in the FRS.
5	**Criticality**	medium
6	**Level**	User-goal
7	**Description**	The admin selects the airport to remove and the airport is removed from the database and information is updated.
8	**Trigger Event**	The admin wishes to remove the airport.
9	**Primary actor**	Admin
10	**Stakeholders and interests**	Admin: he wants to keep checking every detail. He wants to manage airports in the FRS.
11	**Pre-Conditions**	The admin must be logged in.
12	**Post-Conditions**	Airport is removed. Database is updated.

		The FRS will add an inquiry to shift the airplane to another airport in FRS.
13	**Result**	Airport removed.
14	**Main Scenario**	1. The Admin selects to remove an airport. 2. The system will fetch the airports from the database and display airports to the admin. 3. The admin selects the airport he wants to remove. 4. The system displays details of the airport and asks the admin for the confirmation. 5. The admin confirms the deletion. 6. The system deletes the airport from the database.
15	**Alternative Scenario**	2a. The system database is empty. 2a.1 The system gives the admin the message that the database is empty and navigates the Passenger to the management portal. 5a. The admin select cancel the airport deletion option. 5a.1 The system brings the admin back to the management portal.
16	**Exception Scenario**	The FRS server is down. (1) Refresh and remove the airport again.

Inquiry Management



UC-18: Redirecting an Inquiry:

Sr. No	Section	Content / Explanation
1	**Designation**	UC-18
2	**Name**	Redirect an Inquiry
3	**Authors**	Daniyal
4	**Priority**	Important for system's success: **Medium** Technological Risk: **Medium**
5	**Scope**	This use case deals with how the user's (Admin, Flight manager, accounts manager, passenger) Inquiry is redirected to the Inquiry manager. Then that inquiry manager solves the user's inquiry.
6	**Criticality**	**Medium**
7	**Stakeholders and interests**	• Admin: Wants to get his inquiries solved about any administration related issues (TBD) • Flight manager: Wants to get his inquiries solved about any flight scheduling related issues (TBD) • Accounts manager: Wants to get his inquiries solved about any accounts and finance scheduling related issues (TBD) • Passenger: Wants to get his inquiries solved about any flight booking and luggage related issues (TBD) • Inquiry Manager: Wants to solve the inquiry of the user (Admin, Flight manager, accounts manager, passenger)
8	**Description**	The FRS redirects the user's (Admin, Flight manager, accounts manager, passenger) inquiries to a case manager to get the user's inquiry resolved.
9	**Trigger Event**	The user (Admin, Flight manager, accounts manager, passenger) adds an inquiry.
10	**Actors**	Admin, Flight manager, accounts manager, passenger, Inquiry Manager
11	**Pre-Conditions**	The user must be registered in the FRS.
12	**Post-Conditions**	An Inquiry Manager is assigned to the User.

Sr. No	Section	Content / Explanation
13	**Result**	Inquiry redirected.
14	**Main Scenario**	The FRS redirects the inquiry to an Inquiry manager after the User (Admin, Flight manager, accounts manager, passenger) adds an Inquiry. The FRS then assign that inquiry manager to solve the User's Inquiry.
15	**Alternative Scenario**	If there is No Inquiry Manager available, then the user should navigate to the FAQ page shown by the FRS UI.
16	**Exception Scenario**	The user is not registered. The FRS is unable to fetch Inquiry data.

UC-19: View/Update/Delete an Inquiry

Sr. No	Section	Content / Explanation
1	**Designation**	UC-19
2	**Name**	View/Update/Delete an Inquiry
3	**Authors**	Daniyal
4	**Priority**	Important for system's success: **low** Technological Risk: **Medium**
5	**Scope**	This use case deals with how the user (Admin, Flight manager, accounts manager, passenger) views/update/Delete an Inquiry.
6	**Criticality**	**Medium**
7	**Stakeholders and interests**	• Admin: Wants to manage inquiries about any administration related issues (TBD) • Flight manager: Wants to manage inquiries about any flight scheduling related issues (TBD) • Accounts manager: Wants to manage inquiries about any accounts and finance scheduling related issues (TBD)

Sr. No	Section	Content / Explanation
		• Passenger: Wants to manage inquiries about any flight booking and luggage related issues (TBD)
8	**Description**	The FRS allows the user (Admin, Flight manager, accounts manager, passenger) to manage inquiries about what issue they want to inquire about.
9	**Trigger Event**	The user (Admin, Flight manager, accounts manager, passenger) wants to manage inquiries.
10	**Actors**	Admin, Flight manager, accounts manager, passenger
11	**Pre-Conditions**	The user must be registered in the FRS
12	**Post-Conditions**	The inquiry is added managed
13	**Result**	Inquiry managed.
14	**Main Scenario**	The user (Admin, Flight manager, accounts manager, passenger) logs in to the FRS. The FRS displays a UI. The user navigates through FRS Interface to Inquiry Management. Here, all the users (Admin, Flight manager, accounts manager, passenger) can view/delete/update their own inquiries. Admin and Flight Manager can also view inquiries of other user.
15	**Alternative Scenario**	If the inquiry is already added but not shown by the FRS, then the user should refresh the FRS.
16	**Exception Scenario**	The user is not registered. The FRS is unable to fetch Inquiry data.

UC-20: Add an Inquiry

Sr. No	Section	Content / Explanation
1	**Designation**	UC-20

Sr. No	Section	Content / Explanation
2	**Name**	Add an Inquiry
3	**Authors**	Daniyal
4	**Priority**	Important for system's success: **low** Technological Risk: **Medium**
5	**Scope**	This use case deals with how the user (Admin, Flight manager, accounts manager, passenger) adds an Inquiry.
6	**Criticality**	**Medium**
7	**Stakeholders and interests**	• Admin: Wants to inquire about any administration related issues (TBD) • Flight manager: Wants to inquire about any flight scheduling related issues (TBD) • Accounts manager: Wants to inquire about any accounts and finance scheduling related issues (TBD) • Passenger: Wants to inquire about any flight booking and luggage related issues (TBD)
8	**Description**	The FRS allows the user (Admin, Flight manager, accounts manager, passenger) to add an Inquiry about what issue they want to inquire about.
9	**Trigger Event**	The user (Admin, Flight manager, accounts manager, passenger) wants to add an Inquiry.
10	**Actors**	Admin, Flight manager, accounts manager, passenger
11	**Pre-Conditions**	The user must be registered in the FRS
12	**Post-Conditions**	The inquiry is added successfully.
13	**Result**	Inquiry added.
14	**Main Scenario**	The user (Admin, Flight manager, accounts manager, passenger) logs in to the FRS. The FRS displays a UI. The user navigates through FRS Interface to Inquiry management and then adds an inquiry.
15	**Alternative Scenario**	If the inquiry is already listed, then FRS does not add a duplicate inquiry.

Sr. No	Section	Content / Explanation
16	**Exception Scenario**	The user is not registered. The inquiry does not have a category.