Scenario: Olanka Travels Booking System (Add Traveler)

Olanka Travels has an internal booking system used by travel agents. A new requirement is introduced: travel agents should be able to add travelers to a booking, where travelers aged 12-18 are treated as adults for room allocation and pricing.

Part 1: Requirement Understanding

1.1 Functional Requirements (3)

FR-01: Add Traveler to Booking

The system shall allow a Travel Agent to add a new traveler to an existing booking by entering traveler details (e.g., full name, DOB/age, passport/ID), and saving the traveler to the booking.

FR-02: Age Categorization Rule (12–18 treated as adults)

When a traveler is added, the system shall calculate the traveler's age and categorize the traveler for pricing and room allocation as:

- Age < 12 → Child

- Age 12 -18 (inclusive) → Adult

- Age > 18 → Adult

FR-03: Update Allocation and Pricing After Addition

After successfully adding a traveler, the system shall update the booking's traveler counts (adult/child), recalculate room allocation, recalculate total pricing, and display the updated booking summary.

1.1 Non-Functional Requirements (2)

NFR-01: Performance

The system should validate, categorize, save the traveler, and update pricing/allocation fast enough for smooth agent use (e.g., within ~2 seconds under normal load).

NFR-02: Security & Auditability

Only authenticated Travel Agents should be able to add travelers. The system should log the action (who added the traveler, booking ID, timestamp, what changed).

1.2 Assumptions & Questions

Assumptions (3)

1. Traveler age is calculated from DOB using a consistent reference date (e.g., travel start date or booking date as defined by business rules).

2. Room allocation and pricing logic rely on the system's "Adult" and "Child" traveler counts (so correct categorization affects both).

3. Booking edits (like adding travelers) are permitted only when the booking is in a modifiable status (e.g., Draft/Reserved), and blocked once confirmed.

Clarification Questions (3)

1. Which date should be used to calculate age: booking date, travel start date, or current date?

2. Confirm the rule is inclusive: are travelers aged exactly 12 and exactly 18 treated as adults?

3. What should happen if DOB/age is missing or invalid (e.g., negative age, non-numeric age, unrealistic ages)?

Part 2: Use Case Creation (Add Traveler to Booking)

Use Case ID: UC-01

Use Case Name: Add Traveler to Booking

Actor(s): Travel Agent

Description: Travel Agent adds a traveler to an existing booking. The system validates traveler details, applies age categorization (12-18 treated as Adult), updates room allocation and pricing, and shows the updated booking summary.

Pre-conditions:

- Travel Agent is logged in (authenticated).

- Booking exists in the system.

- Booking status is modifiable (not locked/confirmed).

- Agent has permission to modify the booking.

Main Flow:

1. Travel Agent opens an existing booking.

2. Travel Agent selects Add Traveler.

3. System displays traveler entry form.

4. Travel Agent enters traveler details (name, DOB/age, passport/ID).

5. Travel Agent clicks Save.

6. System validates required fields and validates DOB/age.

7. System calculates age and assigns category:

   o < 12 → Child

   o 12–18 inclusive → Adult

   o Age > 18 → Adult

8. System adds traveler to booking.

9. System updates adult/child counts and recalculates room allocation.

10. System recalculates pricing and updates booking totals.

11. System saves changes and writes an audit log entry.

12. System shows updated booking summary to the agent.

Alternate Flow (at least one): Invalid Age Input

- If DOB/age is missing or invalid at step 6:

  1. System shows validation error message.

  2. Traveler is not added.

  3. Booking totals/allocation remain unchanged.

  4. Agent can correct and resubmit.

Post-conditions:

- Success: Traveler is saved to booking; allocation and pricing updated; audit log created.

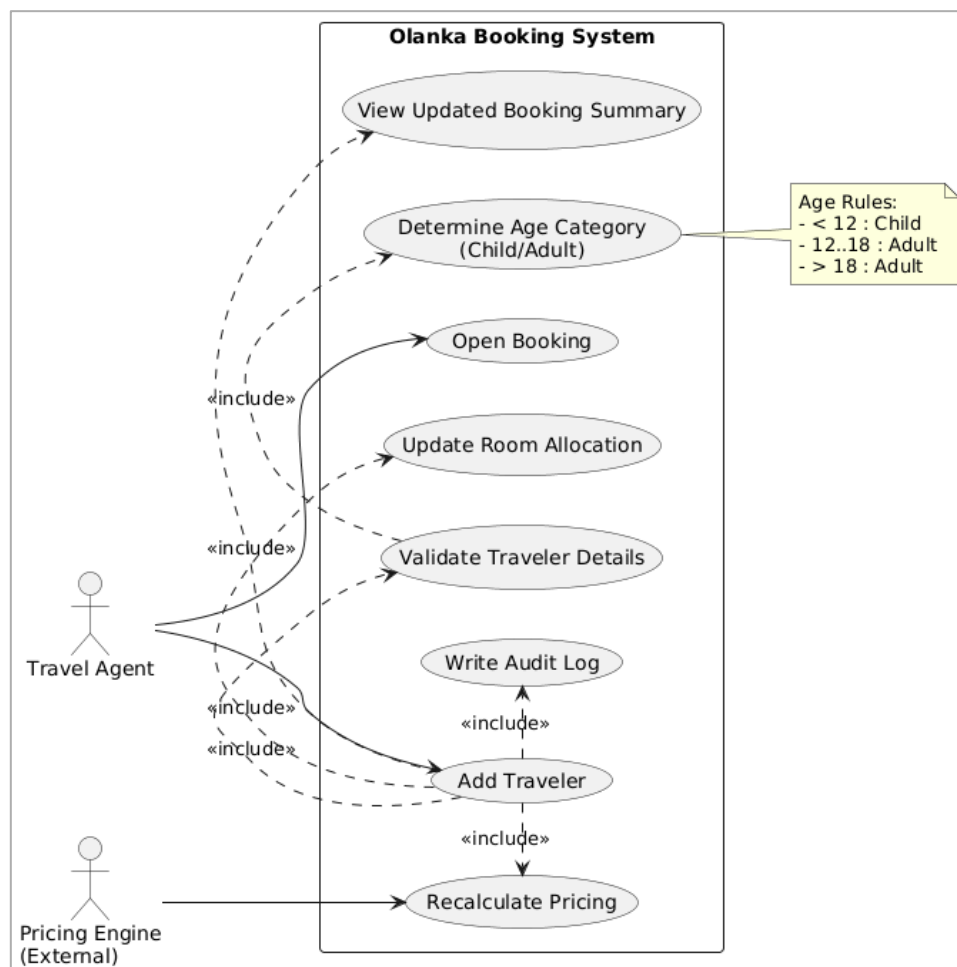- Failure: Traveler not saved; no pricing/allocation change.

Figure 1 - Use Case Diagram for Add Traveler to Booking

Part 3: Test Case Writing (3 Test Cases)

Test Case ID	Scenario	Steps	Expected Result
TC-01	Traveler age below 12	1) Open a modifiable booking 2) Click Add Traveler 3) Enter traveler age = 11 (or DOB giving 11) 4) Save	Traveler is added. Category = Child. Child pricing applied. Adult count for allocation does not include this traveler.
TC-02	Traveler age between 12–18, including boundary values 12 & 18	1) Open a modifiable booking 2) Add traveler age = 12 → Save 3) Add traveler age = 18 → Save	Both travelers are added. Both categorized as Adult. Adult pricing applied. Adult count increases by 2 and room allocation/pricing update accordingly.
TC-03	Traveler age above 18 + invalid age input	1) Open a modifiable booking 2) Add traveler age = 25 → Save 3) Attempt to add traveler with invalid age (e.g., -1 or "abc") → Save	Age 25 traveler added as Adult with adult pricing/allocation. Invalid entry is rejected with an error; traveler not added; no change to totals/allocation from the invalid attempt.

Part 4: Issue Analysis & Bug Reporting

Bug ID: BUG-01

Summary: A 15-year-old traveler is incorrectly categorized as Child instead of Adult, causing incorrect pricing and room allocation.

Steps to Reproduce:

1. Log in as Travel Agent.

2. Open a booking in a modifiable status.

3. Click Add Traveler.

4. Enter traveler details with DOB/age resulting in age = 15.

5. Click Save.

Actual Result:

Traveler is added and categorized as Child; child pricing and child-based allocation behavior is applied.

Expected Result:

Traveler aged 15 must be categorized as Adult (because ages 12–18 are treated as adults) and adult pricing/allocation must apply.

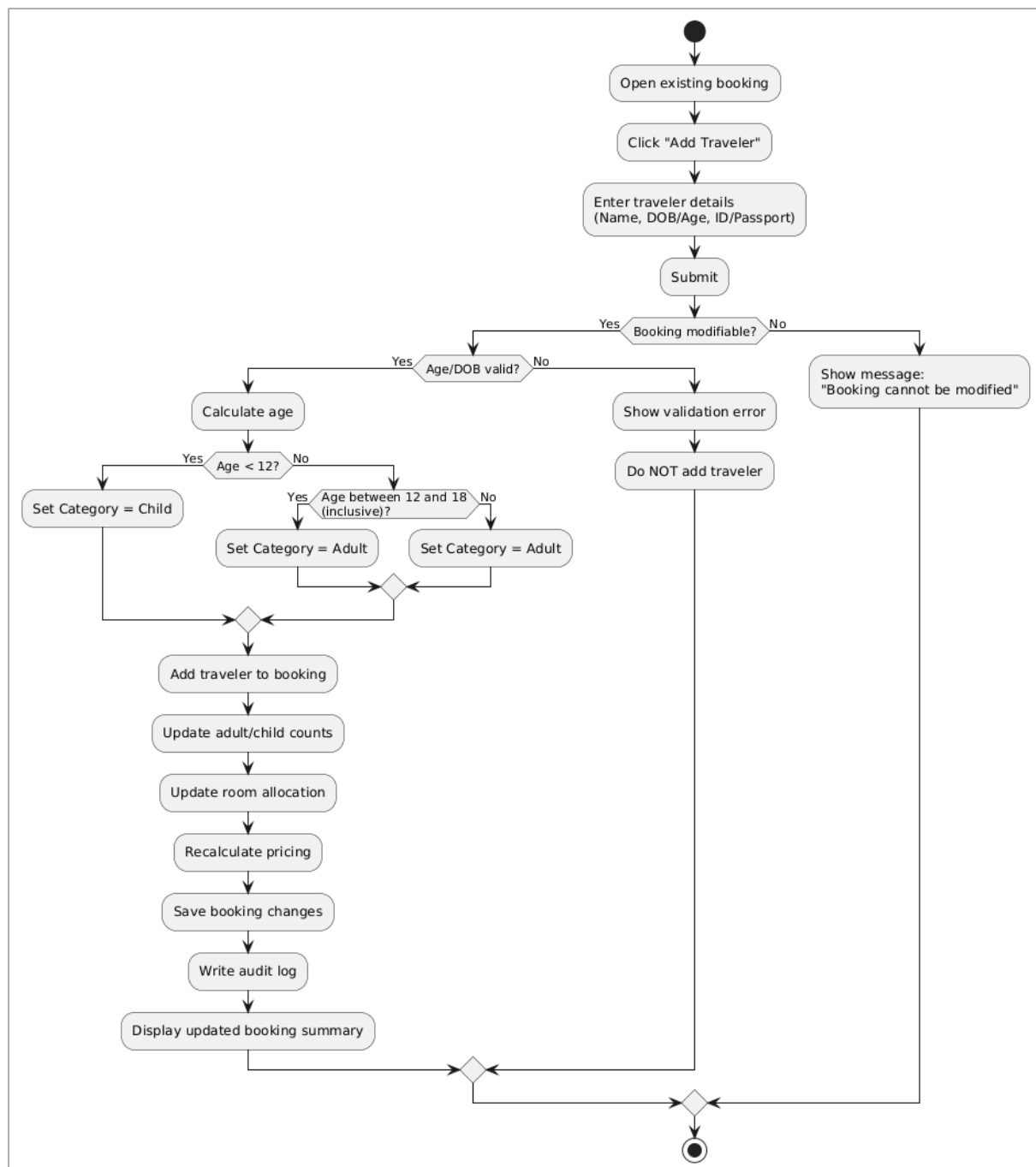**Severity:** High (impacts price and room allocation correctness)

Priority: P1 (fix before release)

Part 5: Diagrams (Simple Flow)

Simple Flow: Booking → Add Traveler → Age Validation → Pricing Calculation

1. Booking: Agent opens an existing booking.

2. Add Traveler: Agent enters traveler details and submits.

3. Age Validation: System validates DOB/age; if invalid, show error and stop.

4. Categorization: System assigns Child/Adult using rule (<12 child; 12-18 adult; >18 adult).

5. Pricing Calculation: System recalculates allocation and total price, saves, and shows updated summary.

Figure 2 - Activity Diagram: Add Traveler flow (Booking → Add Traveler → Age Validation → Allocation & Pricing Update)

Appendix: Supporting Figures

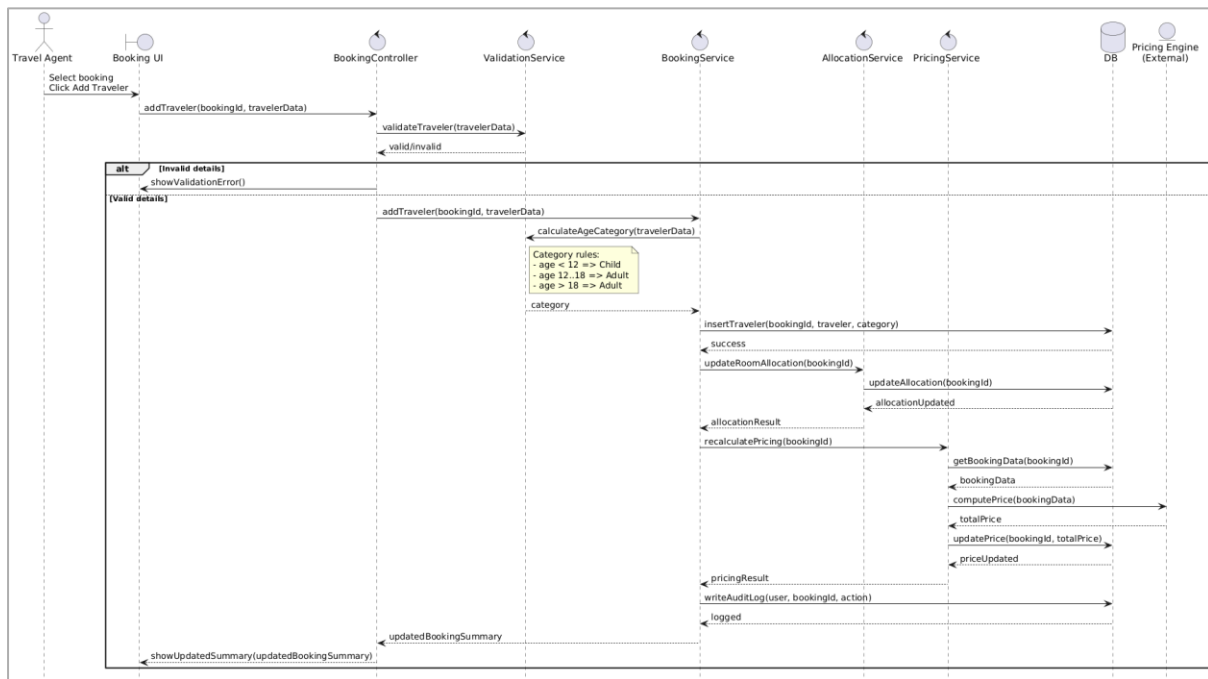The document only asks for the simple flow, but since you already created the diagrams, attach them here neatly.

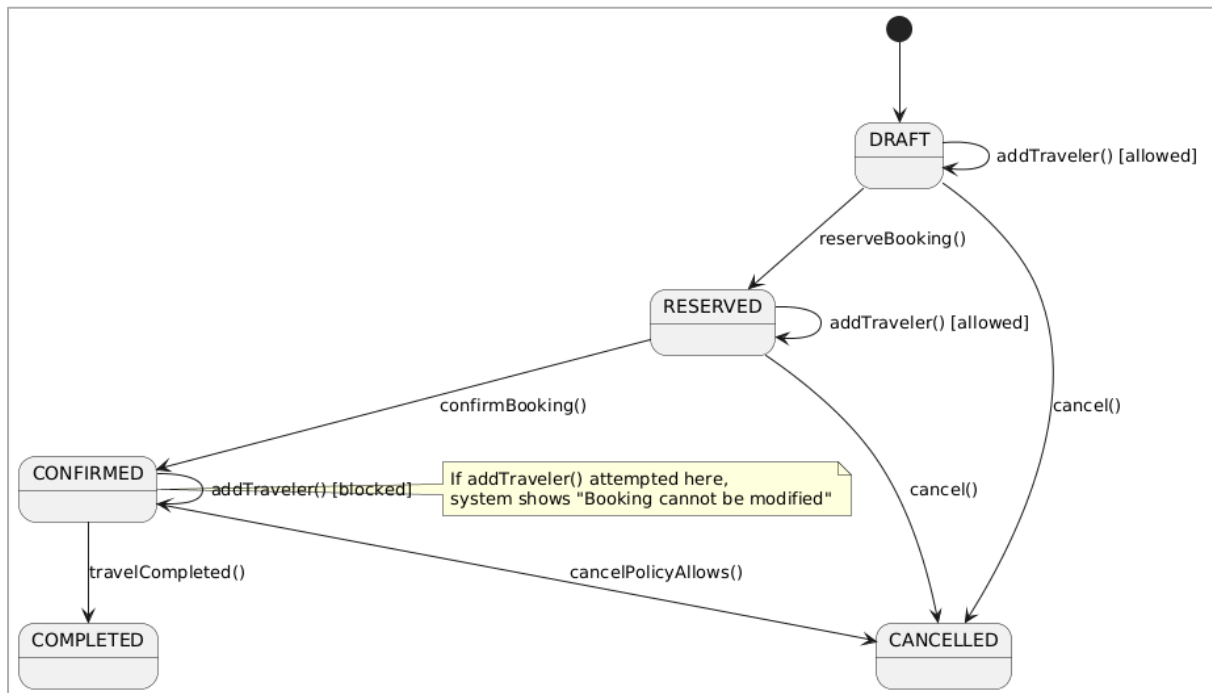**Figure 3 - Class Diagram for Booking and Traveler Management**

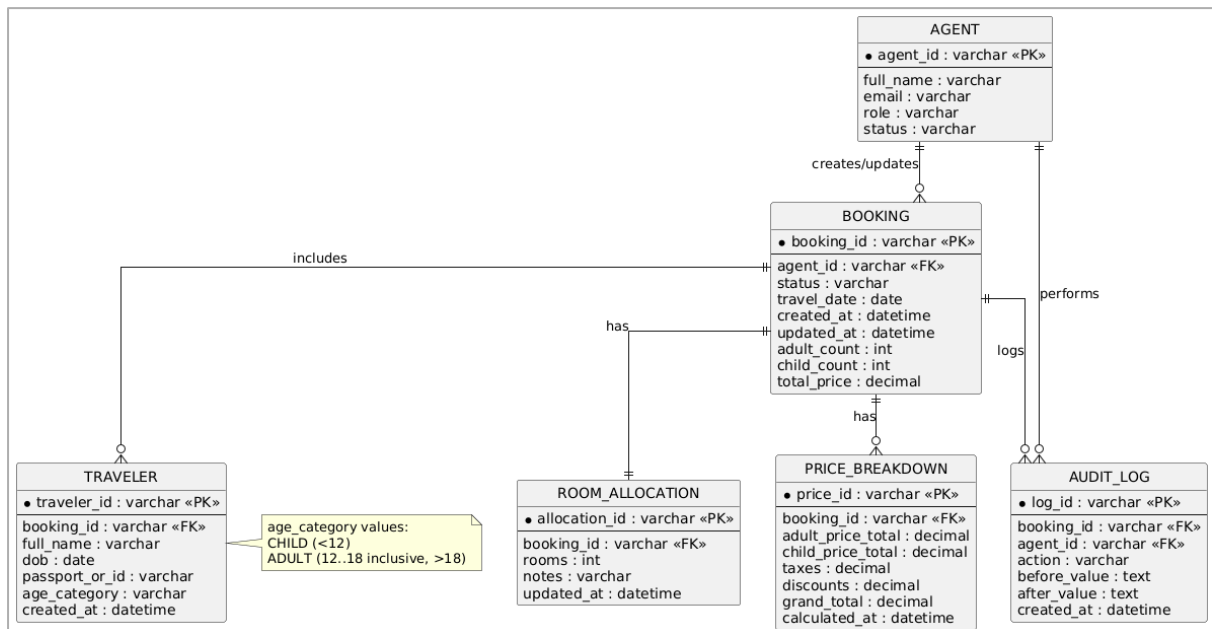**Figure 4 - State Diagram for Booking Status and Modification Rules**

Figure 5 - Entity Relationship Diagram for Booking System Database