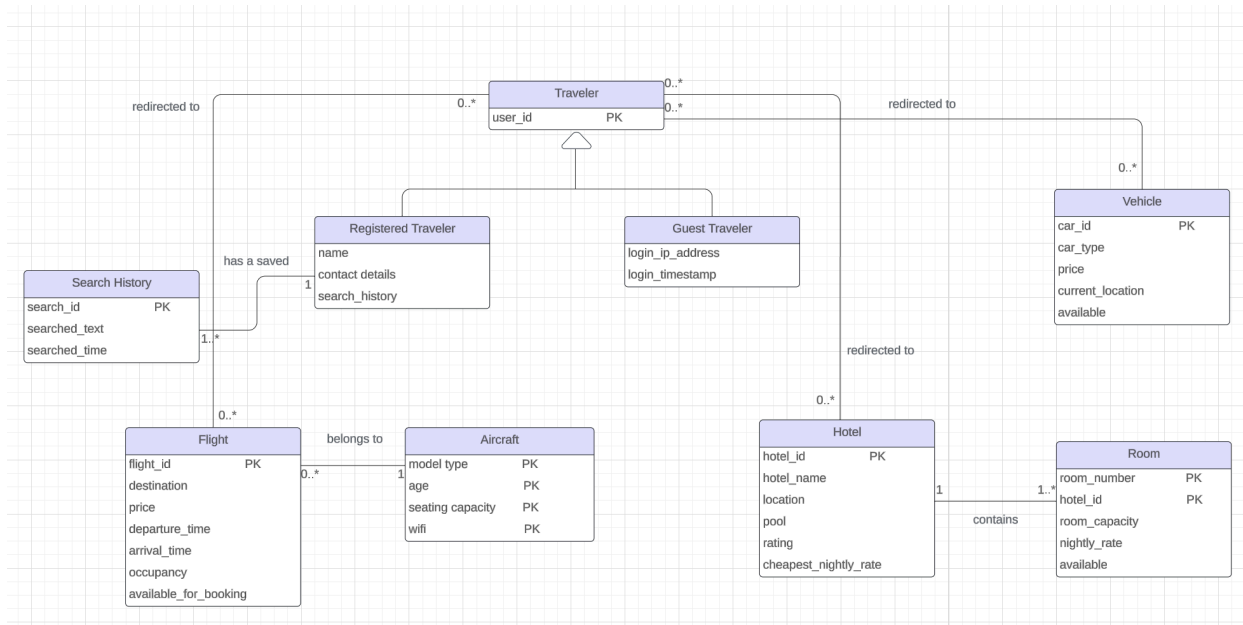


# The Database Lifecycle Phase 2

**Intermediate Deliverable**  
**67–262 Project**  
**T5-3**

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## 1. Updated Conceptual Model



Notes:

- Removed the Hotel Provider and Airline entities for concision
- Changed the three stakeholders to Traveler, Kayak's website manager, and Airlines

## 2. Intermediate Deliverable

Chosen User Story:

US6 [hotel, Complex #1, trigger]	Maintain consistency	Kayak's website Manager	Lower prices of all rooms in the hotel given a specific hotel name	I can ensure the information reflects newest prices	Complex	Operational
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## 3. Relational Model

Hotel(**hotel\_id**, hotel\_name, location, pool, rating, cheapest\_nightly\_rate)

Room(**room\_number**, **hotel\_id**, room\_capacity, nightly\_rate, available)

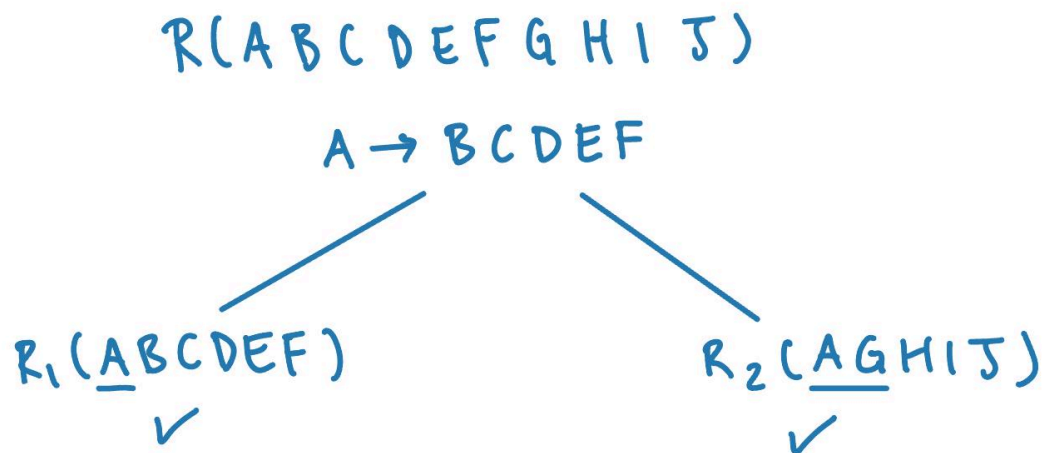
#### 4. Functional Dependencies

A: hotel\_id  
B: hotel\_name  
C: location  
D: pool  
E: rating  
F: cheapest\_nightly\_rate  
G: room\_number  
H: room\_capacity  
I: nightly\_rate  
J: available

$A \rightarrow BCDEF$

$AG \rightarrow HIJ$

#### 5. Normalization



The first dependency is from hotel\_id to hotel\_name, location, pool, rating, and cheapest\_nightly\_rate.

The second dependency is from room\_number and hotel\_id to room\_capacity, nightly-rate, and available.

The final relations  $R_1$  and  $R_2$  are in BCNF for the following reasons:

- $R_1$  is the closure of the  $A \rightarrow BCDEF$  (first) dependency and no other dependencies are contained within it.
- $R_2$  is the closure of the  $AG \rightarrow HIJ$  (second) dependency and no other dependencies are contained within it.