

Student Name: Ang Qiao Xin
Student ID: 33520054

Task 1 Assumptions

Although ships in Ocean Odyssey must have cabins to be used in actual cruises, the conceptual model allows a ship to exist without cabins to accommodate data entry flexibility. This is reflected by the cardinality: SHIP [1..1] → [0..M] CABIN.

A SHIP can be entered into the system before it is assigned to any CRUISE. This supports administrative workflows where ships are created first, and cruise schedules are added later.

A CRUISE can be created before any MANIFEST entries exist. This allows the company to define cruise offerings before any passengers have booked.

A CABIN can exist without being assigned to any MANIFEST record. This reflects the real-world situation where not all cabins are booked for every cruise.

Task 3 Assumptions

A surrogate key `address_id` was added to the ADDRESS entity to avoid using a composite primary key (add_street_no, add_town, add_postcode, add_country) and to simplify foreign key relationships from PASSENGER. This is because there are more than two attributes in a primary key. Not only that, the composite primary key is too long or cumbersome. The DBMS can create values for it to guarantee that unique numbers are always supplied. The natural key (street, town, postcode, country) is protected using a UNIQUE constraint and mandatory.

CHECK constraints were used for fields with fixed and limited value sets: 'cabin_class' (Interior, Ocean View, Balcony, Suite), 'iti_depart_type' (A=Arrive, D=Depart) and gender id (F-Female, M-Male, N-Non-Binary, T-Transgender, O-Others).

The earlier CHECK constraint for passenger gender was replaced with a GENDER lookup table to support a broader and more inclusive list of gender identities, such as Non-Binary, Transgender, etc. This allows for future extensibility and centralized control.

In the PASSENGER entity, a self-referencing foreign key guardian_id is used to represent the guardian of a minor. This attribute is optional and will be left NULL for adult passengers and only used when a passenger is a minor.

The logical model allows a CRUISE to exist temporarily without an ITINERARY. This supports real-world workflow where cruises may be created before finalising all port stops.

The cruise_cost attribute was defined as NUMERIC(6,2) to support cents and provide accurate pricing. While the brief provides integer examples, actual cruise pricing may involve decimal values.

The `contact_number` attribute was defined as VARCHAR2(20) to accommodate international dialing codes, including country prefix, area code, and optional symbols (e.g., +60-12-3456789). This allows for flexibility in formatting while remaining within a reasonable length.