Description ERD

The relationship diagram globally describes the process from the moment a customer makes a booking at TUI. The most important entities and their cardinalities with other entities will be shortly explained.

Booking & Payment

The booking entity is defined by its primary key Booking_ID and contains all necessary information of a guests' booking. Since a booking always has a main booker, but a customer can book multiple bookings there is a one-to-many relationship with C_Person_ID. A booking is also always tied to one specific location, which is indicated through the Location_ID. Locations on the other hand, can have multiple bookings, so this relationship is one-to-many. Due to the possibility of the insurance service, the Insurance_ID indicates a one-to-many relationship (an insurance is always tied to a certain booking). Moreover. The forgein keys are Flight_ID and Cruise_ID. A booking can also be associated with one or multiple payments, as a client can pay for their booking in full, or with partial payments. Therefore, the relationship of booking and payment is one-to-many. It is also optional, because payments might not be fulfilled at the time of booking. Furthermore, each payment is defined by its primary key Payment_ID. For each payment some information is recorded, such as; the amount received, the bank's BIC code, the account number and the name of the account holder.

Person, Employee, Subcontractor & Customer

The person entity is defined by its primary key Person_ID. All relevant information regarding personal details is covered in this entity. For TUI, persons can be either employees, subcontractors or customers. All these subtypes are directly identified with their Person_ID, which makes this a primary key and forgein key simultaneously. Through this key, personal information can be accessed. Not incorporating these details in all these entities separate, makes the database helps with the clearness and unclutterdness of the database. The relationship to the employee, subcontractor and customer entities are one-to-one, as the details refer always to one certain person. Employees are always tied to a certain department, consisting of multiple employees, thus the employee entity is related to the department entity in a one-to-many relationship. Besides the relationship between customer and booking (previously described), there is a relationship with the insurance entity, indicating which insurances are booked. This relationship is one-to-many, as a booking can have multiple insurances.

Accomodation

The accommodation entity is defined by it's Acc_ID and contains all information about single rooms, in a hotel or cabins on a cruise. To provide the customer with information about this accommodation while booking (such as suitability for kids, or a possible WiFi connection), the Acc_ser_ID is linked with the Accommodation services entity. This is a many-to-one relationship, as an accommodation is always tied to a certain set of services. There is also a relationship with the placement entity, which links the available accommodations with bookings. The relationship is one-to-many, as an accommodation can have multiple placements, but a placement has only one booking.

Cruise

The Cruise entity is defined by it's Cruise_ID and describes all practical information that TUI requires to know. For example, the Department_ID indicates which team of TUI employees work on a certain cruise. This is a one-to-many relationship, as a cruise always employs at least one tean, but a team can be tied to several cruises. The cruise entity is also linked with a certain booking through the Booking_ID. As a guest books a cruise, a cruise is always linked with one specific cruise. Reversely, a cruise can have a multitude of bookings, so the relationship is one-to-many.

Car rental

The Car_rental_ID defines the Car_rental entity. This primary key describes all the information regarding the rental of a car. This information includes the location, booking, date, type, price, number of passengers and insurance. Insurance_ID is in this case the foreign key from the table insurance, which is a one-to-one relationship. The location_ID is a foregin key from the location table, which is a many-to-one relationship, this is because a car rental has a single location, but a location can have multiple car rentals. The entity car_rental also has the booking_id as a foreign key from the booking table, which is also a many-to-one relationship. A car rental has only one booking, but a booking can have multiple car rentals.

Flight & Aircraft

The flight entity is defined by it's Flight_ID and describes all the details of a flight, such as Aircraft_ID and flightdate. The aircraft_ID is the foreign key from the aircraft table, which is a many-to-one relationship. This is because an aircraft can have multiple flights, and a flight has only one aircraft. The booking table is related to the flight table, which is a many-to-one relationship. A booking can have a single flight, but a flight can have multiple bookings.

Transfer

The entity transfer is defined by it's Transfer_ID, which includes all the information about the transfer between several locations. Therefore, the entity location is related in a many-to-one relationship with the location entity. This is because a location can have multiple transfers between places and a transfer is only to one single location. The location_id is (PK in location table) is the foreign key in this entity. Also, the transfer entity is connected with the booking table, in a many-to-one relationship. This is because a booking can have multiple transfers and a transfer only consists of a single booking. The booking_ID is in this case the foreign key.

Cruise & Cruise liner

The cruise entity is defined by its Cruise_ID. The entity contains all necessary information regarding cruises that TUI requires to register. As described under accommodations, there is a relationship with that entity that contains all information regarding the cabins on a cruise. The Location_ID forgein key indicates the location at which the cruise harbor is located. This is a one-to-many relationship as a cruise is always tied to one certain harbour, but these harbours can place multiple cruises. The company_ID indicates which company operates the cruises. Also this relationship is one-to-many, as a company can execute multiple cruises, but a cruise is always executed by one company. Lastly, the relationship with the department's entity indicates which TUI departments work on the cruise. This relationship with departments is one-to-many, as there is always one certain TUI department on a cruise, but those departments can work on multiple cruises subsequently.

Activities

An activity is identified by the primary key Activity_ID. A certain activity is always linked to one and only one Location_ID (being the starting location) and Booking_ID. For each activity instance the group size, date, time, category, description and price are also stored.