3.1.1 Conception phase: Requirements Specification

In the following, I am going to create a requirements analysis that will address the following aspects in more detail. To begin with I explain what roles there will be in the er model. Upon that, I will describe what action these roles perform. After that, I will elucidate what date and functions will be required.

First, there will be an accommodation entity. This entity consists of several references to entities that describe the possible attributes of accommodations. The accommodation entity consists of accommodation images, accommodation descriptions, accommodations room types, accommodation types, accommodations addresses and accommodations amenities. It will contain further information like the host id of the accommodation, the reviews, price per night in the accommodation, the used currency, the available promo code for the accommodation, and the bed/room count. The accommodation entity will be referenced in the Booking's entity.

Furthermore, there will be a review entity. This entity consists of two references to entities that describe the review entity. The first one is the review Body entity and the second one is the review Rating entity. The Review entity will be referenced in the accommodation entity.

Besides, there are the country and city entities. The Country entity consists of the country name and the corresponding country code. The City entity consists of the city name and a reference to the country entity. These entities will be referenced in the accommodations Addresses entity and in the address's entity for the users.

After that, there are the user and hostess entities.

The Users entity consists of several relevant pieces of information about the users and a reference to the user addresses entity. In detail, the user entity contains the first name, last name, email, date of birth, and the reference to the user addresses entity.

The Hostess Entity consists of a reference to the user's entity and a reference to the language entity. The reference to the user entity explains itself as follows. Each user can be a host and a guest. The reference to the language's entity describes the languages utilized to communicate with the guests by the host.

Furthermore, there are the entity's promo codes and currencies.

The promo code entity consists of two attributes. The code itself and the corresponding discount value. This entity will be referenced in the accommodation entity.

The currencies entity also consists of two attributes. The currency name itself and the corresponding exchange rate. This entity will also be referenced in the accommodation entity.

The Only two entities left are the bookings entity and the transactions entity.

The Bookings entity consists of a reference to the users and accommodations entity. Furthermore, it contains attributes like the start and end date of a booking and the number of nights. The bookings entity will be referenced in the Transactions entity.

At the end is the transaction entity. This entity consists of the reference to the user and host entity respectively as payee and receiver and a reference to the booking entity. Over that the transaction entity contains attributes like the payment and transfer date and the amount of the transaction.

The main concept is, that there are accommodations that can be booked by users. All the entities around accommodations just describe the status of the accommodations. The Users and Hostess entities list all the users and those who are hosts with relevant information. The Booking entity connects the user with the booked accommodation and provides additional information. The Transaction entity accumulates the information that results from the booking process. The Review entity contains the reviews for the accommodations.

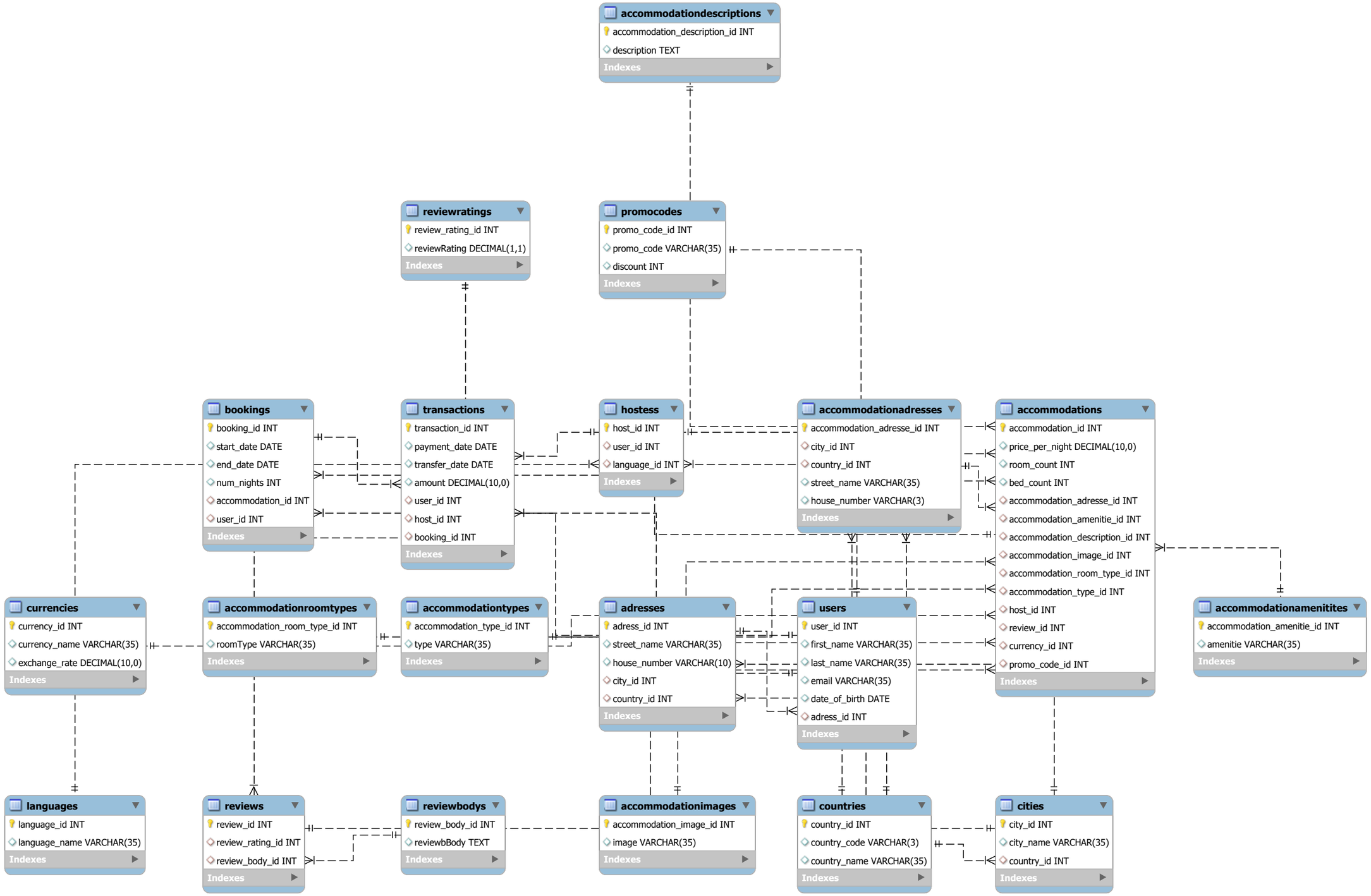
The following functions will be needed for the database to work properly.

The first function will convert the price per night according to the appropriate currency. For example, the original currency for one accommodation is in euros, but the user is only able to pay in dollars. Therefore, the function will solve this problem by converting the currencies.

The second function applies the promo code to the price per night.

The last Function calculates the resulting amount of the booking. It performs that by multiplying the number of nights with the price per night.

Primarily the needed date will be of the types of varchar, text, int, decimal, and dates. As there is an entity for the accommodation images one expects that there will be the correct data type used for images, but I do think that this would be very difficult to implement here. Therefore, I will use varchar as an alternative for replacing the images.


accommodationdescriptions
accommodation_description_id INT
description TEXT
Indexes
reviewratings
review_rating_id INT
reviewRating DECIMAL(1,1)
Indexes
promocodes
promo_code_id INT
promo_code VARCHAR(35)
discount INT
Indexes
bookings
booking_id INT
start_date DATE
end_date DATE
num_nights INT
accommodation_id INT
user_id INT
Indexes
transactions
transaction_id INT
payment_date DATE
transfer_date DATE
amount DECIMAL(10,0)
user_id INT
host_id INT
booking_id INT
Indexes
hostess
host_id INT
user_id INT
language_id INT
Indexes
accommodationadresses
accommodation_adresse_id INT
city_id INT
country_id INT
street_name VARCHAR(35)
house_number VARCHAR(3)
Indexes
accommodations
accommodation_id INT
price_per_night DECIMAL(10,0)
room_count INT
bed_count INT
accommodation_adresse_id INT
accommodation_amenitie_id INT
accommodation_description_id INT
accommodation_image_id INT
accommodation_room_type_id INT
accommodation_type_id INT
host_id INT
review_id INT
currency_id INT
promo_code_id INT
Indexes
currencies
currency_id INT
currency_name VARCHAR(35)
exchange_rate DECIMAL(10,0)
Indexes
accommodationroomtypes
accommodation_room_type_id INT
roomType VARCHAR(35)
Indexes
accommodationtypes
accommodation_type_id INT
type VARCHAR(35)
Indexes
adresses
adress_id INT
street_name VARCHAR(35)
house_number VARCHAR(10)
city_id INT
country_id INT
Indexes
users
user_id INT
first_name VARCHAR(35)
last_name VARCHAR(35)
email VARCHAR(35)
date_of_birth DATE
adress_id INT
Indexes
accommodationamenitites
accommodation_amenitie_id INT
amenitie VARCHAR(35)
Indexes
languages
language_id INT
language_name VARCHAR(35)
Indexes
reviews
review_id INT
review_rating_id INT
review_body_id INT
Indexes
reviewbodys
review_body_id INT
reviewbBody TEXT
Indexes
accommodationimages
accommodation_image_id INT
image VARCHAR(35)
Indexes
countries
country_id INT
country_code VARCHAR(3)
country_name VARCHAR(35)
Indexes
cities
city_id INT
city_name VARCHAR(35)
country_id INT
Indexes

schema_nm	table_nm	obj_typ	ord	is_key	column_nm	data_typ	nullable	column_descr
airbnb	accommodationadresses	TBL	1	PK,UK	accommodation_adresse_id	int(10)	NOT NULL	for unique identification
airbnb	accommodationadresses	TBL	2	FK	city_id	int(10)	NULL	reference to city
airbnb	accommodationadresses	TBL	3	FK	country_id	int(10)	NULL	reference to country
airbnb	accommodationadresses	TBL	4		street_name	varchar(35)	NULL	acc.street name
airbnb	accommodationadresses	TBL	5		house_number	varchar(3)	NULL	acc.house number
airbnb	accommodationamenitites	TBL	1	PK,UK	accommodation_amenitie_id	int(10)	NOT NULL	for unique identification
airbnb	accommodationamenitites	TBL	2		amenitie	varchar(35)	NULL	acc.amenity
airbnb	accommodationdescriptions	TBL	1	PK,UK	accommodation_description_id	int(10)	NOT NULL	for unique identification
airbnb	accommodationdescriptions	TBL	2		description	text(65535)	NULL	short description of the accommodations
airbnb	accommodationimages	TBL	1	PK,UK	accommodation_image_id	int(10)	NOT NULL	for unique identification
airbnb	accommodationimages	TBL	2		image	varchar(35)	NULL	"image" of the accommodations
airbnb	accommodationroomtypes	TBL	1	PK,UK	accommodation_room_type_id	int(10)	NOT NULL	for unique identification
airbnb	accommodationroomtypes	TBL	2		roomType	varchar(35)	NULL	room type
airbnb	accommodations	TBL	1	PK,UK	accommodation_id	int(10)	NOT NULL	for unique identification
airbnb	accommodations	TBL	2		price_per_night	decimal(10,0)	NULL	price_per_night
airbnb	accommodations	TBL	3		room_count	int(10)	NULL	number of bedrooms
airbnb	accommodations	TBL	4		bed_count	int(10)	NULL	number of beds
airbnb	accommodations	TBL	5	FK	accommodation_adresse_id	int(10)	NULL	reference to acc.adresses
airbnb	accommodations	TBL	6	FK	accommodation_amenitie_id	int(10)	NULL	reference to acc.aemenities
airbnb	accommodations	TBL	7	FK	accommodation_description_id	int(10)	NULL	reference to acc.descriptions
airbnb	accommodations	TBL	8	FK	accommodation_image_id	int(10)	NULL	reference to acc.images
airbnb	accommodations	TBL	9	FK	accommodation_room_type_id	int(10)	NULL	reference to acc.roomtypes
airbnb	accommodations	TBL	10	FK	accommodation_type_id	int(10)	NULL	reference to acc.types
airbnb	accommodations	TBL	11	FK	host_id	int(10)	NULL	reference to hostess
airbnb	accommodations	TBL	12	FK	review_id	int(10)	NULL	reference to reviews
airbnb	accommodations	TBL	13	FK	currency_id	int(10)	NULL	reference to currencies
airbnb	accommodations	TBL	14	FK	promo_code_id	int(10)	NULL	reference to promocodes
airbnb	accommodationtypes	TBL	1	PK,UK	accommodation_type_id	int(10)	NOT NULL	for unique identification
airbnb	accommodationtypes	TBL	2		type	varchar(35)	NULL	acc.types
airbnb	adresses	TBL	1	PK,UK	adress_id	int(10)	NOT NULL	for unique identification
airbnb	adresses	TBL	2		street_name	varchar(35)	NULL	street name
airbnb	adresses	TBL	3		house_number	varchar(10)	NULL	house number
airbnb	adresses	TBL	4	FK	city_id	int(10)	NULL	reference to city
airbnb	adresses	TBL	5	FK	country_id	int(10)	NULL	reference to country
airbnb	bookings	TBL	1	PK,UK	booking_id	int(10)	NOT NULL	for unique identification
airbnb	bookings	TBL	2		start_date	date(3)	NULL	start date of the booking
airbnb	bookings	TBL	3		end_date	date(3)	NULL	end date of the booking
airbnb	bookings	TBL	4		num_nights	int(10)	NULL	number of nights
airbnb	bookings	TBL	5	FK	accommodation_id	int(10)	NULL	reference to accommodations
airbnb	bookings	TBL	6	FK	user_id	int(10)	NULL	reference to users

airbnb	cities	TBL	1	PK,UK	city_id	int(10)	NOT NULL	for unique identification
airbnb	cities	TBL	2		city_name	varchar(35)	NULL	name of the city
airbnb	cities	TBL	3	FK	country_id	int(10)	NULL	reference to country
airbnb	countries	TBL	1	PK,UK	country_id	int(10)	NOT NULL	for unique identification
airbnb	countries	TBL	2	UK	country_code	varchar(3)	NULL	country code
airbnb	countries	TBL	3		country_name	varchar(35)	NULL	name of the country
airbnb	currencies	TBL	1	PK,UK	currency_id	int(10)	NOT NULL	for unique identification
airbnb	currencies	TBL	2		currency_name	varchar(35)	NULL	name of the currency
airbnb	currencies	TBL	3		exchange_rate	decimal(10,0)	NULL	exchange rate
airbnb	hostess	TBL	1	PK,UK	host_id	int(10)	NOT NULL	for unique identification
airbnb	hostess	TBL	2	FK	user_id	int(10)	NULL	reference to users
airbnb	hostess	TBL	3	FK	language_id	int(10)	NULL	reference to languages
airbnb	languages	TBL	1	PK,UK	language_id	int(10)	NOT NULL	for unique identification
airbnb	languages	TBL	2		language_name	varchar(35)	NULL	name of the language
airbnb	promocodes	TBL	1	PK,UK	promo_code_id	int(10)	NOT NULL	for unique identification
airbnb	promocodes	TBL	2	UK	promo_code	varchar(35)	NULL	promo code
airbnb	promocodes	TBL	3		discount	int(10)	NULL	the discount of the promo code
airbnb	reviewbodys	TBL	1	PK,UK	review_body_id	int(10)	NOT NULL	for unique identification
airbnb	reviewbodys	TBL	2		reviewbBody	text(65535)	NULL	review body
airbnb	reviewratings	TBL	1	PK,UK	review_rating_id	int(10)	NOT NULL	for unique identification
airbnb	reviewratings	TBL	2		reviewRating	decimal(1,1)	NULL	review rating
airbnb	reviews	TBL	1	PK,UK	review_id	int(10)	NOT NULL	for unique identification
airbnb	reviews	TBL	2	FK	review_rating_id	int(10)	NULL	reference to reviewRating
airbnb	reviews	TBL	3	FK	review_body_id	int(10)	NULL	reference to reviewBody
airbnb	transactions	TBL	1	PK,UK	transaction_id	int(10)	NOT NULL	for unique identification
airbnb	transactions	TBL	2		payment_date	date(3)	NULL	date of the payment
airbnb	transactions	TBL	3		transfer_date	date(3)	NULL	date of the transfer
airbnb	transactions	TBL	4		amount	decimal(10,0)	NULL	total amount of the transaction
airbnb	transactions	TBL	5	FK	user_id	int(10)	NULL	reference to users
airbnb	transactions	TBL	6	FK	host_id	int(10)	NULL	reference to hostess
airbnb	transactions	TBL	7	FK	booking_id	int(10)	NULL	reference to bookings
airbnb	users	TBL	1	PK,UK	user_id	int(10)	NOT NULL	for unique identification
airbnb	users	TBL	2		first_name	varchar(35)	NULL	firstname
airbnb	users	TBL	3		last_name	varchar(35)	NULL	lastname
airbnb	users	TBL	4	UK	email	varchar(35)	NOT NULL	emailadress
airbnb	users	TBL	5		date_of_birth	date(3)	NULL	date of birth
airbnb	users	TBL	6	FK	adress_id	int(10)	NULL	reference to adresses