

## Requirements Specification

An accommodation booking app needs a reliable, stable backend for the management of its data and activities. Therefore, it is the objective of the conception phase to lay the groundwork for a consistent, reliable and smooth user experience by designing a stable, consistent and database as backend which facilitates all necessary and desired activities of the expected user groups and enables future extensions of the application in form of additional data and functions.

At the current stage of development there are several user groups whose interests and activities need to be considered and represented in different roles:

### Prospects

When a person first encounters the application he or she is in the role of a prospective member. It will be possible to browse the contents and look at listings as well as check ratings of the rentals on offer. Bookings or contacting hosts however will not be possible. The activities that a prospective member can undertake serve the purpose of a shop window by letting them get to know the app and check the offers and thus motivate them to become a member in order to book or offer a rental themselves.

### Members – Guests and Hosts

Once registered with the app a prospect becomes a member.

There are two subgroups of members – hosts and guests – and each member can belong to one or both of them. Different data will be associated with these profiles. The guest profile is the default profile that is generated after completed registration. Members can decide to also act as hosts at any point in time by creating host profile and a rental listing.

### Admins

There will need to be an administrator role so that important technical activities such as update, maintenance, backups, monitoring and other activities can be performed.

### Customer Service

In Order to handle inquiries or complaints by members or prospective members customer service staff will need to have a role that gives them access to members' bookings and transaction details to handle enquiries and also to members' profile details in order to give advice when problems arise during registration. This role is for internals only.

### Business Analyst

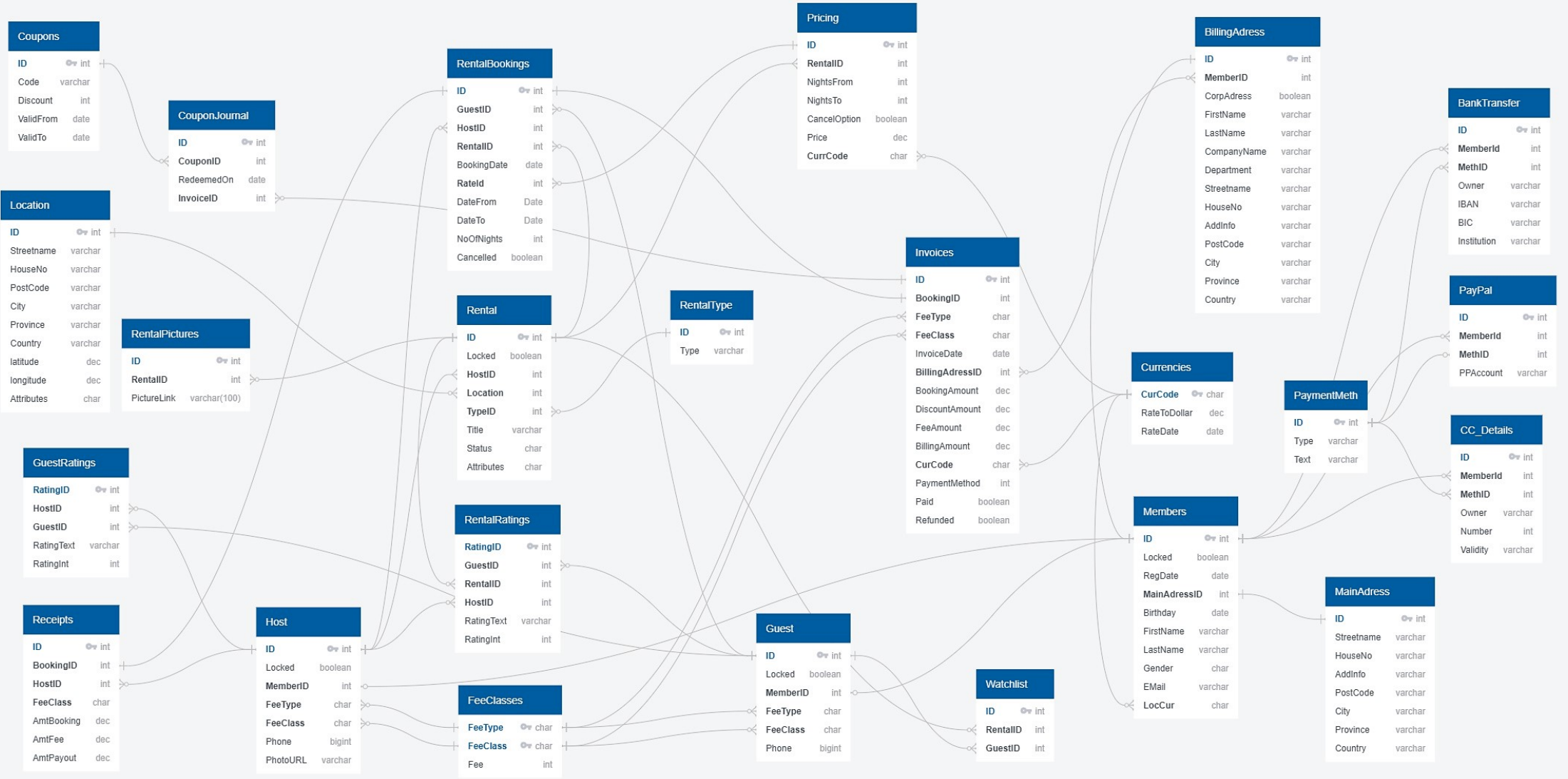
Like customer service this is an internal role as well and may be given i.e., to marketing employees in order to analyze bookings, customers, effect of promotions etc.

The following table (Table 1: Activities and Data Requirements by User Groups) gives an overview of functions/activities and data requirements for the respective user groups except for admins. Admins have been excluded since their activities are not directly involved in the process of offering and booking rentals.

Table 1: Activities and Data Requirements by User Groups

Activity	Data requirements	Relevant for user group:				
		Prospects	Members: Guests	Members: Hosts	Customer Service	Business Analyst
Browse offered rentals & availability	Rental profiles, Rental Bookings (availability)	✓	✓	✓	✓	✓
Read rental ratings	Rental Ratings	✓	✓	✓	✓	✓
Edit personal profile data	Member Data, Guest and/or Host Details	✗	(✓)	(✓)	✗	✗
Get in touch with hosts	Contact Details of Host Profile (forward message to email, phone number after booking)	✗	✓	✗	✓	✗
Read guest ratings	Guest Ratings	✗	✓	✓	✓	✓
Book rentals or add offers to watchlist	Rental Bookings, Pricing, Coupons, Gift Cards, Payment Method Details (CC, PP, Bank Transfer), transactions, Watchlist; receive invoices	✗	✓	✗	✗	✗
Rate rentals	Rental Ratings, Transactions, Bookings	✗	✓	✗	✗	✗
Offer rentals	Rental Profiles incl. Rental Pictures, Pricing, Room Bookings (to block room if necessary), location details; receive receipts for Payout	✗	✗	✓	✗	✗
Rate guests	Guest Ratings, Transactions	✗	✗	✓	✗	✗
Get in touch with guests	Phone Number of Guest Profile	✗	✗	✓	✓	✗
access bookings of rentals	Rental Bookings	✗	(✓)	(✓)	✓	[✓]
access transaction details	Transactions, Payment Method, Pricing	✗	✗	✗	✓	[✓]
access personal Member Data (Hosts and guests)	Member Data, Guest and/or Host Details	✗	(✓)	(✓)	✓	[✓]
Access and combine raw data (without personal info)	Member Data, Booking Data, Rental Data, Rating Data, Transaction Data	✗	✗	✗	✗	✓

- ✓ designated activity for this user group
- (✓) activity is possible but only concerning one's own data
- [✓] activity is possible but only with anonymized data
- ✗ activity is not possible



Entity	Attributes	Primary Key	Foreign Key	unique	nullable	Data Type	Length	Meaning	Origin (if FK)
BankTransfer	ID	x		x		int		Technical ID for each BankTransfer details	
BankTransfer	MemberID		x			int		Technical ID of Member	Members.ID
BankTransfer	MethID		x			int		technical ID of payment method Bank Transfer	PaymentMeth.ID
BankTransfer	Owner					varchar	200	name of bank account owner	
BankTransfer	IBAN					varchar	34	international bank account number (IBAN)	
BankTransfer	BIC					varchar	12	Business Identifier Code (BIC)	
BankTransfer	Institution					varchar	100	name of the bank	
BillingAdress	ID	x		x		int		Technical ID for each BillingAdress	
BillingAdress	MemberID		x			int		Technical ID of Member	Members.ID
BillingAdress	CorpAdress					boolean		true=adress is a corporate adress	
BillingAdress	CompanyName				x	varchar	100	Name of business entity to receive invoice	
BillingAdress	Department				x	varchar	50	Name of department, i.e. HR	
BillingAdress	Streetname					varchar	100	Name of Street or "PO Box"	
BillingAdress	HouseNo					varchar	5	House Number or PO Box Number	
BillingAdress	AddInfo				x	varchar	100	i.e. c/o, Appartment Number or person of contact, cost center, project	
BillingAdress	PostCode					varchar	10	postal code	
BillingAdress	City					varchar	50	City	
BillingAdress	Province				x	varchar	50	Province	
BillingAdress	Country					varchar	50	Country	
CC_Details	ID	x		x		int		Technical ID for each CC_Detail	
CC_Details	MemberID		x			int		Technical ID of Member	Members.ID
CC_Details	MethID		x			int		technical ID of payment method credit card	PaymentMeth.ID
CC_Details	Owner					varchar	200	name of card owner	
CC_Details	Number					bigint		credit card number	

Entity	Attributes	Primary Key	Foreign Key	unique	nullable	Data Type	Length	Meaning	Origin (if FK)
CC_Details	Validity					char	7	validity of the the credit card	
CouponJournal	ID	x				int		technical ID for Coupon Journal entry	
CouponJournal	CouponID		x			int		Id of the coupon that was used	Coupons.ID
CouponJournal	RedeemedOn					date		date the coupon was used on	
CouponJournal	InvoiceID		x			int		Invoice ID where Coupon was used	Invoices.ID
Coupons	ID	x		x		int		Technical ID for each Coupon	
Coupons	Code					varchar	10	code of the coupon	
Coupons	Discount					int		percental discount in % (1 = 1%)	
Coupons	ValidFrom					date		valid from date	
Coupons	ValidTo					date		valid to date	
Currencies	CurCode	x				char	3	abbreviation of Currency, i.e. EUR, GBP	
Currencies	RateToDollar					dec	19, 9	exchange rate of currency to dollar	
Currencies	RateDate					date		date of exchange rate	
FeeClasses	FeeType	x				char	1	H=Host, G=Guest	
FeeClasses	FeeClass	x				char	1	I=initial (First Time User), A to C for different User groups	
FeeClasses	Fee					int		Fee in percent (1 = 1%)	
Guest	ID	x		x		int		Technical ID for each Guest	
Guest	Locked					boolean		1 = locked, 0 = not locked; when user decides to delete their guest profile it will be locked. Locked profiles are no longer functional but integrity of data remains intact; default value is 0	
Guest	MemberID		x	x		int		Technical ID of each Member (FK)	Members.ID
Guest	FeeType		x			char	1	Fee Type, always 'G' for Guests	FeeClasses.FeeType
Guest	FeeClass		x			char	1	Fee Class as Guest, depends i.e. on previous bookings, is determined daily; initial Value 'I'	FeeClasses.FeeClass

Entity	Attributes	Primary Key	Foreign Key	unique	nullable	Data Type	Length	Meaning	Origin (if FK)
Guest	Phone					bigint		phone number as guest	
GuestRatings	RatingID	x		x		int		Technical ID for each GuestRating	
GuestRatings	HostID		x			int		technical ID of Host who rented to guest	Host.ID
GuestRatings	GuestID		x			int		Technical ID of rated Guest	Guest.ID
GuestRatings	RatingText				x	varchar	500	Rating of guests by the hosts, free text for comments, between 20 and 500 char.	
GuestRatings	RatingInt					int		rating of guests by the hosts, scale from 1 to 5, 5 being the best rating	
Host	ID	x		x		int		Technical ID for each Host	
Host	Locked					boolean		1 = locked, 0 = not locked; when user decides to delete their host profile it will be locked. Locked profiles are no longer functional but integrity of data remains intact; default value is 0	
Host	MemberID		x	x		int		technical ID of host's member profile (FK)	Members.ID
Host	FeeType		x			char	1	Fee Type, always 'H' for Hosts	FeeClasses.FeeType
Host	FeeClass		x			char	1	Fee Class as Host, depends on previous transactions, is determined daily	FeeClasses.FeeClass
Host	Phone					bigint		Phone number as Host	
Host	PhotoURL					varchar	100	URL to Host's photo	
Invoices	ID	x		x		int		Technical ID for each Invoice	
Invoices	BookingID		x	x		int		ID of the booking that the invoice refers to	RentalBooking.ID
Invoices	FeeType		x			char	1	Fee Type, always 'G' for Guests	FeeClasses.FeeType

Entity	Attributes	Primary Key	Foreign Key	unique	nullable	Data Type	Length	Meaning	Origin (if FK)
Invoices	FeeClass		x			char	1	Fee Class as Guest, depends i.e. on previous bookings, is determined daily; initial Value 'I'	FeeClasses.FeeClass
Invoices	InvoiceDate					date		Date the Invoice is created	
Invoices	BillingAdressID		x			int		ID of billing adress	BillingAdress.ID
Invoices	BookingAmount					dec	12,2	Sum of Rental Rates	
Invoices	DiscountAmount					dec	12,2	Amount to be deducted due to Coupon Use	
Invoices	FeeAmount					dec	12,2	Fee to be paid by Guest	
Invoices	BillingAmount					dec	12,2	final amount billed to the Guest	
Invoices	CurCode		x			char	3	Currency key (local currency of guest	Currencies.CurCode
Invoices	PaymentMethod		x			int		Payment method chosen by guest	PaymentMeth.ID
Invoices	Paid					boolean		payment indicator: true if paid	
Invoices	Refunded					boolean		refund indicator: true if refunded	
Location	ID	x		x		int		Technical ID for each Location	
Location	Streetname					varchar	100	Name of Street	
Location	HouseNo					varchar	5	House Number	
Location	PostCode					varchar	10	postal code	
Location	City					varchar	50	City	
Location	Province				x	varchar	50	Province	
Location	Country					varchar	50	Country	
Location	latitude					dec	10, 8	derived from adress if possible	
Location	longitude					dec	11, 8	derived from adress if possible	
Location	Attributes				x	varchar	500	optional tags for rental area, i.e. trendy district, entertainment, trade fair area, close to park	
MainAdress	ID	x		x		int		Technical ID for each MainAdress	
MainAdress	Streetname					varchar	100	Name of Street	
MainAdress	HouseNo					varchar	5	House Number	
MainAdress	AddInfo				x	varchar	100	i.e. c/o, Appartment Number etc	

Entity	Attributes	Primary Key	Foreign Key	unique	nullable	Data Type	Length	Meaning	Origin (if FK)
MainAdress	PostCode					varchar	10	postal code	
MainAdress	City					varchar	50	City	
MainAdress	Province				x	varchar	50	Province	
MainAdress	Country					varchar	50	Country	
Members	FirstName				x	varchar	100	First name(s) of member	
Members	LastName				x	varchar	100	Last name of member	
Members	ID	x		x		int		Technical ID for each Member	
Members	Locked					boolean		1 = locked, 0 = not locked; when user decides to end their membership it will be locked. Locked member profiles are no longer functional but integrity of data remains intact; default value is 0	
Members	MainAdressID		x	x		int		Technical ID of member's Main address (FK)	MainAdress.ID
Members	Birthday					date		member's birthday	
Members	FirstName					varchar	100	First name(s) of member	
Members	LastName					varchar	100	Last name of member	
Members	Gender					char	1	Gender of Member	
Members	Email			x		varchar	100	registration e-mail of member: m=male, f=female, d=diverse	
Members	RegDate					date		date of creation of member account	
Members	LocCur		x			varchar	3	local currency (for display & own offers), could have a default value	Currencies.CurCode
PaymentMeth	ID	x		x		int		Technical ID for each PaymentMeth	
PaymentMeth	Type					varchar	2	CC-Credit Card, BT-Bank Transfer, PP-Paypal	
PaymentMeth	Text					varchar	25	Text of Payment Method (i.e. for Invoice creation)	



Entity	Attributes	Primary Key	Foreign Key	unique	nullable	Data Type	Length	Meaning	Origin (if FK)
PaymentMeth	Active					boolean		indicates whether method is live and can be used by members	
PayPal	ID	x		x		int		Technical ID for each PayPal details	
PayPal	MemberID		x			int		Technical ID of Member	Members.ID
PayPal	MethID		x	x		int		technical ID of payment method Paypal	PaymentMeth.ID
PayPal	PPAccount					varchar	100	Paypal account of user (email registered with PayPal)	
Pricing	ID	x		x		int		Technical ID for each Pricing model	
Pricing	RentalID		x			int		technical ID of the Rental (FK)	Rental.ID
Pricing	NightsFrom					int		number of nights: lower range of interval	
Pricing	NightsTo					int		number of nights: upper range of interval	
Pricing	CancelOption					boolean		True if cancellation is possible	
Pricing	Price					dec	12, 2	price per night	
Pricing	CurCode					char	3	currency key (local currency of host)	Currencies.CurCode
Receipt	ID	x		x		int		technical ID for receipt	
Receipt	BookingID		x	x		int		ID of the Booking that the receipt refers to	RentalBookings.ID
Receipt	HostID		x			int		technical ID of Host	Host.ID
Receipt	FeeType		x			int		FeeType (H for Hosts)	FeeClasses.FeeType
Receipt	FeeClass		x			char	1	Fee Class of Host	FeeClasses.FeeClass
Receipt	BookingAmount					dec	12, 2	Sum of Rental Rates in the Transaction	
Receipt	FeeAmount					dec	12, 2	Fee according to Fee Class of Host	
Receipt	PayoutAmount					dec	12, 2	Amount payed out to Host (Amount Booking - Fee)	
Receipt	CurCode		x			char	3	Currency Code of Host	Currencies.CurCode
Rental	ID	x		x		int		Technical ID for each rental	

Entity	Attributes	Primary Key	Foreign Key	unique	nullable	Data Type	Length	Meaning	Origin (if FK)
Rental	Locked					boolean		1 = locked, 0 = not locked; when user decides to delete one of their rentals it will be locked. Locked rentals are no longer functional but integrity of data remains intact; default value is 0	
Rental	HostID		x			int		technical ID of host	Host.ID
Rental	Location		x			int		technical ID of the rental's location	Location.ID
Rental	TypeID		x			int		type of the rental	Rentaltypes.ID
Rental	Title					varchar	200	title text of the rental offer	
Rental	Status					char	1	refers to the offer: C - created, P - published, I - inactive	
Rental	Attributes				x	char	500	optional tags for Rentals, i.e. quiet, retro-style	
RentalBookings	ID	x		x		int		Technical ID for each RentalBooking	
RentalBookings	GuestID		x			int		Technical ID of Guest	Guest.ID
RentalBookings	HostID		x			int		technical ID of Host	Host.ID
RentalBookings	RentalID		x			int		technical ID of Rental	Rental.ID
RentalBookings	BookingDate					date		Date of the booking	
RentalBookings	RateID		x			int		applicable Rate for the Rental	Pricing.ID
RentalBookings	DateFrom					date		reservation from (arrival date)	
RentalBookings	DateTo					date		reservation until (departure date)	
RentalBookings	NoOfNights					int		Number of booked Nights	
RentalBookings	Cancelled					boolean		Cancel Indicator: true if cancelled	
RentalPictures	ID	x		x		int		Technical ID for each RentalPicture	
RentalPictures	RentalID		x			int		technical ID of Rental	Rental.ID
RentalPictures	PictureLink					varchar	100	link to photo of the rental	
RentalRatings	RatingID	x		x		int		Technical ID for each RentalRating	
RentalRatings	GuestID		x			int		Technical ID of Guest who rated	Guest.ID
RentalRatings	RentalID		x			int		technical ID of Rental	Rental.ID
RentalRatings	HostID		x			int		technical ID of Host of the rental	Host.ID

Entity	Attributes	Primary Key	Foreign Key	unique	nullable	Data Type	Length	Meaning	Origin (if FK)
RentalRatings	RatingText				x	varchar	500	Rating of rental by guests, free text for comments	
RentalRatings	RatingsInt					int		Rating of rental by guests, ranging between 1 and 5 with 5 being the best rating	
RentalTypes	ID	x		x		int		technical ID for each Rental type	
Rentaltypes	Type					varchar	20	descrption of type (i.e. Room, apartment, house, cabin, boat, treehouse, tinyhouse, other)	
Watchlist	ID	x		x		int		technical ID for watchlist entry	
Watchlist	RentalID		x			int		technical ID of Rental	Rental.ID
Watchlist	GuestID		x			int		technical ID of guest	Guest.ID