Data Dictionary

Entities

Entity Name	Description
Guests	Stores information about hotel guests, including personal details and contact info.
Room_type	Defines different types of rooms with price and capacity.
Rooms	Contains hotel room details including type, floor, and availability.
Employees	Stores employee data including manager, role, and contact info.
Booking	Records each booking including guest, room, employee, dates, price, and room state.
hotel_Service	Lists hotel services and their prices.
Booking_service	Tracks services used for each booking and their quantities.
Payment	Stores payment information for each booking including type, amount, and date.

Relationships

Relationship	Entities	Type	Keys	Description
Guest_Booking	Guests - Booking	One-to-Many	Guests.guest_id -> Booking.guest_id	Each guest can have multiple bookings.
Room_Booking	Rooms - Booking	One-to-Many	Rooms.room_id -> Booking.room_id	Each room can be booked multiple times.
Employee_Booking	Employees - Booking	One-to-Many	Employees.employee_id -> Booking.employee_id	Each employee can handle multiple bookings.
Booking_Service	Booking - hotel_Service	Many-to-Many	Booking.booking_id -> Booking_service.booking_id, hotel_Service.service_id -> Booking_service.service_id	Each booking can include multiple services.
Booking_Payment	Booking - Payment	One-to-One	Booking.booking_id -> Payment.booking_id	Each booking has one payment record.
Employee_Manager	Employees - Employees	One-to-Many	Employees.employee_id -> Employees.manager_id	An employee can manage multiple employees.

Guests

Attribute Name	Data Type	Size	Description	Constraints	Allow Null
guest_id	INT	—	Unique guest ID	PK, IDENTITY(1,1)	No
guest_fname	VARCHAR	50	Guest first name	NN	No
guest_lname	VARCHAR	50	Guest last name	NN	No
guest_ssn	VARCHAR	14	Guest national ID	NN, UQ, CHK(LEN = 14 AND digits only)	No
guest_email	VARCHAR	100	Guest email address	—	Yes
guest_phone	VARCHAR	11	Guest phone number	CHK(digits only)	Yes

Employees

Attribute Name	Data Type	Size	Description	Constraints	Allow Null
employee_id	INT	—	Unique employee ID	PK, IDENTITY(1,1)	No
manager_id	INT	—	ID of the manager (self-reference)	FK: Employees(employee_id)	Yes
employee_lname	VARCHAR	50	Employee last name	NN	No
employee_fname	VARCHAR	50	Employee first name	NN	No
employee_ssn	VARCHAR	14	Employee national ID	NN, UQ	No
employee_role	VARCHAR	100	Role/job title of the employee	—	Yes
employee_phone	VARCHAR	11	Employee phone number	—	Yes

Room_type

Attribute Name	Data Type	Size	Description	Constraints	Allow Null
room_type_id	INT	—	Unique room type ID	PK	No
type_price	DECIMAL	103	Price for this room type	NN	No
capacity	INT	—	Maximum capacity of the room	NN	No
room_type	VARCHAR	30	Type of the room	CHK(room_type IN ('single','double','suite'))	Yes

Rooms

Attribute Name	Data Type	Size	Description	Constraints	Allow Null
room_id	INT	—	Unique room ID	PK	No
room_type_id	INT	—	ID of room type (FK → Room_type)	FK, NN	No
room_floor	INT	—	Floor number of the room	NN	No
room_status	VARCHAR	30	Availability status of the room	NN, CHK('available','not available')	No

Booking

Attribute Name	Data Type	Size	Description	Constraints	Allow Null
booking_id	INT	—	Unique booking ID	PK, IDENTITY(1,1)	No
guest_id	INT	—	ID of the guest	FK : Guests(guest_id), NN	No
room_id	INT	—	ID of the booked room	FK : Rooms(room_id), NN	No
employee_id	INT	—	Employee who handled the booking	FK : Employees(employee_id), NN	No
check_IN_date	DATE	—	Check-in date of the booking	NN	No
check_OUT_date	DATE	—	Check-out date of the booking	NN	No
Price	DECIMAL	103	Price of the booking	—	Yes
booking_date	DATE	—	Date when the booking was made	NN	No
room_state	VARCHAR	50	State of the room at the time of booking	—	Yes

hotel_Service

Attribute Name	Data Type	Size	Description	Constraints	Allow Null
service_id	INT	—	Unique service ID	PK	No
name_service	VARCHAR	100	Name of the service	NN	No
price	DECIMAL	102	Price of the service	NN	No

Booking_service

Attribute Name	Data Type	Size	Description	Constraints	Allow Null
booking_id	INT	—	ID of the booking	PK (part of composite key), FK : Booking(booking_id), NN	No
service_id	INT	—	ID of the service	PK (part of composite key), FK : hotel_Service(service_id), NN	No
quantity	INT	—	Quantity of the service for this booking	NN	No

Payment

Attribute Name	Data Type	Size	Description	Constraints	Allow Null
payment_id	INT	—	Unique payment ID	PK (part of composite key)	No
booking_id	INT	—	ID of the related booking	PK (part of composite key), FK : Booking(booking_id)	No
payment_type	VARCHAR	50	Type of payment (e.g., cash, card)	NN	No
amount	DECIMAL	103	Payment amount	—	Yes
payment_date	DATE	—	Date of the payment	—	Yes