The Golden Bulls

Communicate. Collaborate. Cooperate

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Hotel Database Design Document

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Purpose

This database was created in order to organize the given information in a localized manner to ensure that the data is safely stored, retrieved and searched on information more efficiently. This database will collect the information on the chain of hotels and the rooms, in which make up each hotel. In addition, each bed and hotel guest is tracked according to their designated room. The database will store the guest's information in order to distribute invoices to the guest who incurred any item charges. Finally, the database stores the hotel employee information , the position which they occupy and the specific hotel they are currently employed to. This database will allow The Golden Hotel to maintain its records in a centralized location from which queries and reports can be generated to answer user questions regarding the data.

Narrative

The Golden Hotel is a hotel chain that provides rooms to guests. Within the database, several key business functions are tracked. This includes the various hotels within the chain and the employees who work for the company along with the positions they occupy. The database also maintains a record of which employees hold a supervisory role and which employee is the manager of each individual hotel within the chain. Each hotel consists of rooms which can be reserved by guests. Each room can have a variety of beds with varying sizes which is then reserved based on the guest preferences. Guests receives an invoice after each stay and consists of a one or more items. Additional functions of the business that are tracked within the database are the check in/check out date and time of each guest along with the number of people in their party. The date and hours worked are recorded for each employee are also recorded in order to keep track of payroll. Finally, payment details are kept in the database to keep track of the guest's billing information.

Requirements

1) What entities do we want to track?
   a) Hotel, Room, Bed, Employee, Guest and Item

2) What question do we want to answer?
   a) Which guest had the largest party quantity to reserve a room between check-in dates of 7/1/2018 and 7/31/2018?
   b) How long (in days) did each guest stay in the hotel?

3) What report do we want to generate?
   a) Weekly Hotel Employee Hours
   b) Hotel Guest Invoice Charges

Tracked Entities

- Hotel
- Room
- Bed
- Employee
- Guest
- Item

Entities with Nested Attributes

Hotel
- Hotel ID
- Hotel Name
- Address
- Region
- Phone

Employee
- Employee ID
- Name
- Phone
- Date Worked
- Hours Worked
- Position

Room
- Room Number
- Floor Number
- View
- Type

Guest
- Guest ID
- Name
- Address
- Email
- Phone

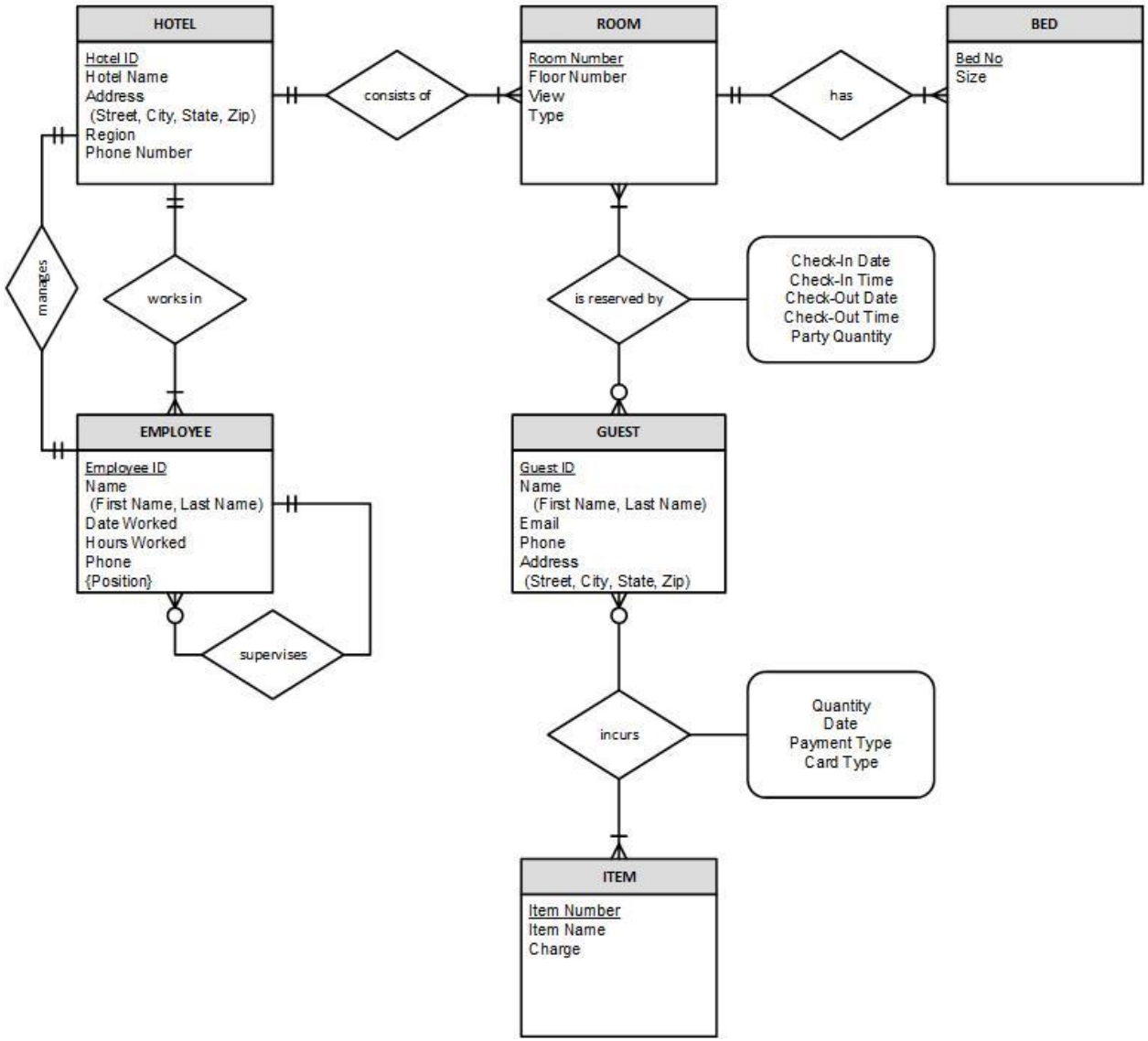
Bed
- Bed ID
- Size

Item
- Item Number
- Item Name
- Charge

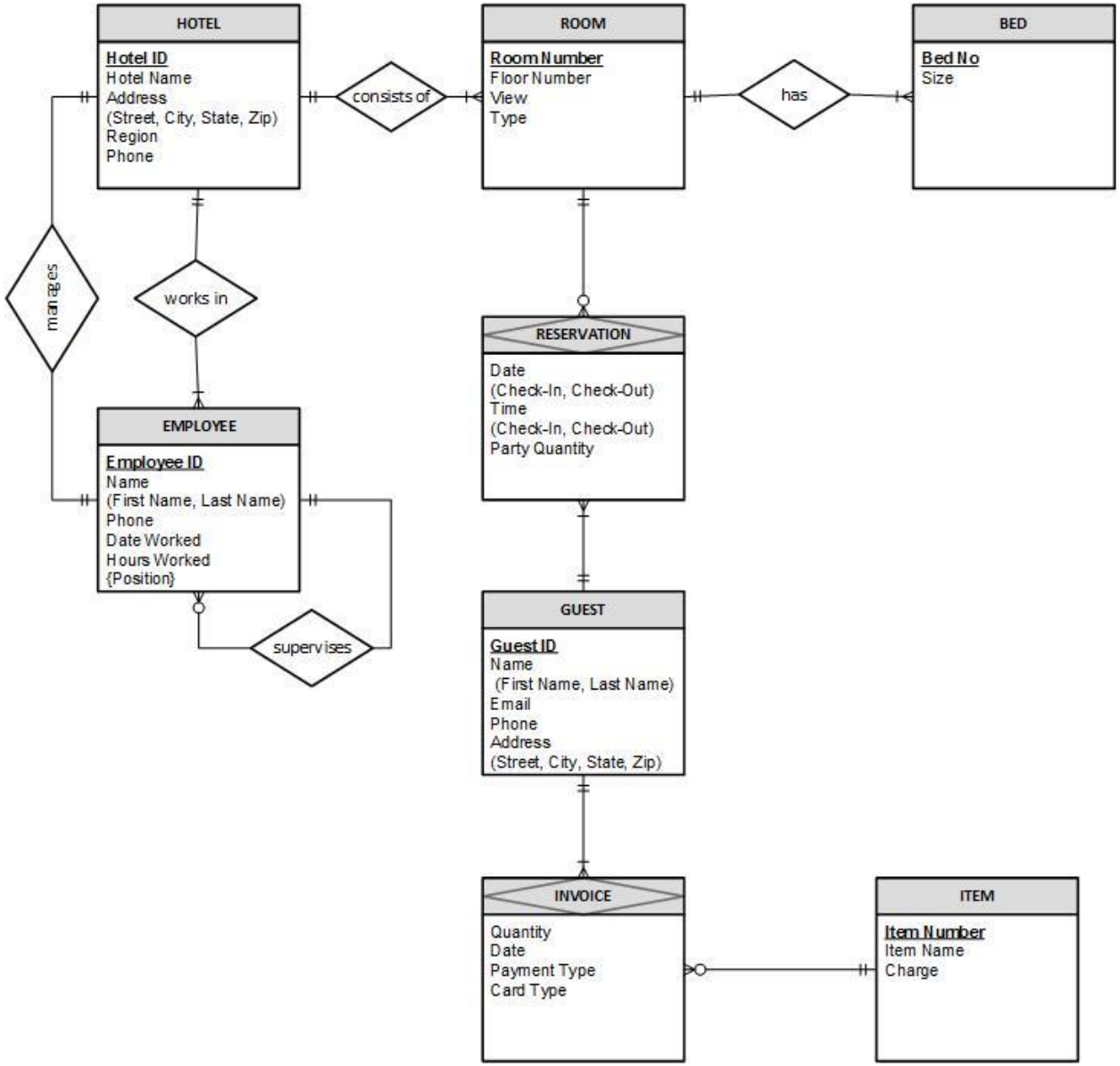
Business Rules

- A hotel consists of one or more than one room; a room belongs to one and only one hotel.
- A room has one or more than one bed; a bed belongs to one and only one room.
- A hotel employs one or more than one employee; an employee can only work in one and only one hotel.
- A hotel is managed by one and only one employee; an employee manages one and only one hotel.
- An employee supervises none, one, or more than one employee; An employee is supervised by one and only one employee.
- A room is reserved by none, one, or more than one guest; a guest reserved one or more than one room.
- A guest incurs one or more than one item; an invoice is incurred by none, one and more than one guest.

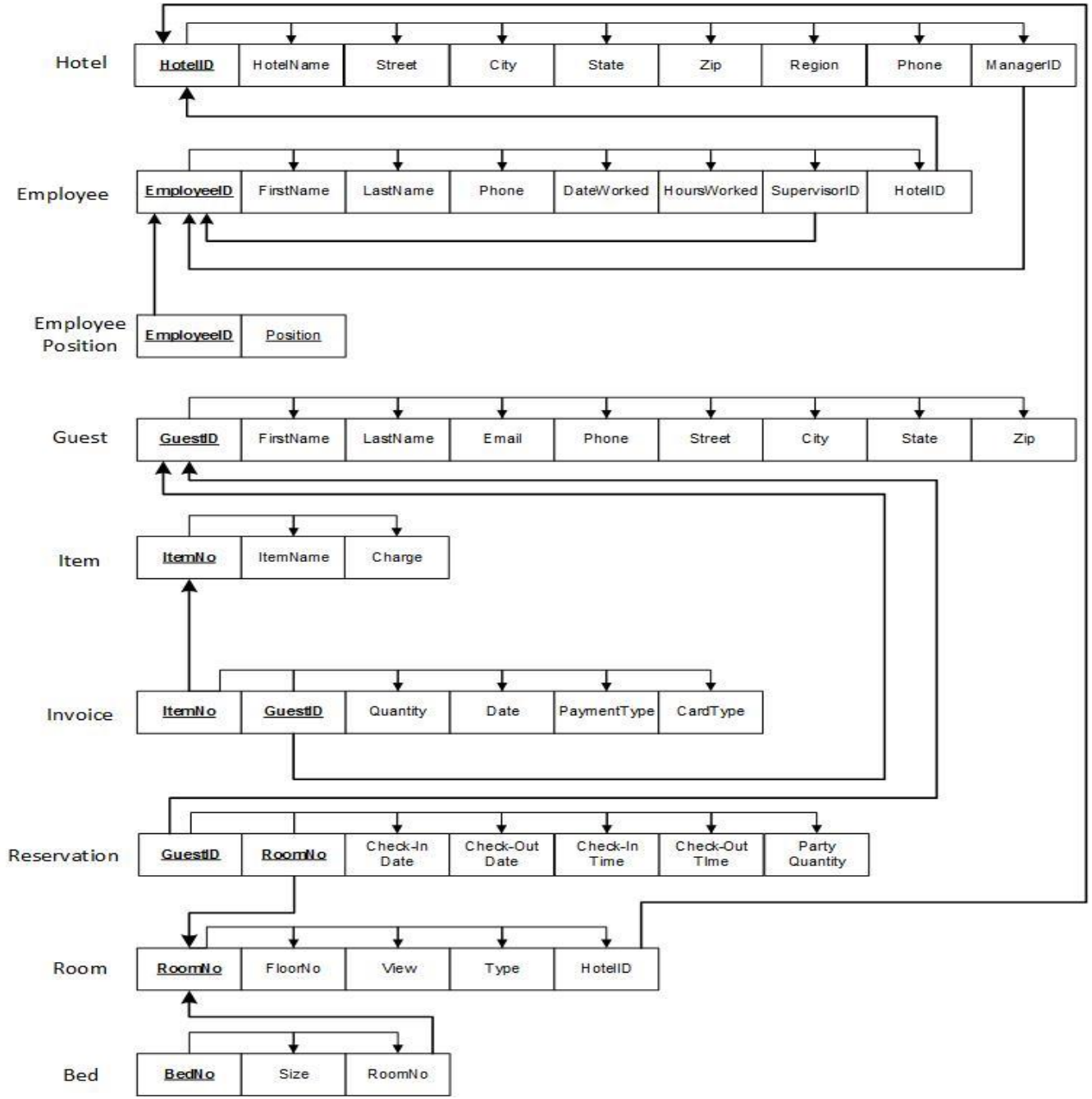
Hotel Entity Relationship Diagram



Hotel Enhanced Entity Relationship Diagram



Hotel Relational Schema



Data Dictionary Summary

Bed (BedNo, Size, RoomNo)

Employee (EmployeeID, FirstName, LastName, Phone, DateWorked, HoursWorked, SupervisorID, HotelID)

EmployeePosition (EmployeeID, Position)

Guest (GuestID, FirstName, LastName, Email, Phone, Street, City, State, Zip)

Hotel (HotelID, HotelName, Street, City, State, Zip, Region, Phone, ManagerID)

Invoice (ItemNo, GuestID, Quantity, Date, PaymentType, CardType)

Item (ItemNo, ItemName, Charge)

Reservation (RoomNo, GuestID, CheckInDate, CheckOutDate, PartyQuantity)

Room (RoomNo, FloorNo, View, Type, HotelID)

Hotel Data Dictionary

Table: **Bed**

Column Name	Description	Data Type	Size	Identity	Unique	Default	Check	Allow Nulls	Index
BedNo	**PK**; Unique bed number	smallint							Y
Size	Bed size; Q= Queen, K= King	varchar	30			'Q'	([Size] =('Q') OR [Size]=('K')		
RoomNo	**FK** to Room table; bed assigned to room	smallint							

Table: **Employee**

Column Name	Description	Data Type	Size	Identity	Unique	Default	Check	Allow Nulls	Index
EmployeeID	**PK**; Unique sequential EmployeeID number	int		Y					Y
FirstName	Employee first name	varchar	15						
LastName	Employee last name	varchar	20						Y
Phone	Employee phone number	varchar	14						
DateWorked	Date employee worked	date				GETDATE()			
HoursWorked	Hours worked by employee	int							
SupervisorID	Recursive **FK**; synonym for EmployeeID; employee's supervisor	int						Y	Y
HotelID	**FK** to Hotel table; hotel that employee works in	smallint							Y

Table: **EmployeePosition**

Column Name	Description	Data Type	Size	Identity	Unique	Default	Check	Allow Nulls	Index
EmployeeID	**CPK**; **FK** to Employee table	int							Y
Position	**CPK**; Employee position	varchar	50						Y

Table: **Guest**

Column Name	Description	Data Type	Size	Identity	Unique	Default	Check	Allow Nulls	Index
GuestID	**PK**; Unique sequential guest number	int		Y					Y
FirstName	Guest first name	varchar	15						
LastName	Guest last name	varchar	20						Y
Email	Guest email	varchar	50						
Phone	Guest phone number	varchar	14						
Street	Guest street	varchar	30						
City	Guest city	varchar	25						
State	Guest state	char	2			‘FL’	LIKE ‘[A-Z][A-Z]’		
Zip	Guest zip	char	5				LIKE '[0-9][0-9][0-9][0-9][0-9]'		

Table: **Hotel**

Column Name	Description	Data Type	Size	Identity	Unique	Default	Check	Allow Nulls	Index
HotelID	**PK**; Unique sequential hotel number	smallint		Y					Y
HotelName	Hotel name	varchar	20						Y
Street	Hotel street	varchar	30						
City	Hotel city	varchar	25						
State	Hotel state	char	2			‘FL’	LIKE ‘[A-Z][A-Z]’		
Zip	Hotel zip	char	5				LIKE '[0-9][0-9][0-9][0-9][0-9]'		
Region	Hotel region	varchar	20						
Phone	Hotel phone number	varchar	14						
ManagerID	**FK** to Employee table; synonym for EmployeeID; manager of hotel	int							Y

Table: **Invoice**

Column Name	Description	Data Type	Size	Identity	Unique	Default	Check	Allow Nulls	Index
ItemNo	**CPK; FK** to Item table	smallint							Y
GuestID	**CPK; FK** to Guest table	int							Y
Quantity	Item quantity	tinyint					>= 0		
Date	Invoice date	date				GETDATE()			
PaymentType	Payment type	varchar	20						
CardType	Card type	varchar	20					Y	

Table: **Item**

Column Name	Description	Data Type	Size	Identity	Unique	Default	Check	Allow Nulls	Index
ItemNo	**PK**; Unique sequential item number	smallint		Y					Y
ItemName	Item name	varchar	20						Y
Charge	Item charge	smallmoney							

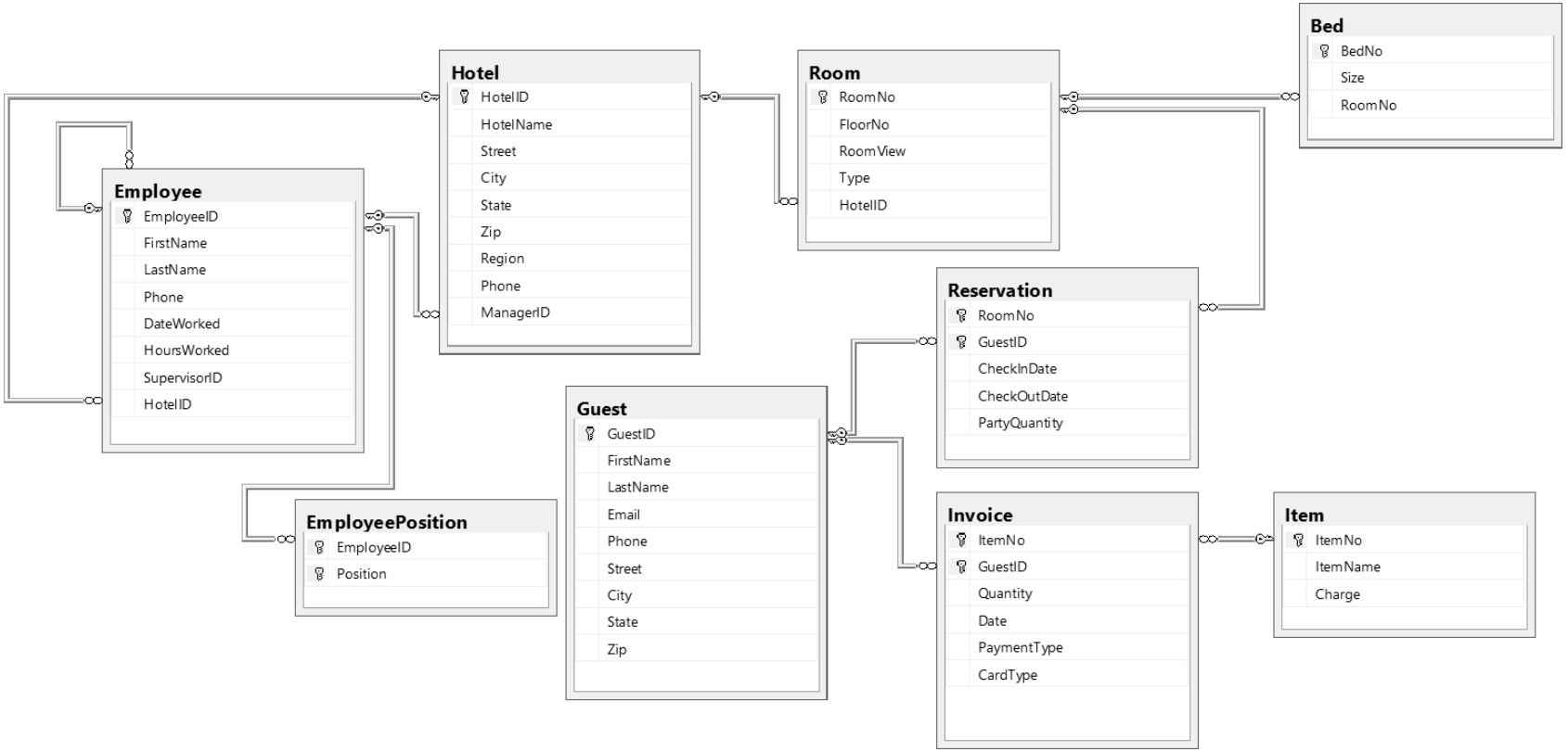
Table: **Reservation**

Column Name	Description	Data Type	Size	Identity	Unique	Default	Check	Allow Nulls	Index
RoomNo	**CPK**; **FK** to Room table	smallint							Y
GuestID	**CPK**; **FK** to Guest table	int							Y
CheckInDate	Check-in date and time of Guest	datetime				GETDATE()			
CheckOutDate	Check-out date and time of Guest	datetime					<=[CheckInDate]		
PartyQuantity	Reservation Quantity	tinyint					>=1		

Table: **Room**

Column Name	Description	DataType	Size	Identity	Unique	Default	Check	Allow Nulls	Index
RoomNo	**PK**; Unique room number	smallint							Y
FloorNo	Room floor number	smallint				‘1’			
View	Room view	varchar	20						
Type	Room type; Single =S, D= Double, SU = Suite	varchar	2			‘S’	([TYPE] = (‘S’) OR [TYPE] = (‘D’) OR [TYPE] = (‘SU’))		
HotelID	**FK** to Hotel table; room assigned to hotel	smallint							Y

Hotel Schema



Guest Confirmation View

Each guest must enter their personal information in order to reserve a room within the hotel. This table view below displays only the guest's email address along with their assigned guest identification to send a confirmation email that the hotel room is reserved.

GuestID	FirstName	LastName	Email
101	Sam	Wayne	swayne@gmail.com
102	Frances	Conner	fconner@yahoo.com
103	Jon	Riley	jonriley@yahoo.com
104	Ruth	Smith	ruth.smith@gmail.com
105	Leonardo	Queen	lqueen@gmail.com
106	David	Bloom	davidbloom@yahoo.com
107	Jean	Hudson	jhudson@me.com
108	Amanda	Bailey	ambailey@me.com
109	Jeremy	Finch	jfinch@yahoo.com
110	Scott	Reynolds	scottrey@live.com
111	Margaret	Murphy	mmurphy@live.com
112	Robert	Potter	potter.r@hotmail.com
113	Michael	Montoya	mikemontoya@gmail.com
114	Homer	Simpson	homersimpson@gmail.com
115	Bethany	Gomez	bgomez@me.com
116	Lisa	Hunt	lisah@yahoo.com
117	Bart	Skywalker	pizzalover@hotmail.com
118	Zachary	Sparrow	zsparrow@gmail.com
119	Tony	Stark	tonystark@gmail.com
120	Cain	Odinson	caino@gmail.com

Invoice Transaction Log Table View

When a guest stays in the hotel, he or she might accumulate item charges onto their account. This table view serves as a transaction log for each guest that incurred any items, the item quantity and the date that the item was requested during their stay within the hotel.

ItemNo	GuestID	Quantity	Date
10	104	3	2018-07-06
10	110	2	2018-07-12
11	101	2	2018-07-05
11	112	2	2018-07-12
13	102	1	2018-07-07
14	118	1	2018-07-17
15	114	1	2018-07-14
16	107	2	2018-07-10
17	105	1	2018-07-07
18	109	1	2018-07-10
20	120	2	2018-07-21
21	111	1	2018-07-12
21	115	2	2018-07-15
21	117	1	2018-07-16
22	106	2	2018-07-09
22	108	1	2018-07-10
23	103	1	2018-07-06
23	113	3	2018-07-14
24	116	2	2018-07-17
25	119	3	2018-07-20

User Acceptance Test Queries

1) Which guest had the largest party quantity to reserve a room between check-in dates of 7/1/2018 and 7/31/2018?

```
Select Guest.GuestID, Guest.FirstName+ ' ' +Guest.LastName AS 'Guest Name', Reservation.PartyQuantity
From Guest
Join Reservation
On Guest.GuestID = Reservation.GuestID
Where CheckInDate BETWEEN '7/1/2018' AND '7/31/2018'
Order by PartyQuantity desc
```

GuestID	Guest Name	PartyQuantity
116	Lisa Hunt	5
108	Amanda Bailey	5
119	Tony Stark	5
115	Bethany Gomez	4
117	Bart Skywalker	4
104	Ruth Smith	4
105	Leonardo Queen	4
120	Cain Odinson	3
113	Michael Montoya	3
114	Homer Simpson	3
110	Scott Reynolds	2
106	David Bloom	2
102	Frances Conner	2
103	Jon Riley	2
110	Scott Reynolds	2
101	Sam Wayne	2
107	Jean Hudson	2
109	Jeremy Finch	1
118	Zachary Sparrow	1
112	Robert Potter	1

2) How long (in days) did each guest stay in the hotel?

```
Select Guest.FirstName+ ' ' +Guest.LastName AS 'GuestName',Hotel.HotelName,DATEDIFF(day,CheckInDate,CheckOutDate) AS 'LengthOfStay'
From Guest
Join Reservation
On Guest.GuestID = Reservation.GuestID
Join Room
On Reservation.RoomNo = Room.RoomNo
Join Hotel
On Room.HotelID = Hotel.HotelID
```

GuestName	HotelName	LengthOfStay
Sam Wayne	Easy Stay Inn	5
Jean Hudson	Easy Stay Inn	2
Leonardo Queen	Easy Stay Inn	2
Jeremy Finch	Easy Stay Inn	1
Scott Reynolds	Easy Stay Inn	3
Lisa Hunt	Easy Stay Inn	5
Cain Odinson	Easy Stay Inn	4
Jon Riley	Rooms For All	3
Scott Reynolds	Rooms For All	2
Amanda Bailey	Rooms For All	2
Michael Montoya	Rooms For All	2
Robert Potter	Rooms For All	1
Homer Simpson	Rooms For All	1
Bart Skywalker	Rooms For All	1
Frances Conner	Vacation Village	5
Zachary Sparrow	Vacation Village	1
Ruth Smith	Vacation Village	1
David Bloom	Vacation Village	3
Bethany Gomez	Vacation Village	2
Tony Stark	Vacation Village	6

Weekly Hotel Employee Hours Report

Hotel Name	Employee Name	Position	Hours Worked
Easy Stay Inn			**Total Hours 241**
	Alex Assuncao	Hotel Manager	33
	Anna Michaels	Administrative Assistant	16
	Ashley Nelson	Restaurant Manager	24
	Amanda Martini	Restaurant Manager	22
	Ruth Frangelico	Front Desk Supervisor	25
	Louis Lane	Concierge	57
	Frances Underwood	Server	32
	Steven Smith	Receptionist	32
Rooms For All			**Total Hours 365**
	Bethy Gimlet	Hotel Manager	58
	Scott Smith	Janitor	38
	Thomas Collins	Accountant	40
	Randy Waters	Accounts Payable Clerk	60
	Jocelyn Rogers	Event Planner	48
	Linda Villegas	Night Desk Clerk	44
	Dara Cook	Food Service Manager	25
	Jeremy James	Lead Cook	23
	Jon Snow	Payroll Specialist	29
Vacation Village			**Total Hours 213**
	Brian Woods	Hotel Manager	20
	Matt Gee	Accounts Receivable Clerk	15
	Calvin Chester	Hotel Groundman	59
	Kristine Rivers	Mechanic	17
	Amal Clooney	Maintenance Worker	36
	Aisha Rodriguez	Customer Service Representative	27
	Christopher Dodge	Travel Procurement Specialist	39

Hotel Guest Invoice Charges Report

Item Name	Guest Name	Charge	Quantity	Total Charge
Bottled Water				
	Ruth Smith	$1.00	3	$3.00
	Scott Reynolds	$1.00	2	$2.00
Breakfast				
	Leonardo Queen	$5.00	1	$5.00
Cable				
	Frances Conner	$25.00	1	$25.00
Coffee				
	Jeremy Finch	$3.00	1	$3.00
Dinner				
	Jon Riley	$10.00	1	$10.00
	Michael Montoya	$10.00	3	$30.00
Housekeeping				
	Lisa Hunt	$10.00	2	$20.00
Lemonade				
	Cain Odinson	$3.00	2	$6.00
Lunch				
	David Bloom	$5.00	2	$10.00
	Amanda Bailey	$5.00	1	$5.00
Netflix				
	Homer Simpson	$20.00	1	$20.00
Pay Per View				
	Jean Hudson	$30.00	2	$60.00
Smoking Fee				
	Tony Stark	$100.00	3	$300.00
Valet Service				
	Zachary Sparrow	$5.00	1	$5.00
Wi-Fi				
	Margaret Murphy	$4.00	1	$4.00
	Bethany Gomez	$4.00	2	$8.00

	Bart Skywalker	$4.00	1	$4.00
Wine				
	Sam Wayne	$50.00	2	$100.00
	Robert Potter	$50.00	2	$100.00