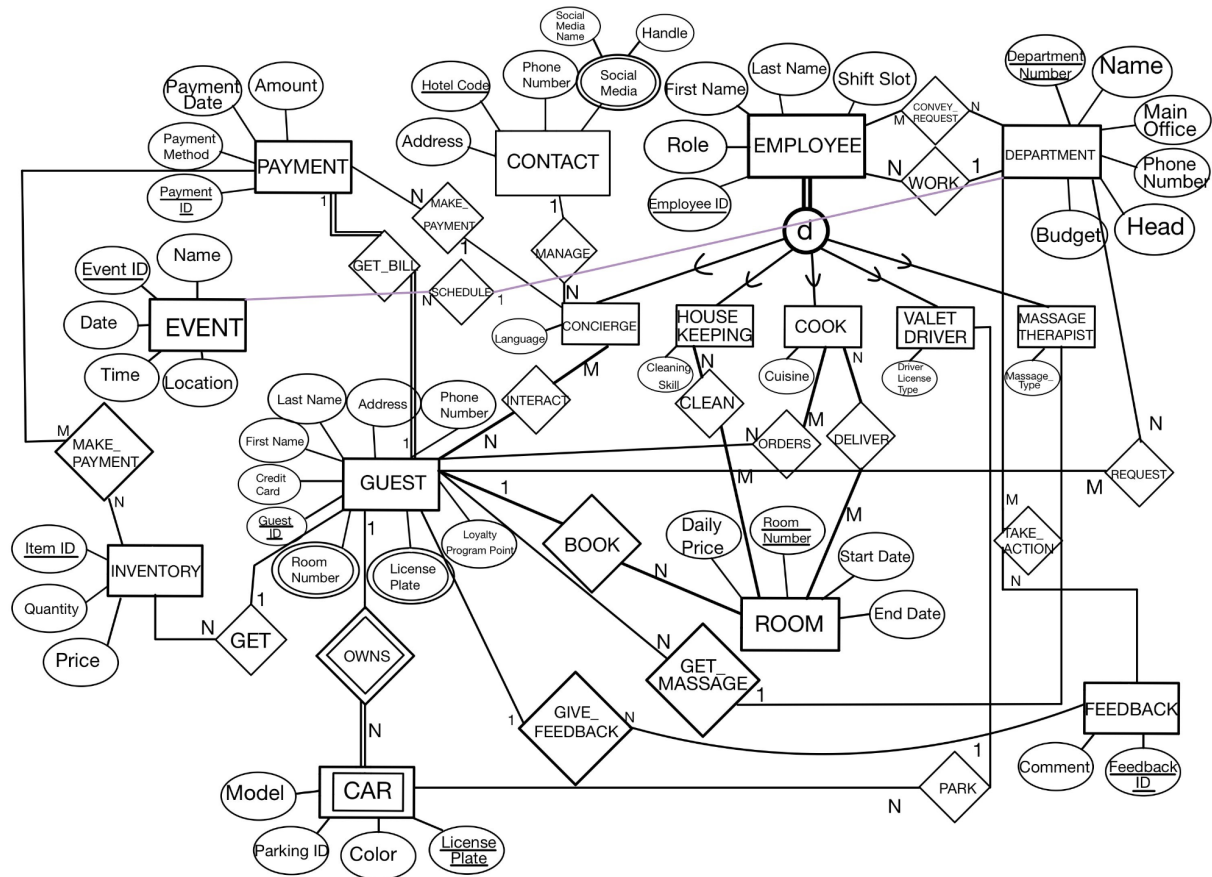


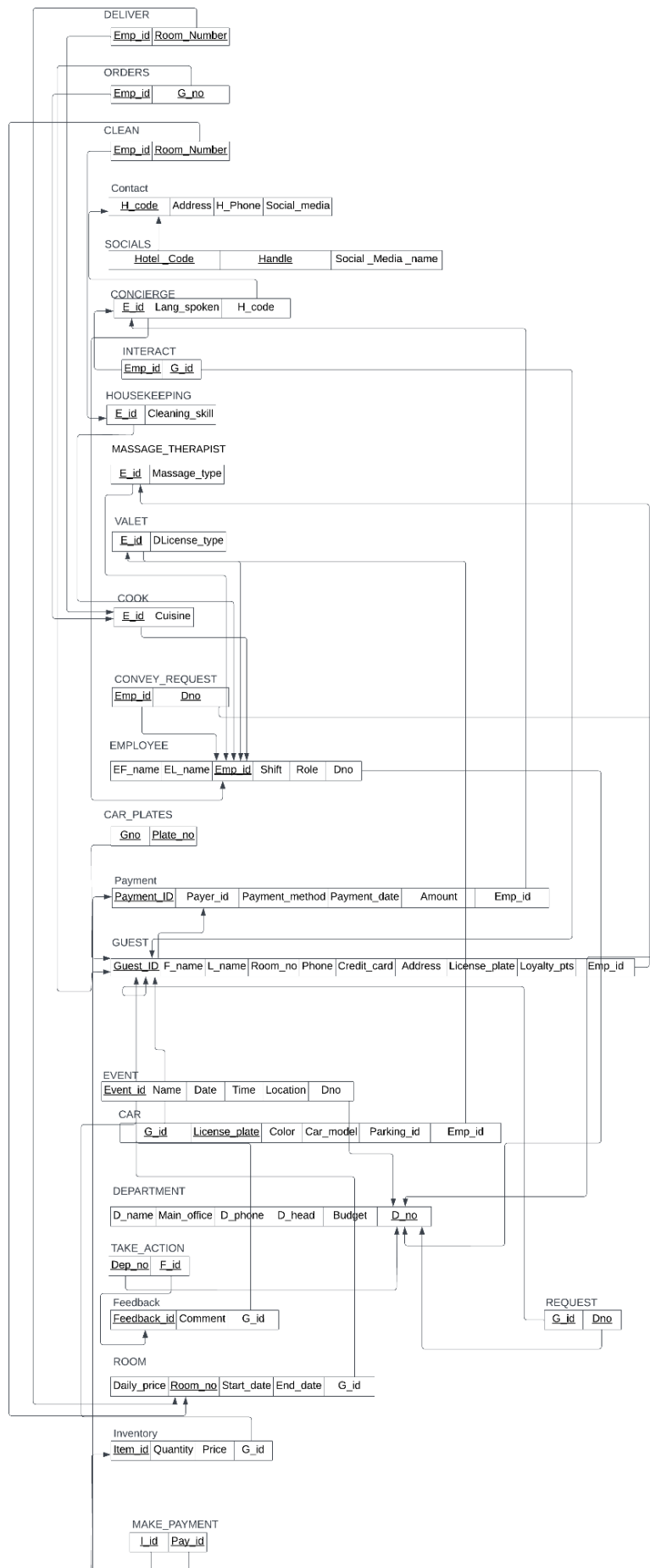
**CS 4347.004 Database Systems**  
**Project Part 1 – Team 7**

Veda Charthad – 25%  
Haeun Kim – 25%  
Aditi Mungale – 25%  
Jihyung Park – 25%  
Luu Tran – 0%

## Entity Relationship Diagram (ERD)



## Supporting Schema Diagram



Data Dictionary for the Schema

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key															
Contact	The hotel's contact information, including the address, phone number, and social media	H_code	(H_code, Address, H_phone, Social_Media)	<table><tr><th>Attribute</th><th>Data Type</th><th>Domain</th></tr><tr><td>H_code</td><td>VARCHAR</td><td>any string</td></tr><tr><td>Address</td><td>VARCHAR</td><td>any string requiring positive integers and alphabet</td></tr><tr><td>H_phone</td><td>BIGINT</td><td>The set of ten-digit phone numbers valid in the United States.</td></tr><tr><td>Social_Media</td><td>VARCHAR</td><td>any string</td></tr></table>			Attribute	Data Type	Domain	H_code	VARCHAR	any string	Address	VARCHAR	any string requiring positive integers and alphabet	H_phone	BIGINT	The set of ten-digit phone numbers valid in the United States.	Social_Media	VARCHAR	any string	N/A
Attribute	Data Type	Domain																				
H_code	VARCHAR	any string																				
Address	VARCHAR	any string requiring positive integers and alphabet																				
H_phone	BIGINT	The set of ten-digit phone numbers valid in the United States.																				
Social_Media	VARCHAR	any string																				

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key																			
Department	All the departments in the hotel.	D_no	(D_name, Main_office, D_phone, D_head, Budget, D_no)	<table><tr><th>Attribute</th><th>Data Type</th><th>Domain</th></tr><tr><td>D_name</td><td>TEXT</td><td>any alphabetical string</td></tr><tr><td>Main_office</td><td>TEXT</td><td>any alphabetical string</td></tr><tr><td>D_phone</td><td>BIGINT</td><td>The set of ten-digit phone numbers valid in the United States.</td></tr><tr><td>D_head</td><td>TEXT</td><td>any alphabetical string</td></tr><tr><td>Budget</td><td>MEDIUMINT</td><td>any integer from 0 to 16777215</td></tr><tr><td>D_no</td><td>VARCHAR</td><td>A set of integers ranging from 1 to 99</td></tr></table>	Attribute	Data Type	Domain	D_name	TEXT	any alphabetical string	Main_office	TEXT	any alphabetical string	D_phone	BIGINT	The set of ten-digit phone numbers valid in the United States.	D_head	TEXT	any alphabetical string	Budget	MEDIUMINT	any integer from 0 to 16777215	D_no	VARCHAR	A set of integers ranging from 1 to 99	N/A
Attribute	Data Type	Domain																								
D_name	TEXT	any alphabetical string																								
Main_office	TEXT	any alphabetical string																								
D_phone	BIGINT	The set of ten-digit phone numbers valid in the United States.																								
D_head	TEXT	any alphabetical string																								
Budget	MEDIUMINT	any integer from 0 to 16777215																								
D_no	VARCHAR	A set of integers ranging from 1 to 99																								

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key
Room	The room that the guest books.	Room_no	(Daily_price, Room_no, start_date, end_date, G_id)				G_id
				Attribute	Data Type	Domain	
				Daily_price	DOUBLE	any integer with decimal points	
				Room_no	SMALLINT	any integer from 1 to 65535	
				start_date	DATE	any date from 1000-01-01 to 9999-12-31	
				end_date	DATE	any date from 1000-01-01 to 9999-12-31	
				g_id	VARCHAR(20)	The set of characters that make up	

				<table><tr><td></td><td></td><td>a driver's license number</td></tr></table>			a driver's license number	
		a driver's license number						

Table	Table Description	Primary Key	Super Key	Attributes	Foreign Key		
Feedback	The Feedbacks about their experience in hotel after their stays	Feedback_ID	(Feedback_ID, Comment)				G_id
				Attribute	Data Type	Domain	
				Feedback_ID	CHAR(12)	any number	
				Comment	VARCHAR(5000)	any alphabetical string	

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key
Car	The cars that the guests have parked in the hotel	G_id License_Plate	(G_id, Model, Parking_ID, Color, License_Plate)	Attribute	Data Type	Domain	Emp_id, G_id
				G_id	VARCHAR(20)	The set of characters that make up a driver's liscence number	
				Model	VARCHAR(30)	any alphabetical string	
				Parking_ID	CHAR(12)	any number	
				Color	VARCHAR(15)	any alphabetical string	
				License_Plate	VARCHAR(10)	any alphabetical string	

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key
Event	The events that the guests reserved in advance.It held in the Hotel	Event_ID	(Event_ID, Name, Date, Time, Location)				D_no
				Attribute	Data Type	Domain	
				Name	VARCHAR(15)	any alphabetical string	
				Event_ID	CHAR(12)	any number	
				Date	DATE	any date from 1000-01-01 to 9999-12-31	
				Time	DATETIME	anytime from 00:00:00 to 23:59:59	
				Location	VARCHAR(20)	any alphabetical string	

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key
Employee	all the hotel service workers	Employee ID	(Employee ID, First_Name, Last_Name, Role, Shift, Department Number)				Department Number
				Attribute	Data Type	Domain	
				Employee_ID	INT(999999999)	The set of 9 digit social security numbers	

				<table><tr><td>EF_Name</td><td>VARCHAR(15)</td><td>any alphabetical string</td></tr><tr><td>EL_Name</td><td>VARCHAR(15)</td><td>any alphabetical string</td></tr><tr><td>Role</td><td>VARCHAR(10)</td><td>any alphabetical string</td></tr><tr><td>Shift</td><td>DATETIME(0)</td><td>Any date with time from 00:00:00 to 23:59:59</td></tr><tr><td>Dno</td><td>VARCHAR</td><td>A set of integers ranging from 1 to 99</td></tr></table>	EF_Name	VARCHAR(15)	any alphabetical string	EL_Name	VARCHAR(15)	any alphabetical string	Role	VARCHAR(10)	any alphabetical string	Shift	DATETIME(0)	Any date with time from 00:00:00 to 23:59:59	Dno	VARCHAR	A set of integers ranging from 1 to 99	
EF_Name	VARCHAR(15)	any alphabetical string																		
EL_Name	VARCHAR(15)	any alphabetical string																		
Role	VARCHAR(10)	any alphabetical string																		
Shift	DATETIME(0)	Any date with time from 00:00:00 to 23:59:59																		
Dno	VARCHAR	A set of integers ranging from 1 to 99																		

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key
Concierge	Specialization of EMPLOYEE in charge of hotel management and guidance	Employee ID	(Employee ID, Hotel_code)				Hotel_code
				Attribute	Data Type	Domain	
				Employee ID	INT(99999999)	The set of 9 digit social security numbers	
				Lang_spoken	VARCHAR(11)	any alphabetical string	
				Hotel_Code	CHAR(15)	Any String	

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key
Housekeeping	Specialization of EMPLOYEE in charge of cleaning the hotel room	Employee ID	(Employee ID)				Employee ID
				Attribute	Data Type	Domain	
				Employee ID	INT(99999999)	The set of 9 digit social security numbers	
				Cleaning_skill	VARCHAR(30)	any alphabetical string	

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key
Message Therapist	Specialization of EMPLOYEE in charge of massage services for guests	Employee ID	(Employee ID)				Employee ID
				Attribute	Data Type	Domain	
				Employee ID	INT(99999999)	The set of 9 digit social security numbers	
				Message_type	VARCHAR(30)	any alphabetical string	

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key
Valet Driver	Specialization of EMPLOYEE in charge of valet parking service	Employee ID	(Employee ID)				Employee ID
				Attribute	Data Type	Domain	
				Employee ID	INT(99999999)	The set of 9 digit social	

				<table><tr><td></td><td></td><td>security numbers</td></tr><tr><td>DLicense_type</td><td>VARCHAR(30)</td><td>any String</td></tr></table>			security numbers	DLicense_type	VARCHAR(30)	any String	
		security numbers									
DLicense_type	VARCHAR(30)	any String									

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key
Cook	Specialization of EMPLOYEE responsible for cooking and room service food delivery	Employee ID	(Employee ID)				Employee ID
				Attribute	Data Type	Domain	
				Employee ID	INT(999999999)	The set of 9 digit social security numbers	
				Cuisine	VARCHAR(30)	any alphabetical string	

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key																			
Payment	The payments that are involved during the guests stay at a hotel	Payment_ID	(Payment_ID, Payer_id, Payment_method, Payment_date, Amount, Emp_id)	<table><tr><th>Attribute</th><th>Data Type</th><th>Domain</th></tr><tr><td>Payment_ID</td><td>CHAR(12)</td><td>any number</td></tr><tr><td>Payer_id</td><td>VARCHAR(20)</td><td>The set of characters that make up a driver's license number</td></tr><tr><td>Payment_method</td><td>ENUM(Cash, Credit, Debit)</td><td>The list of possible values(Cash, debit, credit)</td></tr><tr><td>Payment_date</td><td>DATE</td><td>any date from 1000-01-01 to 9999-12-31</td></tr><tr><td>Amount</td><td>DECIMAL(19,4)</td><td>Any non-negative decimal value</td></tr><tr><td>Emp_id</td><td>INT(999999999)</td><td>The set of 9 digit social security numbers</td></tr></table>	Attribute	Data Type	Domain	Payment_ID	CHAR(12)	any number	Payer_id	VARCHAR(20)	The set of characters that make up a driver's license number	Payment_method	ENUM(Cash, Credit, Debit)	The list of possible values(Cash, debit, credit)	Payment_date	DATE	any date from 1000-01-01 to 9999-12-31	Amount	DECIMAL(19,4)	Any non-negative decimal value	Emp_id	INT(999999999)	The set of 9 digit social security numbers	N/A
Attribute	Data Type	Domain																								
Payment_ID	CHAR(12)	any number																								
Payer_id	VARCHAR(20)	The set of characters that make up a driver's license number																								
Payment_method	ENUM(Cash, Credit, Debit)	The list of possible values(Cash, debit, credit)																								
Payment_date	DATE	any date from 1000-01-01 to 9999-12-31																								
Amount	DECIMAL(19,4)	Any non-negative decimal value																								
Emp_id	INT(999999999)	The set of 9 digit social security numbers																								

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key															
Inventory	The goods that the hotel provides to the guests	Item_id	(Item_id, Quantity, Price, G_id)	<table><tr><td>Data Type</td><td>Data Type</td><td>Domain</td></tr><tr><td>Item_id</td><td>CHAR(12)</td><td>any String</td></tr><tr><td>Quantity</td><td>SMALLINT</td><td>any integer from 1 to 65535</td></tr><tr><td>Price</td><td>DECIMAL(19,4)</td><td>Any non-negative decimal value</td></tr><tr><td>G_id</td><td>VARCHAR(20)</td><td>The set of characters that make up a driver's license number</td></tr></table>			Data Type	Data Type	Domain	Item_id	CHAR(12)	any String	Quantity	SMALLINT	any integer from 1 to 65535	Price	DECIMAL(19,4)	Any non-negative decimal value	G_id	VARCHAR(20)	The set of characters that make up a driver's license number	N/A
Data Type	Data Type	Domain																				
Item_id	CHAR(12)	any String																				
Quantity	SMALLINT	any integer from 1 to 65535																				
Price	DECIMAL(19,4)	Any non-negative decimal value																				
G_id	VARCHAR(20)	The set of characters that make up a driver's license number																				

Table	Table Description	Primary Key	Super Key	Attributes	Foreign Key
Guest	The individual who is visiting	Guest_ID	(Guest_ID,		Emp_id

	the hotel to use the amenities provided.		F_name, L_name, Room_no, Phone, Credit_card, Address, License Plate, Loyalty_pts, Emp_id)	<table><tr><th>Attribute</th><th>Data Type</th><th>Domain</th></tr><tr><td>Guest_ID</td><td>VARCHAR(20)</td><td>The set of characters that make up a driver's license number</td></tr><tr><td>F_name</td><td>VARCHAR</td><td>any alphabetical string</td></tr><tr><td>L_name</td><td>VARCHAR</td><td>any alphabetical string</td></tr><tr><td>Room_no</td><td>SMALLINT</td><td>any integer from 1 to 200</td></tr><tr><td>Phone</td><td>BIGINT</td><td>The set of ten-digit phone numbers valid in the United States.</td></tr><tr><td>Credit_card</td><td>TINYINT(16)</td><td>Any 16-digit integer</td></tr><tr><td>Address</td><td>VARCHAR(200)</td><td>any alphabetical string</td></tr><tr><td>Lisence Plate</td><td>VARCHAR(10)</td><td>any alphabetical string</td></tr><tr><td>Loyalty_pts</td><td>MEDIUMINT</td><td>any integer from 0 to 16777215</td></tr><tr><td>Emp_id</td><td>INT(0,999999999)</td><td>The set of 9 digit social security numbers</td></tr></table>	Attribute	Data Type	Domain	Guest_ID	VARCHAR(20)	The set of characters that make up a driver's license number	F_name	VARCHAR	any alphabetical string	L_name	VARCHAR	any alphabetical string	Room_no	SMALLINT	any integer from 1 to 200	Phone	BIGINT	The set of ten-digit phone numbers valid in the United States.	Credit_card	TINYINT(16)	Any 16-digit integer	Address	VARCHAR(200)	any alphabetical string	Lisence Plate	VARCHAR(10)	any alphabetical string	Loyalty_pts	MEDIUMINT	any integer from 0 to 16777215	Emp_id	INT(0,999999999)	The set of 9 digit social security numbers	
Attribute	Data Type	Domain																																				
Guest_ID	VARCHAR(20)	The set of characters that make up a driver's license number																																				
F_name	VARCHAR	any alphabetical string																																				
L_name	VARCHAR	any alphabetical string																																				
Room_no	SMALLINT	any integer from 1 to 200																																				
Phone	BIGINT	The set of ten-digit phone numbers valid in the United States.																																				
Credit_card	TINYINT(16)	Any 16-digit integer																																				
Address	VARCHAR(200)	any alphabetical string																																				
Lisence Plate	VARCHAR(10)	any alphabetical string																																				
Loyalty_pts	MEDIUMINT	any integer from 0 to 16777215																																				
Emp_id	INT(0,999999999)	The set of 9 digit social security numbers																																				

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key
Delivers	Relationship between cook and room	Emp_id, Room_Number	(Emp_id, Room_Number)				Emp_id, Room_Number
				Attribute	Data Type	Domain	
				Emp_id	INT(0, 999999999)	The set of 9 digit social security numbers	
				Room_number	SMALLINT	any integer from 1 to 200	

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key
Orders	Relationship between guest and cook	Emp_id, G_no	(Emp_id, G_no)				Emp_id, G_no
				Attribute	Data Type	Domain	
				Emp_id	INT(0, 999999999)	The set of 9 digit social security numbers	
				G_no	VARCHAR(20)	The set of characters that make up a driver's license number	

Table	Table Description	Primary Key	Super Key	Attributes	Foreign Key
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Clean	Relationship between room and housekeeping	Emp_id, Room_number	(Emp_id, Room_number)	<table><tr><th>Attribute</th><th>Data Type</th><th>Domain</th></tr><tr><td>Emp_id</td><td>INT(99999999)</td><td>The set of 9 digit social security numbers</td></tr><tr><td>Room_number</td><td>SMALLINT</td><td>any integer from 1 to 200</td></tr></table>	Attribute	Data Type	Domain	Emp_id	INT(99999999)	The set of 9 digit social security numbers	Room_number	SMALLINT	any integer from 1 to 200	Emp_id, Room_number
Attribute	Data Type	Domain												
Emp_id	INT(99999999)	The set of 9 digit social security numbers												
Room_number	SMALLINT	any integer from 1 to 200												

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key												
Socials	The different social medias that can belong to the hotel	Hotel_Code, Handle	(Hotel_Code, Handle, Social_Media_Name)	<table><tr><th>Attribute</th><th>Data Type</th><th>Domain</th></tr><tr><td>Hotel_Code</td><td>VARCHAR</td><td>any string</td></tr><tr><td>Handle</td><td>VARCHAR</td><td>any string</td></tr><tr><td>Social_Media_Name</td><td>VARCHAR</td><td>any string</td></tr></table>			Attribute	Data Type	Domain	Hotel_Code	VARCHAR	any string	Handle	VARCHAR	any string	Social_Media_Name	VARCHAR	any string	Hotel_Code
Attribute	Data Type	Domain																	
Hotel_Code	VARCHAR	any string																	
Handle	VARCHAR	any string																	
Social_Media_Name	VARCHAR	any string																	

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key
Interact	How concierge interacts with guests	Emp_id, G_id	(Emp_id, G_id)				Emp_id, G_id
				Attribute	Data Type	Domain	
				Emp_id	INT(99999999)	The set of 9 digit social security numbers	
				G_id	VARCHAR(20)	The set of characters that make up a driver's license number	

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key									
Convey_request	How concierge interacts with guests	Emp_id, Dno	(Emp_id, Dno)	<table><tr><th>Attribute</th><th>Data Type</th><th>Domain</th></tr><tr><td>Emp_id</td><td>INT(99999999)</td><td>The set of 9 digit social security numbers</td></tr><tr><td>Dno</td><td>VARCHAR</td><td>A set of integers ranging from 1 to 99</td></tr></table>			Attribute	Data Type	Domain	Emp_id	INT(99999999)	The set of 9 digit social security numbers	Dno	VARCHAR	A set of integers ranging from 1 to 99	Emp_id, Dno
Attribute	Data Type	Domain														
Emp_id	INT(99999999)	The set of 9 digit social security numbers														
Dno	VARCHAR	A set of integers ranging from 1 to 99														

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key
Car_plates	Multi-valued attribute if a guest has more than one car	G_no, Plate_no	(G_no, Plate_no)	Attribute	Data Type	Domain	G_no
				G_no	VARCHAR(20)	The set of characters that make up a driver's license number	
				Plate_no	VARCHAR(10)	any alphabetical string	

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key									
Rooms_booked	Multi-valued attribute if a guest has more than one car	G_id, room_num	(G_no, Plate_no)	<table><tr><th>Attribute</th><th>Data Type</th><th>Domain</th></tr><tr><td>G_no</td><td>VARCHAR(20)</td><td>The set of characters that make up a driver's license number</td></tr><tr><td>Plate_no</td><td>VARCHAR(10)</td><td>any alphabetical string</td></tr></table>	Attribute	Data Type	Domain	G_no	VARCHAR(20)	The set of characters that make up a driver's license number	Plate_no	VARCHAR(10)	any alphabetical string			G_no
Attribute	Data Type	Domain														
G_no	VARCHAR(20)	The set of characters that make up a driver's license number														
Plate_no	VARCHAR(10)	any alphabetical string														

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key									
Take_action	Relationship between feedback and department. Department's improvement from previous guests' feedback	Dep_no, F_id	Dep_no, F_id	<table><tr><th>Attribute</th><th>Data Type</th><th>Domain</th></tr><tr><td>Dep_no</td><td>VARCHAR</td><td>A set of integers ranging from 1 to 99</td></tr><tr><td>F_id</td><td>CHAR(12)</td><td>any string</td></tr></table>			Attribute	Data Type	Domain	Dep_no	VARCHAR	A set of integers ranging from 1 to 99	F_id	CHAR(12)	any string	Dep_no, F_id
Attribute	Data Type	Domain														
Dep_no	VARCHAR	A set of integers ranging from 1 to 99														
F_id	CHAR(12)	any string														

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key									
Make_payment	Relationship between concierge and payment because concierge has the guest's credit card information		(I_id, Pay_id)	<table><tr><th>Attribute</th><th>Data Type</th><th>Domain</th></tr><tr><td>I_id</td><td>CHAR(12)</td><td>any String</td></tr><tr><td>Pay_id</td><td>CHAR(12)</td><td>any number</td></tr></table>			Attribute	Data Type	Domain	I_id	CHAR(12)	any String	Pay_id	CHAR(12)	any number	I_id, Pay_id
Attribute	Data Type	Domain														
I_id	CHAR(12)	any String														
Pay_id	CHAR(12)	any number														

Table	Table Description	Primary Key	Super Key	Attributes			Foreign Key							
Request	Relationship between concierge and payment because concierge has the guest's credit card information	G_id, Dno	(G_id, Dno)	<table><tr><th>Attribute</th><th>Data Type</th><th>Domain</th></tr><tr><td>G_id</td><td>VARCHAR(20)</td><td>The set of characters that make up a driver's license number</td></tr><tr><td>Dno</td><td>VARCHAR</td><td>A set of integers ranging from 1 to 99</td></tr></table>	Attribute	Data Type	Domain	G_id	VARCHAR(20)	The set of characters that make up a driver's license number	Dno	VARCHAR	A set of integers ranging from 1 to 99	G_id, Dno
Attribute	Data Type	Domain												
G_id	VARCHAR(20)	The set of characters that make up a driver's license number												
Dno	VARCHAR	A set of integers ranging from 1 to 99												

- **The names of the tool(s) used for the ERD and the schema diagram.**

The name of the tool used for the ERD is Goodnotes. We used lucidchart to create the schema diagram.