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CMSC 508

Final project

At most hotel guests have to valet their cars upon arrival. Unfortunately, this task of having a car valeted can become incredibly problematic. Most problems arise from a guest losing their ticket (either leaving it in their room or losing it all together), a poorly kept ticket log at the valet desk (missing information about guests and corresponding car), and car damages (who to blame. The guest of the valet attendants). The objective of this project is to store information about the valet cars, hotel guests, valet attendants, prior car damages, and shift information in an effort to speed up car retrievals, correctly bill guests, pay valet attendants, and keep track of who works when and hold employees accountable for vehicle damages. We are not concerned about the hotel side of things, such as what food they order and the total cost of their stay at the hotel.

The only hotel information we are interested in is the guest's room number, room phone number, name, arrival date, and departure date so they can be billed for the number of days their car was parked. Guest information consists of first name, last name, guest ID, arrival date, departure date, room phone number, and room number. Car information consists of the license plate, ticket number, manufacturer, model, color, year, vehicle damage, car type (SUV, truck or sedan), car transmission (automatic/manual), fuel (electric or gas) and parking level. Valet attendant information consists of first name, last name, employee ID, and transmission comfort. Shift information consists of shift ID, employee ID, start time and end time. Damages consist of

report ID, ticket number, employee ID and report information. Ticket information consists of a Guest ID and a ticket number.

List of queries

1. What vehicle belongs to this ticket number?
    - SELECT V.Manufacturer , V.Model FROM VEHICLE V JOIN TICKET T ON T.TicketNumber = V.TicketNumber WHERE T.TicketNumber = 567894;
2. What is the Guest ID with Room Number ###?
    - SELECT GuestID FROM STAY WHERE RoomNumber = 101;
3. Give all guest information based on the Guest First name, Guest Last name.
    - SELECT S.GuestID, S.RoomNumber, S.ArrivalDate, S.DepartureDate, S.RoomPhoneNumber FROM STAY S JOIN GUEST G ON G.GuestID = S.GuestID WHERE G.FirstName = 'Mary' and G.LastName = 'Jane';
4. Which Valet Attendant parked Vehicle with a specific license plate?
    - SELECT DISTINCT E.FirstName, E.LastName, E.EmployeeID FROM VALET_ATTENDANT E JOIN VALET_LOG L on L.EmployeeID = E.EmployeeID JOIN VEHICLE V ON V.TicketNumber = L.TicketNumber WHERE V.LicensePlate = 'EFG4567';
5. Who is the owner of the Grey Toyota Camary?
    - SELECT G.FirstName, G.LastName FROM GUEST G JOIN TICKET T ON T.GuestID = G.GuestID JOIN VEHICLE V ON V.TicketNumber = T.TicketNumber WHERE V.Manufacturer = 'Toyota' and V.Model = 'Camary' and V.Color = 'Grey' and V.Year = 2005;

6. Which guest is staying in the room with this Room Phone Number XXX-XXX-XXXX?
    - SELECT G.GuestID, G.FirstName, G.LastName FROM GUEST G JOIN STAY S ON G.GuestID = S.GuestID WHERE RoomPhoneNumber = 7575091023;
7. How much did a valet get paid during his shift?
    - SELECT EmployeeID,HOUR(TIMEDIFF(Endtime, StartTime))*7.25 AS 'WAGE' FROM SHIFT WHERE EmployeeID = '01A3X5';
8. Which Valet Attendants can drive a manual transmission?
    - Select CONCAT(FirstName,' ',LastName) as 'Full Name' FROM VALET_ATTENDANT WHERE Transmission_Comfort LIKE '%MANUAL%';
9. Which Parking Level is the vehicle with license plate > example< parked on?
    - SELECT ParkingLevel FROM VEHICLE WHERE LicensePlate = 'GOTHAM';
10. What is the Damage Information for 2018 GREY TESLA?
    - SELECT D.Information FROM DAMAGE D JOIN VEHICLE V ON D.TicketNumber = V.TicketNumber WHERE V.Manufacturer = 'Tesla' and V.Model = 'Model 3' and V.Year = 2018 and V.LicensePlate = 'DBS508';
11. What is the Arrival Date of the 2018 Grey Tesla?
    - SELECT S.ArrivalDate FROM STAY S JOIN GUEST G ON G.GuestID = S.GuestID JOIN TICKET T ON T.GuestID = G.GuestID JOIN VEHICLE V ON V.TicketNumber = T.TicketNumber WHERE V.Manufacturer = 'Tesla' and V.Model = 'Model 3' and V.Color = 'Grey' and V.Year =2018;
12. Which valets were working during this shift (ID)?

- SELECT E.EmployeeID, CONCAT(E.FirstName,' ',E.LastName) as 'Full Name' FROM VALET_ATTENDANT E JOIN SHIFT S ON S.EmployeeID = E.EmployeeID WHERE S.ShiftID = 12345;

13. Which valet has moved the Toyota Camary?
    - SELECT FirstName, LastName FROM VEHICLE V JOIN VALET_LOG L ON L.TicketNumber = V.TicketNumber JOIN VALET_ATTENDANT A ON A.EmployeeID = L.EmployeeID WHERE V.Model = 'Camary';
14. Which car does guest >name< own?
    - SELECT V.Manufacturer, V.Model, V.Color, V.LicensePlate FROM VEHICLE V JOIN TICKET T ON T.TicketNumber = V.TicketNumber JOIN GUEST G ON G.GuestID = T.GuestID WHERE G.FirstName = 'Mary' and G.LastName = 'Jane';
15. Which valet attendant wrote this damage report(ID)?
    - SELECT CONCAT(E.FirstName,' ',E.LastName) as 'Full Name' FROM VALET_ATTENDANT E JOIN DAMAGE R ON R.EmployeeID = E.EmployeeID WHERE R.ReportID = '101123';
16. What is the valet charge for the stay?
    - SELECT S.GuestID,DATEDIFF(S.DepartureDate, S.ArrivalDate)*24 AS 'CHARGE' FROM STAY S JOIN GUEST G ON G.GuestID = S.GuestID WHERE G.FirstName = 'Steven' AND G.LastName = 'Jermstad';
17. Which guests are leaving on X date?
    - SELECT GuestID FROM STAY WHERE DepartureDate = '2018-10-20';
18. How many Sedan’s are in the garage?

- SELECT COUNT(CarType) AS 'Number of Sedans'FROM VEHICLE WHERE CarType = 'Sedan';

19. How many electric cars are there?
    - SELECT COUNT(Fuel) AS 'Number of electric cars' FROM VEHICLE WHERE Fuel = 'Electric';
20. Add a new guest to the hotel
    - INSERT INTO INSERT_GUEST SELECT '455661', 'Jackson', 'Smith';
21. Update guest departure time
    - UPDATE STAY SET DepartureDate = '2018-11-30' WHERE GuestID = 'DBS508';
22. Guest Check out
    - Delete from INSERT_GUEST WHERE GuestID ='455661';

<u>The entity sets for the database are:</u>

- Ticket
- Guest
- Vehicle
- Damage
- Valet Attendant
- Valet Log
- Shift
- Stay

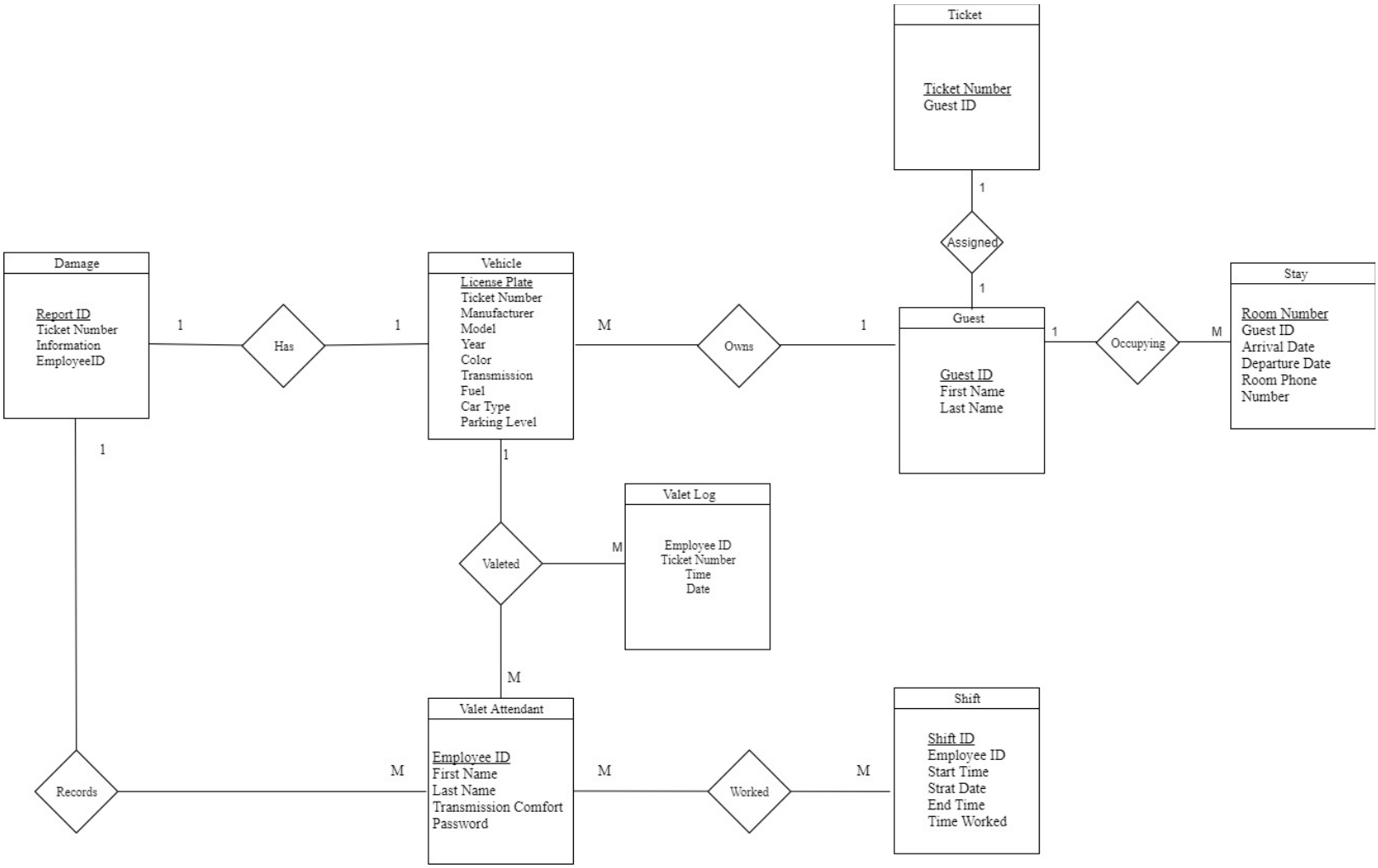
The operations to be performed to maintain the database are:

- Enter Guest information when they check in their car to valet
- Update guest departure date (if needed)
- Enter ticket information for the corresponding guest
- Enter car information when a new car is checked in
- Enter damage information for the corresponding car
- Enter shift information
    - Start and end time, employee ID
- Calculate the charge for valet
- Calculate wage for employees based on hourly shift duration

Security

Login would be the employee ID (String of six alphanumeric characters), the password would be a 10 character long alphanumeric string. Employees are the only ones that would be using this database. Furthermore, within in our frontend, our format for queries are using ‘%s’ as a placeholder for the unique values. For example ‘INSERT INTO GUEST VALUES(%s, %s, %s)',(956246, 'Patricia', 'Smith')'. This prevents SQL injections, a technique that is used when hacking databases.

ER Diagram


Ticket
Ticket Number
Guest ID
1
Assigned
1
Damage
Report ID
Ticket Number
Information
EmployeeID
1
Has
1
Vehicle
License Plate
Ticket Number
Manufacturer
Model
Year
Color
Transmission
Fuel
Car Type
Parking Level
M
Owns
1
Guest
Guest ID
First Name
Last Name
1
Occupying
M
Stay
Room Number
Guest ID
Arrival Date
Departure Date
Room Phone
Number
1
1
Valeted
M
Valet Log
Employee ID
Ticket Number
Time
Date
M
Records
M
Valet Attendant
Employee ID
First Name
Last Name
Transmission Comfort
Password
M
Worked
M
Shift
Shift ID
Employee ID
Start Time
Strat Date
End Time
Time Worked

List of the attributes of each entity and relationship in the diagram

Entity	Attribute	Domain
Guest	Guest ID (primary key)	A string of six alphanumeric characters. This is an ID that each guest is assigned
	First Name	String, variable length, letters only This is the guest's first name
	Last Name	String, variable length, letters only This is the guest's last name
Stay	Room Number	Positive INT This is the guest's room number Multiple guests can stay in the same room.
	GuestID (foreign key)	A string of six alphanumeric characters. This is an ID that each guest is assigned
	Arrival Date	A numeric date consisting of a 2-digit month (range: 1-12), 2 digit day (range: 1-31), and 4-digit year. Example format: 2018-12-01 Year, Month, Day

	Departure Date	A numeric date consisting of a 2-digit month (range: 1-12), 2 digit day (range: 1-31), and 4-digit year. Example format: 2018-12-01 Year, Month, Day
	Room Phone Number	Positive INTs, 10 digits long
Ticket	Ticket Number (primary key)	A six digit number assigned to a report ticket.
	Guest ID (foreign key)	A string of six alphanumeric characters. This is an ID that each guest is assigned
Vehicle	License Plate (primary key)	The unique license plate of a car String Seven characters long Uppercase letters and numbers allowed
	Ticket Number (foreign key)	A six digit number assigned to a report ticket.
	Manufacturer	A string of letters for the name manufacturer
	Model	A variable length alphanumeric character of Name of model
	Year	INT Year of the car Four digits long

		Has to be positive
	Color	A string of letters describing the color of the vehicle
	Transmission	A string of letters (i.e. automatic or manual)
	Fuel	A string of letters describing the fuel (gas or electric)
	Car Type	A string of letters describing the car type (Sedan, van, SUV, truck)
	Parking Level	Positive INT the garage level of the parked vehicle Car type determines where the car will be parked in the garage (parking level) Example: SUVs, trucks, manuals, and electric cars are all on the first level of the garage.
Valet Attendant	<u>Employee ID</u> (primary key)	A string of six alphanumeric characters This an employee's unique identifier
	First Name	A string of letters for Employee's first name

	Last Name	A string of letters for Employee's last name
	Transmission Comfort	A string of letters to describe the comfort level of the valet attendant (i.e. automatic or manual).
	Password	A 10 character long string that consists of alphanumeric characters
Shift	Shift ID (primary key)	A numeric value of six digits
	Employee ID (foreign Key)	A string of six alphanumeric characters This an employee's unique identifier
	Start Time	24-hour format
	Start Date	Numeric date YYYY/MM/DD
	End Time	24-hour format
Damage	Report ID (primary key)	A string of six alphanumeric characters assigned to a report ticket.
	Ticket Number (foreign key)	A six digit number assigned to a report ticket.
	Information	String description of any damage information pertaining to a vehicle.

	Employee ID (foreign key)	A string of six alphanumeric characters This an employee's unique identifier
Valet Log	Employee ID (foreign key)	A string of six alphanumeric characters This an employee's unique identifier
	Ticket Number (foreign key)	A six digit number assigned to a report ticket.
	Time	24-hour format
	Date	YYYY/MM/DD

Functionality of relationships

Relationship	**Functionality**	**Justification**
Has	one-to-one	A car has one damage report, and a damage report has one car on it
Occupying	one-to-many	Guest is staying in one room
Owns	one-to-many	A guest can have just 1 or more than one car checked into valet A car has one owner
Valeted	many-to-many	A valet attendant can drive one or many cars on the shift A car can be driven by more than one valet attendant

Records	one-to-many	A valet attendant may write many damage reports on arrival. There could be cars without damage upon arrival. Only one report corresponds with one vehicle.
Worked	many-to-many	A valet attendant can work 0 shift if they are on vacation Or they can work many shifts. A shift can have many valet attendants working it.
Assigned	one-to-one	The unique ticket number is assigned to each guest.

Integrity Constraints

Most constraints are listed in the domain descriptions of each attribute above, however, a list of major constraints are:

- No negative numbers allowed in the database
- Numeric dates will consist of a 2-digit month (range: 1-12), 2 digit day (range: 1-31), and 4-digit year. The time will be in a 24-hour format.
- Room phone numbers are 10 digits long
- Year of a car will be 4 digits long
- License plates are seven characters long

Logical Design

The break down of the tables in the ER Diagram are listed below:

Entity:

Guest (Guest ID, First Name, Last Name)

Candidate Keys: Guest ID, First Name, Last Name

Primary Keys: Guest ID

Functional Dependencies: Guest ID → First Name, Last Name

Normal Form: 5NF

Stay(Room Number, Guest ID, Room Number, Arrival Date, Departure Date, Valet Charge, Room Phone Number)

Candidate Keys: Room Number, Guest ID, Phone Number

Primary Keys: Room Number

Functional Dependencies: Room Number→ Guest ID, Room Phone Number, Arrival Date, Departure Date, Valet Charge

Normal Form: 5NF

Ticket (Ticket Number, Guest ID)

Candidate Keys: Ticket Number, Guest ID

Primary Keys: Ticket Number

Functional Dependencies: Ticket Number → Guest ID

Normal Form: 5NF

Vehicle (License Plate, Ticket Number, Manufacturer, Model, Year, Color, Transmission, Fuel, Car Type, Parking Level)

Candidate Keys: License Plate, Ticket Number

Primary Keys: License Plate

Functional Dependencies: License Plate → Parking level, Ticket number

Manufacturer → Model

Car Type → Parking Level

Ticket Number → License Plate

Normal Form: 5NF

Damage (Report ID, Ticket Number, Information, EmployeeID)

Primary Keys: Report ID

Functional Dependencies: Report ID → Information

Normal Form: 5NF

Valet Attendant (Employee ID, First Name, Last Name, Transmission Comfort, Password)

Candidate Keys: Employee ID, First Name, Last Name

Primary Keys: Employee ID

Functional Dependencies: Employee ID, Password → First Name, Last Name, Transmission Comfort

Normal Form: 5NF

Shift (Shift ID, Employee ID, Start Time, End Time)

Primary Keys: Shift ID

Functional Dependencies: Shift ID → Start Time, Start Date, End Time, Time Worked

Shift ID → Employee ID

Normal Form: 5NF

Valet Log (Employee ID, Ticket Number, Time, Date)

Functional Dependencies: Employee ID, Ticket Number→ Time, Date

Normal Form: 5NF

Relationships:

Owns (Guest ID, License Plate, Vehicle.Ticket Number)

Primary Keys: Guest ID, License Plate

Foreign Keys: Guest ID, License Plate, Vehicle.Ticket Number

Functional Dependencies: Guest ID → Guest.Ticket Number

License Plate → Vehicle.Ticket Number

Normal Form: 5NF

Assigned (Guest ID, Ticket Number)

Primary Keys: Guest ID, Ticket Number

Foreign Keys: Ticket Number, Guest ID

Functional Dependencies: Ticket Number → Guest ID

Normal Form: 5NF

Occupying(Room Number, Guest ID)

Primary Keys: GuestID, Room Number

Foreign Keys: GuestID, Room Number

Functional Dependencies: Room Number→ Guest ID

Normal Form: 5NF

Has (License Plate, Report ID)

Primary Keys: Report ID, License Plate

Foreign Keys: License Plate, Report ID

Functional Dependencies: None

Normal Form: 5NF

Records (Report ID, Employee ID)

Primary Keys: Report ID, Employee ID

Foreign Keys: Report ID, Employee ID

Functional Dependencies: None

Normal Form: 5NF

Worked (Shift ID, Employee ID)

Primary Keys: Shift ID, Employee ID

Foreign Keys: Shift ID, Employee ID

Functional Dependencies: None

Normal Form: 5NF

Valeted (License Plate, Employee ID, Time In, Time Out, Charge, Location)

Primary Keys: License Plate, Employee ID

Foreign Keys: License Plate, Employee ID

Functional Dependencies: License Plate → None

Normal Form: 5NF

Normalization

One of the issues that we encountered with the original design of the guest table was that it had duplicate guest information. There are situations where a guest could have more than one car checked into valet (there is a doctor at my workplace that has both a Range Rover and a Maserati checked in with him for his 4-month stay). The problem with the original design was that we would have to list the guest ID and the entire guest information twice to account for two different ticket numbers (two cars belong to the same guest).

Guest Table

Guest ID	Ticket Number	First Name	Last Name
ABC3CD	012345	Ruairidh	Barlow
ABC3CD	445369	Ruairidh	Barlow
DKR393	567894	Mary	Jane

Original Guest Table Design (sample data)

We decomposed this table into a guest table and a new ticket table.

Guest Table

Guest ID	First Name	Last Name
ABC3CD	Ruairidh	Barlow
DKR393	Mary	Jane

Ticket Table

Ticket Number	Guest ID
012345	ABC3CD
445369	ABC3CD
567894	DKR393

New decomposed guest table and ticket table (sample data)

This decomposition avoids duplicate guest data.

Sample Data Example

Damage Table

ReportId	TicketNumber	Information	EmployeeID
101123	123508	Flat tire	01A3X5
235545	445369	Paint chip in hood	01A3X5
336789	567894	dent in bumper	123456

Vehicle Table

LicensePlate	TicketNumber	Manufacturer	Model	YEAR	Color	Transmission	Fuel	CarType	ParkingLevel
135YGFF	445369	Toyota	Rav 4	2018	Black	Automatic	Gas	SUV	2
ASD3457	1000000	Volkswagon	Beetle	1962	Blue	Automatic	Gas	Coupe	2
DBS508	123508	Tesla	Model 3	2018	Grey	Dual Motor	Electric	Sedan	1
EFG4567	567894	Toyota	Camary	2005	Grey	Manual	Gas	Coupe	2
GOTHAM	1989	Wayne Tech	Batmobile	1989	Black	Manual	Jet Fuel	Tank	1
JRM1231	467904	Honda	Civic	1996	Grey	Automatic	Gas	Sedan	2
PUSHEEN	231234	Toyota	Prius	2018	Green	Automatic	Electric	Sedan	1

Guest Table

GuestID	FirstName	LastName
455661	Jackson	Smith
455667	Steven	Jermstad
956243	John	Smith
ABC3CD	Ruairidh	Barlow
AF3423	Jeff	Elhai
BTMN39	Bruce	Wayne
CAT718	Jess	Barlow
DBS508	Debra	Duke
DKR393	Mary	Jane

StayTable

RoomNumber	GuestID	ArrivalDate	DepartureDate	RoomPhoneNumber
101	BTMN39	2018-10-22	2018-10-28	7075022344
102	DBS508	2018-11-22	2018-11-28	8045678943
103	DKR393	2018-11-25	2018-11-29	8043778943
204	ABC3CD	2018-10-12	2018-10-20	8041234567
233	455667	2018-10-23	2018-10-25	7571023344
344	AF3423	2018-10-24	2018-10-25	7575023344
204	CAT718	2018-11-28	2018-11-30	7575091023

Ticket Table

TicketNumber	GuestID
467904	455667
445369	ABC3CD
1000000	AF3423
1989	BTMN39
231234	CAT718
123508	DBS508
567894	DKR393

Valet Attendant Table

EmployeeID	FirstName	LastName	Transmission_Comfort	Password
01A3X5	Peter	Parker	Automatic	WELCOME123
123456	Jay	Gandhi	Manual	DATABASE
AB35C3	Ray	Sean	Automatic/Manual	RayJan2018

Valet Log Table

EmployeeID	TicketNumber	Time	Date
AB35C3	123508	19:23:37	2018-11-28
123456	467904	19:22:42	2018-11-28
01A3X5	567894	14:00:00	2018-10-18
01A3X5	467904	17:43:37	2018-12-02
123456	231234	17:45:32	2018-12-02

Shift Table

ShiftID	EmployeeID	StartTime	StartDate	EndTime
12345	01A3X5	11:10:00	2018-10-12	14:00:00
123456	123456	22:57:35	2018-11-13	22:57:35
445678	AB35C3	19:32:42	2018-11-28	21:22:00

Database SQL Scripts

- CREATE TABLE TICKET(TicketNumber INT(6) unsigned, GuestID, CHAR(6) NOT NULL, PRIMARY KEY(TicketNumber));
- ALTER TABLE TICKET ADD FOREIGN KEY(GuestID) REFERENCES GUEST(GuestID) ON UPDATE CASCADE ON DELETE CASCADE;
- Table:

```
+--------------+-----------------+------+-----+---------+-------+
| Field        | Type            | Null | Key | Default | Extra |
+--------------+-----------------+------+-----+---------+-------+
| TicketNumber | int(6) unsigned | NO   | PRI | NULL    |       |
| GuestID      | char(6)         | NO   | UNI | NULL    |       |
+--------------+-----------------+------+-----+---------+-------+
```

- CREATE TABLE GUEST(GuestID CHAR(6), FirstName VARCHAR(100) NOT NULL, LastName VARCHAR(100) NOT NULL PRIMARY KEY(GuestID));
- Table:

```
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| GuestID   | char(6)      | NO   | PRI | NULL    |       |
| FirstName | varchar(100) | NO   |     | NULL    |       |
| LastName  | varchar(100) | NO   |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
```

- CREATE TABLE STAY(RoomNumber SMALLINT(3) unsigned NOT NULL, GuestID char(6) NOT NULL, ArrivalDate DATE NOT NULL, DepartureDate DATE, ValetCharge int(10) unsigned, RoomPhoneNumber BIGINT(10) unsigned, PRIMARY KEY(RoomNumber);
- ALTER TABLE STAY ADD FOREIGN KEY(GuestID) REFERENCES GUEST(GuestID) ON UPDATE CASCADE ON DELETE CASCADE
- Table:

```
+----------------+----------------------+------+-----+---------+-------+
| Field          | Type                 | Null | Key | Default | Extra |
+----------------+----------------------+------+-----+---------+-------+
| RoomNumber     | smallint(3) unsigned | NO   |     | NULL    |       |
| GuestID        | char(6)              | NO   | MUL | NULL    |       |
| ArrivalDate    | date                 | YES  |     | NULL    |       |
| DepartureDate  | date                 | YES  |     | NULL    |       |
| RoomPhoneNumber | bigint(10)          | YES  |     | NULL    |       |
+----------------+----------------------+------+-----+---------+-------+
```

- CREATE TABLE VEHICLE(LicensePlate VARCHAR(7), TicketNumber INT(6) unsigned NOT NULL, Manufacturer VARCHAR(100), Model VARCHAR(100), Year INT(4) unsigned, Color VARCHAR(10), Transmission VARCHAR(20) NOT NULL, Fuel VARCHAR(20) NOT NULL, CarType VARCHAR(50), ParkingLevel VARCHAR(3) NOT NULL, PRIMARY KEY(LicensePlate));
- ALTER TABLE VEHICLE ADD FOREIGN KEY(TicketNumber) REFERENCES TICKET(TicketNumber) ON UPDATE CASCADE ON DELETE CASCADE;
- Table:

Field	Type	Null	Key	Default	Extra
LicensePlate	char(7)	NO	PRI	NULL	
TicketNumber	int(6) unsigned	NO	UNI	NULL	
Manufacturer	varchar(100)	YES		NULL	
Model	varchar(100)	YES		NULL	
YEAR	int(4) unsigned	YES		NULL	
Color	varchar(10)	YES		NULL	
Transmission	varchar(20)	NO		NULL	
Fuel	varchar(20)	NO		NULL	
CarType	varchar(50)	YES		NULL	
ParkingLevel	int(1) unsigned	YES		NULL	

- CREATE TABLE VALET_ATTENDANT(EmployeeID CHAR(6), FirstName VARCHAR(50) NOT NULL, LastName VARCHAR(50) NOT NULL, Transmission_Comfort VARCHAR(20) NOT NULL, Password VARCHAR(10) NOT NULL);
- ALTER TABLE VALET_ATTENDANT ADD PRIMARY KEY(EmployeeID);
- Table:

Field	Type	Null	Key	Default	Extra
EmployeeID	char(6)	NO	PRI	NULL	
FirstName	varchar(50)	NO		NULL	
LastName	varchar(50)	NO		NULL	
Transmission_Comfort	varchar(20)	NO		NULL	
Password	varchar(10)	NO		NULL	

- CREATE TABLE SHIFT(ShiftID INT(6) unsigned,EmployeeID CHAR(6) NOT NULL, StartTime TIME NOT NULL, StartDate DATE NOT NULL, EndTime TIME, Timeworked smallint(2) unsigned);
- ALTER TABLE SHIFT ADD FOREIGN KEY(EmployeeID) REFERENCES VALET_ATTENDANT(EmployeeID) ON UPDATE CASCADE ON DELETE CASCADE;
- ALTER TABLE SHIFT ADD PRIMARY KEY(ShiftID);
- Table:

Field	Type	Null	Key	Default	Extra
ShiftID	bigint(6) unsigned	NO	PRI	NULL	
EmployeeID	char(6)	YES	UNI	NULL	
StartTime	time	NO		NULL	
StartDate	date	NO		NULL	
EndTime	time	YES		NULL	

- CREATE TABLE DAMAGE(ReportID VARCHAR(6), TicketNumber INT(6) unsigned NOT NULL, Information VARCHAR(10000), EmployeeID CHAR(6)) NOT NULL;
- ALTER TABLE DAMAGE ADD PRIMARY KEY(ReportId);
- ALTER TABLE DAMAGE ADD FOREIGN KEY(TicketNumber) REFERENCES TICKET(TicketNumber) ON UPDATE CASCADE ON DELETE CASCADE;
- ALTER TABLE DAMAGE ADD FOREIGN KEY(EmployeeID) REFERENCES EMPLOYEE(EmployeeID) ON UPDATE CASCADE ON DELETE CASCADE;
- Table:

Field	Type	Null	Key	Default	Extra
ReportId	varchar(6)	NO	PRI	NULL	
TicketNumber	int(6) unsigned	NO	MUL	NULL	
Information	varchar(10000)	YES		NULL	
EmployeeID	char(6)	YES	MUL	NULL	

- CREATE TABLE VALET_LOG (EmployeeID CHAR(6), TicketNumber INT(6) unsigned NOT NULL, Time TIME NOT NULL, Date DATE NOT NULL);
- ALTER TABLE VALET_LOG ADD FOREIGN KEY(TicketNumber) REFERENCES TICKET(TicketNumber) ON UPDATE CASCADE ON DELETE CASCADE;
- ALTER TABLE VALET_LOG ADD FOREIGN KEY(EmployeeID) REFERENCES VALET_ATTENDANT(EmployeeID) ON UPDATE CASCADE ON DELETE CASCADE;
- ALTER TABLE VALET_LOG ADD UNIQUE (EmployeeID);
- ALTER TABLE VALET_LOG ADD UNIQUE (TicketNumber);
- Table:

```
+--------------+-----------------+------+-----+---------+-------+
| Field        | Type            | Null | Key | Default | Extra |
+--------------+-----------------+------+-----+---------+-------+
| EmployeeID   | char(6)         | NO   | MUL | NULL    |       |
| TicketNumber | int(6) unsigned | NO   | MUL | NULL    |       |
| Time         | time            | NO   |     | NULL    |       |
| Date         | date            | NO   |     | NULL    |       |
+--------------+-----------------+------+-----+---------+-------+
```

View SQL Scripts

- Guest Table
  - CREATE VIEW INSERT_GUEST AS SELECT GuestID, FirstName, LastName FROM GUEST;
  - EXAMPLE SYNTAX FOR USING VIEW
    INSERT INTO INSERT_GUEST
    SELECT
    455667,'Steven','Jermstad' UNION
    SELECT 956243,
    'Patricia','Smith';
- Stay Table
  - CREATE VIEW INSERT_STAY AS SELECT RoomNumber,GuestID,ArrivalDate, DepartureDate, RoomPhoneNumber FROM STAY;

- Ticket Table
  - CREATE VIEW INSERT_TICKET
    AS
    SELECT
    TicketNumber, GuestID
    FROM TICKET;
- Vehicle Table
  - CREATE VIEW INSERT_VEHICLE
    AS
    SELECT
    LicensePlate, TicketNumber, Manufacturer, Model, Year, Color, Transmission, Fuel, CarType, ParkingLevel
    FROM VEHICLE;
- Valet Attendant Table
  - CREATE VIEW INSERT_VALET_ATTENDANT
    AS
    SELECT
    EmployeeID, FirstName, LastName, Transmission_Comfort, Password
    FROM VALET_ATTENDANT;

- Damage Table
  - CREATE VIEW INSERT_DAMAGE
    AS
    SELECT
    ReportID, TicketNumber, Information, EmployeeID FROM DAMAGE;
- Valet_Log Table
  - CREATE VIEW INSERT_VALET_LOG AS SELECT EmployeeID, TicketNumber, Time, Date FROM VALET_LOG;
- Shift Table
  - CREATE VIEW INSERT_SHIFT AS SELECT ShiftID, EmployeeID, StartTime, StartDate,EndTime FROM SHIFT;

Interface Software Code

https://github.com/gandhijs/ValetProject.git

- The front end for our Valet project is based off of google app engine tutorial script. Below is the link to that page:
  - https://cloud.google.com/appengine/docs/standard/python/cloud-sql/using-cloud-sql-mysql