

KTCS DELIVERABLE 1

CISC / CMPE 332: Database Management Systems
Professor Martin



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Project Assumptions

The group has followed the following assumptions in the creation of the relational schema and ER schema:

- All assumption found in the project requirement document are followed

Members

- When a member joins the KTCS they MUST provide their full name, address, phone number, email and driver's license number

Parking Locations

- The number of parking spaces in a 'Parking Location' could be zero at a time of lot closure or for other temporary reasons

Car Maintenance

- A car could be repaired or maintained for different reasons all on the same day with the same odometer ratings

Car

- When a car is added to the system, the VIN, make, model, location, status, car year and daily fee MUST be provided. If an odometer reading is not given, assume the car is new and give the resulting odometer and car status value.
- The odometer reading is updated at the end of the most recent rental.
- Cars cannot be reserved if they are undergoing service or rented during the requested booking.
- A car is available to rent on a specific day if its' status is 'available' and no other reservations for that car occur on that day.

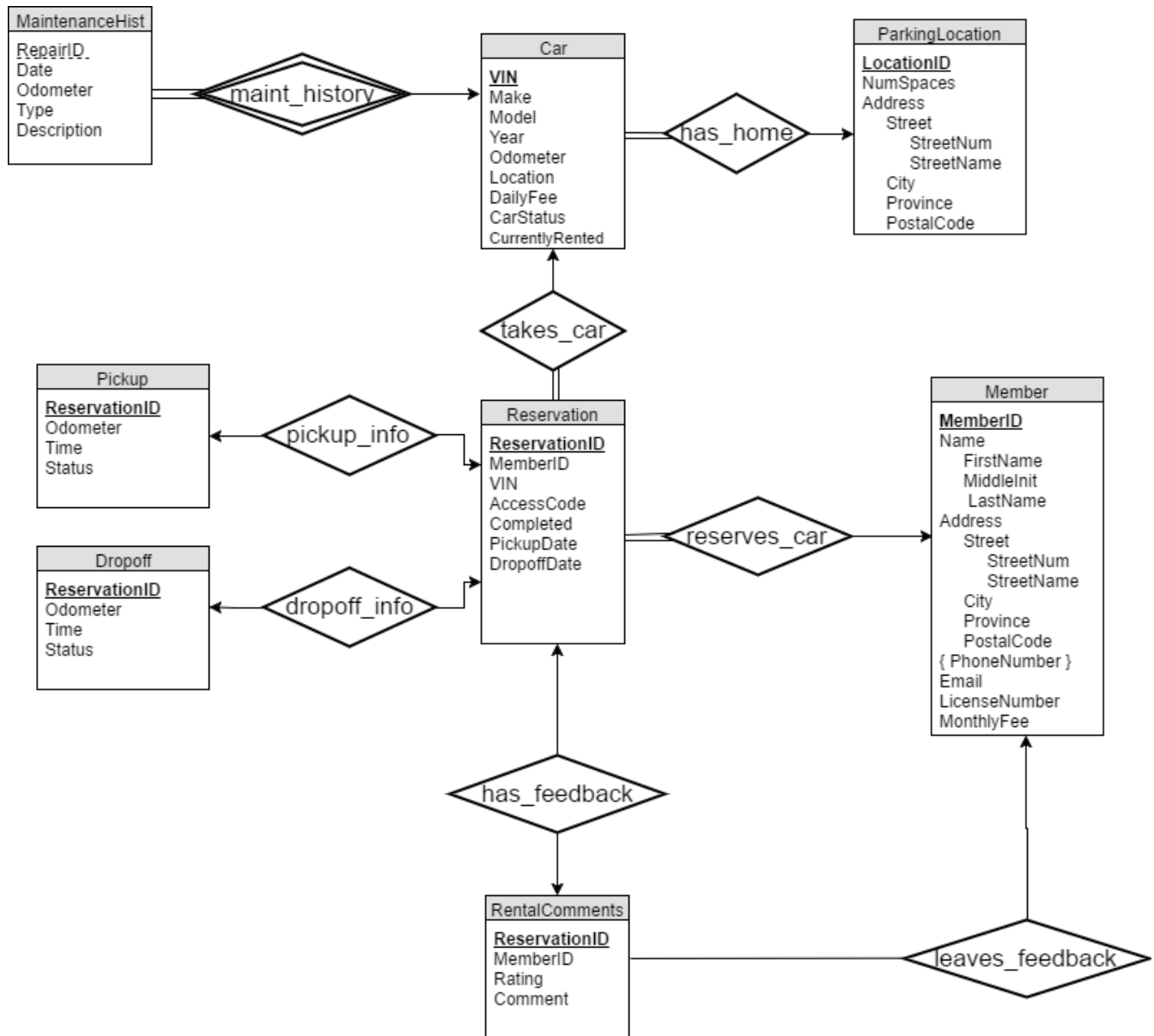
Car Reservations

- A length of reservation MUST be provided when a rental or reservation occurs.
- Cars can be instantly reserved for right now, given a length of reservation, OR the car can be reserved for a future date and length of booking.

Car Feedback

- Only one feedback can be recorded per car reservation.
- Feedback is not stored anonymously; the member's ID is saved.
- Member's must leave a rating if they review but do not need to comment.
- An admin's response to a member review consists of fetching the member's information (email, phone, name, etc) and contacting the member externally to the database review system.

ER Schema



CREATE TABLE statements

Parking Location

StreetName length chosen based on the longest street name in the world. *City* length chosen based on the longest city name in the world. *Province* length based on the length of the longest province name in Canada, "Newfoundland and Labrador".

```
CREATE TABLE ParkingLocation (  
    LocationID INT UNSIGNED NOT NULL AUTO_INCREMENT,  
    NumSpaces INT UNSIGNED NOT NULL DEFAULT 0,  
    StreetNum INT UNSIGNED NOT NULL,  
    StreetName VARCHAR(100) NOT NULL,  
    City VARCHAR(60) NOT NULL,  
    Province VARCHAR(25) NOT NULL,  
    PostalCode VARCHAR(6) NOT NULL,  
    PRIMARY KEY ( LocationID )  
);
```

Member

StreetName length chosen based on the longest street name in the world. *City* length chosen based on the longest city name in the world. *Province* length based on the length of the longest province name in Canada, "Newfoundland and Labrador".

```
CREATE TABLE Member (  
    MemberID Int UNSIGNED NOT NULL AUTO_INCREMENT,  
    FirstName VARCHAR(50) NOT NULL,  
    MiddleInit CHAR(1),  
    LastName VARCHAR(50) NOT NULL,  
    SteetNum INT UNSIGNED NOT NULL,  
    StreetName VARCHAR(100) NOT NULL,  
    City VARCHAR(60) NOT NULL,  
    Province VARCHAR(25) NOT NULL,  
    PostalCode VARCHAR(6) NOT NULL,  
    CountryCode VARCHAR(20) NOT NULL DEFAULT 1,  
    AreaCode VARCHAR(20) NOT NULL,  
    PhoneNumber VARCHAR(50) NOT NULL,  
    Email VARCHAR(200),  
    LicenseNumber VARCHAR(100) NOT NULL,  
    MonthlyFee FLOAT(5,2) NOT NULL,  
    PRIMARY KEY ( MemberID )  
);
```

Car

```
CREATE TABLE CAR (  
    VIN VARCHAR(100) NOT NULL,  
    Make VARCHAR(100) NOT NULL,  
    Model VARCHAR(100) NOT NULL,  
    Year YEAR NOT NULL,  
    Odometer INT UNSIGNED NOT NULL DEFAULT 0,
```

```

Location INT UNSIGNED NOT NULL,
DailyFee FLOAT(13,2) NOT NULL,
CarStatus VARCHAR(100) NOT NULL,
CurrentlyRented BOOLEAN NOT NULL DEFAULT 0,
PRIMARY KEY ( VIN ),
FOREIGN KEY ( Location ) REFERENCES ParkingLocation(L
ocationID)
);

```

Reservation

```

CREATE TABLE Reservation (
ReservationID INT UNSIGNED NOT NULL AUTO_INCREMENT,
MemberID INT UNSIGNED NOT NULL,
VIN VARCHAR(100) NOT NULL,
AccessCode VARCHAR(100) NOT NULL,
Completed BOOLEAN NOT NULL,
PickupDate DATE NOT NULL,
DropOffDate DATE NOT NULL,
PRIMARY KEY ( ReservationID ),
FOREIGN KEY ( MemberID ) REFERENCES Member(MemberID),
FOREIGN KEY ( VIN ) REFERENCES Car(VIN)
);

```

MaintenanceHist

```

CREATE TABLE MaintenanceHist (

```

```
RepairID INT UNSIGNED NOT NULL AUTO_INCREMENT,  
Date DATE NOT NULL,  
Odometer INT UNSIGNED NOT NULL,  
Type VARCHAR(100) NOT NULL,  
Description TEXT,  
VIN VARCHAR(100) NOT NULL,  
PRIMARY KEY ( RepairID, VIN ),  
FOREIGN KEY ( VIN ) REFERENCES Car(VIN)  
);
```

Pickup

```
CREATE TABLE Pickup (  
    ReservationID INT UNSIGNED NOT NULL,  
    Odometer INT UNSIGNED NOT NULL,  
    Time TIME NOT NULL,  
    Status VARCHAR(10) NOT NULL,  
    PRIMARY KEY ( ReservationID ),  
    FOREIGN KEY ( ReservationID ) REFERENCES Reservation(  
ReservationID)  
);
```

Dropoff

```
CREATE TABLE DropOff (  
    ReservationID INT UNSIGNED NOT NULL,  
    Odometer INT UNSIGNED NOT NULL,
```

```
Time TIME NOT NULL,  
Status VARCHAR(10) NOT NULL,  
PRIMARY KEY ( ReservationID ),  
FOREIGN KEY ( ReservationID ) REFERENCES Reservation(  
ReservationID)  
);
```

RentalComments

```
CREATE TABLE RentalComments (  
ReservationID INT UNSIGNED NOT NULL,  
MemberID INT UNSIGNED NOT NULL,  
Rating TINYINT UNSIGNED NOT NULL,  
Comment Text,  
PRIMARY KEY ( ReservationID ),  
FOREIGN KEY ( ReservationID ) REFERENCES Reservation(  
ReservationID),  
FOREIGN KEY ( MemberID ) REFERENCES Member(MemberID)  
);
```


Sample Data

ParkingLocation

LocationID	NumSpaces	StreetNum	StreetName	City	Province	PostalCode
1	23	140	Princess	Kingston	Ontario	K3LR8M
2	42	420	Sir John A. MacDonald	Kingston	Ontario	K3L2R1
3	12	2303	King	Kingston	Ontario	K2R3R3
4	21	908	Queen	Kingston	Ontario	K2R3J1

Member

MemberID	FirstName	MiddleInit	LastName	SteetNum	StreetName	City	Province	PostalCode	CountryCode	AreaCode	PhoneNumber	Email	LicenseNumber	MonthlyFee
1	Zackery	M	Harley	10	Main	Kingston	Ontario	K1L3N2	1	613	6731234	me@zack.com	A567DBKEM	23.99
2	Palmer	NULL	McCutcheon	42	Union	Kinston	Ontario	K2L3N2	1	613	9023419	palmer@ktcs.com	UHF834HD7	16.00
3	Jacob	NULL	Klein	60	University	Kingston	Ontario	K5L1S4	1	613	9287612	jacob@ktcs.com	DUH47DH23	14.00
4	Justin	NULL	Trudeau	24	Sussex	Ottawa	Ontario	K1M1M4	1	613	1234567	justin@canada.ca	123JHKJ34	30.99

Car

VIN	Make	Model	Year	Odometer	Location	DailyFee	CarStatus	CurrentlyRented
12341234	GMC	Sierra	2015	80310	1	40.98	damaged	0
12345678	Hummer	H3	2008	180431	1	40.98	normal	0
14253213	Buick	Rendezvous	2007	213410	2	35.00	not running	0
18732729	Kia	Soul	2016	25097	2	20.99	normal	1
41231234	Audi	R8	2017	6312	3	120.00	normal	0
53458673	Ford	F-150	2017	0	1	60.00	normal	0

Reservation

ReservationID	MemberID	VIN	AccessCode	Completed	PickupDate	DropOffDate
1	1	12341234	826733	1	2017-01-24	2017-01-31
2	2	18732729	652410	0	2017-03-01	2017-03-27
3	4	41231234	110928	1	2017-02-20	2017-02-23
4	4	14253213	928734	0	2017-08-31	2017-09-01
5	4	53458673	123980	0	2017-04-09	2017-04-10

MaintenanceHist

RepairID	Date	Odometer	Type	Description	VIN
1	2017-03-01	80310	schedule	oil change	12341234
2	2017-01-16	79230	repair	scratched paint on right front bumper	12341234
3	2017-02-14	25097	scheduled	oil change	18732729

Pickup

ReservationID	Odometer	Time	Status
1	79230	13:30:00	normal
2	25097	08:00:00	normal
3	6221	11:00:00	normal

Dropoff

ReservationID	Odometer	Time	Status
1	80310	17:45:00	damaged
3	41231234	12:20:00	normal

Rental Comments

ReservationID	MemberID	Rating	Comment
1	1	3	Truck was great. Needed it to move into a new hous...
3	4	5	Easy, affordable car rental. This is the way renti...