# 1.      Description of FARMS expansion

This expansion will add a complimentary airport shuttle to the hotels. Each hotel will have their shuttles that will be available (by reservation only) to guests who have a reservation at the hotel within the next couple of days or are checking out that day. Each shuttle will have regular maintenance done after a certain number of trips (10). The reservations must be made at least a day in advance to allow for proper scheduling for picking up or dropping off multiple parties.

# 2.      Data Specifications Overview

Part A (List of Business Rules)

1. Take vehicle out of service after so many miles (5000 mi) or (100 trips
   1. Vehicles must have an active status to be scheduled for a reservation, the status could also be
   2. “A” Active, “O” Out for maintenance, “N” Needs maintenance soon
2. Shuttles (Identity = 4500, 10)
   1. can only be used by guests (Check reservation status) within 2 days of their stay at the hotel or on the last day of their reservation (within a few hours of checkout)
   2. Shuttles are not bound to any hotel.
3. Shuttles are called by the hotels to do trips
   1. Max capacity should be no more than 20
   2. Default ShuttleStatusID = 1
   3. Comments can be left about the shuttle if it needs extra cleaning or is out for maintenance.
   4. The hotels are small so that is why the trips will be by reservation only
4. Drivers
   1. They will be stored (Identity = 3500,1)
   2. Must have a valid US driver's license that will be kept on file
   3. The employees will be notified 3 months in advance if their license will be expiring soon.
5. Trips will be logged (Identity = 10000,1)
   1. The shuttle trips must include an accurate list of times and amount of people on the shuttle.
6. ShuttleReservation (7000,1)
   1. Shuttle Reservation Status CHECK & Trigger “R” Reserved, “N” No Show, “X” Canceled, “C” Completed
   2. Shuttle reservations can only made by passengers that have names that appear in the FARMS guest table that reservations within 1 day of their requested pickup time or 6 hours after checkout
   3. Before the reservation can be made there must be a check to make sure the number of seats requested is a valid number for the shuttle
      1. Create a CheckAmountOfRemainingSeats()
7. Driver’s license
   1. They will be stored (5500,10)
   2. Each driver will need a valid driver’s license to be assigned to a shuttle trip
8. Shuttle trips (10000,1)
   1. Arrival times of the shuttle will be monitored and compared to the times the guests requested to make sure that they are arriving on time.
   2. Need to keep track of the airport, driver, shuttle, and the hotel the shuttle is expected to travel to.
   3. They will just be one-way trips to make things more straightforward
9. Passenger
   1. They will be stored (1,1)
   2. Get all required info for the passenger just like the guestID so that they can be easily compared using the distributed queries
   3. Must check that the name of the passenger has a reservation in the next few days.
   4. To make sure that the guest/hotel know that they used the shuttle service they will be charged zero dollars on their portfolio if they use it.

[ERD\_Diagram](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/Project_Phase_2_ERD.jpeg)

Part B (Triggers)

* [tr\_PassMustHaveAReservation](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/tr_PassMustBeAGuest.txt)
  + On Insert
  + Raises an error if the passengers name is not in the FARM databases guest with a check-in date within 1 day of the pickup or 1 day after pickup
  + Accomplishes Business Rule 6b, 8b, 9c
* [tr\_ValidLicense](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/tr_ValidLicense.txt)
  + On Insert/Update
  + Raises error if the drivers license country is not the US or if the license has expired
  + Accomplishes Business Rule 7b
* [tr\_AddShuttleCharge](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/tr_AddShuttleCharge.txt)
  + After update of the ShuttleReservationStatus Column to ‘C’ for complete or no ‘N’. It uses sp\_GetFolioID using the passenger’s name which has already been checked and the date that reservation it should be during.
    - If it is a no show, it charges the passengers folio $10
    - If it was complete it adds a charge to the passenger’s folio of $0 showing that they used the shuttle as intended
  + Accomplishes Business Rule 9d
* tr\_HotelExists
  + After INSERT, UPDATE
  + If the adjusted number of seats is more than the capacity, then the number is kept the same. It will also send a message that nothing was changed.
  + Accomplishes Business Rule 6b, 8b, 9c

Part C (Sprocs)

* [Sp\_CreateShuttleTrip](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/sp_CreateShuttleTrip.txt)
  + Uses sp\_CreateShuttleReservation, dbo.CheckRemainingSeats and tr\_PassMustBeAGuest for error handling. If checkRemainingSeats < NumRequested then it will check for the next active shuttle and see if it has any remaining seats for the day and use that value instead.
  + Input Parameters:
    - @NumSeats tinyint, @PickUpTime smalldatetime, @ShuttleReservationStatus char(1), @PassID smallint, @AirportID smallint, @DriverID smallint, @ShuttleID smallint, @HotelID smallint, @ArrivalTime smalldatetime
  + No outputs
* [Sp\_CreateShuttleReservation](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/sp_CreateShuttleReservation.txt)
  + Creates a shuttle reservation for the passenger
  + Input Parameters:
    - NumSeatsRequested, PickUpTime, ShuttleReservationStatus (make default ‘A’), and PassID
  + Output Parameters:
    - Return the ShuttleReservationID using @@Identity and use this as a nested procedure within sp\_CreateShuttleTrip
* [Sp\_UpdateShuttleReservation](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/sp_UpdateShuttleReservation.txt)
  + Updates atleast one value including NumSeatsRequested, PickUpTime, or ShuttleReservationStatus. It only requires one of these values to and can receive null values for the others.
  + Input Parameters:
    - @ShuttleReservationID smallint, @NumSeats smallint, @PickUpTime smalldatetime, @ShuttleReservationStatus char(1))
      * Atleast one value is required to be altered along with the required ShuttleReservationID
  + No outputs
* Sp\_GetGuestID
  + Gets the GuestID from the FARMS database using the passenger name that has already been checked and the pickup date to look for a reservation that is a day between a day before or day after. This will be used by the trigger that adds bills to the passengers folio on the FARMS database
  + Input Parameters:
    - @PassFirst varchar(20), @PassLast varchar(20), @PickUpTime smalldatetime
  + Output Parameters:
    - @FolioID smallint

Part D (UDFs)

* [Dbo.TodaysPassengerList](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/dbo.TodaysPassengerList.txt)
  + This will pass in a date and shuttleID , and it will return a varchar showing the Names and contact info for the passengers that date. It will also have a cursor that goes through and totals the number of passengers for each shuttle. It will check to make sure that a valid date is passed in and if there are no trips for that day then a message will be sent back instead. Will use error correcting to make sure that the date passed in is in the proper format and it will check if the ShuttleID is also a valid shuttle (Not null)
  + Input Parameter:
    - @TodaysDate varchar, @ShuttleID
  + Returns:
    - A table with one row with a formatted varchar with the shuttleID and TodaysDate with the PassFirst, PassLast, PassPhone, NumSeatsRequested and AirportName.
      * Underneath it will have the sum of the passengers for each shuttle
  + Accomplishes Business Rule 5a
* [Dbo.CheckRemainingSeats](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/dbo.CheckRemainingSeats.txt)
  + Pass in a shuttle id and a date and it will return a varchar ‘Seats Remaining: “ + the number of seats remaining. It will return the number of passengers compared to the capacity of the shuttle.
  + Input Parameters:
    - ShuttleID smallint, TodaysDate smalldatetime
  + Output Parameters:
    - Varchar message formatted with the number of passengers included
* [Dbo.NumShuttleTrips](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/dbo.NumShuttleTrips.txt)
  + COUNT the shuttleID passed in and checks the overall number of trips that it has gone on. It returns a table with all the shuttle info and the number of trips it has gone on.
  + Input Parameters:
    - ShuttleID smallint
  + Output Parameters:
    - Table with (ShuttleID smallint, ShuttleVin varchar(17), ShuttleLicensePlateNum varchar(7), CountTrips smallint)
* [Dbo.AvailableShuttles](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/dbo.AvailableShuttles.txt)
  + Returns a table of shuttles that are available for shuttle trips
  + Input Parameters:
    - ShuttleID
  + Output Parameters:
    - Table of (ShuttleID smallint, ShuttleComment varchar(200))

# 3. Other Scripts­­­­­

[Creation Script](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/CreationScript.txt)

[Bulk Insert](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/Bulk%20Insert.txt)

[Demo Script](https://d.docs.live.net/46e6eb70844b142e/Documents/Comp_Stats/Database_programming/GB_AirportShuttle/Demo%20Script.txt)

PROGRESS as of 3/31/2022

Things done today

Finished

dbo.TodaysPassengerList

Sp\_GetGuestID

dbo.CheckRemainingSeats

dbo.AvailableShuttles

tr\_PassMustHaveAReservation

tr\_validLicense

sp\_CreateShuttleReservation

sp\_CreateShuttleTrip

tr\_HotelExists

tr\_addShuttleCharge

sp\_UpdateShuttleReservation

demo script

1. Check Todays PassengerList
   1. Hello Dr. Fry this is Graeme beatie and I chose to do an airport shuttle as the expansion for the farms db. I did go in and change a few of the folio entries so that the dates worked better for what I was trying to show. So I will just get started
   2. Shows date time and where they should be picked up. Along with the passenger, their contact info, and how many additional guests they should have and then have a total for how many expected passengers they will have that day
   3. If there are no passengers for the date it just shows a zero
   4. Passenger list has error handling with conditional statements for invalid dates and shuttle ids
2. Check Remaining Seats for the list
   1. Comparing the seats used versus the seats remaining. Showing the passenger list and the total expected guests at the bottom compared to checkremainingseats
   2. So the list contained 12 passengers and it says there are 8 remaining so the shuttle capacity must be 20
   3. Go and show that the shuttle capacity is indeed 20
3. Show Available shuttles
   1. Show availableShuttles and Numshuttle trips were helpful with little checks. But if I were to continue on with the project and expand the maintenance tracking capabilities of the shuttles I would use these more.
   2. This was useful when trying to check if the shuttles were available
4. Show ShuttleTrips
   1. For example in the business rules I would check the trips for any given shuttle reaches a certain number it will change status automatically to needing maintenance or being out for repairs
      1. Haven’t done this but could add this
      2. Because for this I mostly focused on the passengers being able to make shuttle reservations and the trips and billing associated with it
5. Create ShuttleReservation/Trip
   1. Look at the passengers and choose one to try and make a reservation for. (I chose greg)
   2. To make a reservation for the shuttle you must have an active hotel reservation. It must be one day before checkin or one day after checkout
   3. Check when they have the reservation in the farms db to check if the reservation is possible ( so I check the folio and see when there checkindates are)
   4. I chose mar 25th because that is the day before gregs checkin for his folio
   5. The create shuttle reservation sproc is nested within the create shuttle trip sproc so I just pass in all the variables for both of them.
   6. This is the shuttle trip and reservation tables before adding greg
   7. Show error handling
      1. Showing invalid hotelid
         1. Caught by the HotelExists trigger
      2. Try an invalid guest/passID
         1. Show the must have a reservation trigger
      3. Show reminder of when gregs times are that he can make a reservation for
         1. Choose the 10th because he has no nearby checkin
      4. Wrong date
         1. This will trigger the tr\_PassMustHaveAReservation trigger which will check if the passenger is within the guest table and check if the times put in are at least a day before checkin or a day after checkout
      5. No reservation at this time
   8. Lets actually make one for the 15th and to check on the new passengerlist
6. Show new passengerList
7. Update shuttle reservation
   1. Show all shuttle reservations
      1. Lets update some. There is nullability for NumSeats, PickUpTime, and SRStatus But the ShuttleReservationID is always required
   2. Show the all values can be null
   3. Show all values being changed
   4. Show a combo
   5. Show that it can check it there are enough seats
   6. Show if they do not have a reservation at that time
8. Show when Status is changed to C or N the folio is updated
   1. Show the billing table before anything has been added
      1. So none of the previous updates have added anything to the billing table because I have only cancelled reservations so far
      2. But what it they no show or if they do complete the reservation
   2. Show when it is updated to N
      1. The billing table gets 15 added to it using the folio id for that reservation time
   3. Show when it is updated to C
      1. The billing table has 0 added to it to show that they successfully completed there reservation
   4. This would be helpful for keeping track of the amount of people who used the shuttle service without having to have direct access to the airport shuttle database
9. That is all. Please let me know if you have any other questions about my project. Thank you for your time.