

System Unified Parking Retrieval Accounting System (SUPRAS)

Nathan Brooks

Danyell Reno

CS 3550 Online

Business Rules

Cost Association

All costs associated with SUPRAS will be associated with a NEW Trans Description called “Valet Plus Charge”.

Valet Plus is a company that not only valets guests’ cars, but also offers CarCare packages and several different Lots for customers to choose from.

Checking In

When a customer comes in to valet their car, a ValetID corresponding to the Valet itself is automatically generated. This ValetID is unique and identifies the person and the corresponding valet session. One ValetID corresponds to one and only one car. If a customer valets more than one vehicle, then a new ValetID is generated for each car checked in. Each ValetID corresponds to one and only one LotID and one and only one CarCareID. This means that a customer can have their car in only one lot and they can only pick one CarCare package. Management keeps track of the SpotNo in each of the lots to help easily and efficiently find cars. When INSERTING a row of data into ValetDetail, the SpotNo filled in must not be already occupied; this is enforced by a trigger. When a customer checks in their car, their time is recorded as ValetTimeIn, and they give information about how many days they are planning to have their car stay in ValetPlus’ valet system. When they check out their car, ValetTimeOut, the time is also recorded. If either of these times are during convenience time hours, a convenience fee will be added to the guest’s folio in the TRAMS database. The fees are as follows:

- Between 7 and 10 - \$3 convenience fee
- Between 10 and 2 - \$5 convenience fee
- Between 2 and 6 - \$2 convenience fee

Lot Options

When the car is checked in, the customer has several “Plus” options to choose from. Valet Plus offers different LotIDs which range from LotID 1 to LotID 4. Lots are given LotNames like “Oceanfront Parking”, as well as a LotID, like 4. The LotID is a unique identifier, that is Valet Plus has only 4 lots.

Each lot has a LotType. The LotType corresponds to what types of vehicles are appropriate to put in those lots. LotType M corresponds to a lot that is exclusively for motorcycles, and a LotType A corresponds to a lot that any vehicle can be parked in. Cars must not be put into motorcycle lots. Each lot has associated amenities. These amenities describe the benefits of the lots. An example of one of the four lot types is listed below along with its amenities:

LotID = 1, Name = Oceanfront Parking

Low cost

No covered parking

Oceanfront view

Exposure to sea salt

Different lots may have the same amenities, that is LotID 3 and LotID 2 may both offer covered parking.

If a customer chooses to have their vehicle placed in the highest level lot, LotID 4, and stays for more than 3 days, then the customer gets an automatic upgrade to a higher CarCare package.

Car Care Options

When a customer checks in their car, they have several options for CarCare. Each CarCare package comes with several amenities, similar to the way amenities are offered in the lots. In this case, the amenities offered include but are not limited to: "Machine Car Wash", "Hand Washed", "Tire Shine", and "Windshield Chip Repair". Each package is uniquely identified by a system generated CarCareID. Each package also has a CarCarePackageName such as "Platinum Care". An example of a CarCare package would be:

CarCareID = 1

Tire Shine

Hand Washed

Whenever a set of data is INSERTED into the valet detail table, if the CarCareID is not entered, a trigger forces that CarCareID to be 0, corresponding to "No Services".

Reviews

Customers of Valet Plus have the option to rate their experience. They may write several reviews or none. Any time a customer review is written, the customer has the option to insert some ReviewText to describe their experience, as well as a ReviewRating, which is a number 1 to 5. Since ReviewRating must

be a value 1 through 5, this is enforced by a trigger. The ReviewRating is allowed to be NULL, so if an invalid value is given when INSERTING into the ReviewDetail table, a NULL value will take its place.

Special Rules

Management wants to know how to improve service, so any time a customer rates a 1 star, a flag is set to L for management to look into. When the review is looked over and handled, the flag changes to V and the default is X, for not applicable. Biweekly, management is required to go through all of the reviews that are flagged as L, and when this is done, the flag must be changed to V

Management also has a weakness for specific cars, specifically, the “JDM Legends” so any time a car is INSERTED into the CarDetail and its make and model match a JDM Legend, the customer will get an automatic upgrade in their CarCare package, but no money is returned whatsoever.

Management needs to be able to keep track of how many people are using each of their services and lots, so they can improve advertising and adjust prices accordingly, so a stored procedure must be created in order to calculate the statistic on each of these items. Tax is calculated similarly to the way it is calculated in TRAMS, and there will be a procedure that accesses the tax rates in trams to find the tax.

Management also wants to be able to show a customer a breakdown of everything that they have paid for and everything that they have been charged, so a procedure called Generate Total Bill will list these for customers. Management also wants to keep track of average reviews, so a stored procedure will also take care of calculating this as well as displaying, in a similar fashion to the bill, an itemized list that shows each customer and their text reviews.

Gratuities are based on total cost of service and are progressive. Listed below are some of the gratuities.

- Total Bill is \$0 – 15, gratuity is 10%
- Total Bill is \$16 – 50, gratuity is 15%
- Total Bill is > \$50, gratuity is 20%

There are several discounts in place for customers to take advantage of. Exactly one discount code may be used. The discounts are as follows:

- Military – 20%
- JDM – 10%
- Family/Friends – 5%

Discounts are not stackable and customers are given the highest discount that is applicable.

Summary

The lot levels and car care packages are as listed below and are subject to change:

LOT LEVELS

A guest may have their car valeted. There are several different lot levels:

- Lot Level 1: Car is parked in an economy lot, uncovered.
 - Charge = \$10/ day
 - 50 available spots
- Lot Level 2: Car is parked in a covered lot, will not get rained on or snow.
 - Charge = \$12/day
 - 20 available spots
- Lot Level 3: Car is parked in an uncovered lot, but the lot is locked
 - Charge = \$14/day
 - 10 available spots
- Lot Level 4: Car is parked in a locked garage.
 - Charge = \$20/day
 - 5 available spots

CAR CARE PACKAGES

A guest may pick a package for extra care:

- Car Care 1: Wash
 - Charge = \$4
- Car Care 2: Wash, vacuum, tire shine
 - Charge = \$6
- Car Care 3: Wash, vacuum, wax
 - Charge = \$7
- Car Care 4: Wash, vacuum, wax, tire shine, air filter change, windshield chip repair, interior detail, exterior detail
 - Charge = \$10
- Car Care 5: no additional services. This will be default if the column INSERTED is null.
 - Charge = \$0

The suggested triggers to be implemented have been listed on the ERD. A summary of the suggested triggers and the suggested stored procedures is as follows and is subject to change.

TRIGGERS

1. If ReviewRating =1, when INSERTING a new row in ReviewDetail, then Flag is set to L in the ReviewDetail table for management to look into.
2. ReviewRating can only be a number 1 through 5, if another number is INSERTED into this table, it will automatically be changed to NULL.
3. When INSERTING a person into the Valet table, the PersonID must be present in the TRAMS database and have a current reservation.
4. When INSERTING CarDetails, specific cars, JDM Legends, get an upgrade in their CarCare.
5. When INSERTING a vehicle into a lot, if the LotID is 4 and the ValetDays are greater than or equal to 3, there is an automatic upgrade in the CarCare package.
6. When INSERTING into the ValetDetail table, a car cannot be put in a motorcycle lot.
7. When INSERTING or UPDATING ValetDetail, if the ValetTimeIn or ValetDetailTimeOut is during convenience hours, a convenience fee is applied. The convenience fees are:
 - a. Between 7 and 10 - \$3 convenience fee
 - b. Between 10 and 2 - \$5 convenience fee
 - c. Between 2 and 6 - \$2 convenience fee
8. When INSERTING into ValetDetail, if CarCareID is NULL, change it to 5, which corresponds to no additional services.
9. When INSERTING into ValetDetail, you must INSERT into CarDetail and Lot as well since every ValetID is associated with one and only one car as well as with one and only one Lot.

STORED PROCEDURES

1. Calculate Tax
 - a. Finds the tax for an inputted item: tax = Calculate Tax(price)
 - b. Similar to Calculate Tax in TRAMS.
2. Generate Total Bill
 - a. Finds all of the different costs for a specific customer when they go to check out.
 - b. Similar to Generate Bill in TRAMS.
3. Generate Lot Level Stats

- a. Finds percentages, based on the cars currently in the system, which lot is the most to the least popular.
 - b. This helps management change prices if they are too high or too low according to demand.
4. Generate Car Care Stats
 - a. Finds percentages, based on the cars currently in the system, which car care packages is the most to the least popular.
 - b. This helps management change prices and increase advertising if necessary.
5. Generate Average Reviews
 - a. Each customer will rate the service from 1 for horrible to 5 for great service.
 - b. This will help management train employees better.
6. Generate Customer Reviews
 - a. Each customer reviews (up to 1000 characters), their experience.
 - b. This stored procedure takes all the reviews for a specific Car Care Package and displays them. This is similar to Generate Bill in TRAMS.
7. Generate Gratuity
 - a. Each car lot level and car care package has a gratuity associated with it.
 - b. The gratuity is 10 percent of the total charge of the lot level plus the care package (NOT DAYS)
8. Generate Discount
 - a. 20% Military Discount
 - b. 10% JDM Discount
 - c. 5% Family/Friends Discount
9. Generate Reviews for Management
 - a. Any time a customer has a review that was flagged L for look into, management will be able to generate all of the reviews and be able to go through them to find areas for improvement and decide whether compensation to the customer is necessary