Car Rental System

Table of Contents

Project Description

The Car Rental System is designed to revolutionize and improve traditional car rental operations, improving efficiency and functionality. We utilize database systems to promise to improve a number of aspects such as optimizing resource allocations and improving user experience. The main functions are the efficient handling of vehicle inventory, customer reservations and essential administrative tasks. The key to improve the customer experience is the integration of database methods. The introduction of on-demand pricing, which is impacted by the popularity and demand for vehicles, provides dynamism to the pricing strategy through offering flexibility as well as maximizing the revenue, especially during peak periods. The system offers a more user friendly interface, quicker reaction times, and efficient handling of several concurrent operations. Users may expect a smooth and customized rental experience from the moment of booking until the car is returned utilizing this system.

Total maintenance and downtime of the vehicles can be decreased using the data analytics which supplements a forward thinking approach of planning and optimizing the systems that keep the vehicles stable and running.This approach improves customer satisfaction while also extending the fleet's lifespan. Customized client suggestions further improve efficiency by tailoring the rental experience to particular preferences. This function increases the likelihood of upsells and generally enhances customer satisfaction by utilizing client data to offer suggestions for vehicles, accessories, or services based on prior interactions. With an emphasis on the customer, the system is designed with fleet managers' and administrators' needs in mind.

We can optimize and improve vehicle maintenance time by utilizing real time data such as customer support and vehicle management. By keeping the vehicle up to date with market trends and requests, we can boost the orders from the customers. The softwares used by companies like Enterprise Rent-A-Car and Hertz stands to gain a great deal from this

arrangement. This system promises to improve operational efficiency and customer satisfaction to car rental businesses thanks to the advantage of real-time data analysis.

Functional Database Requirements

1. Account

a. An account shall have only one user.
b. An account shall be a Customer or Employee.
c. An account shall have a unique email and password for authentication.

2. User

a. A user shall create one account.
b. A user shall be able to securely log in to their account via their email and password.
c. A user shall be able to logout their account.
d. A user shall be able to update their account information

3. Customer

a. A customer is an account.
b. A customer shall have at least one payment method.
c. A customer shall be able to view many transactions.
d. A customer shall be able to view many booking information.
e. A customer shall be able to send rental requests to many Rental Offices.
f. A customer shall be able to contact many Rental Offices for vehicle pickup.
g. A customer shall be able to contact many Rental Offices for vehicle return.
h. A customer shall be able to contact many Rental Offices for suggestions.
i. A customer shall be able to contact many Rental Offices for new vehicle requests.

4. Vehicle

a. A vehicle shall be associated with many maintenance schedules.
b. A vehicle shall be associated with only one vehicle information.
c. A vehicle shall be associated with at least one condition.
d. A vehicle shall be associated with many booking information.
e. A vehicle shall be categorized in one tier among tier 1, tier 2, tier 3, tier 4, tier 5.
f. A vehicle shall be rented by many customers.
g. A vehicle shall be classified with only one status indicating availability.
h. A vehicle shall be assigned to many Rental Offices for pickup and return.
i. A vehicle shall be assigned to many service centers for maintenance.

5. Transaction

a. A transaction shall have many transaction IDs.
b. A transaction shall include details such as amount, date, payment method, and billing address.
c. A transaction shall be processed by many back desk employees.

6. Payment Method
    a. A payment Method shall belong to one customer.
    b. A payment Method shall be a direct deposit.
    c. A payment Method shall be a card.
7. Rental Office
    a. A Rental Office shall have many vehicles available for rent.
    b. A Rental Office shall have at least one employee.
    c. A Rental Office shall have at least one front desk employee.
    d. A Rental Office shall have at least one back desk employee.
    e. A Rental Office shall process vehicle return and pick up by customer.
8. Service Center
    a. A Service Center shall have one to many technicians.
    b. A Service Center shall be associated with one to many maintenance schedules.
    c. A Service Center shall process many service requests.
9. Vehicle Conditions
    a. A vehicle condition shall have at least one condition.
    b. A vehicle condition shall be associated with many customers.
    c. A vehicle condition shall be viewed by many technicians.
    d. A vehicle condition shall be viewed by many Front desk employees.
    e. A vehicle condition shall be viewed by many back desk employees.
10. Vehicle Information
    a. A Vehicle Information shall be associated with one vehicle.
    b. A Vehicle Information shall contain one basic information of the car such as name of the manufacturer, model and its year.
    c. A Vehicle Information shall be viewed by many customers.
    d. A Vehicle Information shall be viewed by many technician.
    e. A Vehicle Information shall be viewed by many front desk employee.
    f. A Vehicle Information shall be viewed by many back desk employee.
11. Employee
    a. An Employee is an account.
    b. An employee shall be assigned many tasks.
    c. An employee shall work at one rental office or service center.
    d. An employee shall have one payroll.
12. Task
    a. A task shall be assigned by a manager
    b. A task shall be processed by one back desk employee.
    c. A task shall be processed by one front desk employee.
    d. A task shall contain many instructions of a job.

13. Technician
    a. A technician is an employee.
    b. A technician works at only one service center.
    c. A technician shall have one to many specialized vehicle types to fix.
14. Front Desk Employee
    a. A front desk employee works for one Rental Offices.
    b. A back desk employee shall process many rental requests.
15. Back Desk Employee
    a. A back desk employee associated with many booking information.
    b. A back desk employee shall send a vehicle maintenance request to the service center.
    c. A back desk employee shall process many feedbacks.
16. Office Manager
    a. A Office Manager is an employee.
    b. A Office Manager shall manage tasks for one to many employees.
17. Booking Information
    a. A Booking Information shall be viewed by many customers.
    b. A Booking Information shall be associated with many vehicles.
    c. A Booking Information shall be viewed by many Rental Offices.
    d. A Booking Information shall have the location of the vehicle.
    e. A Booking Information shall have vehicle information.
    f. A Booking Information shall have vehicle conditions.
    g. A booking information shall have time of the rental session.
18. Maintenance Request
    a. A Maintenance Request shall be viewed by one technician.
    b. A Maintenance Request shall be associated with one Vehicle.
    c. A Maintenance Request shall be processed by one desk employee.
    d. A Maintenance Request shall be associated with one Service center.
19. Rental Car Request
    a. A Rental Car Request shall be processed by a front desk employee.
    b. A Rental Car Request shall be sent by one customer.
    c. A Rental Car Request shall contain only one pickup time.
    d. A Rental Car Request shall contain only one return time.
    e. A Rental Car Request shall be associated with only one pick up rental office.
    f. A Rental Car Request shall be associated with only one return rental office.
    g. A Rental Car Request shall contain at least one preferred tier.

20. New Vehicle Request

a. A New Vehicle request shall be sent by a customer.
b. A New Vehicle request shall be processed by a back desk employee.
c. A New Vehicle request shall contain at least one tier.
d. A New Vehicle request shall have at least one vehicle information.

21. Auto Part

a. An Auto Part shall be processed by many technicians.
b. An Auto Part shall be viewed by many technicians.
c. An Auto Part shall contain information such as Part Name, Manufacturer, Model, Vehicle Compatibility, Quantity in Stock,Price,Supplier.

22. Feedback

a. A feedback shall be sent by one user
b. A feedback shall be processed by one back desk employee.
c. A feedback shall contain only one level of customer satisfaction and comments.

23. PayRoll

a. A payroll shall be associated with many employees.
b. A payroll shall be processed every month.
c. A payroll shall contain the date of processing.
d. A payroll shall contain amount of monthly salary.

24. Type of vehicle

a. A type of vehicle shall contains a bike
b. A type of vehicle shall contains a car
c. A type of vehicle shall be associated with one vehicle information.

3.Non-functional Database Requirements

3.1. Performance

3.1.1. The database system shall support concurrent transactions.

3.1.2. The queries shall be optimized for quick response times.

3.1.3. The system shall process peak loads during holiday seasons.

3.1.4. The database shall be optimized for efficient storage utilization.

3.1.5. Database indexing shall be optimized to ensure efficient query performance.

3.2. Security

3.2.1. Passwords for users shall be stored securely using encryption.

3.2.2. User passwords shall have a minimum complexity requirement, including a combination of uppercase and lowercase letters, numbers, and special characters.

3.2.3. The system shall be back-up every day.

3.2.4. All sensitive Data such as payment information shall be encrypted using industry-standard protocols.

3.2.5. The application shall enforce session timeout after 15 minutes of inactivity, requiring users to re-authenticate to access sensitive functionalities.

3.3. Capability

3.3.1. The system shall allow users to check vehicle availability, make reservations, and view rental details, including pickup/drop-off locations and rental duration.

3.3.2. The system shall include a digital vehicle inspection checklist, ensuring that staff can document and track the condition of vehicles during pickup and return.

3.3.3. Maintenance alerts shall be generated based on mileage or predefined schedules, prompting staff to schedule routine maintenance and inspections for each vehicle.

3.3.4. The system shall provide a helpline with trained staff to handle urgent matters and emergencies, ensuring customer support is available 24/7.

3.3.5. A payment history log shall be maintained for users, allowing them to review past transactions and download receipts for accounting purposes.

3.4. Environmental

3.4.1. The database system shall be compatible with MySQL.

3.4.2. The system shall be designed to operate in AWS.

3.4.3. The system shall be designed to remain compatible with a range of database versions.

3.4.4. The system shall include procedures for routine database maintenance.

3.4.5. The system shall support configurations with varying hardware specifications and network setups, ensuring flexibility in deployment environments.

3.5. Scalability

3.5.1. The system architecture shall support horizontal scalability, allowing for the addition of new servers or resources to distribute the load and accommodate increased user traffic.

3.5.2. The system shall implement monitoring tools to track resource utilization.

3.5.3. The system shall implement automated scaling mechanisms.

3.5.4. The system shall implement automated scaling mechanisms to dynamically adjust resources based on real-time demand patterns, ensuring optimal performance.

3.5.5. The system shall support distributed data storage strategies to accommodate large datasets, providing scalability for storage requirements and minimizing data retrieval latency.

3.6. Coding Standards

3.6.1. All codes shall follow industry-standard and well-documented.

3.6.2. Code reviews shall be conducted regularly to ensure to meet the coding standards.

3.6.3. The coding standards shall include guidelines for error handling, ensuring that all potential exceptions are appropriately caught, logged, and handled to prevent system failures.

3.6.4. Code documentation shall include information about the purpose of modules, functions, and important variables.

3.6.5. The development shall use a version control system.

3.7. Media Storage

3.7.1. Images of vehicles shall be stored efficiently to minimize storage space.

3.7.2. The system shall support various file formats for media uploads.

3.7.3. The database system shall assign 100 MB of memory per table.

3.7.4. The database shall utilize partitioning techniques to efficiently manage and store media data, ensuring optimal performance and reducing the impact on overall database operations.

3.7.5. Regular database maintenance tasks, such as index rebuilding and database vacuuming, shall be scheduled during off-peak hours to minimize disruption to system operations.

3.8. Privacy

3.8.1. Personal information of users shall be encrypted and only accessed by a certain level of employee.

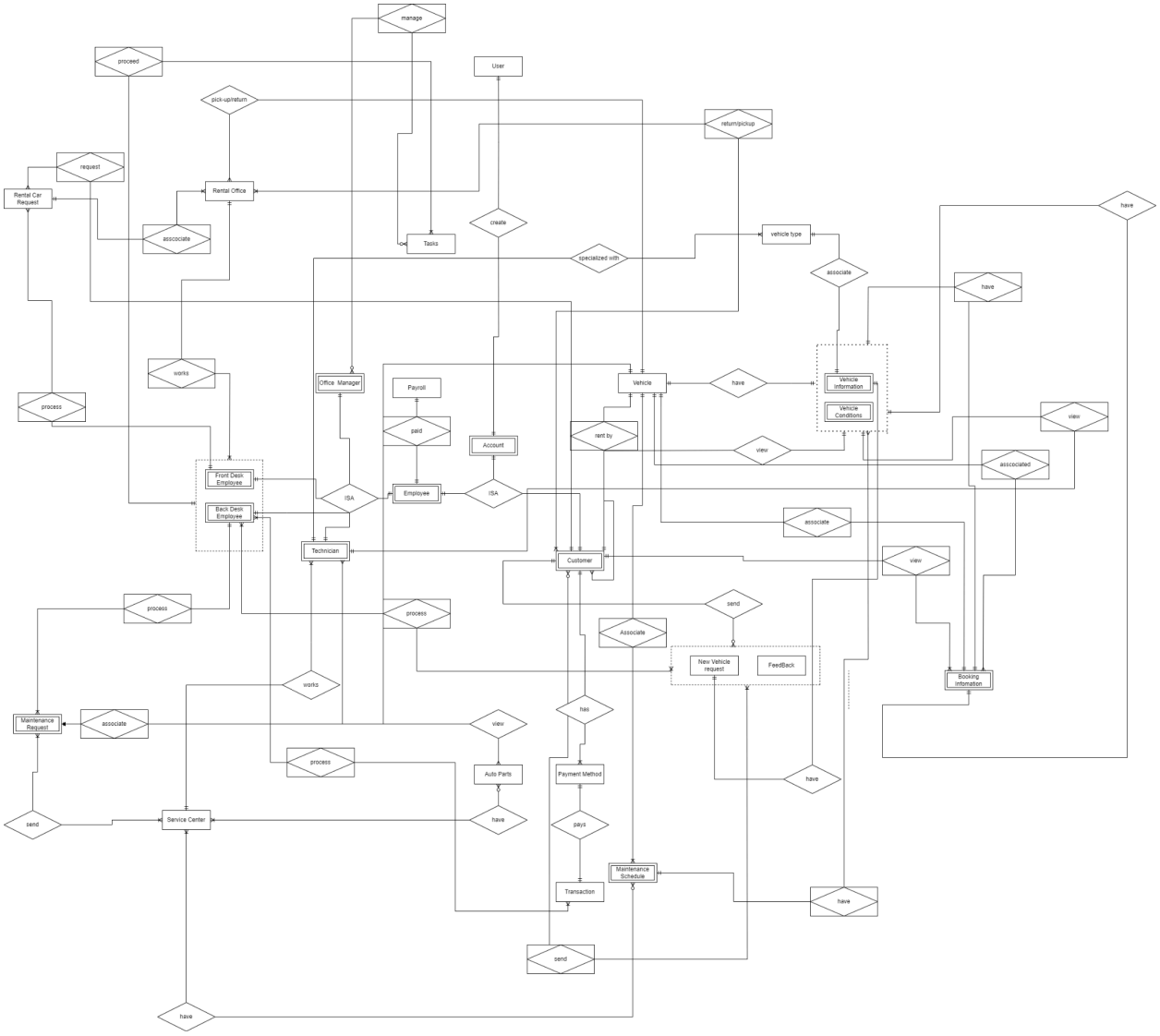
3.8.2. Customer data shall not be shared with third parties without explicit consent.

3.8.3. The system shall provide users with the option to delete their accounts and associated personal data, ensuring compliance with data protection regulations.

3.8.4 The system shall obtain explicit consent from users before collecting, processing, or storing personal information, clearly explaining the purpose of data collection.

3.8.5. Data encryption shall be applied to sensitive information at rest and in transit to enhance overall data security.

Entity Relationship Diagram



Entity Description

1. Account (Weak)
    a. user_id: key, alphanumeric
    b. email: key, alphanumeric
    c. Password, key, alphanumeric
    d. name: composite, alphanumeric
2. User (Strong)
    a. account_id: key, alphanumeric
    b. account_type: numeric
    c. account _status: boolean
3. Customer (Weak)
    a. User ID: Key, Numeric (Foreign Key referencing Account entity)
    b. Payment Method ID: Key, Numeric (Foreign Key referencing Payment Method entity)
    c. address: alphanumeric
4. Vehicle (Strong)
    a. Unique Identifier: Alphanumeric
    b. Vehicle Information ID: Key, Numeric (Foreign Key referencing Vehicle Information entity)
    c. Condition ID: Key, Numeric (Foreign Key referencing Vehicle Condition entity)
    d. Booking Information ID: Key, Numeric (Foreign Key referencingInformation entity)
    e. Availability Status: boolean
    f. Pickup and Return Rental Office ID: Key, Numeric (Foreign Key referencing Rental Office entity)
    g. Assigned_Service Center ID: Key, Numeric (Foreign Key referencing Service Center entity)
    h. Assigned_customer ID: Key, Numeric (Foreign Key referencing User entity for current rental assignment)
    i. Assigned_front_desk_employee_ID: Key, Numeric (Foreign Key referencing User entity for current rental assignment)
    j. Assigned_technician_ID: Key, Numeric (Foreign Key referencing User entity for current rental assignment)

5. Transaction (strong)
    a. Rental Identifier: Key, Alphanumeric (Foreign Key referencing Rental Session entity)
    b. Transaction ID: Unique, Alphanumeric
    c. Amount: Numeric
    d. Date: Timestamp
    e. Payment Method ID (Foreign key from payment method)
    f. Back desk employee id (foreign key from back desk employee)
6. Payment Method(Weak)
    a. Method ID: Unique,Key, Alphanumeric.
    b. Method Type: Alphanumeric.
    c. Account Holder: Alphanumeric.
    d. Account Number: Alphanumeric
    e. Expiration Date: Date
    f. Security Code: integer
    g. Bank Name: Alphanumeric
    h. Billing Address: Alphanumeric
7. Rental Office (Strong)
    a. Rental Office ID: Key, Alphanumeric
    b. address:Alphanumeric
    c. Booking ID: Key, Alphanumeric (Foreign Key referencing Booking Information entity)
8. Service Center (Strong)
    a. Service Center ID: Key, Numeric
    b. Specialized vehicle: Alphanumeric
    c. address:Alphanumeric
9. Vehicle Conditions (Weak)
    a. Vehicle Condition ID: Key, Alphanumeric
    b. Last customer ID: Key, Numeric (Foreign Key referencing User entity)
    c. Last Service Center ID: Key, Numeric (Foreign Key referencing Service Center entity)
    d. Dropped off Rental Office ID: Key, Numeric (Foreign Key referencing Rental Office entity)
    e. Miles: numeric
    f. Vehicle wear: Alphanumeric
10. Vehicle Information (Strong)
    a. Vehicle Information ID: Key, Numeric
    b. Manufacturer: Alphanumeric

c. Model: Alphanumeric
d. Year: Numeric
e. Tier: Numeric
f. Vehicle type ID Key, Alphanumeric (Foreign Key referencing vehicle type entity)

11. Employee (Weak)
    a. Employee ID: Key, Numeric
    b. Tasks ID: Key, Alphanumeric
    c. Workplace, Forginjey from service center or rental office
12. Task(Strong)
    a. TaskID: Key, Numeric
    b. Manager ID Key, Alphanumeric (Foreign Key referencing Office Manager entity)
    c. Employee ID Key, Alphanumeric (Foreign Key referencing employee entity)
    d. Tasks: Alphanumeric
13. Technician (Weak)
    a. Technician ID: Key, Numeric
    b. Specialized vehicle type: key, Alphanumeric (Foreign Key referencing Booking Information entity)
    c. Availability: boolean
14. Front Desk Employee (Weak)
    a. Employee ID: Key, Numeric (foreign key)
    b. Availability: boolean
    c. Processed rental requests: numeric
15. Back Desk Employee (Weak)
    a. Employee ID: Key, Alphanumeric (foreign key)
    b. Processed feedbacks:numeric
    c. Processed new vehicle request:numeric
    d. Processed Maintenance Request:numeric
    e. Availability: boolean
16. Office Manager (Weak)
    a. Manager ID: Key, Numeric
    b. Tasks Managed: Alphanumeric
    c. Availability: boolean
17. Booking Information (Weak)
    a. Booking ID: Key, Alphanumeric
    b. Customer ID: Key, Numeric (Foreign Key referencing User entity)
    c. Vehicle ID: Key, Numeric (Foreign Key referencing Vehicle entity)
    d. Pick up Rental Office ID: Key, Numeric (Foreign Key referencing Rental Office entity)

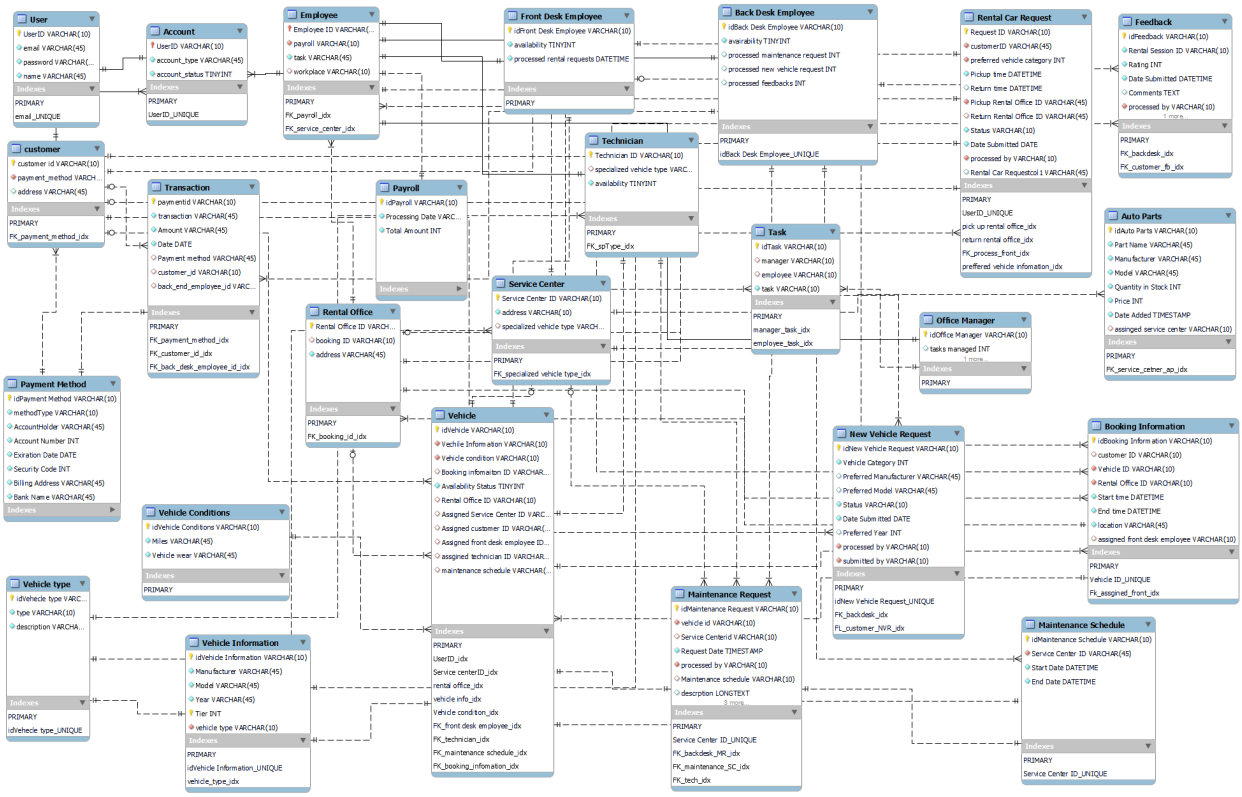
e. Drop off Rental Office ID: Key, Numeric (Foreign Key referencing Rental Office entity)
f. Start time: DateTime
g. End time: DateTime
h. Location of the Vehicle: Alphanumeric

18. Maintenance Schedule (Weak)
    a. Maintenance Schedule ID: Key, Alphanumeric
    b. Service Center ID: Key, Numeric (Foreign Key referencing Service Center entity)
    c. Vehicle ID: Key, Numeric (Foreign Key referencing Vehicle entity)
    d. Start Date: Datetime
    e. End Date: Datetime
    f. Vehicle Information: Alphanumeric
    g. Vehicle Conditions: Alphanumeric
19. Maintenance Request(strong)
    a. Maintenance Request ID: Key, Numeric
    b. Vehicle ID: Key, Alphanumeric (Foreign Key referencing Vehicle entity)
    c. Service Center ID: Key, Alphanumeric (Foreign Key referencing Service Center entity)
    d. Back desk employee ID:Key, Alphanumeric (Foreign Key referencing Service Center entity)
    e. Technician ID:Key, Alphanumeric (Foreign Key referencing Service Center entity)
    f. Request Date: Timestamp
    g. Description: Alphanumeric
    h. Status: Alphanumeric (Pending, In Progress, Completed)
20. Rental Car Request(strong)
    a. Request ID: Key, Alphanumeric
    b. customer ID: Key, Numeric (Foreign Key referencing customer entity)
    c. Vehicle Category: Alphanumeric (Tier 1, Tier 2, Tier 3, Tier 4, Tier 5)
    d. Pickup time: DateTime
    e. Return time: DateTime
    f. Pickup Rental Office ID: Key, Numeric (Foreign Key referencing Rental Office entity)
    g. Return Rental Office ID: Key, Numeric (Foreign Key referencing Rental Office entity)
    h. Status: Alphanumeric (Pending, Approved, Rejected)
    i. Date Submitted: Timestamp
21. New Vehicle Request(strong)
    a. Request ID: Key, Alphanumeric

b. Submitted by :Key, Numeric (Foreign Key referencing customer entity)
c. Processed by: Key, Numeric (Foreign Key referencing Back desk employeeentity)
d. Vehicle Category: Alphanumeric (Tier 1, Tier 2, Tier 3, Tier 4, Tier 5)
e. Preferred Manufacturer: Alphanumeric
f. Preferred Model: Alphanumeric
g. Preferred Year: int
h. Status: Alphanumeric (Pending, Approved, Rejected)
i. Date Submitted: Timestamp

22. Auto Parts(strong)
    a. Part ID: Key, Alphanumeric
    b. Part Name: Alphanumeric
    c. Manufacturer: Alphanumeric
    d. Model: Alphanumeric
    e. Vehicle Compatibility: Alphanumeric
    f. Quantity in Stock: Numeric
    g. Price: Numeric
    h. Supplier: Alphanumeric (Supplier's name or ID)
    i. Date Added: Timestamp
23. Feedback (Strong)
    a. Feedback ID: Key, Alphanumeric
    b. User ID: Key, Numeric (Foreign Key referencing User entity)
    c. Rental Session ID: Key, Alphanumeric (Foreign Key referencing Rental Session entity)
    d. Rating: Numeric (Scale from 1 to 5, representing the user's satisfaction)
    e. Comments: Alphanumeric (User's comments or suggestions)
    f. Date Submitted: DATETIME
24. PayRoll(Stong)
    a. PayRoll ID: Key, Alphanumeric
    b. Processing Date: Date
    c. Total Amount: Numeric
25. Vehicle type(Stong)
    d. Vehicle Type ID: Unique identifier for each type of vehicle.
    e. type: Descriptive name of the vehicle type (e.g., bike, car).
    f. Description: Additional information describing the vehicle type.

Entity Establishment Relationship Diagram (EER)



Constraints Description

Table	FK	ON DELETE	ON UPDATE	Comments
Account	User id	cascade	cascade	If user delete/create account, user Id should be delete/account
Account	Employee ID	cascade	cascade	One to one relationship and existence of account should be synced.
Account	Customer ID	cascade	cascade	One to one relationship and existence of account should be synced.
Employee	payroll	restrict	cascade	One to one relationship and each employee must have a payroll.
Employee	Service_center	No action	cascade	If the assigned work place gets deleted, do nothing but wait for the new update.
Employee	Rental_Office	No action	cascade	If the assigned work place gets deleted, do nothing but wait for the new update.
Employee	Technician	cascade	cascade	If technician ID is removed that indicates this employee no longer exists in the system so delete and update, cascade.
Employee	Front end employee	cascade	cascade	If Front end employee ID is removed that indicates this employee no longer exists in the system so delete and update, cascade.
Employee	Back end employee	cascade	cascade	If Back end employee ID is removed that indicates this employee no longer exists in the system so delete and update, cascade.
Customer	User id	cascade	cascade	Customer is an account so same options on delete and update as well as Account
Customer	payment_method	cascade	cascade	Customers can delete and add new payment methods as long as one payment method is there.

Customer	Vehicle id	cascade	cascade	If the vehicle id gets deleted, customers should be assigned a new vehicle, and get updated.
Customer	transaction	cascade	cascade	Customers should not be able to see if the transaction gets deleted.
Transaction	customer_id	Set NULL	cascade	Set null when customer ID gets deleted, because transaction tables should show all the past transactions.
Transaction	payment_method	No Actions	cascade	Do nothing when payment gets deleted, because transaction tables should show all the past transactions.
Transaction	back_desk_employee_id	Set NULL	cascade	Set back_desk_employee_id null when the back desk employee id gets deleted, because transaction tables should show all the past transactions.
Rental Office	Booking information ID	Set null	cascade	Set booking information null when the booking information is deleted, but do not delete the table.
Service Center	Specialized vehicle type	restrict	cascade	Vehicle type should not be deleted when it is assigned to the service center.
task	Manager id	Set null	cascade	set null when it gets deleted because task table is a strong entity, and when the manager id updated, update on the table as well.
task	Employee id	Set null	cascade	set null when it gets deleted because task table is a strong entity, and when the employee id updated, update on the table as well.
Technician	Specialized vehicle type	Set null	cascade	set null when it gets deleted becauseSpecialized vehicle type is a strong entity, and when the Specialized vehicle type table updated, update on the table as well.
Booking Information	Customer id	Set null	cascade	Set null when customer id gets deleted but not booking information as itself so that we can use as log.
Booking Information	Front desk	restrict	cascade	restrict to Front desk employee id gets

	employee id			deleted until we can add new front desk employee
Booking Information	Vehicle id	restrict	cascade	restrict to Vehicle id employee id gets deleted until we can add new Vehicle id
Booking Information	Rental office id	restrict	cascade	restrict to Rental office id gets deleted until we can add new Rental office id
Rental Car Request	Vehicle id	restrict	cascade	Update when the vehicle table is updated, but restrict on delete, new vehicle needs to be signed before the current vehicle id gets deleted.
Rental Car Request	Rental office id for pick up	restrict	cascade	Update when the Rental office table is updated, but restrict on delete, new vehicle needs to be signed before the current Rental office gets deleted.
Rental Car Request	Rental office id for return	restrict	cascade	Update when the Rental office table is updated, but restrict on delete, new vehicle needs to be signed before the current Rental office gets deleted.
Rental Car Request	Front desk employee	restrict	cascade	Update when the Front desk employee table is updated, but restrict on delete, a new vehicle needs to be signed before the current Front desk employee gets deleted.
Maintenance schedule	Service center id	Set null	cascade	If the service center table gets deleted, set it as null, if the car still needs a serve ahead, the new service center should be updated.
Maintenance Request	Vehicle id	cascade	cascade	If the vehicle table gets deleted that means that vehicle no longer associates with this system so delete the maintenance schedule as well.
Maintenance Request	Back desk employee	Set null	cascade	If the Back desk employee table gets deleted, set it as null, if the car still needs a serve ahead, the new Back desk employee should be updated.
Maintenance Request	Maintenance schedule id	Set null	cascade	If the Maintenance schedule table gets deleted, set it as null, if the car still needs a serve ahead, the new Maintenance schedule should be updated.

Maintenance Request	Technician id	Set null	cascade	If theTechnician table gets deleted, set it as null, if the car still needs a serve ahead, the new Technician should be updated.
Rental car request	Customer id	cascade	cascade	If a customer deletes their account while in the rental car request, delete this table as well.
Rental car request	tier	Set null	cascade	If the tier gets deleted, set it as null, and the closest tier gets assigned as soon as possible.
Rental car request	Pick up rental office	restrict	restrict	Once a rental car request is sent, the rental office table cannot be updated, or deleted.
Rental car request	Drop off rental office	restrict	restrict	Once a rental car request is sent, the rental office table cannot be updated, or deleted.
Rental car request	Front desk employee	restrict	cascade	Restrict the delete so that always someone is on this rental car request.
New Vehicle Request	Customer id	No action	No action	No action on delete and on update since the process of setting attributes of submission and process will be set at same time and the Id should remain as a log.
New Vehicle Request	Back desk employee	No action	No action	No action on delete and on update since the process of setting attribute of submission and process will be set at same time and the Id should remain as a log.
Auto Parts	Service center ID	restrict	cascade	Auto parts need to be assigned to other service center before the current service center gets deleted.
Feedback	Customer id	No action	No action	No action on delete and on update since the process of setting attribute of submission and process will be set at same time and the Id should remain as a log.
Feedback	Back desk employee	No action	No action	No action on delete and on update since the process of setting attribute of submission and process will be set at same time and the Id should remain as a log.
Vehicle	Maintenance schedule id	Set null	cascade	Set null if the maintenance schedule gets deleted.
Vehicle	Rental office id	restrict	cascade	New rental office needs to be assigned

				before being deleted so it is restricted on delete.
Vehicle	customer id	No Action	cascade	No action on delete because the purpose of this FK is to show who was on the last.
Vehicle	service center id	No Action	cascade	No action on delete because the purpose of this FK is to show who was on the last.
Vehicle	front desk employee	restrict	cascade	New front desk employee needs to be assigned before being deleted so it is restrict on delete.
Vehicle	Technician	No Action	cascade	No action on delete because the purpose of this FK is shows who was on the last.
Vehicle	Vehicle information	Restrict	cascade	Restrict deleting vehicle information, when this table still exists.
Vehicle	Vehicle Condition	Restrict	cascade	Restrict deleting Vehicle Condition, when this table still exists.
Vehicle	Booking Information	Set null	cascade	Set null if the Booking Information deleted, if updated set the Booking Information.
Vehicle	Dropped off rental office id	No action	cascade	Do nothing when off rental office id gets deleted, because transaction tables should show all the Dropped off rental office id.
Vehicle Information	Vehicle type	Restrict	cascade	New rental Vehicle type to be assigned before being deleted so it is restricted on delete.
Type of Vehicle	Vehicle information ID	cascade	cascade	If a Type of Vehicle entity is deleted, it should trigger a cascade deletion of associated records in the Vehicle Information entity to prevent orphaned data.
Payment	Payment Method ID	cascade	cascade	If a Payment Method is deleted or its ID is updated, corresponding Payment records using this method must also be deleted or updated to maintain consistency with the Payment Method data.

Employee	Payroll ID	restrict	Cascade	Update of the Employee ID will be restricted if associated Payroll records exist to maintain data integrity. Only if Employee resigned the payroll will be deleted.
Employee	Service center ID	restrict	Cascade	Service center id should not be deleted while it is assigned here.
Employee	Rental Office ID	restrict	Cascade	Rental Office id should not be deleted while it is assigned here.
Employee	Technician id	Cascade	Cascade	Delete/ update when the id gets detected/ update because this is one to one ISA relationship.
Employee	Office manager id	Cascade	Cascade	Delete/ update when the id gets detected/ update because this is one to one ISA relationship.
Employee	Front desk employee id	Cascade	Cascade	Delete/ update when the id gets detected/ update because this is one to one ISA relationship.
Employee	back desk employee id	Cascade	Cascade	Delete/ update when the id gets detected/ update because this is one to one ISA relationship.