FPT ACADEMY INTERNATIONAL

FPT – APTECH COMPUTER EDUCATION

Car Rental System

Supervisor: *LÊ THANH NHÂN*

Semester: *II*

Batch No: *T1.2010.E0*

Group No: *04*

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3.	*Hoàng Anh Đức*	*Student1623038*
4.	*Nguyễn Võ Minh Tuấn*	*Student1623646*

***Month**: 08 **Year**: 2021*

This is to certify that

Mr. **Lưu Quang Nhật**

Mr. **Nguyễn Anh Đức**

Mr. **Hoàng Anh Đức**

Mr. **Nguyễn Võ Minh Tuấn**

Have successfully Designed & Developed

CAR RENTAL SYSTEM

Submitted by:

Mr. LE THANH NHAN

Date Of Issue:

Authorized Signature:

Content

Acknowledgement ..... Page 04

Synopsis ..... Page 05

Review 1 ..... Page 06

Problem Definition ..... Page 07

Customer Requirement Specifications ..... Page 09

Review 2 ..... Page 12

Data Flow Diagram ..... Page 13

Entity Relationship Diagram ..... Page 14

Table Design ..... Page 20

Site Map ..... Page 24

Algorithm ..... Page 25

Review 3 ..... Page 28

Screenshot ..... Page 29

Testing Documents ..... Page 60

Final Checklist ..... Page 61

Task Sheet ..... Page 62

Acknowledgement

Firstly, we would like to express our sincere gratitude to our teacher Mr. Le Thanh Nhan for giving us the opportunity to conduct this project as well as the support and guidance he provided throughout the project so that it would be completed promptly and with high efficiency. This project is a simulation of a real-life workplace where we have to work as a team to develop a website to meet the requirements of our client. The project helped us to learn more about teamwork, coordination, self-motivation as well as our overall skill improvement in the field of website development.

Secondly, we would like to give our thanks to the team member of group 4, without whom this project could not have been realized. The teamwork and the enthusiasm of the member have brought life to the project. Each member has utilized his skill and knowledge in the field of website development, putting aside their differences to coordinate with each other in a highly efficient manner to achieve our common goal.

We hope that after this project, each team member will have gained invaluable experiences on how website development in real life is conducted, which serve as the first stepping stones for us to start our jobs after graduation. We also hope that the team will continue to improve their skills and knowledges to become successful in a highly competitive and ever-changing industry.

Last but not least we are very thankful to FPT Aptech HCMC, Aptech India and our family members for your continuous and indispensable supports on various aspect of our lives. We will make sure to make this project a great success as the way to show gratitude to everyone.

Yours sincere,

Members of Group 4.

Synopsis

The objective Car Rental System project is to create a framework for a website of a company whose main business is rental service. Using the website, customers could browse and rent different items. On the management side, the administrative staff could receive rental orders, input data and extracting reports on a variety of involving entities. In addition, the implementation of the website also facilitates the process of car/driver deployment and management.

The project aims to create a simulation of a real-life project development process, and set a fundamental understanding on Java and PHP for the students in Semester II to develop larger and more complex projects in the future. The students are expected to utilize the knowledge they have acquired during class and from self-study for the project.

The entire project was conducted under the supervision of Mr. Le Thanh Nhan and should only be used for academic purposes.

Review 01

Problem Definition

Deluxe Rentals Co. Ltd. is an emerging name in the car rental service industries. The company provides rental vehicles from various brands and types that meet the requirements and expectations of even the most demanding clients.

Owning a garage that has the capabilities to provide services to 50 cars at once, all the company vehicles are always in the best conditions and readied to be delivered to our clients. The management staff is also professionally trained to make sure that all of the client's needs are provided, and they always try to find new ways to please the clients.

In addition to that, our driver staff which is strictly and carefully selected will ensure safe and pleasant travel throughout the journey. All the drivers, vehicles and clients are fully covered with insurance and all legal and safety requirements are met.

Deluxe Rentals has become more and more popular with a sharp increase in sales after only 1 year of establishment. In order to efficiently manage the rental orders as well as providing a convenient, easy-to-use platform of booking for the clients, the company decided to develop a website which provides the following functions to the clients:

- ✓ Provide member registration feature. After registration, the clients could start booking rental cars.
- ✓ Provide information of the rental vehicles to clients and members.
- ✓ Provide shopping cart function to book multiple vehicles at once.
- ✓ Receive feedbacks from clients and members to improve service quality as well as product quality.

On the administration side, the website includes an Admin Control Panel (ACP) that supports the following management functions:

- ✓ Provide the functions to manage records of clients, staff, vehicles.
- ✓ Provide the function to check booking details.
- ✓ Provide the function to view reports.

The Role of User, Staff and Admin:

1. **User:**
   - ✓ Can register as a member and manage personal account.
   - ✓ Can view and booking vehicles.
   - ✓ Can give feedback regarding the service.
   - ✓ Can view their orders.
2. **Staff:**
   - ✓ Can view client/vehicle information
   - ✓ Can check contract details.
   - ✓ Can reply to feedback of clients.
3. **Administrator:** Same roles as staff but with the following additions:
   - ✓ Can view/ add / edit / delete records of clients, staff, vehicles.
   - ✓ Can view report statistics.

Customer Requirement Specifications

Description of the processing requirements for each target user.

1. Clients:

❖ Input:

- Member registration information.
- Request vehicle information.
- Book selected vehicles.
- Feedback about the service.

❖ Process:

- Process customer registration information.
- Search vehicles from database by brand, by type.
- Process client orders.
- Process client feedback.

❖ Output:

- Notification of successful registration.
- Display vehicle information.
- Notification of successful order booking.
- Notification of successful feedback submission.

2. Management Staff:

❖ Input:

- Staff/Administrator login information.
- Client, vehicle, staff information to add / edit / delete. (Admin only)
- Member/order information to be display.

❖ Process:

- Processing login information.
- Add / edit / delete client, vehicle, staff information.
- Search member/order information.

❖ Output:

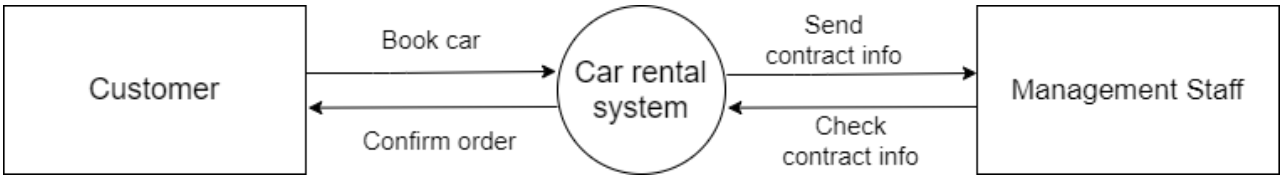
- Notification of successful login.
- Notification of success/ failure for the addition / edit / deletion of client, vehicle, staff information.
- Display member/order information.

Hardware / Software requirement

No.	Item	Description
1.	Operating system	Windows 7 or higher
2.	Hardware	CPU Cores or better with 2 Gigabytes of RAM or better
3.	Web Browser	Version in later of: Edge, Firefox, Chrome
4.	Fonts	Standard font Unicode: Arial, Tahoma, Lucida Console, Times New Roman
5.	Other requirements	Laravel, Git, XAMPP 7.3 or later | A working internet connection.

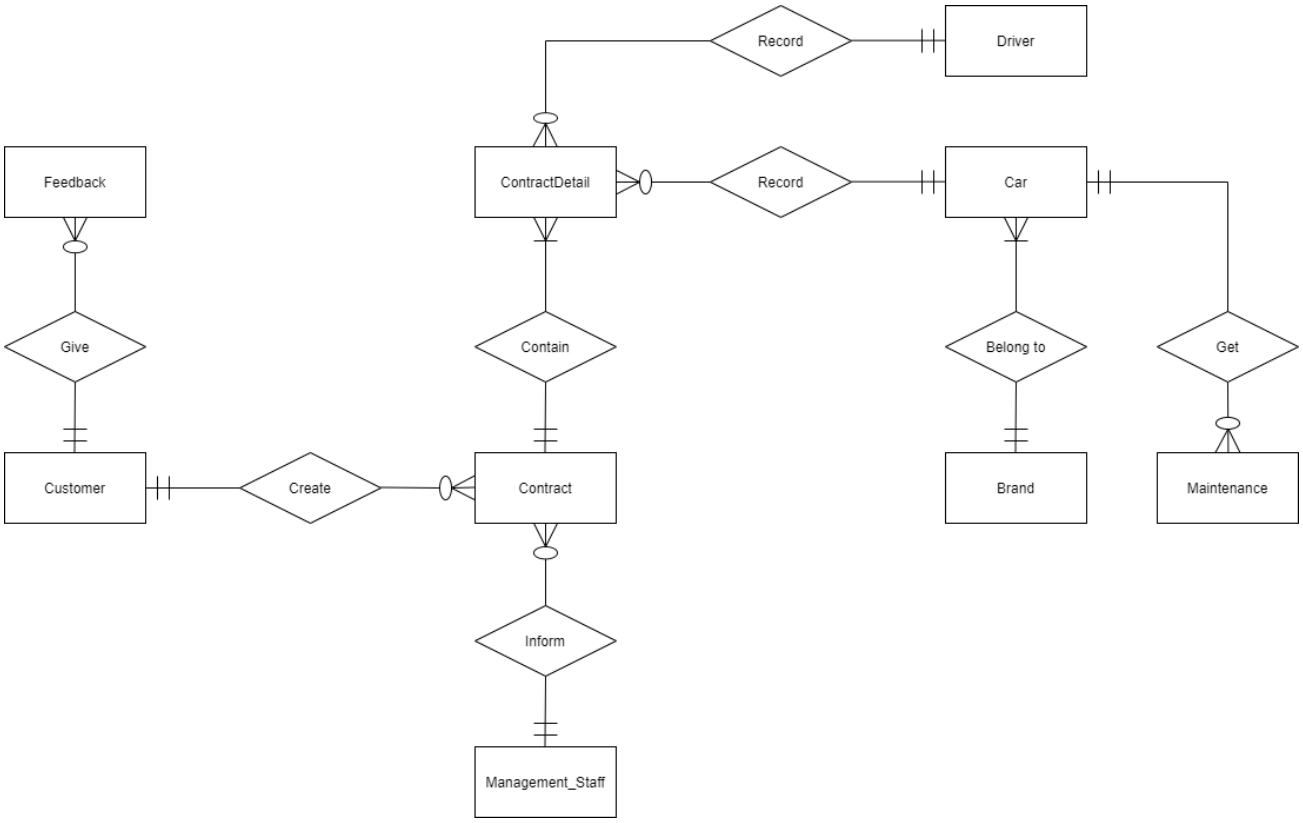
Review 02

Data Flow Diagram



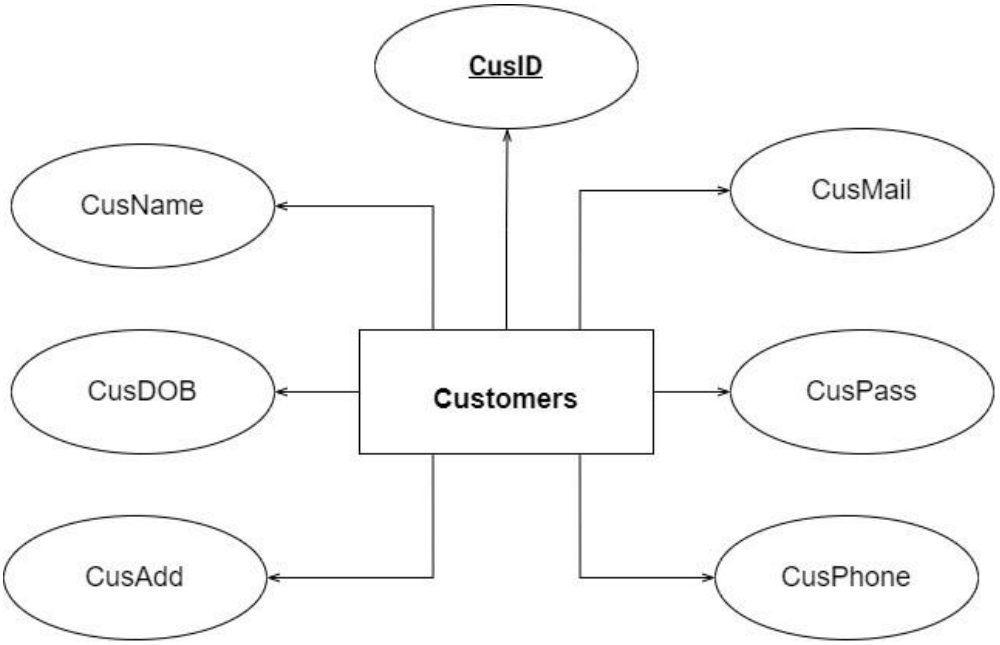
Entity Relationship Diagram

A. ERD

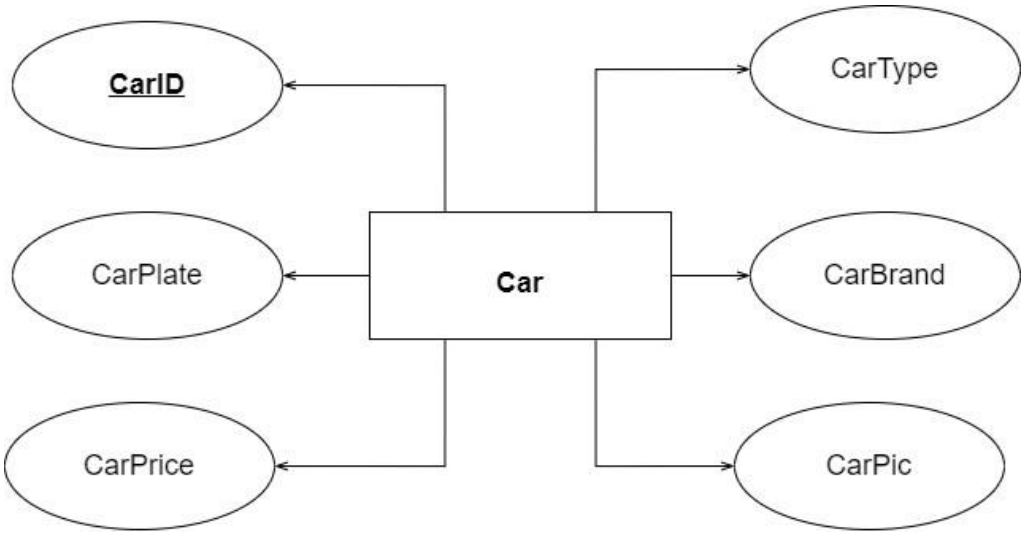


B. ERD Properties

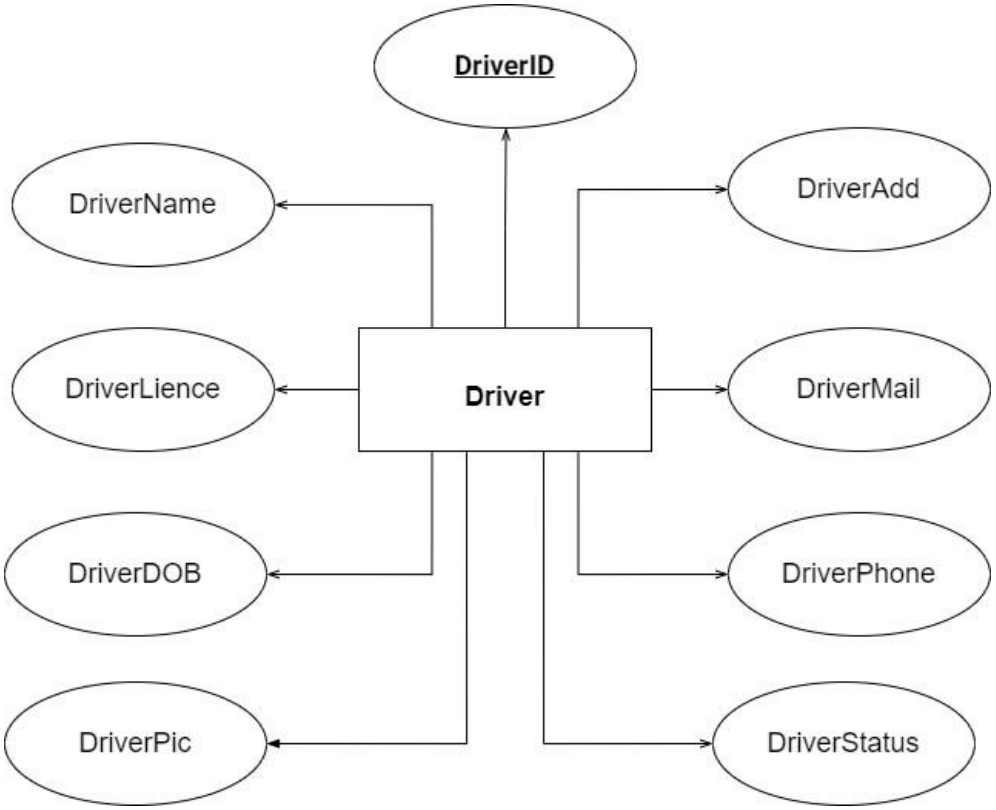
1. Customer



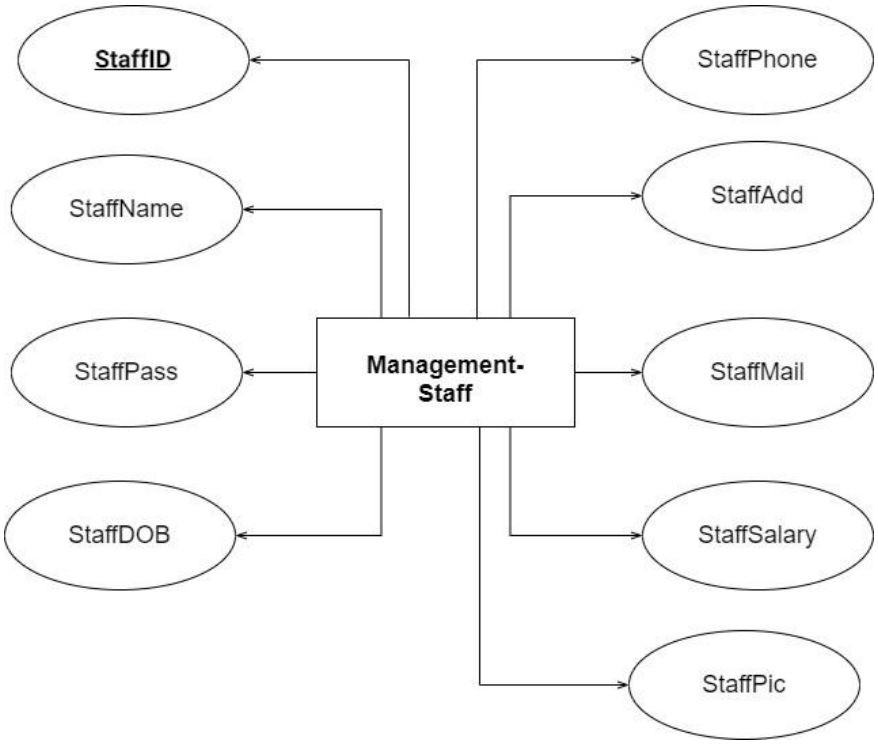
2. Car



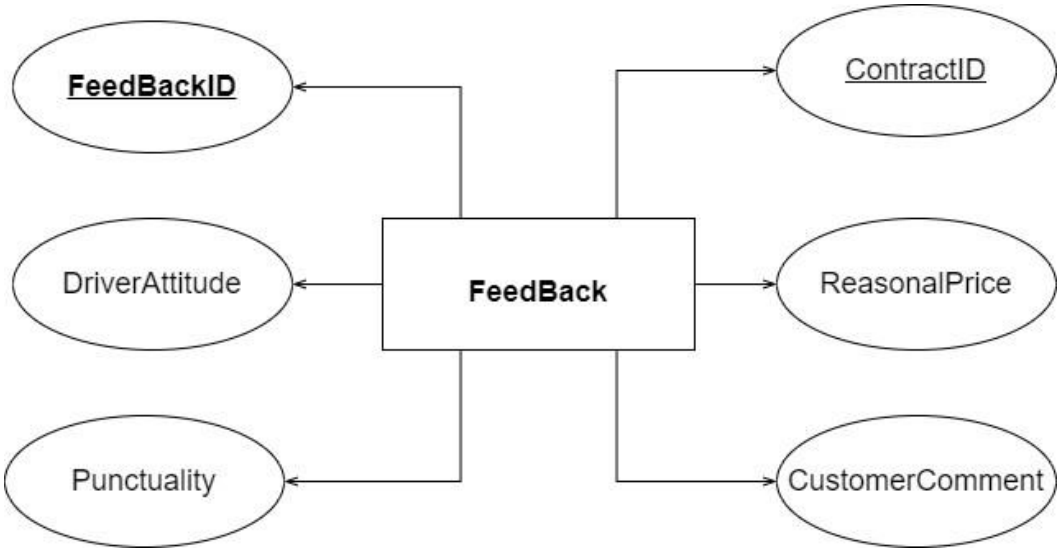
3. Driver



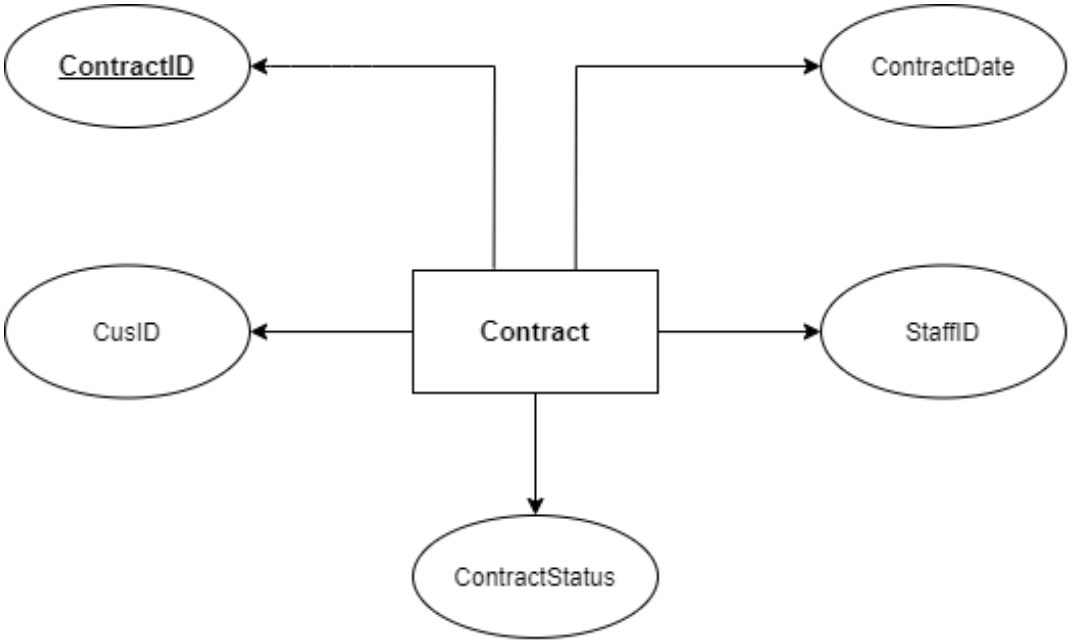
4. Management Staff



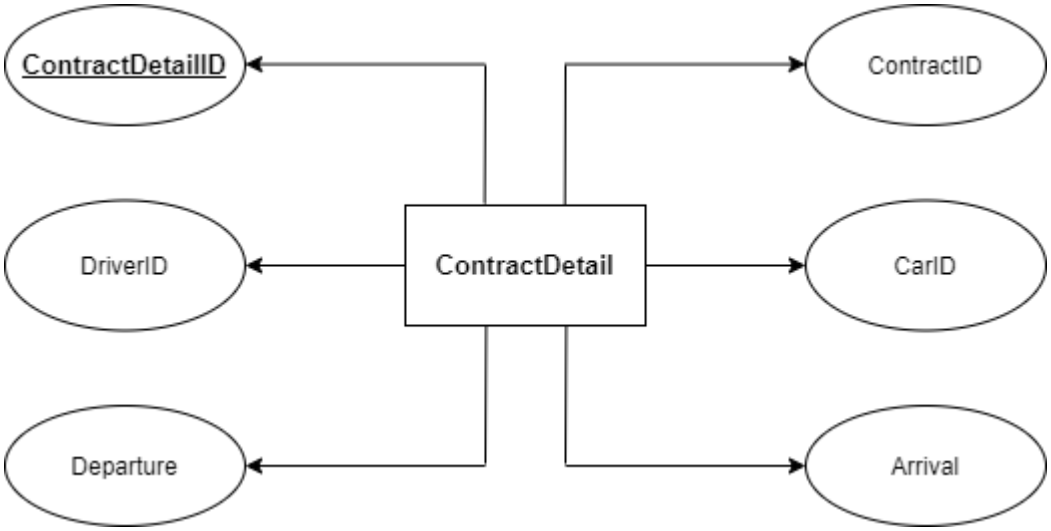
5. Feedback



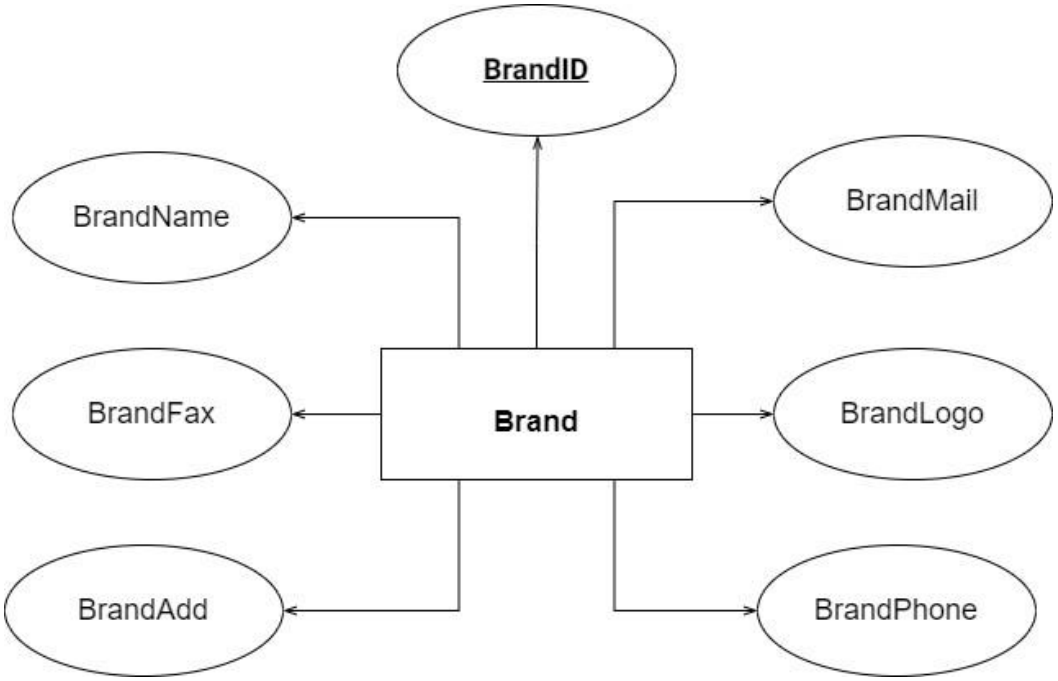
6. Contract



7. Contract Detail



8. Brand



9. Maintenance

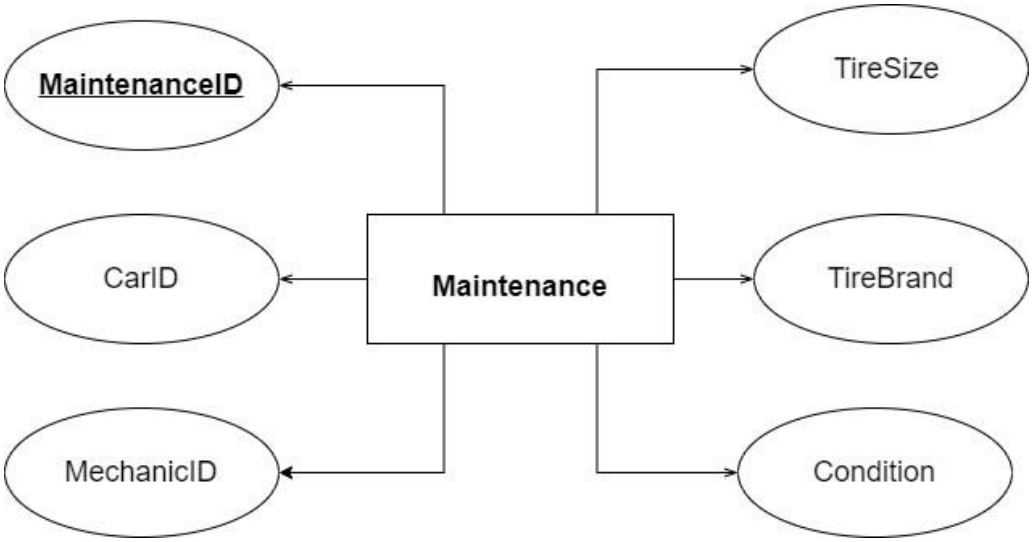


Table Design

A. Table Design

01. Customer					
No.	**Fields**	**Data Type**	**Key**	**Constrain**	**Description**
1.	CusID	varchar(20)	Primary	Not null	Customer ID number
2.	CusName	varchar(50)		Not null	Customer name
3.	CusDOB	date		Not null	Customer birthday
4.	CusAdd	varchar(255)		Not null	Customer address
5.	CusMail	varchar(50)		Not null, Mail format	Customer mail
6.	CusPass	varchar(20)		Not null, 8-20 characters	Customer login password
7.	CusPhone	int		Not null	Customer phone no.

02. Car					
No.	**Fields**	**Data Type**	**Key**	**Constrain**	**Description**
1.	CarID	varchar(20)	Primary	Not null	Car ID number
2.	CarPlate	varchar(10)		Not null	Car plate number
3.	CarPrice	int		Not null	Rental price/day
4.	CarType	varchar(20)		Not null	Number of seats
5.	CarBrand	varchar(20)		Not null	Car brand
6.	CarPic	varchar(255)		Not null	Car picture

03. Driver					
No.	**Fields**	**Data Type**	**Key**	**Constrain**	**Description**
1.	DriverID	varchar(20)	Primary	Not null	Driver ID number
2.	DriverName	varchar(50)		Not null	Driver name
3.	DriverLicense	varchar(20)		Not null	Driver driving license
4.	DriverDOB	date		Not null	Driver birthday
5.	DriverPic	varchar(255)		Not null	Driver picture
6.	DriverAdd	varchar(255)		Not null	Driver address
7.	DriverMail	varchar(50)		Not null, Mail format	Driver email
8.	DriverPhone	int		Not null	Driver phone
9.	DriverStatus	boolean		Not null	Available or not
10.	CurrentDriver	boolean		Not null	Current driver or not

04. Management Staff					
No.	**Fields**	**Data Type**	**Key**	**Constrain**	**Description**
1.	StaffID	varchar(20)	Primary	Not null	Staff ID number
2.	StaffName	varchar(50)		Not null	Staff name
3.	StaffPass	varchar(20)		Not null, 8-10 characters	Staff login password
4.	StaffDOB	date		Not null	Staff birthday
5.	StaffPhone	int		Not null	Staff phone
6.	StaffAdd	varchar(255)		Not null	Staff address
7.	StaffMail	varchar(50)		Not null, Mail format	Staff email
8.	StaffSalary	int		Not null	Staff salary
9.	StaffPic	varchar(255)		Not null	Staff picture
10.	CurrentStaff	boolean		Not null	Current staff or not

05. Feedback					
No.	**Fields**	**Data Type**	**Key**	**Constrain**	**Description**
1.	FeedbackID	varchar(20)	Primary	Not null	Feedback ID number
2.	ContractID	varchar(20)	Foreign	Not null	Contract ID number
3.	CusID	varchar(20)	Foreign	Not null	Customer ID number
4.	DriverAttitude	int		Not null, 1-5	Driver attitude rating
5.	Punctuality	int		Not null, 1-5	Punctuality rating
6.	ReasonalPrice	int		Not null, 1-5	Price rating
7.	Comment	varchar(255)		Not null, 1-5	Customer’s comment

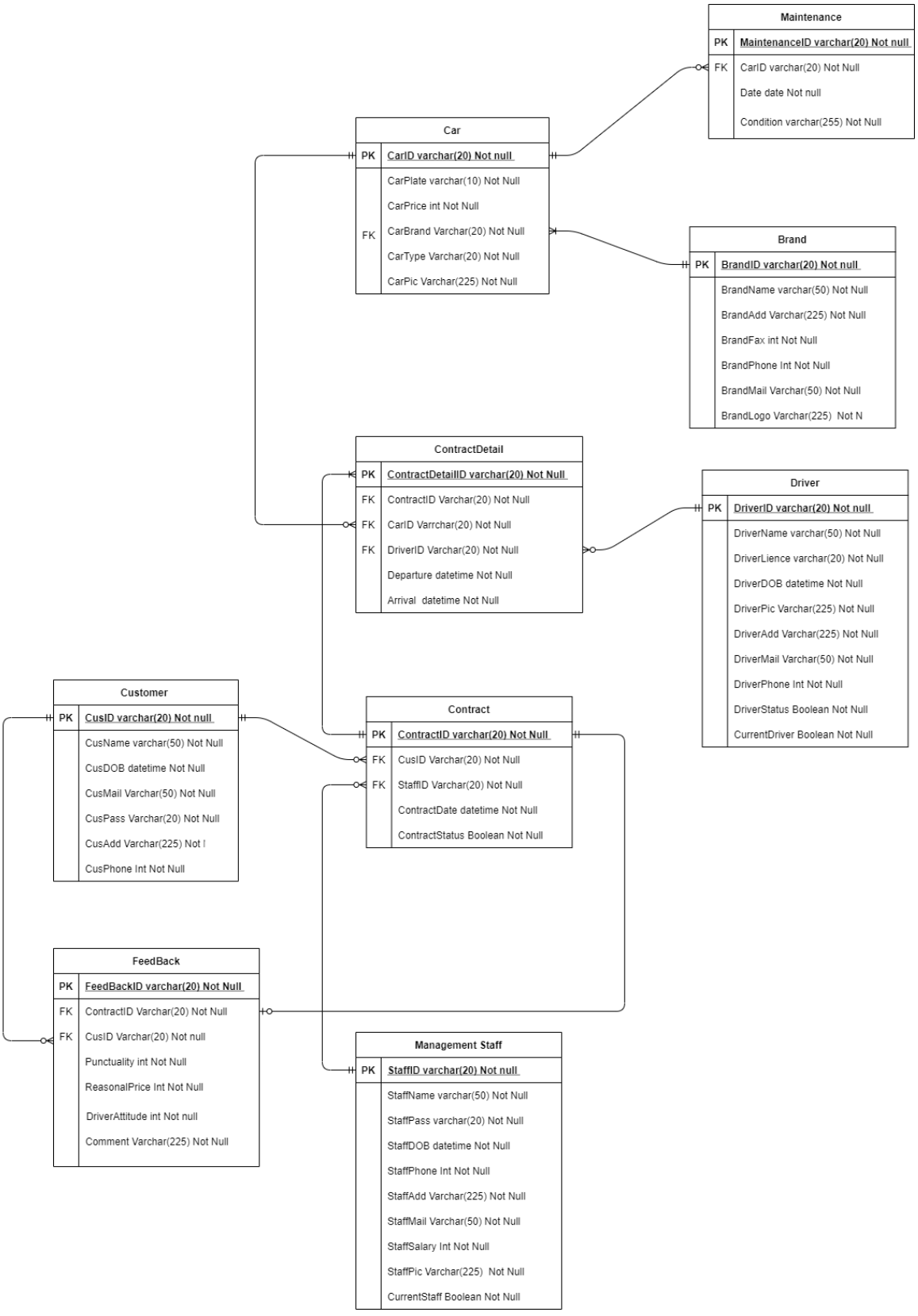
06. Contract					
No.	**Fields**	**Data Type**	**Key**	**Constrain**	**Description**
1.	ContractID	varchar(20)	Primary	Not null	Contract ID number
2.	ContractDate	date		Not null	Contract date
3.	CusID	varchar(20)	Foreign	Not null	Customer ID number
4.	StaffID	varchar(20)	Foreign	Not null	Staff ID number
5.	ContractStatus	boolean		Not null	Complete or not

07. Contract Details					
No.	**Fields**	**Data Type**	**Key**	**Constrain**	**Description**
1.	ContractDetailID	varchar(20)	Primary	Not null	Contract details ID number
2.	ContractID	varchar(20)	Foreign	Not null	Contract ID number
3.	DriverID	varchar(20)	Foreign	Not null	Driver ID number
4.	CarID	varchar(20)	Foreign	Not null	Car ID number
5.	Departure	date		Not null	Date of departure
6.	Arrival	date		Not null	Date of arrival

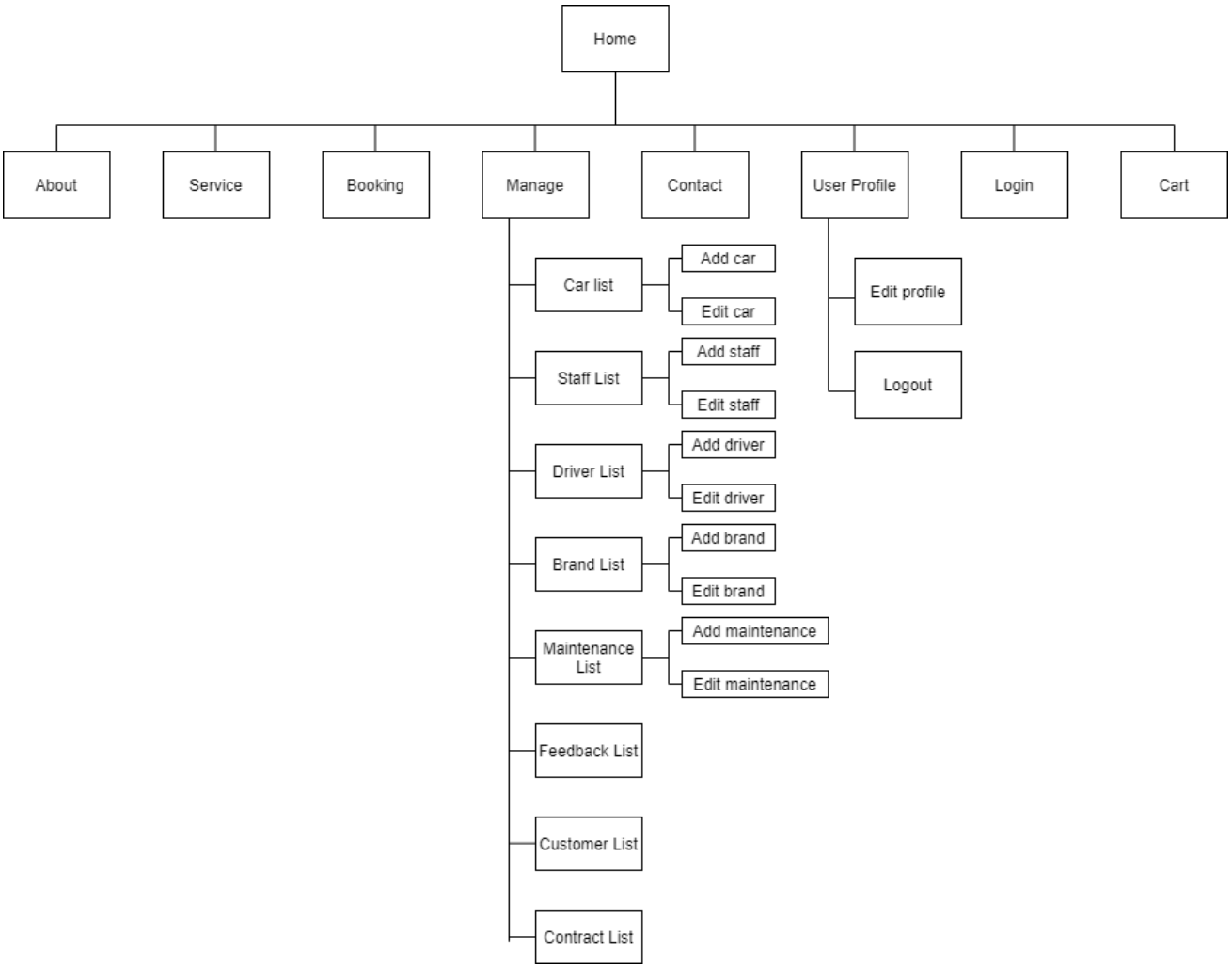
08. Brand					
No.	**Fields**	**Data Type**	**Key**	**Constrain**	**Description**
1.	BrandID	varchar(20)	Primary	Not null	Brand ID number
2.	BrandName	varchar(20)		Not null	Brand name
3.	BrandAdd	varchar(255)		Not null	Brand address
4.	BrandFax	int		Not null	Brand fax number
5.	BrandPhone	int		Not null	Brand phone
6.	BrandMail	varchar(50)		Not null, Mail format	Brand email
7.	BrandLogo	varchar(255)		Not null	Brand logo

09. Maintenance					
No.	**Fields**	**Data Type**	**Key**	**Constrain**	**Description**
1.	MaintenanceID	varchar(20)	Primary	Not null	Maintenance ID number
2.	CarID	varchar(20)	Foreign	Not null	Car ID number
3.	Date	date		Not null	Maintenance date
4.	Comment	varchar(255)		Not null	Comment on car condition

B. Relationship Diagram



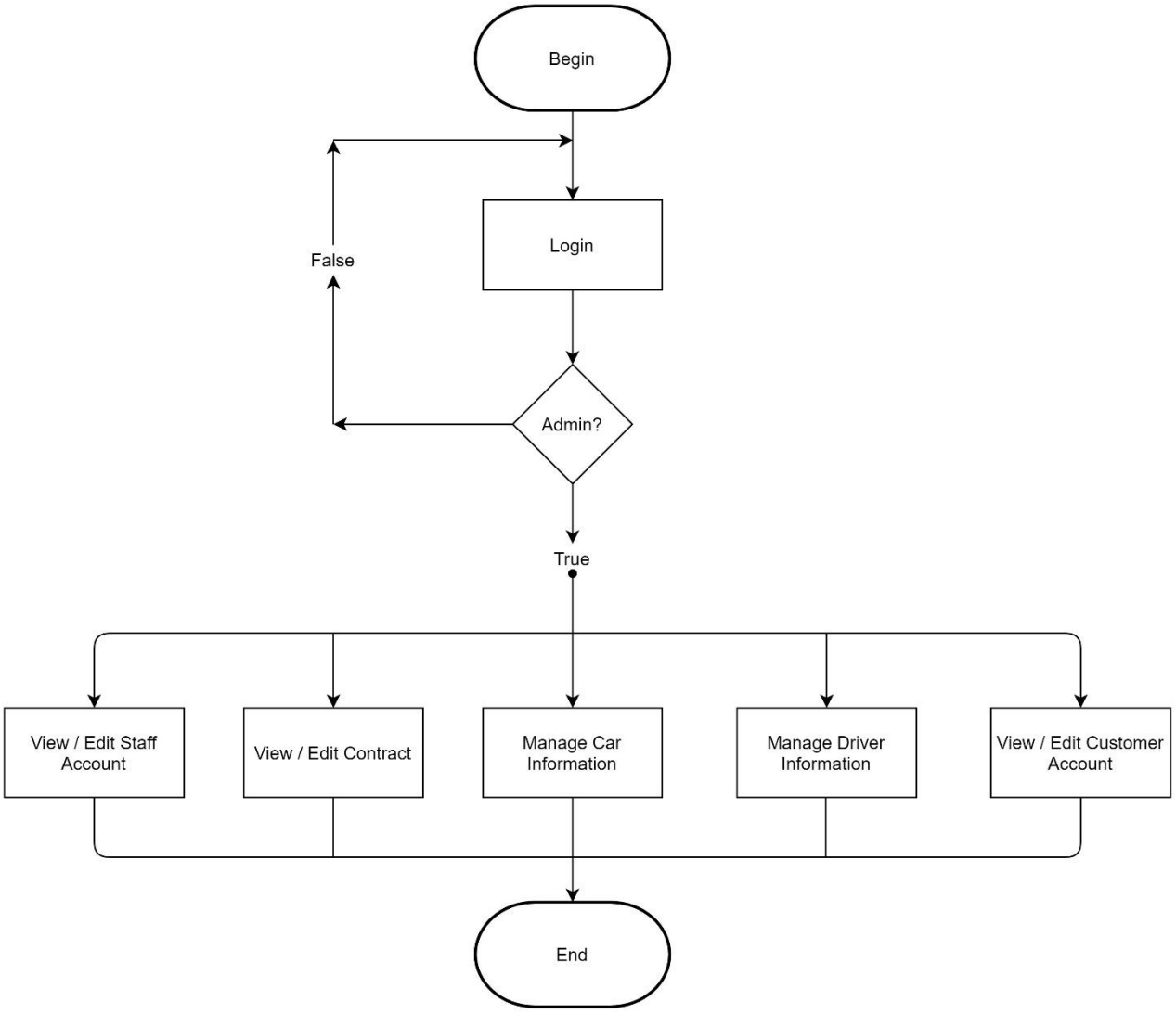
Site Map



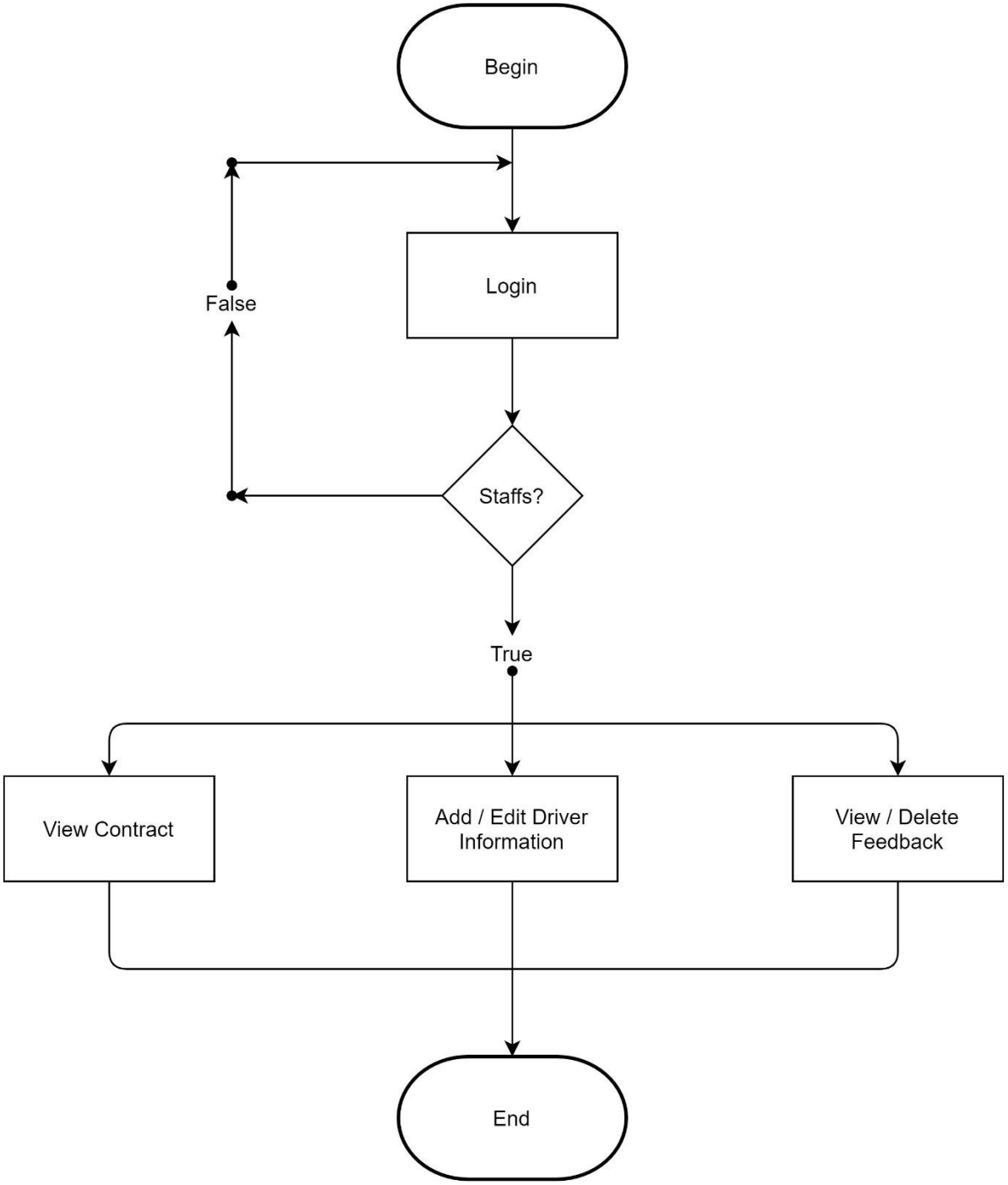
	Prepared by Luu Quang Nhat	Approved by Mr. Le Thanh Nhan
	Project Group No. 04	
Signature		
Date	10/09/2021	

Algorithm

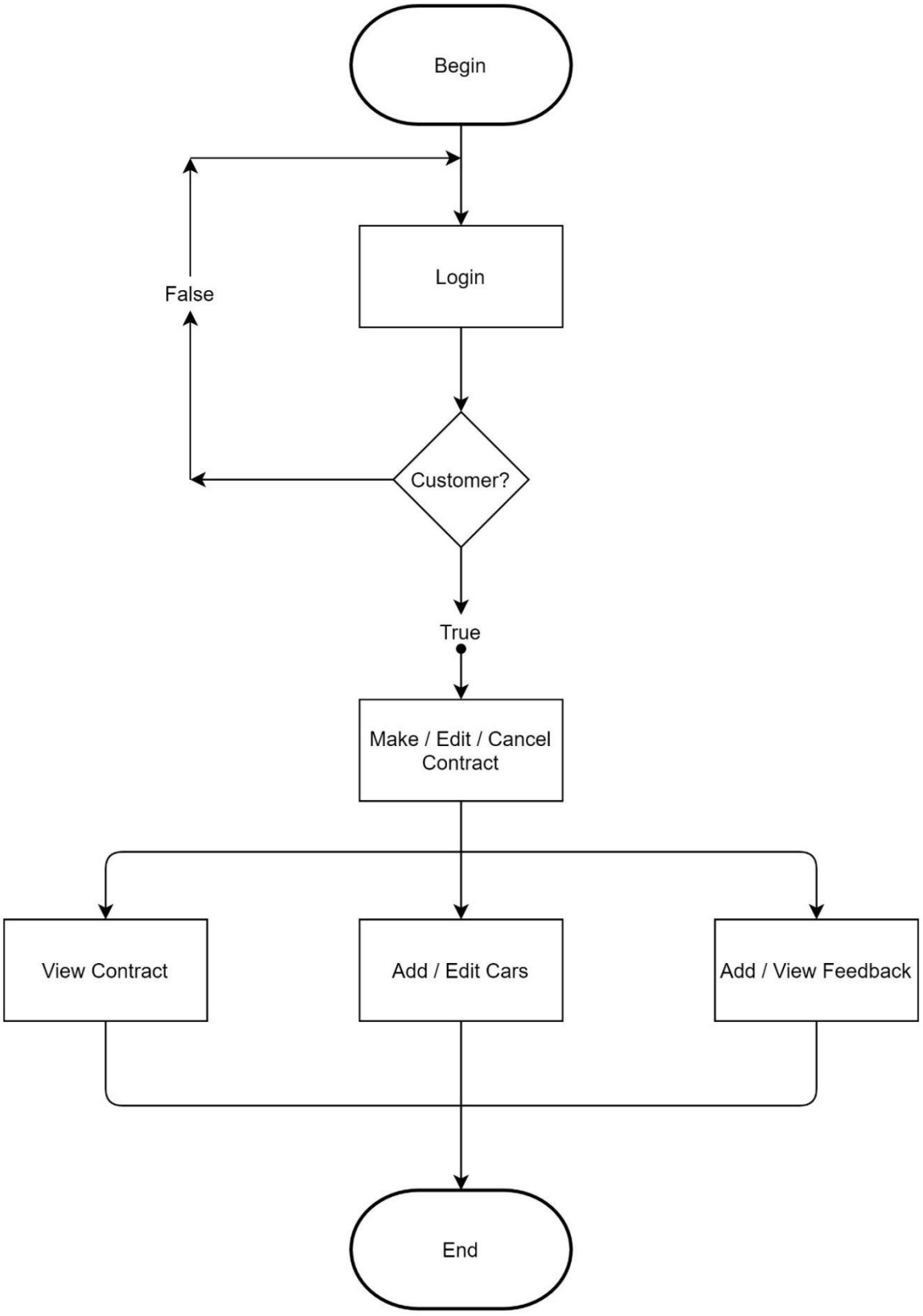
A. Admin



B. Staff


Begin
Login
False
Staffs?
True
View Contract
Add / Edit Driver Information
View / Delete Feedback
End

C. Customer


Begin
Login
False
Customer?
True
Make / Edit / Cancel Contract
View Contract
Add / Edit Cars
Add / View Feedback
End

Review 03

Screenshot

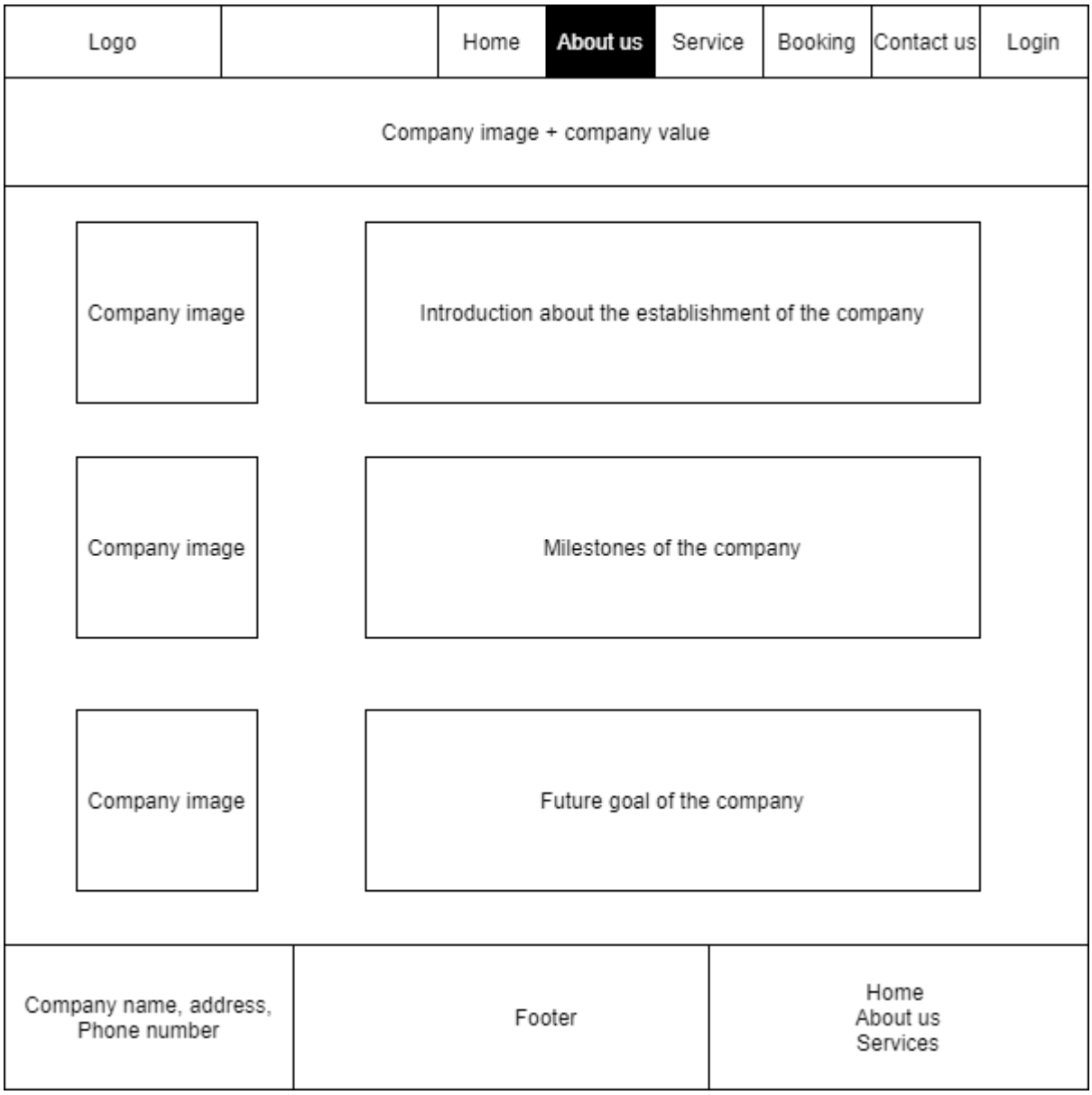
1. Homepage

Description: Homepage of the company

From: [Home] button on navigation bar

To: About us, Service, Booking, Contact us, Login

2. About us



Description: Information about the company

From: [About us] button on navigation bar

To: Home, Service, Booking, Contact us, Login

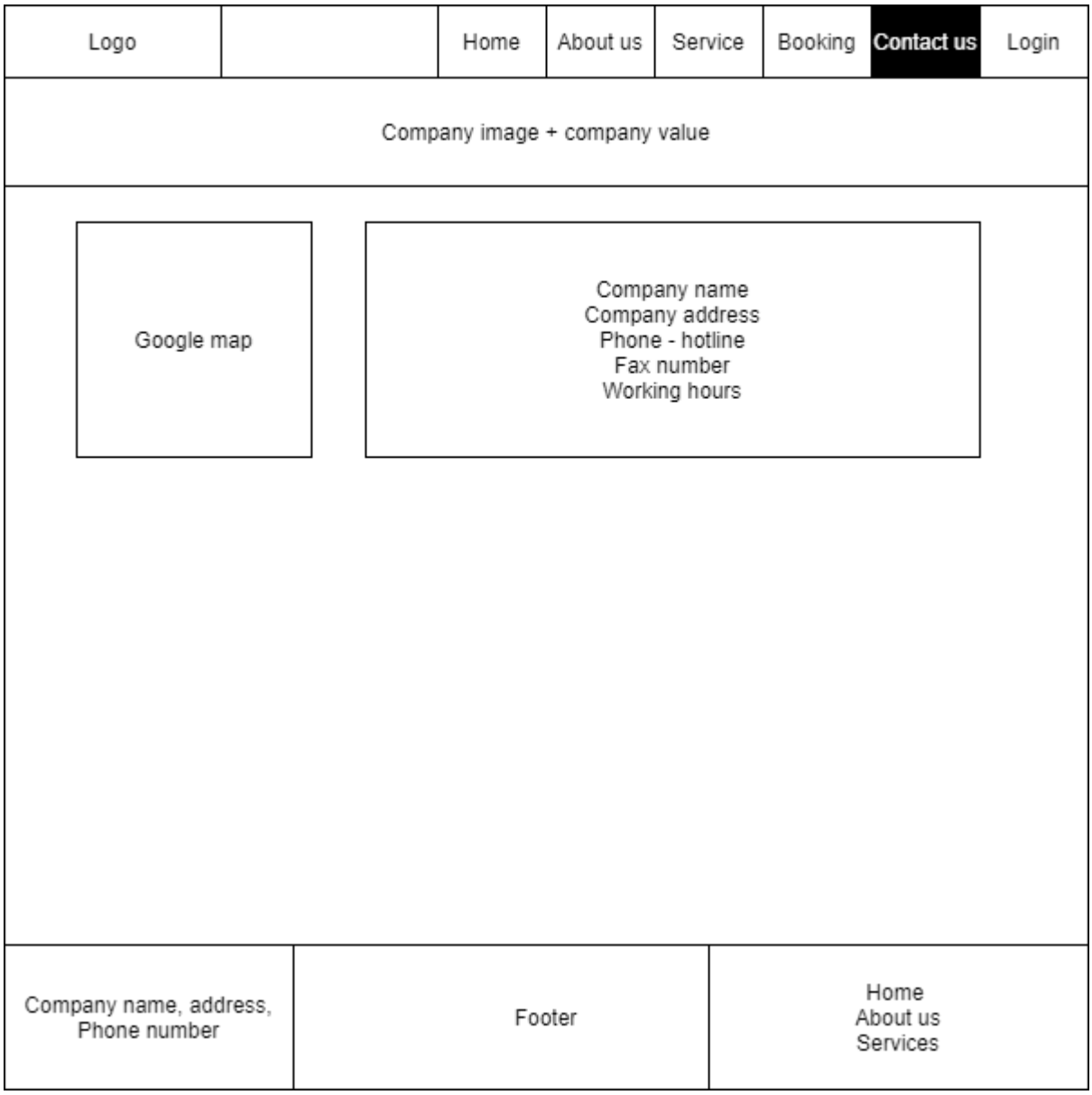
3. Service

Description: Introduction of the company's service

From: [Service] button on navigation bar

To: Home, About us, Booking, Contact us, Login

4. Contact us



Description: Contact information of the company

From: [Contact us] button on navigation bar

To: Home, About us, Service, Booking, Login

5. Login

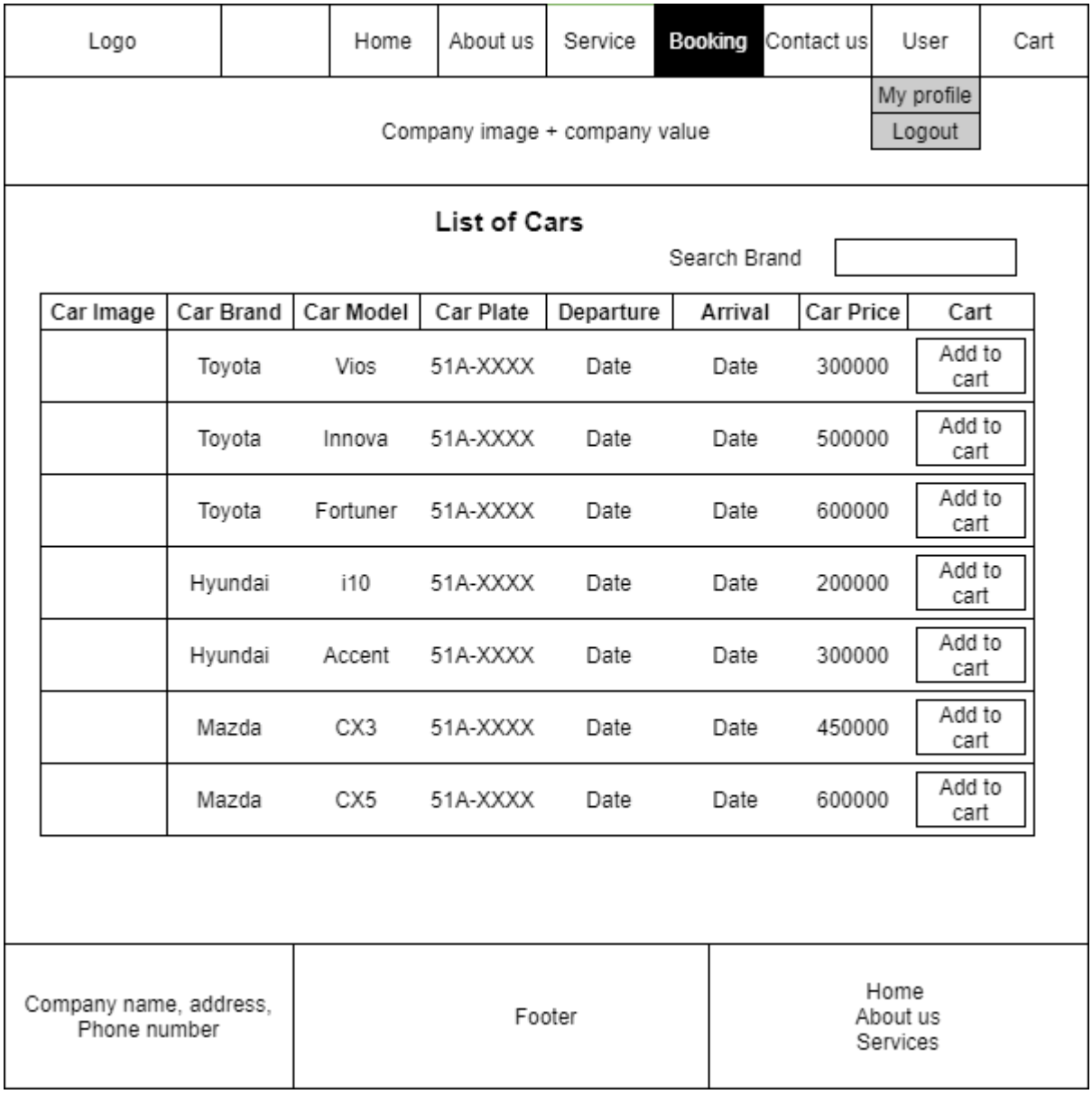
Description: Screen for customer, staff and admin to login

From: [Login] button on navigation bar, or [Booking] button without logging in

To: Home, About us, Service, Booking, Contact us, Register

Validate: Username and password must match the one registered in database.

6. Booking



Description: Screen for customer to book cars

From: [Booking] button on navigation bar. Must login as customer.

To: Home, About us, Service, Contact us, User Profile, Logout, Cart

Validate: Arrival must after arrival when clicking on [Add to cart]

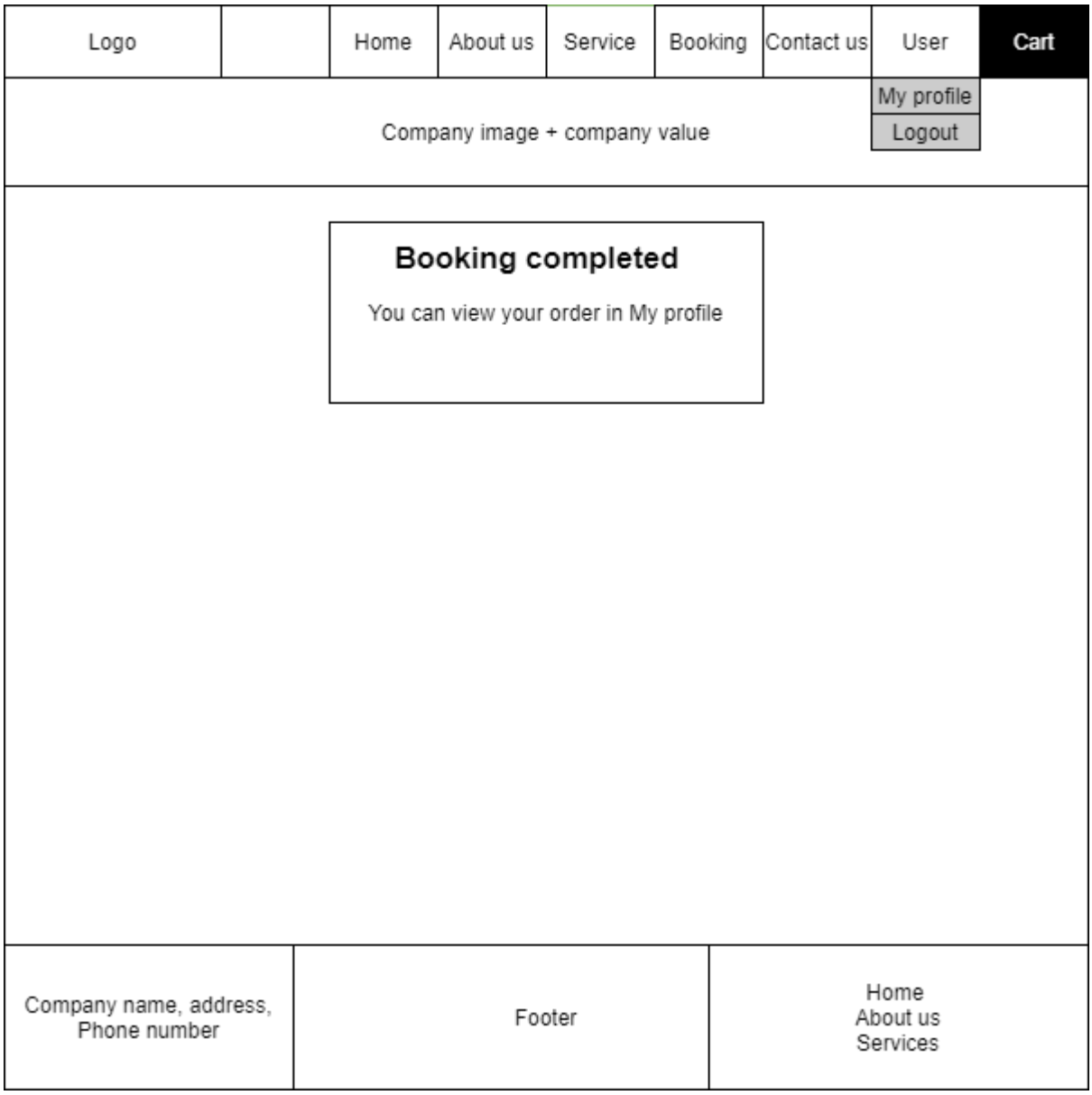
7. Cart

Description: Screen for customer to checkout the cart

From: [Cart] button on navigation bar. Must login as customer.

To: Home, About us, Service, Contact us, User Profile, Logout, Cart

8. Checkout

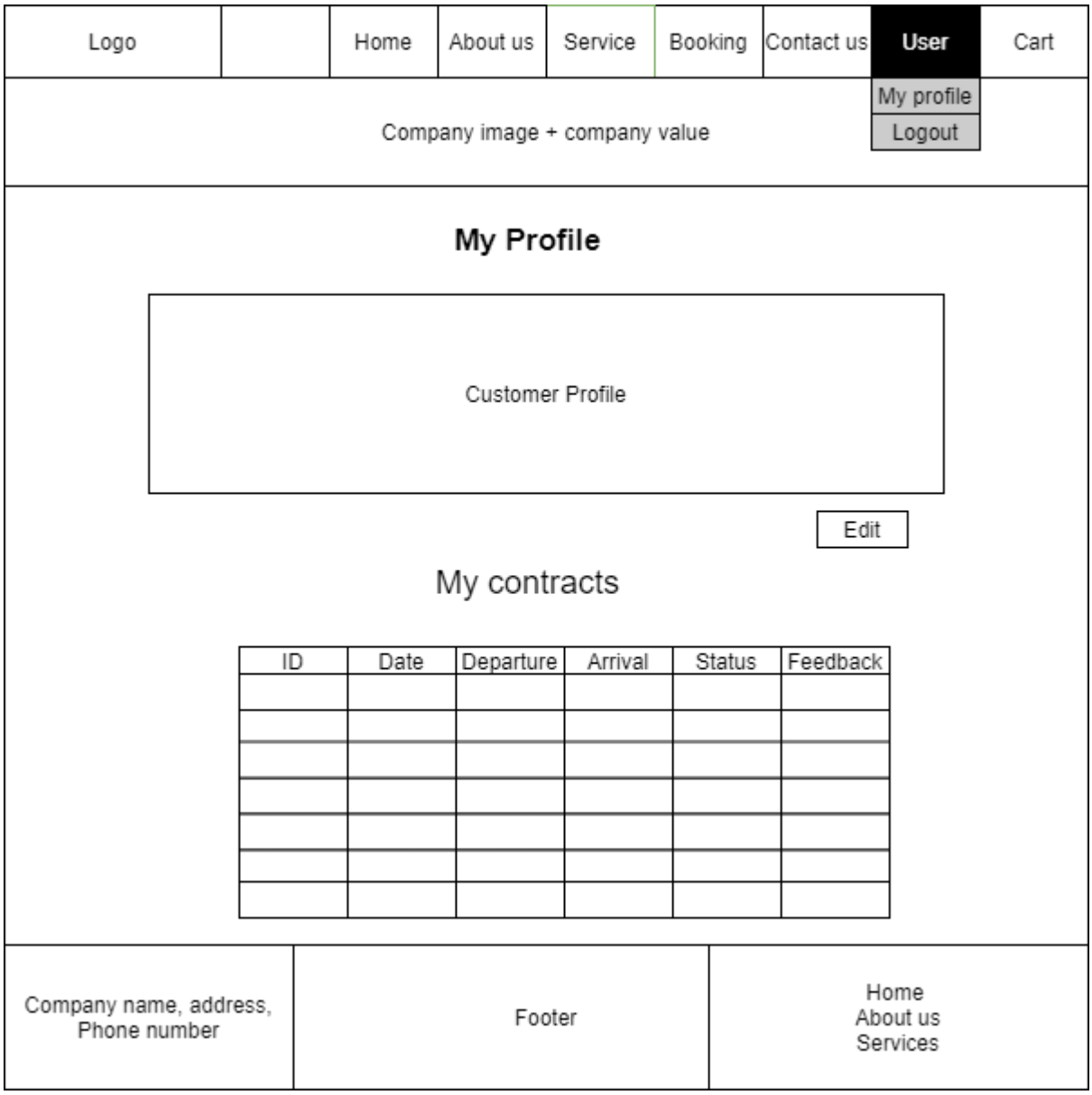


Description: Booking completed notice

From: [Checkout] button from [Cart] page

To: Home, About us, Service, Booking, Contact us, User Profile, Logout, Cart

9. User Profile

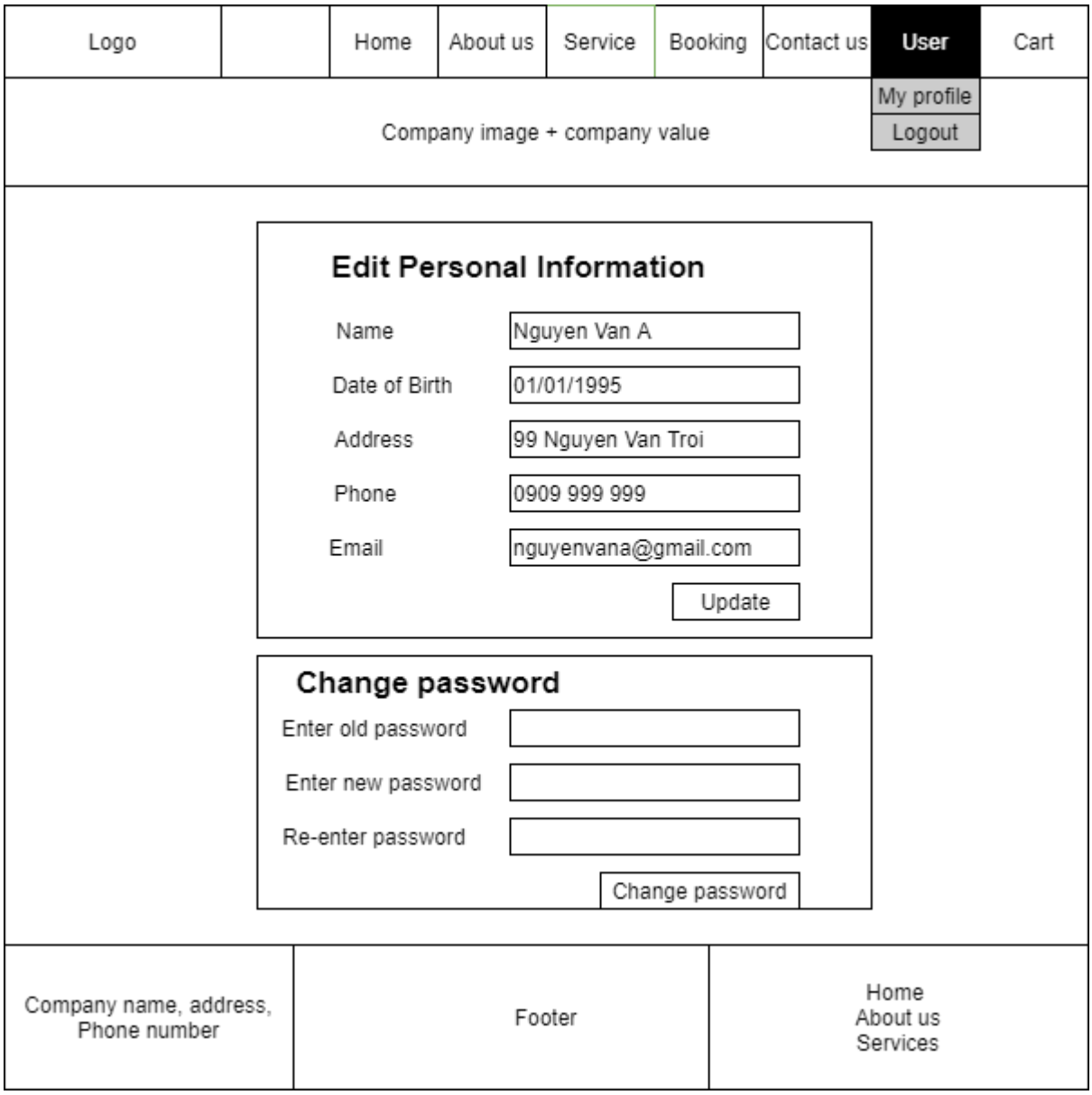


Description: Customer can see their information and orders

From: [My Profile] button from dropdown menu of [User] button of navigation bar

To: Home, About us, Service, Booking, Contact us, Logout, Cart, Edit User Profile

10. Edit User Profile



Description: Customer can edit their information

From: [Edit] button from [My Profile] page

To: Home, About us, Service, Booking, Contact us, My Profile, Logout, Cart

Validation: Email format, old password must be correct, new password must be entered 2 times and must match.

	Prepared by Luu Quang Nhat	Approved by Mr. Le Thanh Nhan
	Project Group No. 04	
Signature		
Date	10/09/2021	

11. Registration

Description: Customer can register for membership

From: [Registration] button from [Login] page

To: Home, About us, Service, Booking, Contact us, Registration Completed.

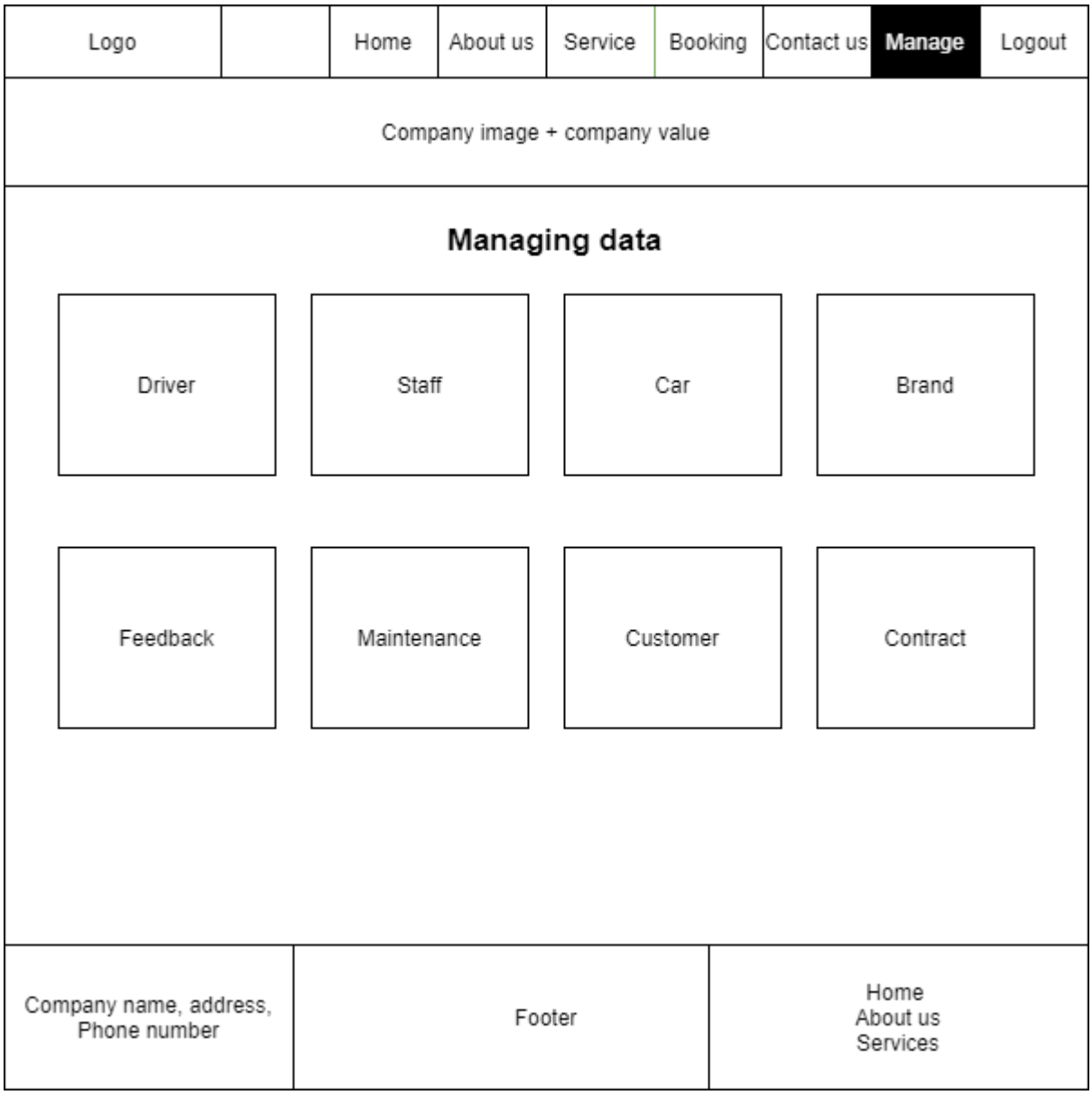
12. Registration Completed

Description: Notification for registration completed

From: [Register] button from [Registration] page

To: Home, About us, Service, Booking, Contact us, Login

13. Manage

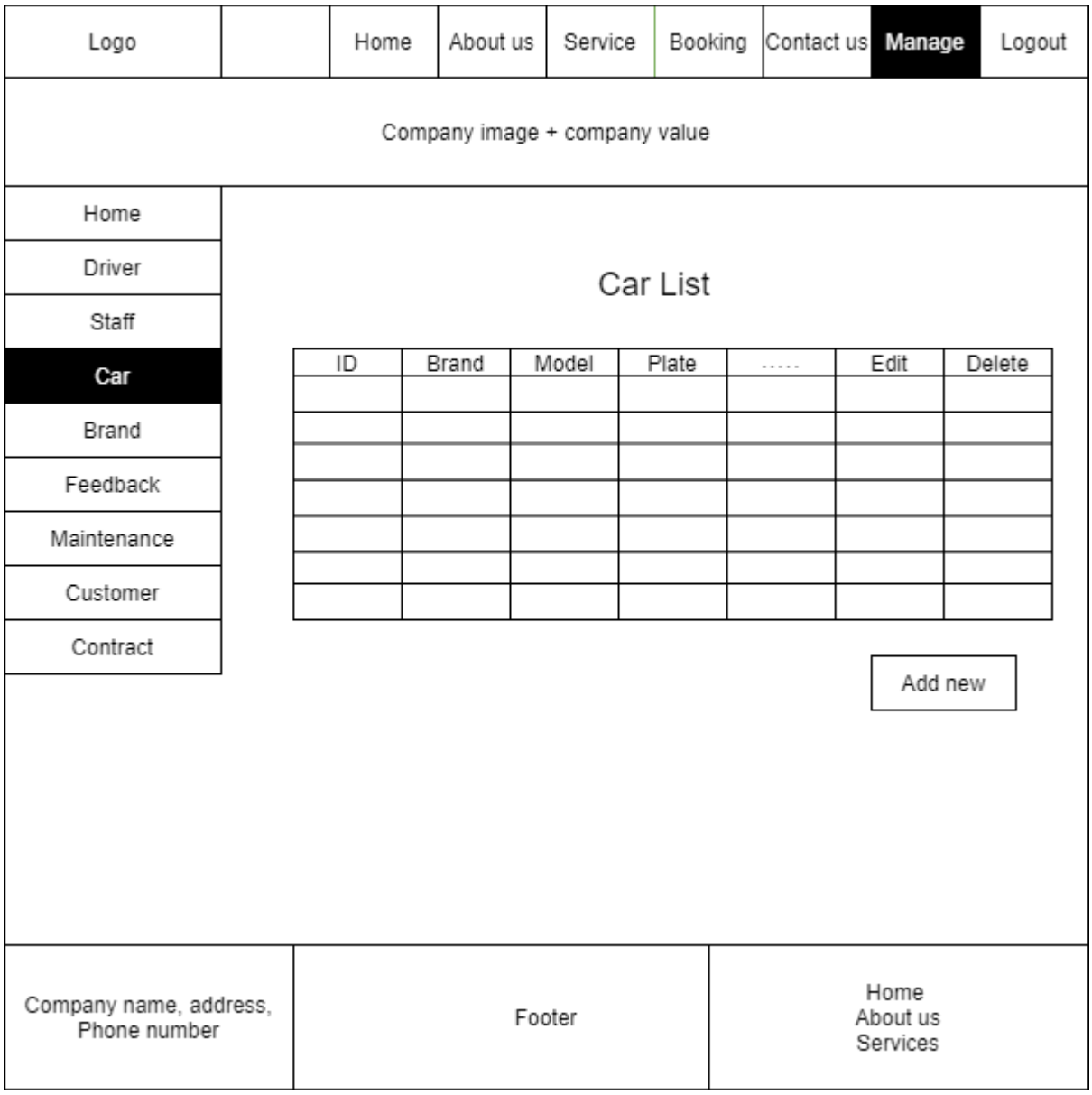


Description: Dashboard for the staff to manage system data

From: [Manage] button on navigation bar after login as admin or staff

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Car List, Brand List, Feedback List, Maintenance List, Customer List, Contract List.

14. Car List



Description: Display list of cars

From: [Car] button from [Manage] Page

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List, Create Car, Edit Car

15. Create Car

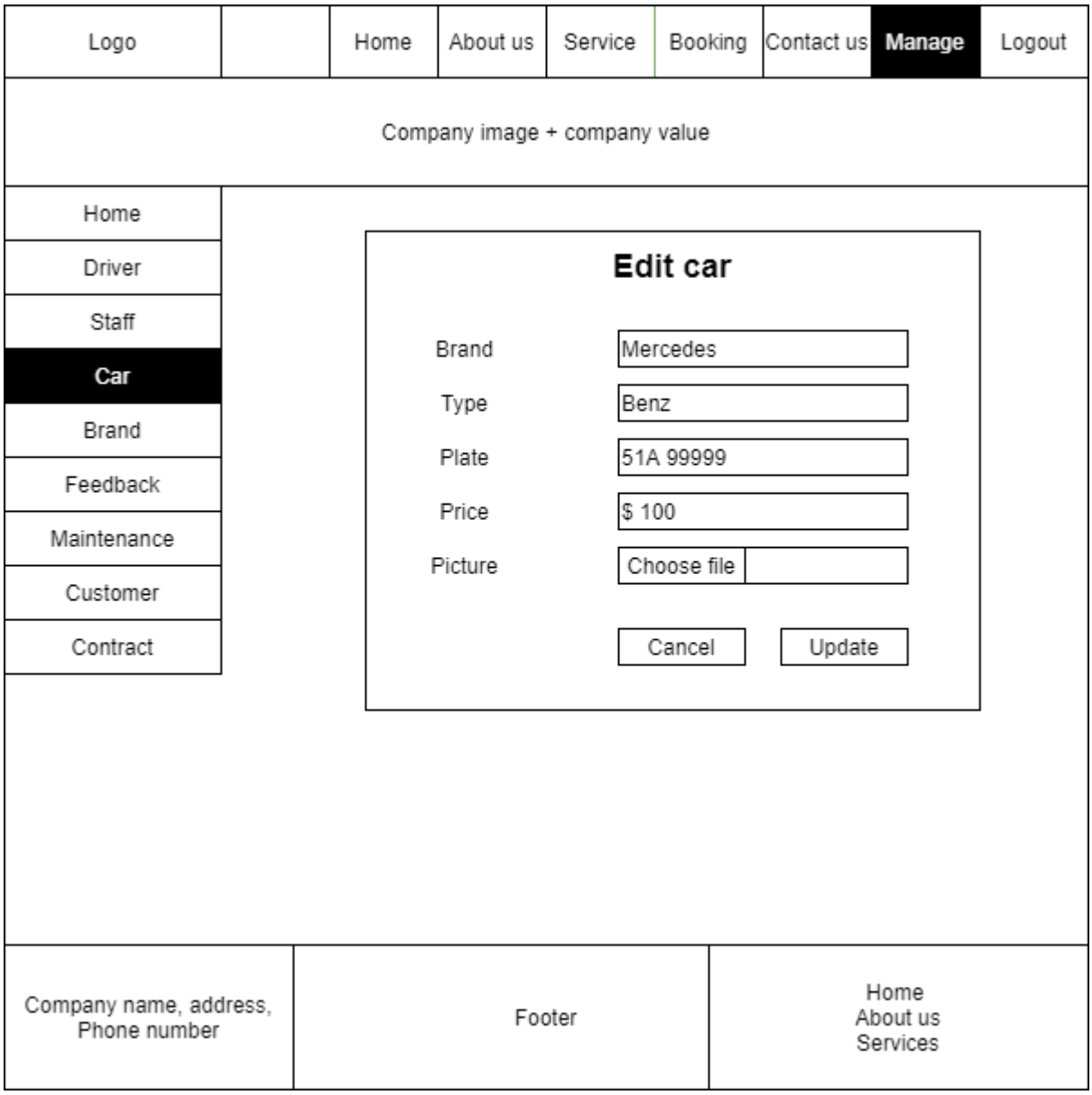
Description: Create a new information of car

From: [Add new] button under the [Car List] table

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List

Validate: Brand must be selected from brand list

16. Edit Car



Description: Edit an information of car that has been added before

From: [Edit] button on [Car List] table

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Create Car, Car List

Validate: Brand must be selected from brand list

17. Driver List

Description: Display the list of Drivers

From: [Driver] button from [Manage] Page

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List, Create Driver, Edit Driver

18. Create Driver

Description: Create a new information of driver

From: [Add new] button under the Driver List table

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List

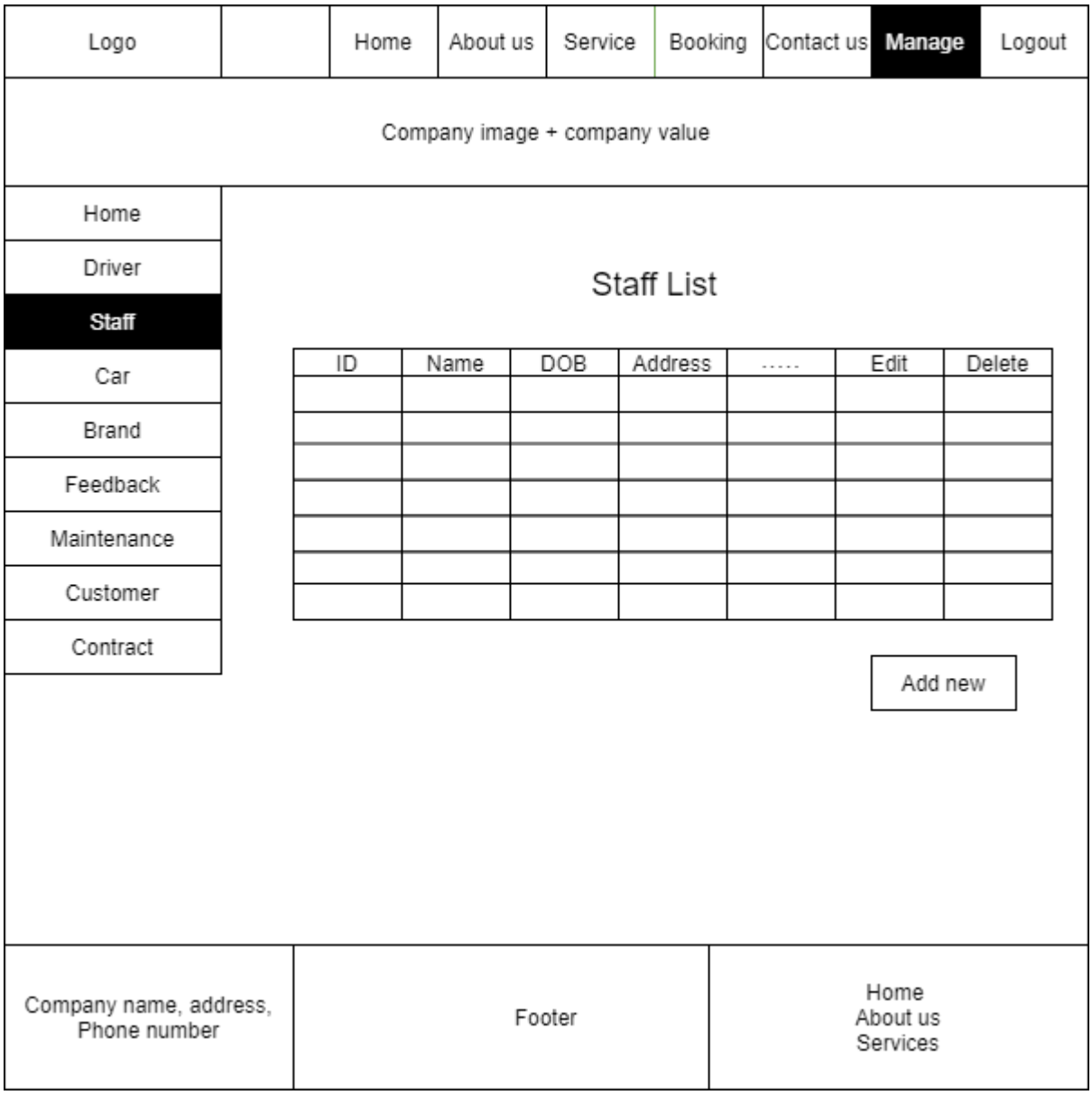
19. Edit Driver

Description: Edit an information of driver that has been added before

From: [Edit] button on [Driver List] table

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List

20. Staff List



Description: Display the list of Staff

From: [Staff] button from [Manage] Page

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List, Edit Staff, Create Staff

21. Create Staff

Description: Create a new information of staff

From: [Add new] button under the [Staff List] table

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List

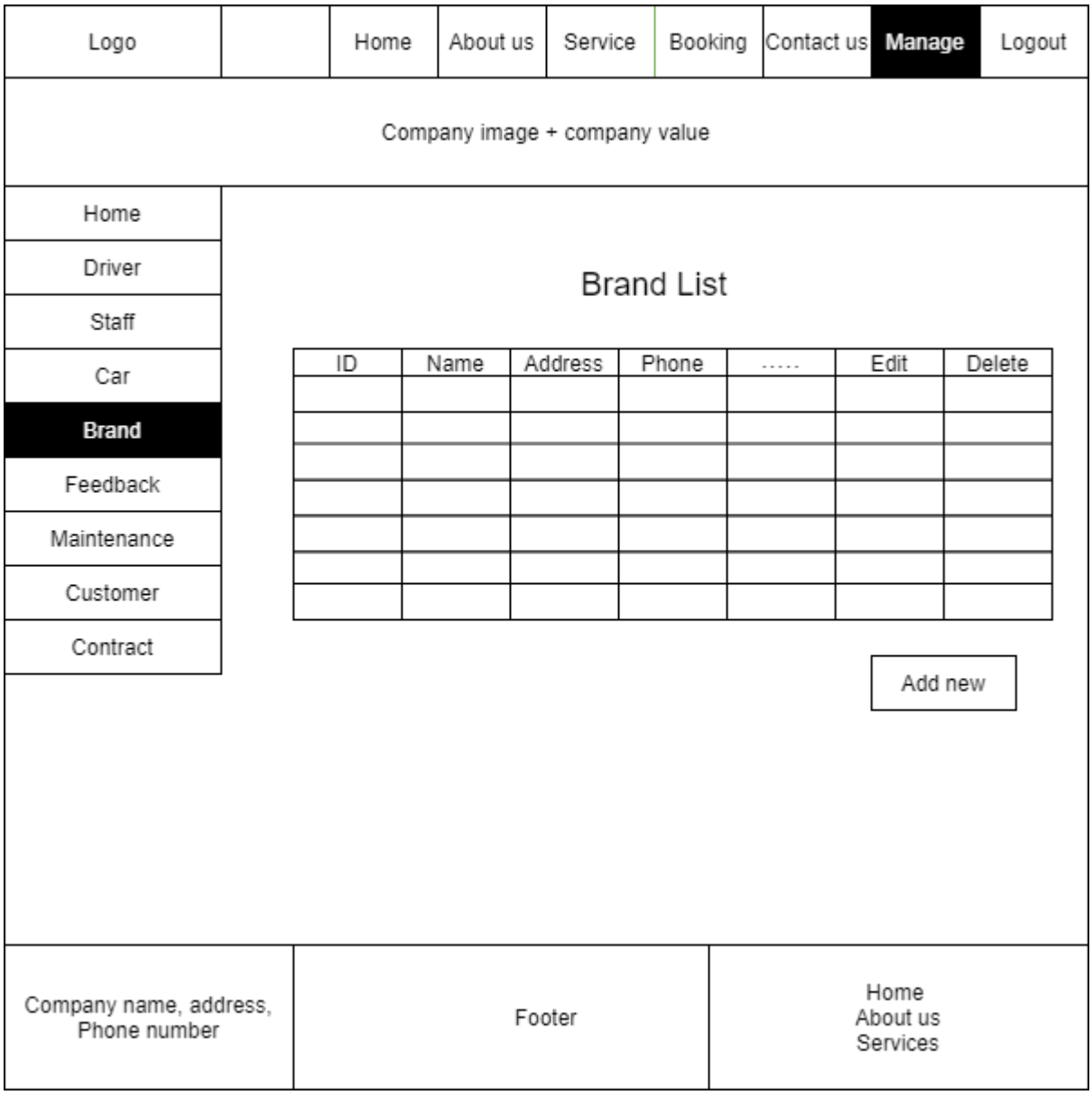
22. Edit Staff

Description: Edit an information of staff that has been added before

From: [Edit] button on [Staff List] table

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List

23. Brand List

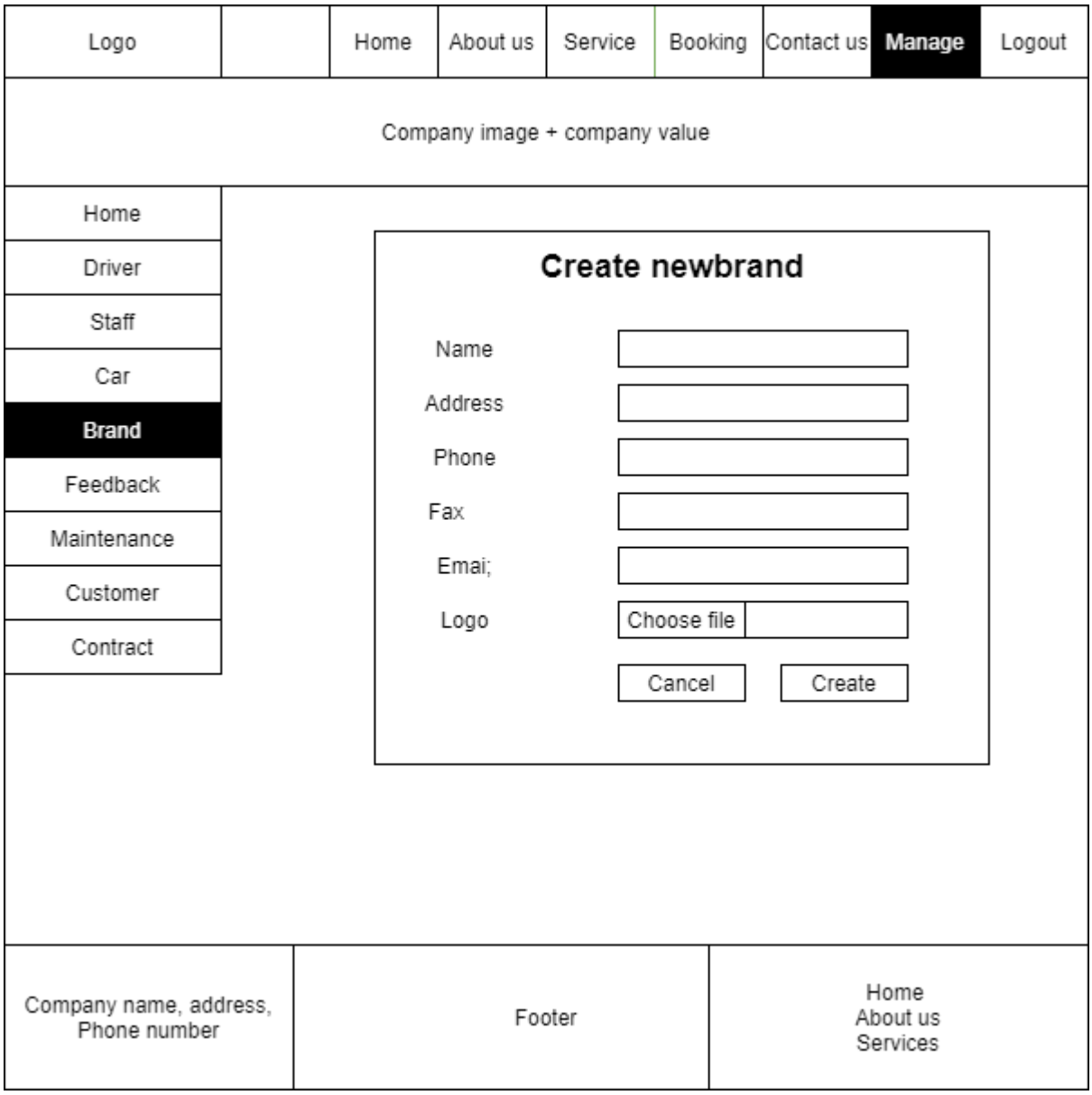


Description: Display the list of Brand

From: [Brand] button from [Manage] Page

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List, Create Brand, Edit Brand

24. Create Brand



Description: Create a new information of brand

From: [Add new] button under the [Brand List] table

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List

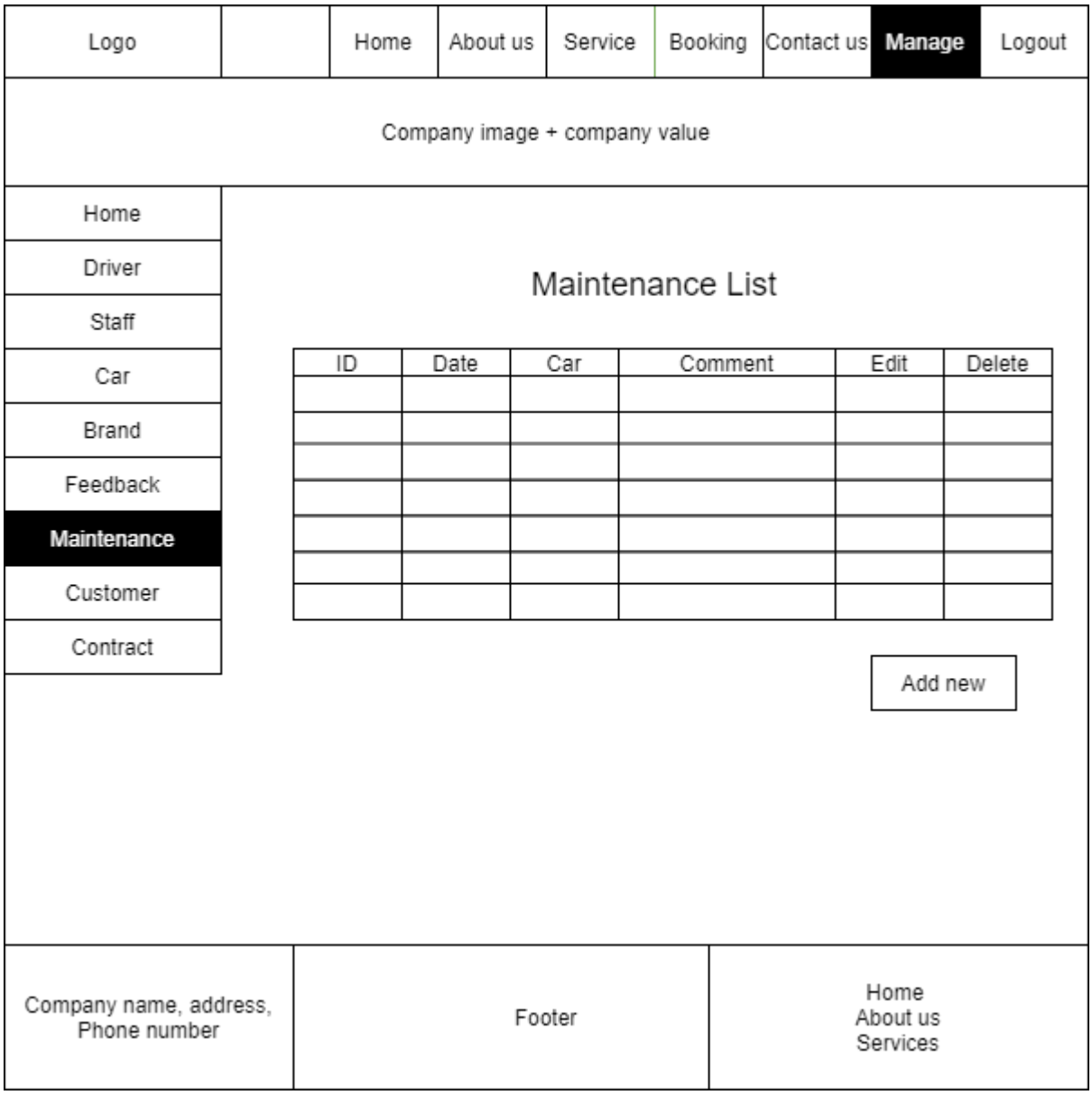
25. Edit Brand

Description: Edit an information of brand that has been added before

From: [Edit] button on Brand List table

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List

26. Maintenance List

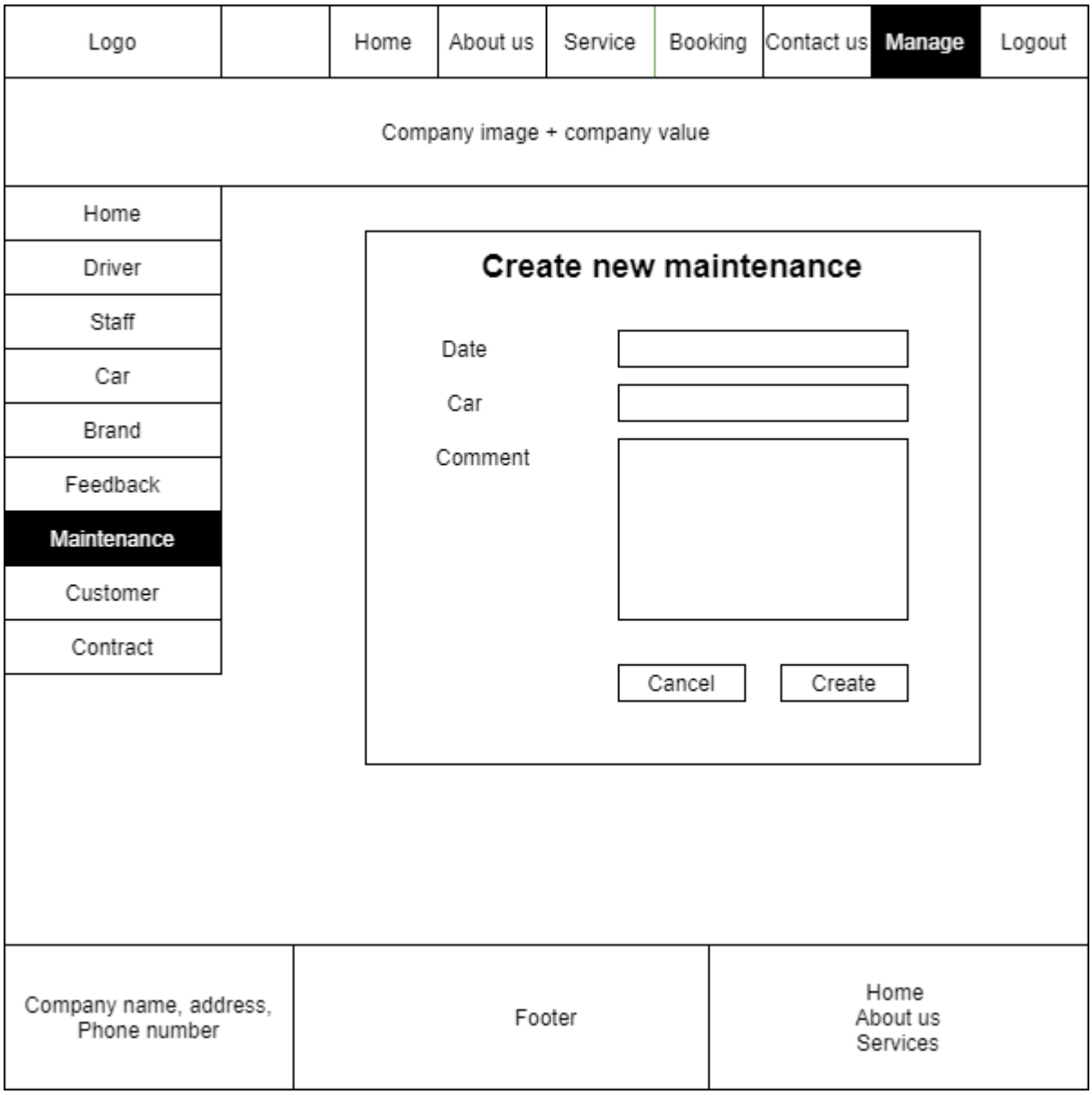


Description: Display the list of Maintenance information of car

From: [Maintenance] button from [Manage] Page

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List, Create Maintenance, Edit Maintenance

27. Create Maintenance



Description: Create a new information of Maintenance of car

From: [Add new] button under the [Maintenance List] table

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List

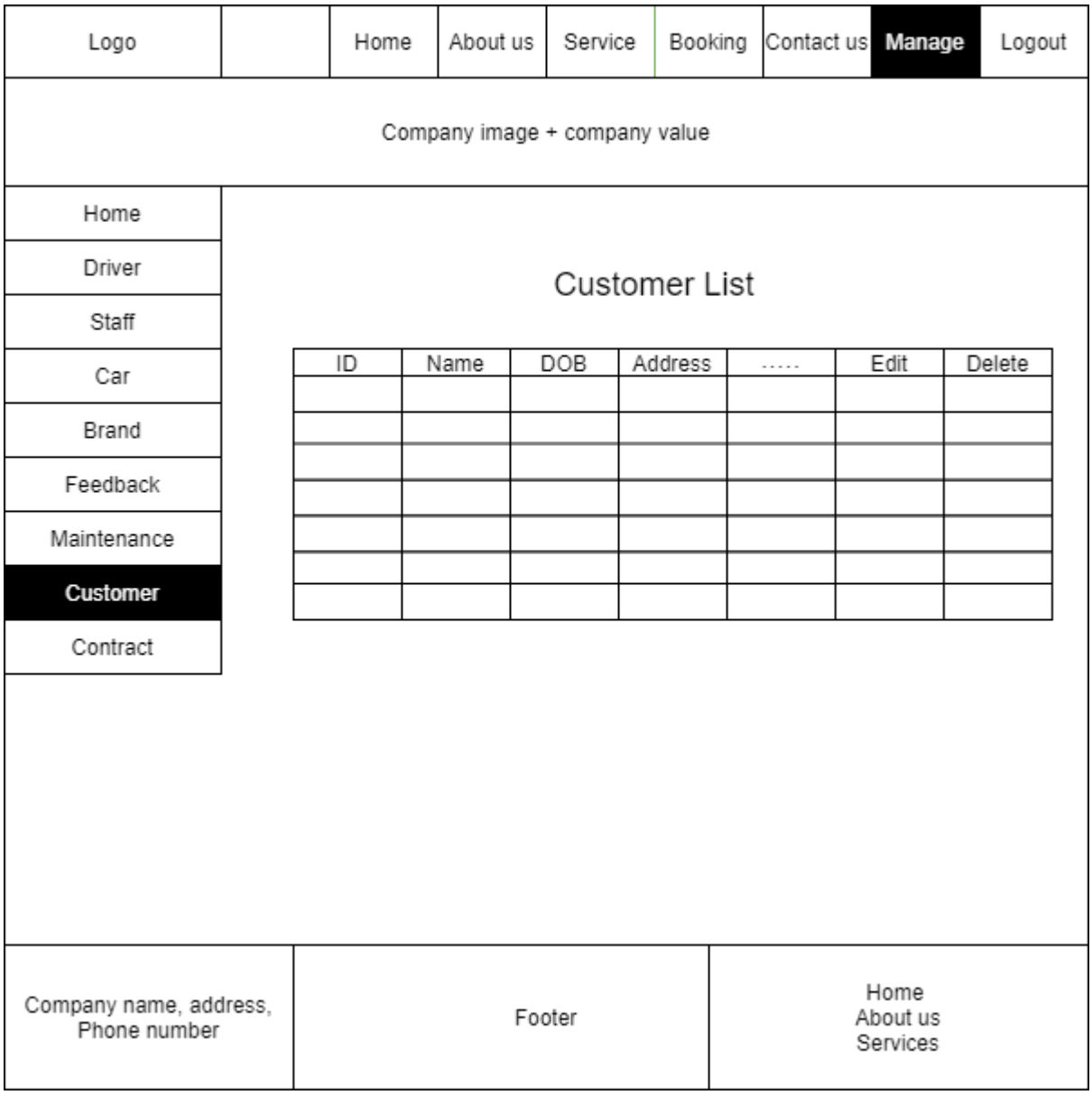
28. Edit Maintenance

Description: Edit an information of Maintenance of car that has been added before

From: [Edit] button on [Maintenance List] table

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List

29. Customer List

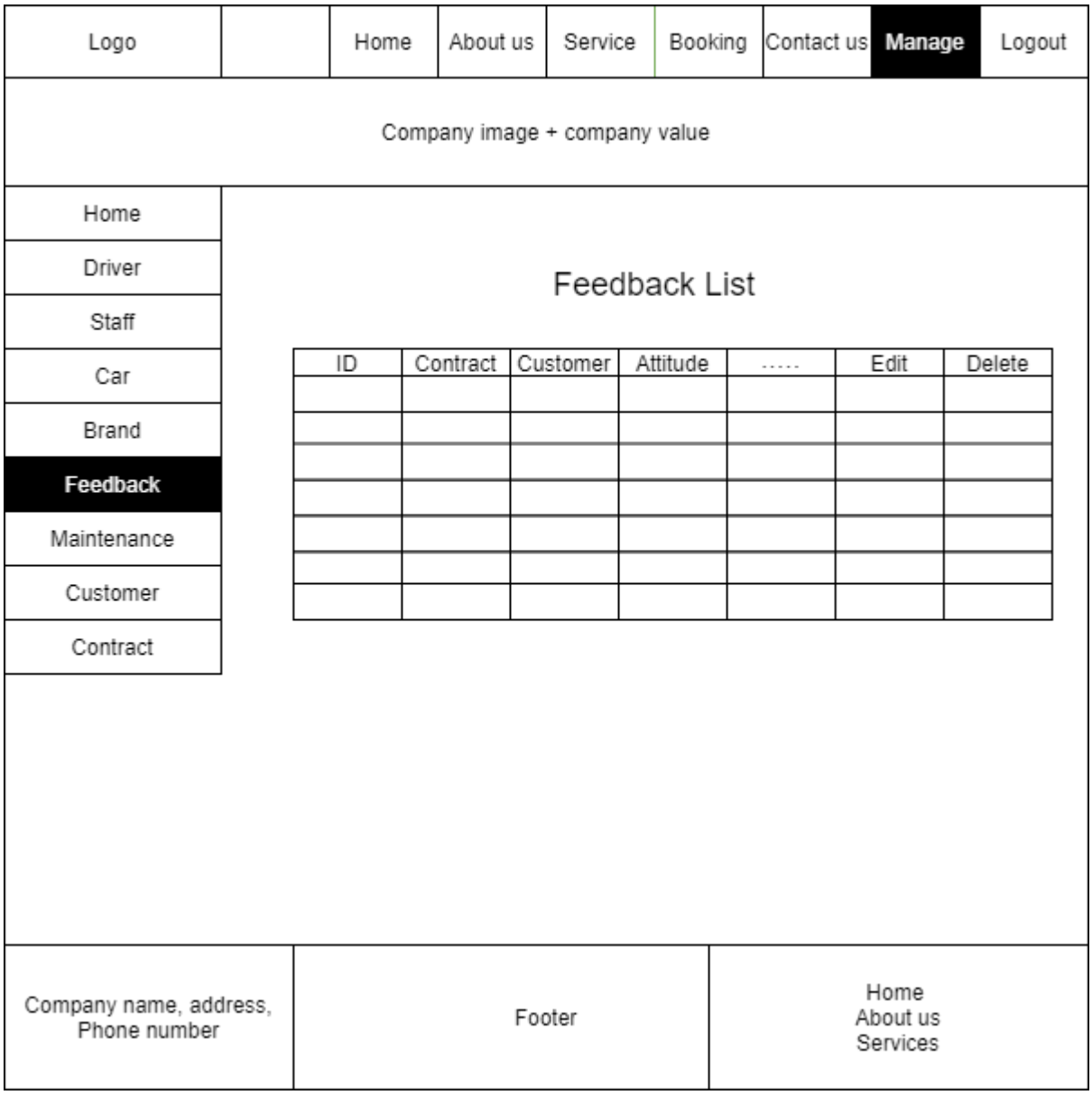


Description: Display the list of customer

From: [Customer] button from [Manage] Page

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List

30. Feedback List

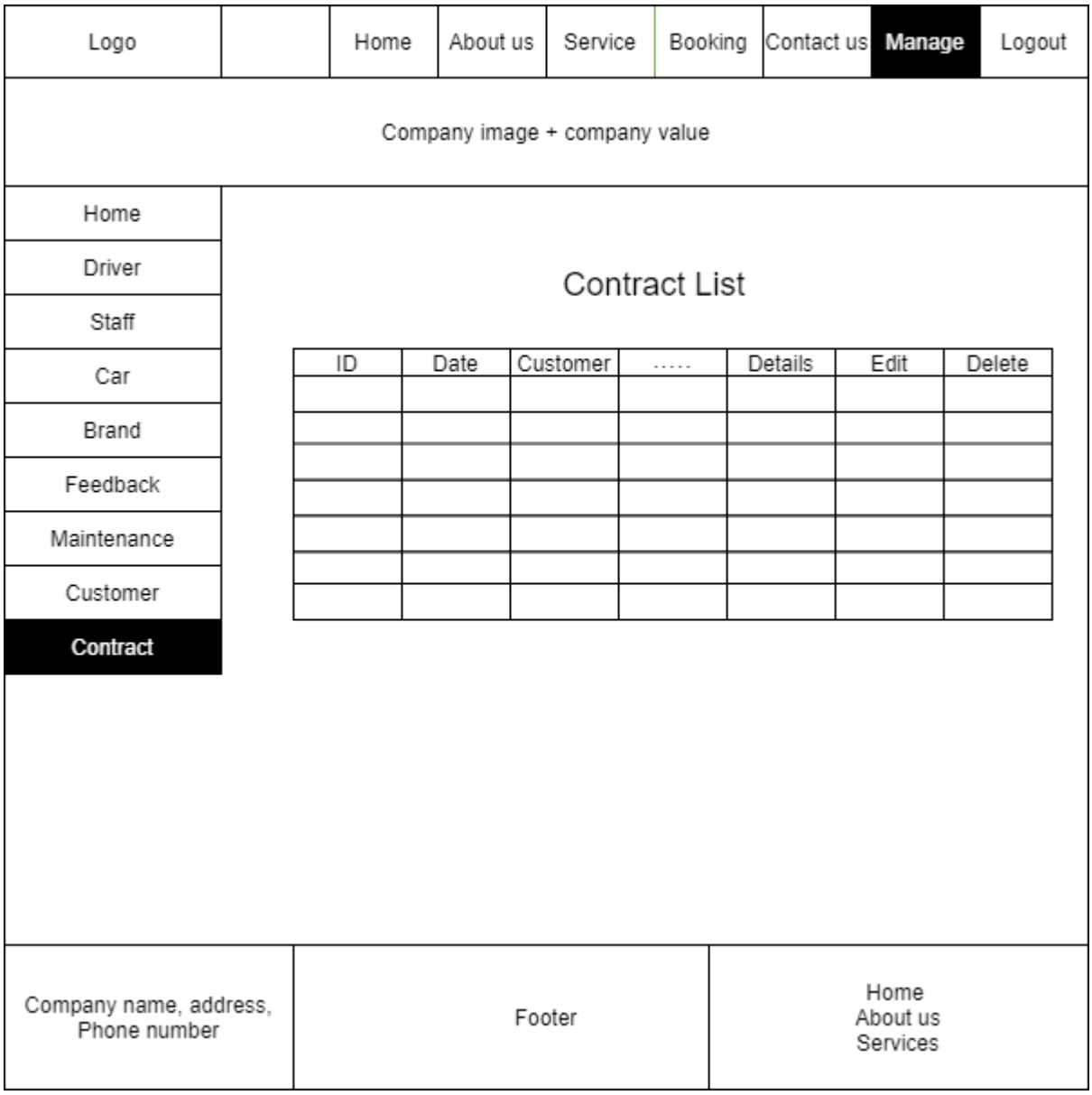


Description: Display the list of Feedback that is made by customer

From: [Feedback] button from [Manage] Page

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List

31. Contract List



Description: Display the list of contract

From: [Contract] button from [Manage] Page

To: Home, About us, Service, Booking, Contact us, Driver List, Staff List, Brand List, Feedback List, Maintenance List, Customer List, Contract List, Car List

Testing Documents

Sr. No.	Features Tested	Remarks
1	Database created successfully?	Pass
2	Tables are created and migrated to database successfully?	Pass
3	Images could be inserted into database properly?	Pass
4	Data lists with images displayed properly?	Pass
5	Information of car/driver/staff/… could be updated properly?	Pass
6	Information of car/driver/staff/… could be deleted?	Pass
7	Functions in controllers are working properly?	Pass

Final Checklist

Sr. No.	Aspects Tested	Suggestion/ Remarks
1	Are all the users able to view the images and links?	To be tested
2	Have all views, models and controllers been properly integrated and is the site function as a single page application?	To be tested
3	Are the GUI content devoid of spelling mistakes?	To be tested
4	Is the application user-friendly?	To be tested
5	Is the Website launching correctly in all popular browsers?	To be tested
6	Are all the forms validated with proper criteria?	To be tested
7	Do all texts links lead to the appropriate website?	To be tested
8	Do all images links lead to the appropriate website?	To be tested
9	Are all the images and links clearly visible on the pages?	To be tested
10	Does the Website work properly in all tested browsers?	To be tested
11	Does the Website take too long to be loaded fully?	To be tested
12	Is the navigation sequences correct through all the pages on the Website?	To be tested
13	Is the JavaScript code working as expected in all click events?	To be tested

Task List

No	Member	Contents		Table Name	Activity Plan	Date of Preparation of Activity Plan		
					Planed Start Date	Actual Start Date	Actual Days	Status
1	**Lưu Quang Nhật**	Admin	View/ Edit/ Delete	Contract Contract Details	20/08/2021	20/08/2021	3	OK
2					20/08/2021	20/08/2021	3	OK
3		User	Create/ View		20/08/2021	20/08/2021	3	OK
4					20/08/2021	20/08/2021	3	OK
1	**Nguyễn Anh Đức**	Admin	Create/ View/ Edit/ Delete	Driver Management Staff	20/08/2021	20/08/2021	3	OK
2					20/08/2021	20/08/2021	3	OK
3		User	View		20/08/2021	20/08/2021	3	OK
4					20/08/2021	20/08/2021	3	OK
1	**Hoàng Anh Đức**	Admin	View/ Delete	Customer Feedback	20/08/2021	20/08/2021	3	OK
2					20/08/2021	20/08/2021	3	OK
3		User	Register/ Edit		20/08/2021	20/08/2021	3	OK
4					20/08/2021	20/08/2021	3	OK
1	**Nguyễn Võ Minh Tuấn**	Admin	Create/ View/ Edit/ Delete	Car Brand	20/08/2021	20/08/2021	3	OK
2		User	View		20/08/2021	20/08/2021	3	OK
3		Admin	Create/ View/ Edit/ Delete	Maintenance	20/08/2021	20/08/2021	3	OK
4					20/08/2021	20/08/2021	3	OK

	Prepared by Luu Quang Nhat	**Approved by Mr. Le Thanh Nhan**
	Project Group No. 04	
Signature		
Date	10/09/2021	