

5. Filtering Hires

1. Let's create some more Hires. Login as peter and create the following 2 Hires.

The screenshot shows a web browser window titled "carDate - Hires Maintenance" at the URL "localhost:8081/hire/active/1". The page displays a table of "Current Hires" with the following data:

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfilled by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
21	Rachel Green	AUD6	\$240.00	peter		2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00		\$0.00	Return Invoice
22	Phoebe Buffay	BMW101	\$100.00	peter		2021-Apr-14 17:15	2021-Apr-17 12:00	\$150.00	\$300.00		\$0.00	Return Invoice

At the bottom of the table, there are buttons for "Show all Hires", "5 per page", "Page 1 of 1", and "Total Rows: 2". Below the table, there are input fields for "Hire Id", "Hired by", "Vehicle", "Daily Rate", "Fulfilled by", "Returned to", "Hire starts", "Planned hire end", "Hire deposit", "Planned fee", "Actual hire end", "Actual fee", and "Actions". There are also buttons for "Find", "Save", and "Reset".

2. First we go to Customer page. You can set the page size to 6 by typing this URL
"localhost:8081/custPageSize/6". This is a trick you can do to vary page sizes from 6 to 19. If you do not like, just stick to page size of 5 or 10.

The screenshot shows a web browser window titled "carDate - Customer Maintenance" at the URL "localhost:8081/custPageSize/6". The page displays a table of "Customers" with the following data:

CustomerID (ASC)	Customer Name	NRIC	Driving License	Email	Phone No	Address line 1	Address line 2	City	Date of Birth	Is Active	Last Updated	Alternate Contact	Current Hire	Hire history	Actions
1	Monica Geller	FRIENDS01		m.geller@friends.com	+15534568765	Birmingham	Alabama, United States	New York	1964-06-15	<input type="checkbox"/>	2021-04-05	Chandler Bing			
2	Rachel Green	FRIENDS02		r.green@friends.com	+15534568766	Sherman Oaks	Los Angeles, United States	New York	1969-02-11	<input checked="" type="checkbox"/>	2021-04-05	Ross Geller	AUD6	2	
3	Joey Tribbiani	FRIENDS03		j.tribbiani@friends.com	+15534568767	Newton	Massachusetts, United States	New York	1969-02-11	<input type="checkbox"/>	2021-04-05	Chandler Bing			
4	Chandler Bing	FRIENDS04		c.bing@friends.com	+15534568768	Williamstown	Massachusetts, United States	New York	1969-08-19	<input checked="" type="checkbox"/>	2021-04-05	Rachel Green	1		
5	Phoebe Buffay	FRIENDS05		p.buffay@friends.com	+15534568769	Encino	Los Angeles, United States	New York	1963-07-30	<input checked="" type="checkbox"/>	2021-04-05	Chandler Bing	BMW101	2	
6	Ross Geller	FRIENDS06		ross.geller@friends.com	+15534568761	Flushing	New York, United States	New York	1969-11-02	<input checked="" type="checkbox"/>	2021-04-05	Rachel Green	1		

At the bottom of the table, there are buttons for "Show only 4", "6 per page", "Find", "Prev", "Next", "Last", "Page 1 of 4", and "Total Rows: 23". Below the table, there are input fields for "Customer ID", "Customer Name", "NRIC", "Driving License", "Email", "Phone No", "Address line 1", "Address line 2", "City", "Date of Birth", "Is Active", "Last Updated", "Alternate Contact", "Current Hire", "Hire history", and "Actions". There are also buttons for "Find", "Save", and "Reset".

Here, Chandler and Ross have 1 Hire history each, while Rachel and Phoebe each have 2. Rachel has current Hire and the Vehicle is AUD6, and for Phoebe BMW101.
Click on AUD6 to pin the Vehicle.

3. AUD6 is pinned. You can also see that AUD6 has 2 Hire history and is currently Hired to Rachel.

Pinned Vehicle Id	Licence Plate	Model	Brand	Daily Rate	Status	Hired to	Hire history	Actions
11	AUD6	R56	Audi	240.0	HRED	Rachel Green	2	X

Customers

Customer Id (ASC)	Customer Name	NRIC	Driving License	Email	Phone No	Address Line 1	Address Line 2	City	Date of Birth	Is Active	Last Updated	Alternate Contact	Current Hire	Hire history	Actions
1	Monica Geller	FRIENDS01		m.geller@friends.com	+15534566765	Birmingham	Alabama, United States	New York	1964-06-15	<input type="checkbox"/>	2021-04-05	Chandler Bing			
2	Rachel Green	FRIENDS02		r.green@friends.com	+15534566766	Sherman Oaks, Los Angeles	California, United States	New York	1969-02-11	<input checked="" type="checkbox"/>	2021-04-05	Ross Geller	AUD6	2	
3	Joey Tribbiani	FRIENDS03		j.tribbiani@friends.com	+15534566767	Newton	Massachusetts, United States	New York	1969-02-11	<input type="checkbox"/>	2021-04-05	Chandler Bing			
4	Chandler Bing	FRIENDS03		c.bing@friends.com	+15534566768	Willowstone	Massachusetts, United States	New York	1969-08-19	<input checked="" type="checkbox"/>	2021-04-05	Rachel Green	1		
5	Phoebe Buffay	FRIENDS04		p.buffy@friends.com	+15534566769	Encino, Los Angeles	California, United States	New York	1963-07-30	<input checked="" type="checkbox"/>	2021-04-05	Chandler Bing	BMW101	2	
6	Ross Geller	FRIENDS06		ross.green@friends.com	+15534566761	Flushing	New York, United States	New York	1969-11-02	<input checked="" type="checkbox"/>	2021-04-05	Rachel Green	1		

Show only Hiring 6 per page * First Prev Next Last Page 1 of 4 Total Rows 23

mm/dd/yyyy 2021-04-14

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Click on the 2 under Hire history against the row for Rachel.

4. You will come to this page.

Hire Id	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
1	Rachel Green	BEN610	\$150.00	peter	peter	2021-Apr-05 18:05	2021-Apr-13 16:00	\$700.00	\$1,230.00	2021-04-14T16:00	\$1,428.00	<input type="button" value="Invoice"/>
21	Rachel Green	AUD6	\$240.00	peter		2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00		\$0.00	<input type="button" value="Return"/> <input type="button" value="Invoice"/>

Show only current Hires 3 per page * Page 1 of 1 Total Rows 2

0 \$0.00 peter 04/14/2021 17:20

0 \$0.00 04/15/2021 12:00

\$0.00 \$0.00

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Note the heading above the list of Hires, that says "Hires of Customer Rachel Green". It tells you that you are looking at the Hire history of Rachel only.

Click [Show only current Hires].

5. Now only current Hires of Rachel is shown.

The screenshot shows a web-based application for managing vehicle hires. At the top, there's a navigation bar with links for Customers, Vehicles, and Hires. A yellow car icon is on the left. On the right, there's a 'logout peter' link and a timestamp. Below the navigation is a table header with columns: Pinned Vehicle Id, License Plate, Model, Brand, Veh Status, Daily Rate, Current Hire, Hire History, and Actions. A single row is highlighted in yellow, representing a hire for vehicle ID 11, license plate RS6, model Audi, brand AUD6, status HIRED, daily rate 240.0, current hire Rachel Green, and hire history count 2. There's a small cross icon next to the hire history column. Below the table is a section titled 'Current Hires of Customer Rachel Green' with a close button. It contains a table with columns: Hire Id (ASC), Hired by, Vehicle, Daily Rate, Fulfill by, Returned to, Hire starts, Planned hire end, Hire deposit, Planned fee, Actual hire end, Actual fee, and Actions. Two rows are listed: one for Chandler Bing (hire id 2) and one for Rachel Green (hire id 21). Both rows show the same details as the main table. At the bottom, there are buttons for 'Show all Hires', '5 per page', 'Page 1 of 1', and 'Total Rows: 1'. There are also buttons for 'Return' and 'Invoice'. The footer of the page says 'Copyright © carDate Ltd.'

Note how the heading changes to describe the Hires.

Click on the 2 under Hire history at the pinned Vehicle.

6. You are looking at the Hire history of Vehicle AUD6.

This screenshot shows the same application interface as the previous one, but now focusing on vehicle AUD6. The table header and first row are identical. The second row, representing hire id 21 for Rachel Green, is highlighted in yellow. The 'Actions' column for this row contains a small cross icon. The rest of the page structure, including the 'Current Hires of Customer Rachel Green' section and the footer, is identical to the previous screenshot.

Likewise you can click [Show only current Hires] to see only the current Hire. Try it.

Now click on the cross to the right of AUD6.

7. This will eliminate AUD6 from the criteria, and show all current Hires.

The screenshot shows a browser window for 'carDate - Hires Maintenance' at 'localhost:8081/hireVeh/0'. The top navigation bar includes links for Customers, Vehicles, and Hires. The user is logged in as 'peter' on 2021-04-14 17:21:00. The main content area displays a table for 'Current Hires' with one row:

Pinned Vehicle Id	License Plate	Model	Brand	Veh Status	Daily Rate	Current Hire	Hire History	Actions
11	R56	Audi	AUD6	HIRED	240.0	Rachel Green	2	x

Below this is another table for 'Current Hires' with two rows:

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
Z1	Rachel Green	AUD6	\$240.00	peter		2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00		\$0.00	Return Invoice
Z2	Phoebe Buffay	BMW101	\$100.00	peter		2021-Apr-14 17:15	2021-Apr-17 12:00	\$150.00	\$300.00		\$0.00	Return Invoice

At the bottom of the page are buttons for 'Show all Hires', '5 per page', 'Page 1 of 1', and 'Total Rows: 2'.

You can click on the column heading Planned hire end, to sort the list in ascending order. This will help you identify overdue Hires.

8. Well, the list is already in correct order.

The screenshot shows a browser window for 'carDate - Hires Maintenance' at 'localhost:8081/hireActive/1'. The top navigation bar includes links for Customers, Vehicles, and Hires. The user is logged in as 'peter' on 2021-04-14 17:06:00. The main content area displays a table for 'Current Hires' with one row:

Pinned Vehicle Id	License Plate	Model	Brand	Veh Status	Daily Rate	Current Hire	Hire History	Actions
11	R56	Audi	AUD6	HIRED	240.0	Rachel Green	2	x

Below this is another table for 'Current Hires' with two rows:

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end (ASC)	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
Z1	Rachel Green	AUD6	\$240.00	peter		2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00		\$0.00	Return Invoice
Z2	Phoebe Buffay	BMW101	\$100.00	peter		2021-Apr-14 17:15	2021-Apr-17 12:00	\$150.00	\$300.00		\$0.00	Return Invoice

At the bottom of the page are buttons for 'Show all Hires', '5 per page', 'Page 1 of 1', and 'Total Rows: 2'.

Now click [Show all Hires].

9. All of the Hires are shown regardless of current or historic.

The screenshot shows a web browser window titled "carDate - Hires Maintenance". The URL is "localhost:8081/hirePageSize/10". The page has a blue header bar with a yellow car icon and navigation links: "Customers", "Vehicles", "Hires". On the right, it shows "logout peter 2021-04-14 17:28:05". Below the header is a table with columns: "Pinned Vehicle Id", "License Plate", "Model", "Brand", "Veh Status", "Daily Rate", "Current Hire", "Hire history", and "Actions". A single row is visible: "11 R56 Audi AUDI HIRED 240.0 Rachel Green 2". Below this is a section titled "Hires" with a table showing details for six hire entries. At the bottom are buttons for "Show only current Hires", "10 per page*", "Page 1 of 1", and "Total Rows: 6".

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Click on the home icon (at the Navigation bar.

10. Here you can view your own personal details, and change your password and initial menu.

The screenshot shows a web browser window titled "carDate - My Profile". The URL is "localhost:8081/homeSave". The page has a blue header bar with a yellow car icon and navigation links: "Customers", "Vehicles", "Hires". On the right, it shows "logout peter 2021-04-14 17:31:07". Below the header is a section titled "My Profile" with a note: "To change password, you must enter the old password, and new password twice, please try again.". The form contains fields for Employee Id (3), Sign-in name (peter), Password (Old password:), New password: , Repeat: , Full name (Peter), Phone no (+6012345678), Email (peter@carDate.com), Job title (Officer), Initial Menu (Customers, dropdown menu), Is Active? (true), Sign-in expiring (2021-06-30), Password expiring (2021-05-31), and a "Reset" button.

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Try change the password to all capitals, and initial menu to Hires. Logout, and login.

11. Upon login, you are at the Hires page, and it shows only current Hires by default.

The screenshot shows a web browser window titled "carDate - Hires Maintenance". The URL is "localhost:8081/hirePage/0". The page has a blue header bar with a yellow car icon and navigation links: "Customers", "Vehicles", and "Hires". On the right side of the header, there is a "logout peter" link and a timestamp "2021-04-14 17:33:46". Below the header, the main content area is titled "Current Hires". It contains a table with two rows of data:

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
21	Rachel Green	AUDI6	\$240.00	peter		2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00		\$0.00	<button>Return</button> <button>Invoice</button>
22	Priyanka Buffy	BMW101	\$100.00	peter		2021-Apr-14 17:15	2021-Apr-17 12:00	\$150.00	\$300.00		\$0.00	<button>Return</button> <button>Invoice</button>

Below the table, there are buttons for "Show all Hires", "5 per page", "Page 1 of 1", and "Total Rows: 2". At the bottom of the page, there are buttons for "Find", "Save", and "Reset".

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Click on the home icon (at the Navigation bar.

12. Here change you password back to small letters.

The screenshot shows a web browser window titled "carDate - My Profile". The URL is "localhost:8081/homeSave". The page has a blue header bar with a yellow car icon and navigation links: "Customers", "Vehicles", and "Hires". On the right side of the header, there is a "logout peter" link and a timestamp "2021-04-14 17:33:46". Below the header, the main content area is titled "My Profile". A message "Password changed successfully." is displayed in green. The form contains the following fields:

Employee id:	3	
Sign-in name:	peter	
Password:	Old password: <input type="text"/>	New password: <input type="text"/>
Full name:	Peter	
Phone no:	+6012345678	
Email:	peter@carDate.com	
Job title:	Officer	
Initial Menu:	Hires <input type="button" value="Hires"/>	
Is Active?:	true	
Sign-in expiring:	2021-06-30	
Password expiring:	2021-06-13	

At the bottom of the form, there are "Save" and "Reset" buttons.

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Currently there is no restrictions for passwords.

Click on the 3, which is your Employee Id, to the right of the row for Employee Id.

13. You will be brought to this page showing all the Current Hires handled by the Employee of Employee Id 3, which is you.

The screenshot shows a web browser window titled "carDate - Hires Maintenance". The URL is "localhost:8081/hireEmp/3". The page header includes a yellow car icon, navigation links for "Customers", "Vehicles", and "Hires", and a "logout peter" link. The main content area is titled "Current Hires handled by Employee Peter". A table displays two rows of hire information:

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
21	Rachel Green	AUD6	\$240.00	peter		2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00		\$0.00	<button>Return</button> <button>Invoice</button>
22	Phoebe Buffy	BMW101	\$100.00	peter		2021-Apr-14 17:15	2021-Apr-17 12:00	\$150.00	\$300.00		\$0.00	<button>Return</button> <button>Invoice</button>

Below the table are buttons for "Show all Hires", "5 per page", "Page 1 of 1", and "Total Rows 2". At the bottom are buttons for "Find", "Save", and "Reset".

Click [Show all Hires].

14. Here all Hires handled by Employee Peter are shown:

The screenshot shows a web browser window titled "carDate - Hires Maintenance". The URL is "localhost:8081/hireActive/0". The page header includes a yellow car icon, navigation links for "Home | SGX Academy", and a "logout peter" link. The main content area is titled "Hires handled by Employee Peter". A table displays four rows of hire information, including the previous entries from the first screenshot:

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
1	Rachel Green	BBN610	\$150.00	peter	peter	2021-Apr-05 18:05	2021-Apr-13 16:00	\$700.00	\$1230.00	2021-Apr-14 16:00	\$1428.00	<button>Invoice</button>
2	Chandler Bing	AUD6	\$240.00	peter	sikon	2021-Apr-05 18:34	2021-Apr-08 12:00	\$400.00	\$720.00	2021-Apr-08 12:00	\$720.00	<button>Invoice</button>
21	Rachel Green	AUD6	\$240.00	peter		2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00		\$0.00	<button>Return</button> <button>Invoice</button>
22	Phoebe Buffy	BMW101	\$100.00	peter		2021-Apr-14 17:15	2021-Apr-17 12:00	\$150.00	\$300.00		\$0.00	<button>Return</button> <button>Invoice</button>

Below the table are buttons for "Show only current Hires", "5 per page", "Page 1 of 1", and "Total Rows 4". At the bottom are buttons for "Find", "Save", and "Reset".

Click on “sikon” under Returned to column on the row for Hire 2:

15. You can see Hires handled by “sikon”.

The screenshot shows a web-based application titled "carDate - Hires Maintenance". The URL is "localhost:8081/hireEmp/2". The page title is "Hires handled by Employee Lee Sik On". The main content is a table with the following data:

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
2	Chandler Bing	AUD6	\$240.00	peter	sikon	2021-Apr-05 18:34	2021-Apr-08 12:00	\$400.00	\$720.00	2021-Apr-08 12:00	\$720.00	<button>Invoice</button>
3	Phoebe Buffay	MCS3000	\$120.00	sikon	sikon	2021-Apr-06 09:00	2021-Apr-09 17:00	\$250.00	\$420.00	2021-Apr-08 11:00	\$420.00	<button>Invoice</button>
4	Ross Geller	BMW101	\$100.00	sikon	sikon	2021-Apr-06 09:01	2021-Apr-10 12:00	\$300.00	\$425.00	2021-Apr-10 13:00	\$430.50	<button>Invoice</button>

Below the table are buttons: "Show only current Hires", "5 per page", "Page 1 of 1", and "Total Rows: 3". At the bottom are buttons: "Trial", "Save", and "Reset".

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Logout and login as ROLE_ADMIN, and go to Employee page.

16. You get a list of Employees.

The screenshot shows a web-based application titled "carDate - Employee Maintenance". The URL is "localhost:8081/empPage/0". The page title is "Employees". The main content is a table with the following data:

Emp Id (ASC)	Login Name	Password	Roles	Full Name	Phone No	Email	Job Title	Initial Menu	Enabled	User Expiry	Password Expiry	Actions
1	root		[ROLE_ADMIN]	Simon Sridhar	+9198888897	root@carDate.com	Director	home	<input checked="" type="checkbox"/>	2021-07-27	2021-05-27	<button>Logout</button> <button>Reset</button>
2	sikon		[ROLE_ADMIN, ROLE_MANAGER]	Lee Sik On	+6565656565	sikon@carDate.com	Manager	Vehicles	<input checked="" type="checkbox"/>	2021-06-30	2021-05-31	<button>Logout</button> <button>Reset</button>
3	peter		[ROLE_USER]	Peter	+6012345678	peter@carDate.com	Officer	Hires	<input checked="" type="checkbox"/>	2021-06-30	2021-06-13	<button>Logout</button> <button>Reset</button>

Below the table are buttons: "5 per page", "Page 1 of 1", and "Total Rows: 3". At the bottom are buttons: "Logout", "Reset", and "Logout".

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The left most column is the Emp Id of all Employees. Click on the 3 at the column.

17. You can use this hyperlink to view Hires handled by each Employee.

The screenshot shows a web-based application interface for managing hires. At the top, there's a navigation bar with links for Customers, Vehicles, Hires, Employees, and Configurations. A yellow car icon is also present. On the right side of the header, there's a 'logout sikon' link and a timestamp. Below the header, the main content area has a title 'Current Hires handled by Employee Peter'. A table displays two hire entries:

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
21	Rachel Green	AUD6	\$240.00	peter		2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00		\$0.00	Return Invoice
22	Phoebe Buffay	BMW101	\$100.00	peter		2021-Apr-14 17:15	2021-Apr-17 12:00	\$150.00	\$300.00		\$0.00	Return Invoice

Below the table, there are buttons for 'Show all Hires', '5 per page', 'Page 1 of 1', and 'Total Rows 2'. At the bottom of the page, there's a copyright notice: 'Copyright © carDate Ltd.'

Click [Show all Hires].

18. Now all the Hires handled by this Employee is listed.

The screenshot shows the same application interface, but the main content area now displays a larger list of hires for Employee Peter. The table includes the same two entries from the previous screen, plus two additional ones:

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
1	Rachel Green	BEN610	\$150.00	peter	peter	2021-Apr-05 18:05	2021-Apr-13 16:00	\$700.00	\$1,230.00	2021-04-14T16:00	\$1,428.00	Delete Invoice
2	Chandler Bing	AUD6	\$240.00	peter	sikon	2021-Apr-05 18:34	2021-Apr-06 12:00	\$400.00	\$720.00	2021-04-08T12:00	\$720.00	Delete Invoice
21	Rachel Green	AUD6	\$240.00	peter		2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00		\$0.00	Return Invoice
22	Phoebe Buffay	BMW101	\$100.00	peter		2021-Apr-14 17:15	2021-Apr-17 12:00	\$150.00	\$300.00		\$0.00	Return Invoice

Below the table, there are buttons for 'Show only current Hires', '5 per page', 'Page 1 of 1', and 'Total Rows 4'. At the bottom of the page, there's a copyright notice: 'Copyright © carDate Ltd.'

This screen is practical if you want to delete an Employee record. Before deleting an Employee, you must delete all the Hires handled by that Employee, and this helps you find them. You should note that only returned Hires has a Delete button.

Try to delete Hire number 1 by Rachel.

19. You can't. It has been designed that Hire records can only be deleted more than 183 days after the Actual return date of the Hire.

Hires handled by Employee Peter

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
1	Rachel Green	BEN810	\$150.00	peter	peter	2021-Apr-05 18:05	2021-Apr-13 16:00	\$700.00	\$1,230.00	2021-04-14T16:00	\$1,428.00	Delete Invoice
2	Chandler Bing	AUD6	\$240.00	peter	skon	2021-Apr-05 18:34	2021-Apr-06 12:00	\$400.00	\$720.00	2021-04-08T12:00	\$720.00	Delete Invoice
21	Rachel Green	AUD6	\$240.00	peter		2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00		\$0.00	Return Invoice
22	Phoebe Buffay	BMW101	\$100.00	peter		2021-Apr-14 17:15	2021-Apr-17 12:00	\$150.00	\$300.00		\$0.00	Return Invoice

Show only current Hires 5 per page Page 1 of 1 Total Rows: 4

0 \$0.00 skon 04/14/2021 17:49 04/15/2021 12:00 0.0 \$0.00 \$0.00 Trial Save Reset

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20. You can also try to delete Hire 21 by entering this URL: "localhost:8081/hireDeleteOts/21".

Hires handled by Employee Peter

Hire (21) is active and cannot be deleted.

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
1	Rachel Green	BEN810	\$150.00	peter	peter	2021-Apr-05 18:05	2021-Apr-13 16:00	\$700.00	\$1,230.00	2021-04-14T16:00	\$1,428.00	Delete Invoice
2	Chandler Bing	AUD6	\$240.00	peter	skon	2021-Apr-05 18:34	2021-Apr-06 12:00	\$400.00	\$720.00	2021-04-08T12:00	\$720.00	Delete Invoice
21	Rachel Green	AUD6	\$240.00	peter		2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00		\$0.00	Return Invoice
22	Phoebe Buffay	BMW101	\$100.00	peter		2021-Apr-14 17:15	2021-Apr-17 12:00	\$150.00	\$300.00		\$0.00	Return Invoice

Show only current Hires 5 per page Page 1 of 1 Total Rows: 4

0 \$0.00 skon 04/14/2021 17:51 04/15/2021 12:00 0.0 \$0.00 \$0.00 Trial Save Reset

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You will be prevented from deleting a current Hire even if you know the back door to the function.

21. Let's demonstrate one more ROLE_MANAGER function. Click the un-check box under Is Active column for Customer Monica. You will get this prompt.

The screenshot shows a browser window for 'carDate - Customer Maintenance' at 'localhost:8081/custPage/0'. A modal dialog box is centered over the page, displaying the message: 'localhost:8081 says Proceed to re-activate "Monica Geller?"' with 'OK' and 'Cancel' buttons. Below the modal is a table titled 'Customers' with columns: CustomerId (ASC), Customer Name, NBC, Driving License, Email, Phone No, Address line 1, Address line 2, City, Date of Birth, Is Active, Last Updated, Alternate Contact, Current Hire, Hire history, and Actions. The table lists five customers from FRIENDS01 to FRIENDS05. The 'Is Active' column for Monica Geller (row 1) has a checked checkbox. At the bottom of the table, there are buttons for 'Show only Hiring', '5 per page', 'First', 'Prev', 'Next', 'Last', 'Page 1 of 5', and 'Total Rows: 23'. There are also date and time filters: 'mm/dd/yyyy' and '2021-04-14'.

Click OK.

22. The Customer status is set to Active.

The screenshot shows the same 'carDate - Customer Maintenance' page after clicking 'OK' in the previous step. The modal is no longer present. The 'Is Active' column for Monica Geller (row 1) now has an unchecked checkbox. The rest of the table and controls remain the same as in the previous screenshot.

This restriction is to retain at the ROLE_MANAGER level the authority to approve a Customer to Hire Vehicles, by allowing only ROLE_MANAGER and not ROLE_USER to set a Customer to active.

6. Technical tests

This section goes into detailed technical unit test of each page to focus on features of individual pages instead of its role in the overall application functionalities.

1. The following screen shots show how Vehicle records are validated before accepted for input.

First try to save a blank Vehicle:

The screenshot shows a web browser window titled "carDate - Vehicle Maintenance". The URL is "localhost:8081/vehSaveOts". The page displays a table of vehicles with columns: Vehicle Id (ASC), License Plate, Pictures, Brand, Model, Engine, BHP, Top Speed, Current Hirer, Status, Daily Rate, Hire history, and Actions. The table contains 11 rows of data. At the bottom of the table, there are several validation error messages:

- "size must be between 3 and 8" is shown next to the "License Plate" column.
- "size must be between 1 and 20" is shown next to the "Current Hirer" column.
- "must be greater than or equal to 50" is shown next to the "Daily Rate" column.

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The errors are flagged at the bottom of the table.

2. Type another combination of mistakes:

The screenshot shows a web browser window titled "carDate - Vehicle Maintenance". The URL is "localhost:8081/vehSaveOts". The page displays a table of vehicles with columns: Vehicle Id (ASC), License Plate, Pictures, Brand, Model, Engine, BHP, Top Speed, Current Hirer, Status, Daily Rate, Hire history, and Actions. The table contains 11 rows of data. At the bottom of the table, there are several validation error messages:

- "A8" is shown in the "License Plate" column, with the message "size must be between 3 and 8".
- "123456789012345678901" is shown in the "Current Hirer" column, with the message "size must be between 1 and 20".
- "49.0" is shown in the "Daily Rate" column, with the message "must be greater than or equal to 50".

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3. Again.

The screenshot shows a browser window titled "carDate - Vehicle Maintenance" at the URL "localhost:8081/vehSaveOts". The page displays a table of vehicles with the following data:

Vehicle Id (ASO)	License Plate	Pictures	Brand	Model	Engine	BHP	Top Speed	Current Hirer	Status	Daily Rate	Hire history	Actions	
7	BMW101		BMW	X5	4800	350	241	Phoebe Buffay	HRED	\$100.00	2		
8	BEN10		Bentley	Continental GTC	6000	552	314		FREE	\$150.00	1		
9	MCD2000		Mercedes	C Class Cabriolet	2000	390	248		SUSPENDED	\$150.00			
10	MCS2000		Mercedes	S Class	2000	254	249		FREE	\$120.00	1		
11	AUD6		Audi	RS6	4000	591	250	Rachel Green	HRED	\$240.00	2		

Below the table, there are buttons for "Show only Hired", "5 per page", "First", "Prev", "Next", "Last", and "Page 1 of 4". A message "size must be between 3 and 8" is displayed above the footer. The footer also includes fields for "ABCDEF789", "Aston Martin", "12345678901234567890", search, and a "Reset" button.

4. Managed to correct all mistakes and save the Vehicle using data of maximum allowed length.

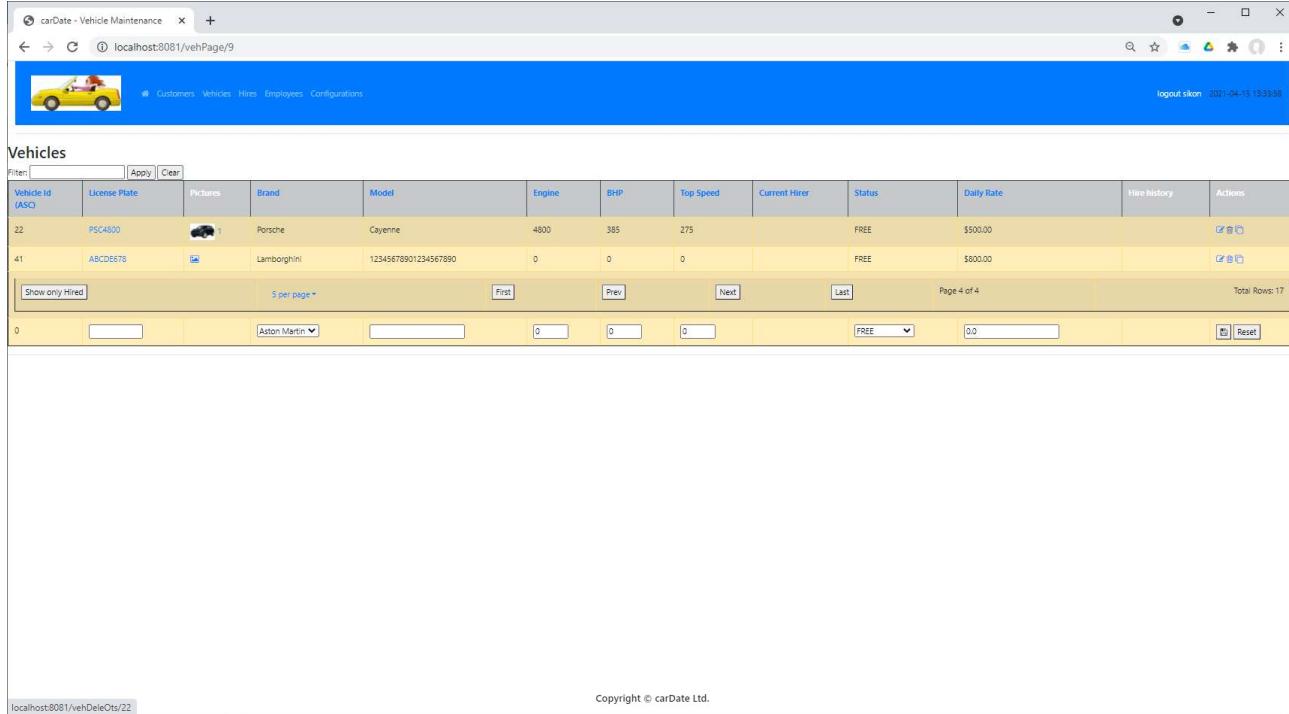
The screenshot shows a browser window titled "carDate - Vehicle Maintenance" at the URL "localhost:8081/vehPage/9". The page displays a table of vehicles with the following data:

Vehicle Id (ASO)	License Plate	Pictures	Brand	Model	Engine	BHP	Top Speed	Current Hirer	Status	Daily Rate	Hire history	Actions	
22	PSC4800		Porsche	Cayenne	4800	385	275		FREE	\$500.00			
41	ABCDE678		Lamborghini	12345678901234567890	0	0	0		FREE	\$800.00			

Below the table, there are buttons for "Show only Hired", "5 per page", "First", "Prev", "Next", "Last", and "Page 4 of 4". A message "Total Rows: 17" is displayed above the footer. The footer also includes fields for "Aston Martin", search, and a "Reset" button.

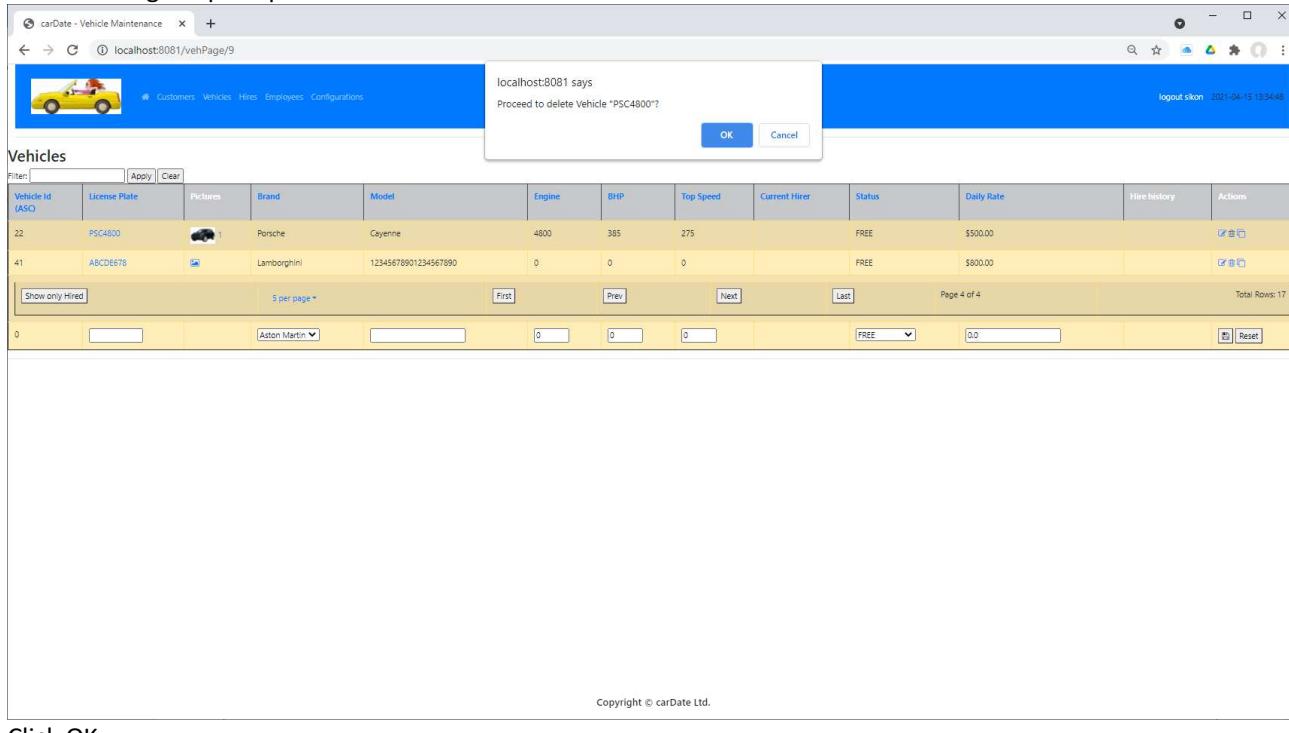
Record is saved and no field was truncated.

5. Now let's try to delete a Vehicle. Click on the bin button again PSC4800.



The screenshot shows a web-based application titled "carDate - Vehicle Maintenance". The main page displays a table of vehicles. The first row, which corresponds to the vehicle with ID 22 and license plate PSC4800, is highlighted in yellow. This vehicle is a Porsche Cayenne with an engine of 4800cc, 385 BHP, and a top speed of 275 km/h. It is currently free and has a daily rate of \$500.00. The "Actions" column for this row contains two icons: a bin (trash) icon and a circular icon with a checkmark. The rest of the table shows other vehicles, including one with ID 41 and license plate ABCD6678, which is a Lamborghini with an engine of 0cc, 0 BHP, and a top speed of 0 km/h. It is also currently free and has a daily rate of \$800.00. The "Actions" column for this row contains a bin icon and a circular icon with a checkmark. Below the table, there are buttons for "Show only Hired", "5 per page", "First", "Prev", "Next", "Last", and "Page 4 of 4". A message at the bottom right indicates "Total Rows: 17".

6. You will get a prompt.



The screenshot shows the same application interface as the previous one. A modal dialog box is centered over the page, displaying the message "localhost:8081 says Proceed to delete Vehicle 'PSC4800'?". There are two buttons at the bottom of the dialog: "OK" and "Cancel". The background of the application is visible, showing the list of vehicles. The vehicle with ID 22 and license plate PSC4800 is still highlighted in yellow. The "Actions" column for this row contains two icons: a bin (trash) icon and a circular icon with a checkmark. The rest of the table and the footer message "Total Rows: 17" are also visible.

Click OK.

7. You can't. You must delete it's picture first.

The screenshot shows a browser window titled "carDate - Vehicle Maintenance" at the URL "localhost:8081/vehDelete/22". The main content area is titled "Vehicles". A message at the top states: "Vehicle [22] has associated profile Picture. It must be removed before the Vehicle can be deleted." Below this, there is a table with columns: Vehicle Id (ASO), License Plate, Pictures, Brand, Model, Engine, BHP, Top Speed, Current Hirer, Status, Daily Rate, Hire history, and Actions. Two rows are visible: one for a Porsche Cayenne (Vehicle Id 22) and one for a Lamborghini (Vehicle Id 41). At the bottom of the table, there are filters for "Show only Hired", "5 per page", and navigation buttons (First, Prev, Next, Last). The footer of the page says "Copyright © carDate Ltd."

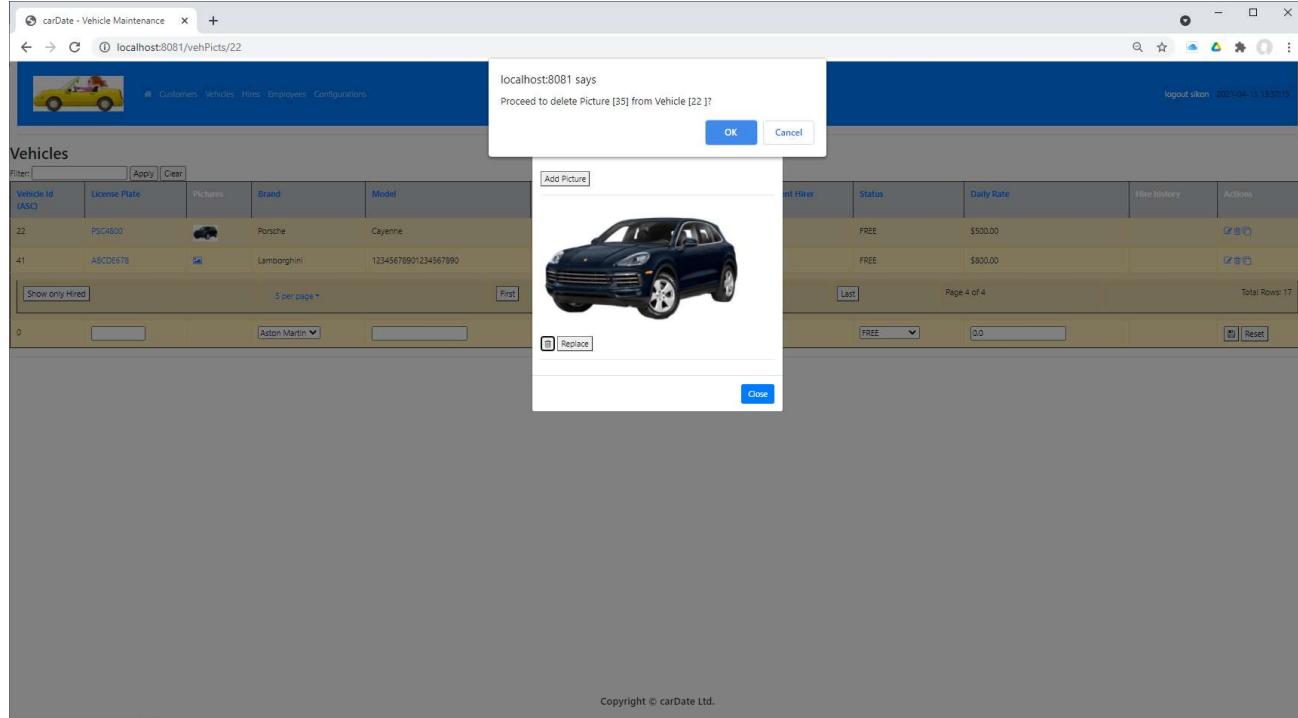
Click on the thumbnail of its profile picture.

8. You come to this Modal.

The screenshot shows a browser window titled "carDate - Vehicle Maintenance" at the URL "localhost:8081/vehPicts/22". The main content area is titled "Vehicles". A modal dialog box is open over the vehicle list, titled "Porsche / Cayenne". Inside the dialog, there is a "Choose File" input field with the placeholder "No file chosen" and an "Add Picture" button. Below these is a thumbnail image of a dark blue Porsche Cayenne. At the bottom of the dialog are "Replace" and "Close" buttons. The background vehicle list shows the same two vehicles as the previous screenshot. The footer of the page says "Copyright © carDate Ltd."

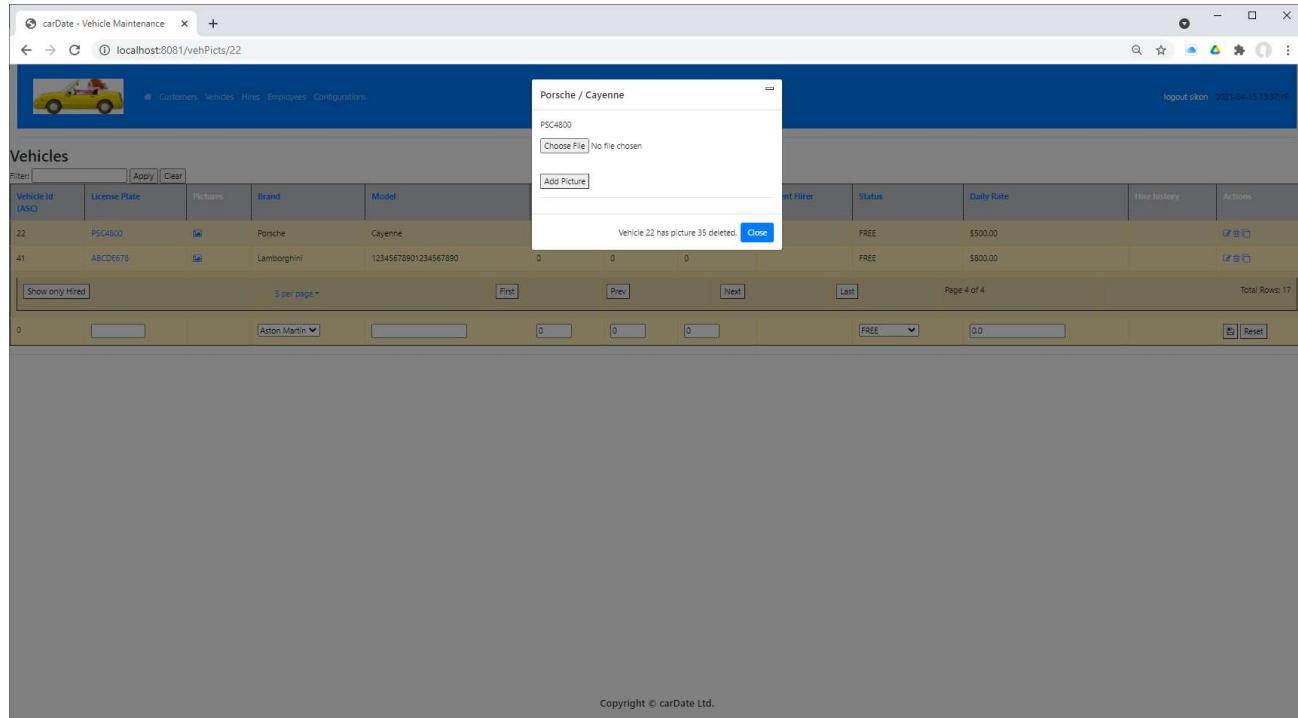
Click the bin button to delete the picture.

9. You will get a prompt:



Click OK.

10. Picture is deleted.



Click Close, and try to delete the Vehicle again.

11. You will get a prompt.

A screenshot of a web browser window titled "carDate - Vehicle Maintenance". The URL is "localhost:8081/vehPicts/0". The main content area shows a table of vehicles. A confirmation dialog box is overlaid on the page, reading "localhost:8081 says Proceed to delete Vehicle 'PSC4800'?". The dialog has "OK" and "Cancel" buttons. The browser's address bar shows "localhost:8081/vehDeleteOts/22".

Click OK.

12. Vehicle is deleted:

A screenshot of a web browser window titled "carDate - Vehicle Maintenance". The URL is "localhost:8081/vehDeleteOts/22". The main content area shows a table of vehicles. The table now only contains one row for a Lamborghini. The browser's address bar shows "localhost:8081/vehDeleteOts/22".

13. Next we try to save a blank customer:

The screenshot shows a web browser window titled "carDate - Customer Maintenance". The URL is "localhost:8081/custSaveOts". The page displays a table of customers from the "FRIENDS" dataset. A new row is being added at the bottom of the table. The "Customer Name" field is empty, and the "NRIC" field contains "ABCDEG". Validation errors are shown in red: "size must be between 8 and 45" for the empty "Customer Name" and "Enter a 9-char code" for the invalid NRIC value.

CustomerID (ASQ)	Customer Name	NRIC	Driving License	Email	Phone No	Address line 1	Address line 2	City	Date of Birth	Is Active	Last Updated	Alternate Contact	Current Hire	Hire history	Actions	
1	Monica Geller	FRIENDS01		m.geller@friends.com	+15534568765	Birmingham	Alabama, United States	New York	1964-06-15	<input checked="" type="checkbox"/>	2021-04-05					
2	Rachel Green	FRIENDS02		r.green@friends.com	+15534568766	Sherman Oaks, Los Angeles	California, United States	New York	1969-02-11	<input checked="" type="checkbox"/>	2021-04-05		AUD6	2		
3	Joey Tribbiani	FRIENDS03		j.tribbiani@friends.com	+15534568767	Newton	Massachusetts, United States	New York	1969-02-11	<input type="checkbox"/>	2021-04-05					
4	Chandler Bing	FRIENDS04		c.bing@friends.com	+15534568768	Williamstown	Massachusetts, United States	New York	1969-08-19	<input checked="" type="checkbox"/>	2021-04-05			1		
5	Phoebe Buffay	FRIENDS05		p.buffy@friends.com	+15534568769	Encino, Los Angeles	California, United States	New York	1963-07-30	<input checked="" type="checkbox"/>	2021-04-05		BMW101	2		
<input type="button" value="Show only Hiring"/> <input type="button" value="5 per page"/> <input type="button" value="First"/> <input type="button" value="Prev"/> <input type="button" value="Next"/> <input type="button" value="Last"/> Page 1 of 5 Total Rows: 23																
0	<input type="text" value="ABCDEG"/>	<input type="text" value="ABCDEFGH"/>		<input type="text" value="a@b.com"/>	<input type="text" value="5268366"/>	<input type="text" value="A"/>	<input type="text" value="B"/>	<input type="text" value="C"/>	<input type="text" value="mm/dd/yyyy"/>	<input type="checkbox"/>	2021-04-15			0	<input type="button" value="Reset"/>	
<small>size must be between 8 and 45</small> <small>Enter a 9-char code</small> <small>size must be between 8 and 30</small> <small>size must be between 8 and 15</small> <small>size must be between 2 and 30</small> <small>size must be between 2 and 30</small> <small>size must be between 2 and 30</small> <small>must not be null</small>																

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Try key in some characters short of the required minimum.

14. All are detected and flagged.

The screenshot shows the same web browser window and table structure as the previous screenshot. The "Customer Name" field is now empty, and the "NRIC" field contains "ABCDEGHIJKLMNOPQRSTUVWXYZ". Validation errors are shown in red: "size must be between 8 and 45" for the empty "Customer Name" and "Enter a 9-char code" for the invalid NRIC value.

CustomerID (ASQ)	Customer Name	NRIC	Driving License	Email	Phone No	Address line 1	Address line 2	City	Date of Birth	Is Active	Last Updated	Alternate Contact	Current Hire	Hire history	Actions	
1	Monica Geller	FRIENDS01		m.geller@friends.com	+15534568765	Birmingham	Alabama, United States	New York	1964-06-15	<input checked="" type="checkbox"/>	2021-04-05					
2	Rachel Green	FRIENDS02		r.green@friends.com	+15534568766	Sherman Oaks, Los Angeles	California, United States	New York	1969-02-11	<input checked="" type="checkbox"/>	2021-04-05		AUD6	2		
3	Joey Tribbiani	FRIENDS03		j.tribbiani@friends.com	+15534568767	Newton	Massachusetts, United States	New York	1969-02-11	<input type="checkbox"/>	2021-04-05					
4	Chandler Bing	FRIENDS04		c.bing@friends.com	+15534568768	Williamstown	Massachusetts, United States	New York	1969-08-19	<input checked="" type="checkbox"/>	2021-04-05			1		
5	Phoebe Buffay	FRIENDS05		p.buffy@friends.com	+15534568769	Encino, Los Angeles	California, United States	New York	1963-07-30	<input checked="" type="checkbox"/>	2021-04-05		BMW101	2		
<input type="button" value="Show only Hiring"/> <input type="button" value="5 per page"/> <input type="button" value="First"/> <input type="button" value="Prev"/> <input type="button" value="Next"/> <input type="button" value="Last"/> Page 1 of 5 Total Rows: 23																
0	<input type="text" value="ABCDEGHIJKLMNOPQRSTUVWXYZ"/>	<input type="text" value="ABCDEFGHIJKLMNPQRSTUVWXYZ"/>		<input type="text" value="a@b.com"/>	<input type="text" value="5268366"/>	<input type="text" value="A"/>	<input type="text" value="B"/>	<input type="text" value="C"/>	<input type="text" value="mm/dd/yyyy"/>	<input type="checkbox"/>	2021-04-15			0	<input type="button" value="Reset"/>	
<small>size must be between 8 and 45</small> <small>Enter a 9-char code</small> <small>size must be between 8 and 30</small> <small>size must be between 8 and 15</small> <small>size must be between 2 and 30</small> <small>size must be between 2 and 30</small> <small>size must be between 2 and 30</small> <small>must not be null</small>																

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Next, try to exceed the maximum.

15. Detected.

carDate - Customer Maintenance | Google person with the longest name | Longest personal name | Guine... | +

localhost:8081/custSaveOts

Customers

Please correct the validation errors.

CustomerID (ASQ)	Customer Name	NRIC	Driving License	Email	Phone No	Address line 1	Address line 2	City	Date of Birth	Is Active	Last Updated	Alternate Contact	Current Hire	Hire History	Actions
1	Monica Geller	FRIENDS01	1234567890	m.geller@friends.com	+15534568765	Birmingham	Alabama, United States	New York	1964-06-15	<input checked="" type="checkbox"/>	2021-04-05	 Chandler Bing			
2	Rachel Green	FRIENDS02	1234567890	r.green@friends.com	+15534568766	Sherman Oaks, Los Angeles	California, United States	New York	1969-02-11	<input checked="" type="checkbox"/>	2021-04-05	 Ross Geller	AUD6	2	
3	Joey Tribbiani	FRIENDS05	1234567890	j.tribbiani@friends.com	+15534568767	Newton	Massachusetts, United States	New York	1969-02-11	<input type="checkbox"/>	2021-04-05	 Chandler Bing			
4	Chandler Bing	FRIENDS03	1234567890	c.bing@friends.com	+15534568768	Williamstown	Massachusetts, United States	New York	1969-08-19	<input checked="" type="checkbox"/>	2021-04-05	 Rachel Green		1	
5	Phoebe Buffay	FRIENDS04	1234567890	p.buffay@friends.com	+15534568769	Encino, Los Angeles	California, United States	New York	1963-07-30	<input checked="" type="checkbox"/>	2021-04-05	 Chandler Bing	BMW101	2	

Show only Hiring 5 per page ▾ First Prev Next Last Page 1 of 5 Total Rows: 23

0 Adolph Blaine Charles Da... ABCDEFGHJ | Adolph.Bla...Charles.Da... 526636652663665 | ABCDEFGHIJKLMNOPQRS ABCDEFGHIJKLMNOPQRS ABCDEFGHIJKLMNOPQRS mm/dd/yyyy | 2021-04-15 | 0 | 

size must be between 8 and 45 Enter a 9-char code size must be between 8 and 30 size must be between 8 and 15 size must be between 2 and 30 size must be between 2 and 30 size must be between 2 and 30 must not be null

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Now try the exact maximum length.

16. All accepted.

carDate - Customer Maintenance | Google person with the longest name | Longest personal name | Guine... | +

localhost:8081/custSaveOts

Customers

Please correct the validation errors.

CustomerID (ASQ)	Customer Name	NRIC	Driving License	Email	Phone No	Address line 1	Address line 2	City	Date of Birth	Is Active	Last Updated	Alternate Contact	Current Hire	Hire History	Actions
1	Monica Geller	FRIENDS01	1234567890	m.geller@friends.com	+15534568765	Birmingham	Alabama, United States	New York	1964-06-15	<input checked="" type="checkbox"/>	2021-04-05	 Chandler Bing			
2	Rachel Green	FRIENDS02	1234567890	r.green@friends.com	+15534568766	Sherman Oaks, Los Angeles	California, United States	New York	1969-02-11	<input checked="" type="checkbox"/>	2021-04-05	 Ross Geller	AUD6	2	
3	Joey Tribbiani	FRIENDS05	1234567890	j.tribbiani@friends.com	+15534568767	Newton	Massachusetts, United States	New York	1969-02-11	<input type="checkbox"/>	2021-04-05	 Chandler Bing			
4	Chandler Bing	FRIENDS03	1234567890	c.bing@friends.com	+15534568768	Williamstown	Massachusetts, United States	New York	1969-08-19	<input checked="" type="checkbox"/>	2021-04-05	 Rachel Green		1	
5	Phoebe Buffay	FRIENDS04	1234567890	p.buffay@friends.com	+15534568769	Encino, Los Angeles	California, United States	New York	1963-07-30	<input checked="" type="checkbox"/>	2021-04-05	 Chandler Bing	BMW101	2	

Show only Hiring 5 per page ▾ First Prev Next Last Page 1 of 5 Total Rows: 23

0 Adolph Blaine Charles Da... ABCDEFGHJ | Adolph.Bla...Charles.Da... 526636652663665 | ABCDEFGHIJKLMNOPQRS ABCDEFGHIJKLMNOPQRS ABCDEFGHIJKLMNOPQRS mm/dd/yyyy | 2021-04-15 | 0 | 

must not be null

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Except the date. Now try an invalid email address by replacing the @ with a .

17. Email address error is detected by html.

The screenshot shows a web application interface for managing customer data. At the top, there are three tabs: "carDate - Customer Maintenance", "G person with the longest name -", and "Longest personal name | Guinne...". The main content area has a blue header bar with a yellow car icon and navigation links: "Customers", "Vehicles", "Hires", "Employees", and "Configurations". On the right side of the header, it says "logout ikon 2021-04-15 13:58:59". Below the header is a table titled "Customers" with columns for CustomerId (ASO), Customer Name, NRIC, Driving License, Email, Phone No, Address line 1, Address line 2, City, Date of Birth, Is Active, Last Updated, Alternate Contact, Current Hire, and Hire history. A "Actions" column contains icons for edit and delete. A toolbar above the table includes "Filter", "Apply", and "Clear" buttons. Below the table are buttons for "Show only Hiring", "5 per page", "First", "Prev", "Next", and "Last". It also shows "Page 1 of 5" and "Total Rows: 23". At the bottom of the table, there is a row for record 0 with fields: Adolph Blaine Charles Dial, ABCDEFGHI, ABCDEFGHIJKLMNOPQRSTUVWXYZ, ABCDEFGHIJKLMNOPQRSTUVWXYZ, mm/dd/yyyy, and 2021-04-15. A tooltip message "Please include an '@' in the email address: 'Adolph Blaine.Charles.Dial@com' is missing an '@'." is displayed over the email field. The copyright notice "Copyright © carDate Ltd." is at the bottom.

Correct it, and put Date of Birth as today, click Save.

18. It is accepted.

This screenshot shows the same web application after the validation error was resolved. The table now displays five rows of customer data. The first row (Adolph Blaine Charles Dial) has been updated with a valid email address (Adolph.Baine.Charles.Dial@com). The "Date of Birth" field for this row now contains the value "2021-04-15". The copyright notice "Copyright © carDate Ltd." is at the bottom.

** Its not too hard to perform validation for date of birth. That can be done in future. **

19. Next we try Employees. Save a blank Employee:

The screenshot shows a web browser window for 'carDate - Employee Maintenance' at 'localhost:8081/empSaveOts'. The title bar includes tabs for 'carDate - Employee Maintenance', 'person with the longest name -', and 'Longest personal name | Guinne...'. The main content area is titled 'Employees' and displays a table with three rows of employee data. The first row has validation errors: 'Login Name' is empty and must be between 4 and 8 characters; 'Roles' contains '[ROLE_ADMIN, ROLE_MANAGER, ROLE_USER]' which is too long and must be between 4 and 45 characters; 'Full Name' is empty and must be between 8 and 15 characters; 'Email' is empty and must be between 8 and 30 characters; 'Job Title' is empty and must be between 5 and 30 characters; 'Initial Menu' is empty and must not be null; 'Enabled' is checked; 'User Expiry' is '2021-05-27'; 'Password Expiry' is '2021-05-27'; and 'Actions' has a 'Delete' link. The second and third rows show valid data for 'root' and 'sikon' respectively. A footer note says 'Please correct the validation errors.' and 'Copyright © carDate Ltd.'

Input short of minimum length.

20. All errors detected and flagged.

This screenshot is identical to the previous one, showing the same validation errors for the first employee entry. The 'Login Name' field is empty ('size must be between 4 and 8'), 'Roles' is '[ROLE_ADMIN, ROLE_MANAGER, ROLE_USER]' ('size must be between 4 and 45'), 'Full Name' is empty ('size must be between 8 and 15'), 'Email' is empty ('size must be between 8 and 30'), 'Job Title' is empty ('size must be between 5 and 30'), 'Initial Menu' is empty ('must not be null'), and 'Enabled' is checked. The other two employees ('root' and 'sikon') are listed without errors. The footer note 'Please correct the validation errors.' and 'Copyright © carDate Ltd.' are also present.

Next try exceeding maximum length.

21. All errors detected and flagged.

carDate - Employee Maintenance | person with the longest name - | Longest personal name | Guinne... | +

localhost:8081/empSaveOts

Customers Vehicles Hires Employees Configurations

Logout Sik On 2021-04-18 14:05:58

Employees

Please correct the validation errors.

Emp Id (ASC)	Login Name	Password	Roles	Full Name	Phone No	Email	Job Title	Initial Menu	Enabled	User Expiry	Password Expiry	Actions
1	root		[ROLE_ADMIN]	Simon Sridhar	+9198998997	root@carDate.com	Director	home	<input checked="" type="checkbox"/>	2021-07-27	2021-05-27	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
2	sikon		[ROLE_ADMIN, ROLE_MANAGER]	Lee Sik On	+6565656565	sikon@carDate.com	Manager	Vehicles	<input checked="" type="checkbox"/>	2021-06-30	2021-05-31	<input checked="" type="checkbox"/>
3	peter		[ROLE_USER]	Peter	+6012345678	peter@carDate.com	Officer	Hires	<input checked="" type="checkbox"/>	2021-06-30	2021-06-13	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

5 per page ▾ Page 1 of 1 Total Rows: 3

0 JimBeam [ROLE_ADMIN, ROLE_MANAGER, ROLE_USER] Jim Beam 1234567890123 5266366526436652 Jim.beam.1234567890123 temporary probational tra home mm/dd/yyyy mm/dd/yyyy

size must be between 4 and 8 size must be between 4 and 45 size must be between 8 and 15 size must be between 8 and 30 size must be between 5 and 30 must not be null must not be null

Copyright © carDate Ltd.

Now change all to valid minimum length.

22. All accepted.

carDate - Employee Maintenance | person with the longest name - | Longest personal name | Guinne... | +

localhost:8081/empSaveOts

Customers Vehicles Hires Employees Configurations

Logout Sik On 2021-04-18 14:10:09

Employees

Please correct the validation errors.

Emp Id (ASC)	Login Name	Password	Roles	Full Name	Phone No	Email	Job Title	Initial Menu	Enabled	User Expiry	Password Expiry	Actions
1	root		[ROLE_ADMIN]	Simon Sridhar	+9198998997	root@carDate.com	Director	home	<input checked="" type="checkbox"/>	2021-07-27	2021-05-27	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
2	sikon		[ROLE_ADMIN, ROLE_MANAGER]	Lee Sik On	+6565656565	sikon@carDate.com	Manager	Vehicles	<input checked="" type="checkbox"/>	2021-06-30	2021-05-31	<input checked="" type="checkbox"/>
3	peter		[ROLE_USER]	Peter	+6012345678	peter@carDate.com	Officer	Hires	<input checked="" type="checkbox"/>	2021-06-30	2021-06-13	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

5 per page ▾ Page 1 of 1 Total Rows: 3

0 Jim [ROLE_ADMIN, ROLE_MANAGER, ROLE_USER] Beam 526636656436652 jo@cc.com Inter home mm/dd/yyyy mm/dd/yyyy

must not be null must not be null

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Set both dates to today, click Save.

23. It asks for an initial password.

You must enter an initial password for this new user.

Emp Id (ASC)	Login Name	Password	Roles	Full Name	Phone No	Email	Job Title	Initial Menu	Enabled	User Expiry	Password Expiry	Actions
1	root		[ROLE_ADMIN]	Simon Sridhar	+9198989897	root@carDate.com	Director	home	<input checked="" type="checkbox"/>	2021-07-27	2021-05-27	
2	sikon		[ROLE_ADMIN, ROLE_MANAGER]	Lee Sik On	+6565656565	sikon@carDate.com	Manager	Vehicles	<input checked="" type="checkbox"/>	2021-06-30	2021-05-31	
3	peter		[ROLE_USER]	Peter	+6012345678	peter@carDate.com	Officer	Hires	<input checked="" type="checkbox"/>	2021-06-30	2021-06-13	
5 per page <input type="button" value="Page 1 of 1"/> Total Rows: 3												
0	<input type="text" value="jimb"/>	<input type="password"/>	<input checked="" type="checkbox"/> [ROLE_ADMIN] <input checked="" type="checkbox"/> [ROLE_MANAGER] <input checked="" type="checkbox"/> [ROLE_USER]	<input type="text" value="Beam"/>	<input type="text" value="52663665"/>	<input type="text" value="jb@c.com"/>	<input type="text" value="Inter"/>	<input type="button" value="Home"/> <input checked="" type="checkbox"/>	<input type="text" value="04/15/2021"/> <input type="button" value="mm/dd/yyyy"/>	<input type="text" value="04/15/2021"/> <input type="button" value="mm/dd/yyyy"/>	<input type="button" value="Reset"/>	

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Give it a password same as the Login name.

24. Employee is created.

Employee 21 created.

Emp Id (ASC)	Login Name	Password	Roles	Full Name	Phone No	Email	Job Title	Initial Menu	Enabled	User Expiry	Password Expiry	Actions
1	root		[ROLE_ADMIN]	Simon Sridhar	+9198989897	root@carDate.com	Director	home	<input checked="" type="checkbox"/>	2021-07-27	2021-05-27	
2	sikon		[ROLE_ADMIN, ROLE_MANAGER]	Lee Sik On	+6565656565	sikon@carDate.com	Manager	Vehicles	<input checked="" type="checkbox"/>	2021-06-30	2021-05-31	
3	peter		[ROLE_USER]	Peter	+6012345678	peter@carDate.com	Officer	Hires	<input checked="" type="checkbox"/>	2021-06-30	2021-06-13	
21	jimb		<input checked="" type="checkbox"/> [ROLE_ADMIN] <input checked="" type="checkbox"/> [ROLE_MANAGER] <input checked="" type="checkbox"/> [ROLE_USER]	Beam	52663665	jb@c.com	Inter	<input type="button" value="home"/> <input checked="" type="checkbox"/>	<input type="text" value="2021-04-15"/> <input type="button" value="mm/dd/yyyy"/>	<input type="text" value="2021-04-15"/> <input type="button" value="mm/dd/yyyy"/>	<input type="button" value="Reset"/>	
5 per page <input type="button" value="Page 1 of 1"/> Total Rows: 4												
0	<input type="text"/>	<input type="password"/>	<input checked="" type="checkbox"/> [ROLE_ADMIN] <input checked="" type="checkbox"/> [ROLE_MANAGER] <input checked="" type="checkbox"/> [ROLE_USER]	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="home"/> <input checked="" type="checkbox"/>	<input type="text"/> <input type="button" value="mm/dd/yyyy"/>	<input type="text"/> <input type="button" value="mm/dd/yyyy"/>	<input type="button" value="Reset"/>	

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Note that no role has been assigned to this Login name.

This Login name cannot be used to login because the user and password expiry dates are in the past. They are in the past because the date of the top right corner is a derived date used by the application. The real date now is May 7. Modify the record to change both to May 31.

25. Dates changed.

The screenshot shows a web browser window with three tabs open: 'carDate - Employee Maintenance', 'G person with the longest name -', and 'Longest personal name | Guinne...'. The main content area is titled 'Employees' and displays a table of employee records. The table has columns for Emp Id (ASC), Login Name, Password, Roles, Full Name, Phone No, Email, Job Title, Initial Menu, Enabled, User Expiry, Password Expiry, and Actions. The data shows four employees: root (Simon Sridhar), sikon (Lee Sik On), peter (Peter), and jimb (Beam). The 'Actions' column contains edit and delete icons. Below the table are buttons for '5 per page' and 'Total Rows 4'. The bottom right corner of the page footer says 'Copyright © carDate Ltd.'

Logout, and then login in with jimb.

26. Login successful.

The screenshot shows a web browser window with three tabs open: 'carDate - My Profile', 'G person with the longest name -', and 'Longest personal name | Guinne...'. The main content area is titled 'My Profile' and displays a form with various employee details. The fields include Employee Id (21), Sign-in name (jimb), Password (Old password: [redacted], New password: [redacted], Repeat: [redacted]), Full name (Beam), Phone no (52663665), Email (jb@c.com), Job title (Inter), Initial Menu (home), Is Active? (true), Sign-in expiry (2021-05-31), and Password expiry (2021-05-31). At the bottom right of the form are 'Save' and 'Reset' buttons. The bottom right corner of the page footer says 'Copyright © carDate Ltd.'

Note that the Navigation bar has only the home icon. This is because there is no role assigned to this Employee. The Employee also cannot change the Initial Menu to anything other than home.

27. Here we try to create a Hire with negative deposit amount:

Pinned Customer Id	Customer Name	NRIC	Email	Phone No	Is Active	Alternate Contact	Current Hire	Hire history	Actions
4	Chandler Bing	FRIENDS03	cbing@friends.com	+155534568768	<input checked="" type="checkbox"/>	Rachel Green	1	X	

Pinned Vehicle Id	License Plate	Model	Brand	Veh Status	Daily Rate	Current Hire	Hire History	Actions
5	RS6	Audi	AUD6	FREE	240.0	1	X	

Hires of Customer Chandler Bing X

Minimum Deposit is the higher of 1 Daily rate or 50% of Rental.

Hire Id (ASO)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
2	Chandler Bing	AUD6	\$240.00	peter	sikon	2021-Apr-05 18:34	2021-Apr-08 12:00	\$400.00	\$720.00	2021-Apr-08 12:00	\$720.00	Delete Invoice

Show only current Hires 5 per page* Page 1 of 1 Total Rows: 1

0 Chandler Bing AUD6 \$240.00 sikon [04/14/2021 03:32] - [04/15/2021 12:00] - [-200.0] \$372.00 \$0.00 Trial Save Reset

The error is prevented from being accepted and saved.

28. In Vehicle maintenance, negative numbers are tested:

Vehicle Id (ASO)	License Plate	Pictures	Brand	Model	Engine	BHP	Top Speed	Current Hirer	Status	Daily Rate	Hire history	Actions
1	BMW101		BMW	X5	4800	350	241	Ross Geller	HIRED	\$100.00	1	X
2	BEN610		Bentley	Continental GTC	6000	552	314	Rachel Green	HIRED	\$150.00	1	X
3	MCD2000		Mercedes	C Class Cabriolet	2000	390	248		FREE	\$120.00	1	X
4	MCS2000		Mercedes	S Class	2000	254	249		FREE	\$120.00	1	X
5	AUD6		Audi	RS6	4000	591	250		FREE	\$240.00	1	X

Show only Hired 5 per page* First Prev Next Last Page 1 of 4 Total Rows: 16

3 MCD2000 Mercedes C Class Cabriolet [-2000] [-390] [-248] FREE [-120.0] 0 Reset
must be greater than or equal to 50

Negative daily rate is not accepted. Correct it and save.

29. Unfortunately, negative Engine capacity, BHP, and Top Speed are accepted.

Vehicle Id (ASO)	License Plate	Pictures	Brand	Model	Engine	BHP	Top Speed	Current Hirer	Status	Daily Rate	Hire history	Actions
1	BMW101		BMW	X5	4800	350	241	Ross Geller	HIRED	\$100.00	1	X
2	BEN610		Bentley	Continental GTC	6000	552	314	Rachel Green	HIRED	\$150.00	1	X
3	MCD2000		Mercedes	C Class Cabriolet	-2000	-390	-248		FREE	\$150.00	1	X
4	MCS2000		Mercedes	S Class	2000	254	249		FREE	\$120.00	1	X
5	AUD6		Audi	RS6	4000	591	250		FREE	\$240.00	1	X

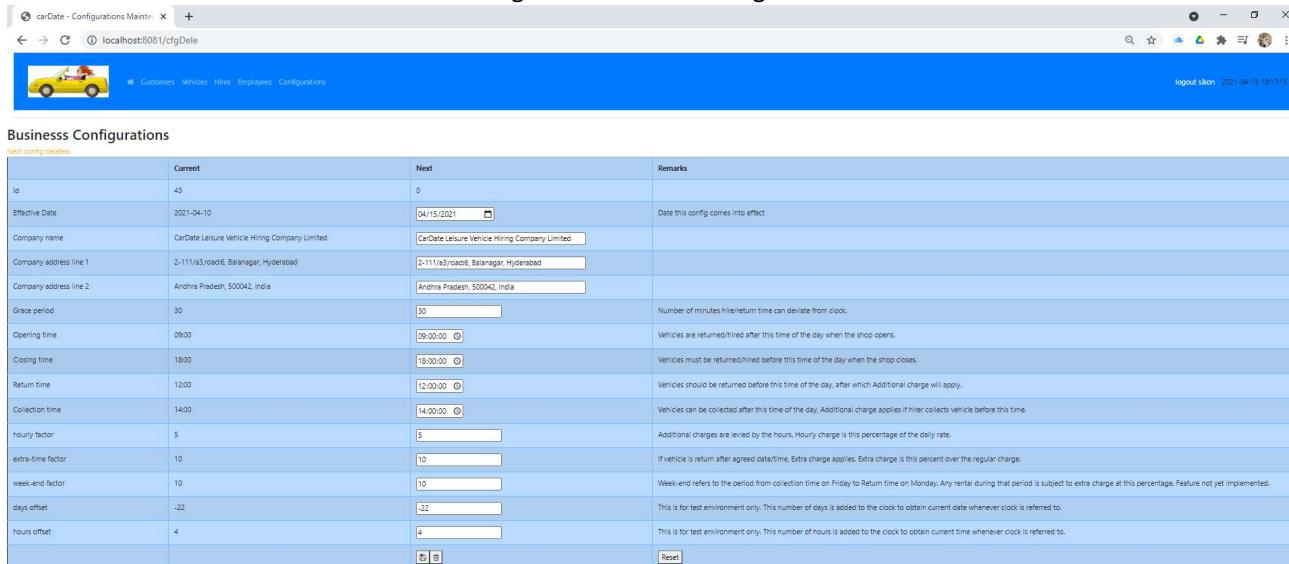
Show only Hired 5 per page* First Prev Next Last Page 1 of 4 Total Rows: 16

0 Aston Martin 0 0 0 FREE 0.0 Reset

** This has no impact to the performance of the application. They can be corrected in a later release. **

7. Business Configurations

1. Let's turn our attention to Business Configurations. Click Configurations.



The screenshot shows a web-based application titled "carDate - Configurations Maintenance". The URL is "localhost:8081/cfgDelete". The top navigation bar includes links for Customers, Vehicles, Hires, Employees, and Configurations. A yellow car icon is on the left. The main content area is titled "Business Configurations" and displays a table with the following data:

	Current	Next	Remarks
Id	43	0	
Effective Date	2021-04-10	04/15/2021	Date this config comes into effect.
Company name	CarDate Leisure Vehicle Hiring Company Limited	CarDate Leisure Vehicle Hiring Company Limited	
Company address line 1	2-111/a3, road6, Balanagar, Hyderabad	2-111/a3, road6, Balanagar, Hyderabad	
Company address line 2	Andhra Pradesh, 500042, India	Andhra Pradesh, 500042, India	
Grace period	30	30	Number of minutes hire/return time can deviate from clock.
Opening time	09:00	09:00:00	Vehicles are returned/hired after this time of the day when the shop opens.
Closing time	18:00	18:00:00	Vehicles must be returned/hired before this time of the day when the shop closes.
Return time	12:00	12:00:00	Vehicles should be returned before this time of the day, after which Additional charge will apply.
Collection time	14:00	14:00:00	Vehicles can be collected after this time of the day. Additional charge applies if hired collects vehicle before this time.
hourly factor	5	5	Additional charges are levied by the hours. Hourly charge is this percentage of the daily rate.
extra-time factor	10	10	If vehicle is return after agreed date/time, Extra charge applies. Extra charge is this percent over the regular charge.
week-end factor	10	10	Week-end refers to the period from collection time on Friday to Return time on Monday. Any rental during that period is subject to extra charge at this percentage. Feature not yet implemented.
days offset	-22	-22	This is for test environment only. This number of days is added to the clock to obtain current date whenever clock is referred to.
hours offset	4	4	This is for test environment only. This number of hours is added to the clock to obtain current time whenever clock is referred to.

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Under Current column is the Business Configuration currently in effect.

- Effective date is the date since which this configuration is in effect.
- Company name and address will appear on generated Invoice.
- Grace period is the number of minutes the captured actual Hire start time and Actual end time can deviate from the derived application clock.
- Opening time and Closing time refer to the daily open and closing operating hours. When entering a planned Hire return time, it cannot be set outside of this operating hours, as there will be no staff around to attend to the Customer.
- Return time is the standard time of the day Hired Vehicles should be returned on or before. Collection time is the standard time of the day Vehicles can be collected on or after for Hire. These are similar to check-in and check-out time of a hotel operation. If a Customer wants to start a Hire before the standard Collection time, he will have to pay an hourly rate from the actual collection time to the standard Collection time. Similarly, if a Vehicle is returned after the standard Return time, there is an hourly rental to be applied for the duration from standard Return time to actual return time.
- Hourly factor is a percentage used to compute the hourly rate for Hires that involve early Collection and late Return. A 5 here means hourly rate is 5% of the daily rate of the Vehicle.
- Extra-time factor is also a percentage. When a Vehicle is Returned after the agreed Return date time, the period from the agreed Return date time to the actual Return date time is consider extra-time, and is charged as a separate Hire. This separate Hire, is subject to a x% levy, x being 10 as is set up on the sample screen shot.
- Week-end factor is a percentage, to be applied to the charges for any rental period that occurs over a week-end. ** This feature is not yet implemented. **
- Days offset and Hours offset are meant for test environment use. In production, they should both be 0. When both are 0, the two rows will be hidden and thus modifications prevented. Even if someone managed to use tools such as POSTMAN to force in some value, the back-end controller will still block its update.

2. Now let's key in some invalid data to see if they are detected:

The screenshot shows the 'Business Configurations' page with a table of configuration items. Several fields contain non-numeric values, which are highlighted in red and flagged with validation errors.

	Current	Next	Errors	Remarks
Id	43	0		
Effective Date	2021-04-10	04/15/2021		Date this config comes into effect
Company name	CarDate Leisure Vehicle Hiring Company Limited	CarDate Leisure Vehicle Hiring Company Limited		
Company address line 1	2-111/a3/road6, Bananagar, Hyderabad	2-111/a3/road6, Bananagar, Hyderabad		
Company address line 2	Andhra Pradesh, 500042, India	Andhra Pradesh, 500042, India		
Grace period	30	thirty	Failed to convert property value of type java.lang.String to required type int for property gracePeriod; nested exception is java.lang.NumberFormatException: For input string: "thirty"	Number of minutes hire/return time can deviate from clock.
Opening time	0900	09:00:00		Vehicles are returned/hired after this time of the day when the shop opens.
Closing time	1800	18:00:00		Vehicles must be returned/hire before this time of the day when the shop closes.
Return time	1200	12:00:00		Vehicles should be returned before this time of the day, after which Additional charge will apply.
Collection time	1400	14:00:00		Vehicles can be collected after this time of the day. Additional charge applies if hirer collects vehicle before this time.
hourly factor	5	five	Failed to convert property value of type java.lang.String to required type int for property hourlyFactor; nested exception is java.lang.NumberFormatException: For input string: "five"	Additional charges are levied by the hours. Hourly charge is this percentage of the daily rate.
extra-time factor	10	ten	Failed to convert property value of type java.lang.String to required type int for property extraTimeFactor; nested exception is java.lang.NumberFormatException: For input string: "ten"	If vehicle is return after agreed date/time, Extra charge applies. Extra charge is this percent over the regular charge.
week-end factor	10	ten	Failed to convert property value of type java.lang.String to required type int for property weekendFactor; nested exception is java.lang.NumberFormatException: For input string: "ten"	Week-end refers to the period from collection time on Friday to Return time on Monday. Any rental during that period is subject to extra charge at this percentage. Feature not yet implemented.
days offset	-22	minus	Failed to convert property value of type java.lang.String to required type int for property offsetDays; nested exception is java.lang.NumberFormatException: For input string: "minus"	This is for test environment only. This number of days is added to the clock to obtain current date whenever clock is referred to.
hours offset	4	four	Failed to convert property value of type java.lang.String to required type int for property offsetHours; nested exception is java.lang.NumberFormatException: For input string: "four"	This is for test environment only. This number of hours is added to the clock to obtain current time whenever clock is referred to.

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Non-numeric in numeric fields are detected and flagged.

3. Click Reset, and change Effective date to next day, days offset to -21, and change also Company address line 1. In addition, change opening time to 13:00, click Save.

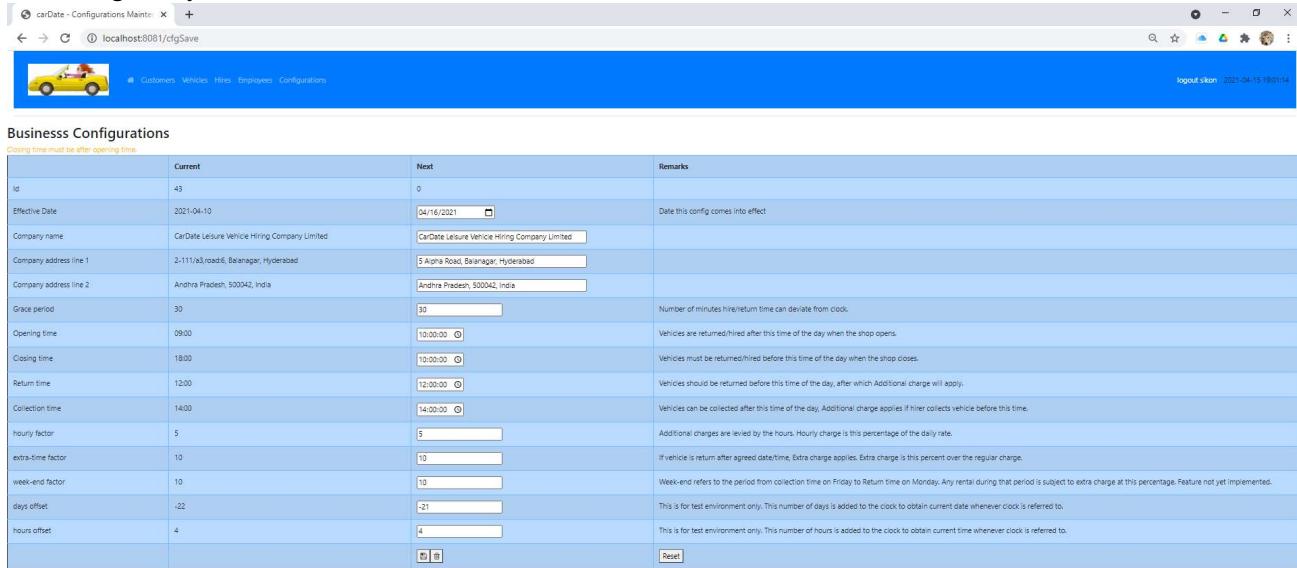
The screenshot shows the 'Business Configurations' page with the same table as the previous screenshot, but with updated data. The 'Effective Date' has been changed to '04/16/2021'. The 'days offset' field now contains '-21'. The 'Opening time' field has been changed to '13:00:00'. The 'Company address line 1' field now contains '5 Alpha Road, Bananagar, Hyderabad'.

	Current	Next	Errors	Remarks
Id	43	0		
Effective Date	2021-04-10	04/16/2021		Date this config comes into effect
Company name	CarDate Leisure Vehicle Hiring Company Limited	CarDate Leisure Vehicle Hiring Company Limited		
Company address line 1	2-111/a3/road6, Bananagar, Hyderabad	5 Alpha Road, Bananagar, Hyderabad		
Company address line 2	Andhra Pradesh, 500042, India	Andhra Pradesh, 500042, India		
Grace period	30	30		Number of minutes hire/return time can deviate from clock.
Opening time	0900	13:00:00		Vehicles are returned/hired after this time of the day when the shop opens.
Closing time	1800	18:00:00		Vehicles must be returned/hire before this time of the day when the shop closes.
Return time	1200	12:00:00		Vehicles should be returned before this time of the day, after which Additional charge will apply.
Collection time	1400	14:00:00		Vehicles can be collected after this time of the day. Additional charge applies if hirer collects vehicle before this time.
hourly factor	5	5		Additional charges are levied by the hours. Hourly charge is this percentage of the daily rate.
extra-time factor	10	10		If vehicle is return after agreed date/time, Extra charge applies. Extra charge is this percent over the regular charge.
week-end factor	10	10		Week-end refers to the period from collection time on Friday to Return time on Monday. Any rental during that period is subject to extra charge at this percentage. Feature not yet implemented.
days offset	-22	-21		This is for test environment only. This number of days is added to the clock to obtain current date whenever clock is referred to.
hours offset	4	4		This is for test environment only. This number of hours is added to the clock to obtain current time whenever clock is referred to.

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The invalid relationship between Return time and Open time is flagged. The shop must open no later than the standard Return time. Change Open time to 10:00, and Closing time to 10:00.

4. It is again rejected.



The screenshot shows a web browser window titled "carDate - Configurations Mainten". The URL is "localhost:8081/cfgSave". The page header includes a yellow car icon, navigation links for Customers, Vehicles, Hires, Employees, and Configurations, and a user "logout sikan" with a timestamp "2021-04-15 19:01:14".

Business Configurations

(Closing time must be after opening time.)

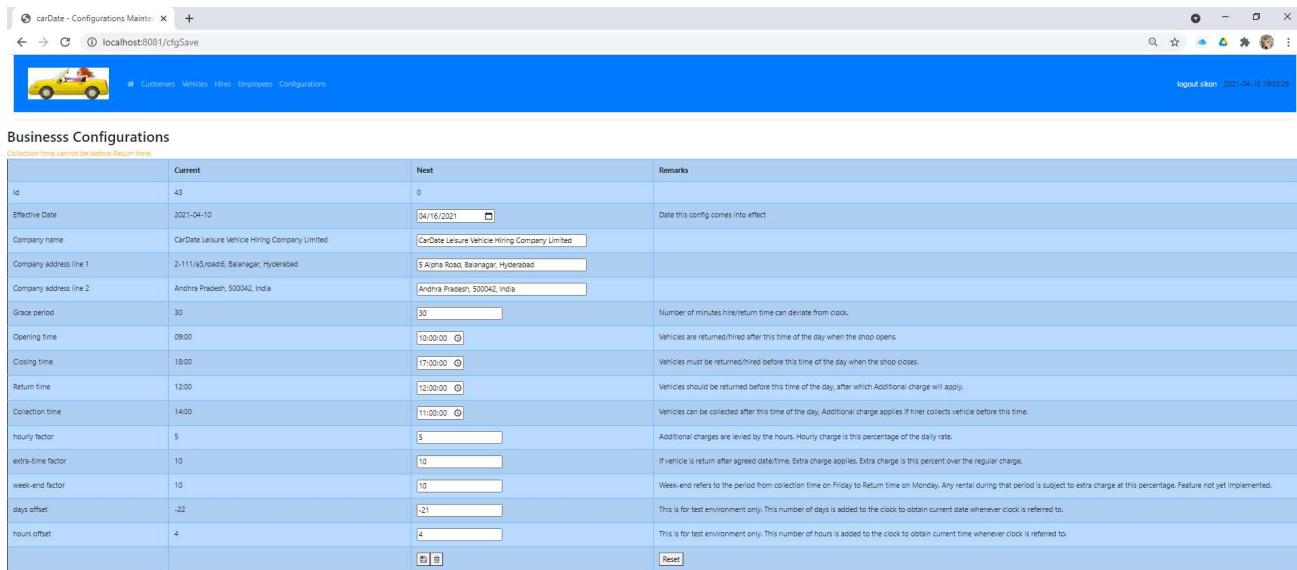
	Current	Next	Remarks
Id	43	0	
Effective Date	2021-04-10	04/16/2021	Date this config comes into effect
Company name	CarDate Leisure Vehicle Hiring Company Limited	CarDate Leisure Vehicle Hiring Company Limited	
Company address line 1	2-111/3, road 6, Bananager, Hyderabad	5 Alpha Road, Bananager, Hyderabad	
Company address line 2	Andhra Pradesh, 500042, India	Andhra Pradesh, 500042, India	
Grace period	30	30	Number of minutes hire/return time can deviate from clock.
Opening time	09:00	10:00:00	Vehicles are returned/hired after this time of the day when the shop opens.
Closing time	18:00	10:00:00	Vehicles must be returned/hired before this time of the day when the shop closes.
Return time	12:00	12:00:00	Vehicles should be returned before this time of the day, after which Additional charge will apply.
Collection time	14:00	14:00:00	Vehicles can be collected after this time of the day. Additional charge applies if hired collects vehicle before this time.
hourly factor	5	5	Additional charges are levied by the hours. Hourly charge is this percentage of the daily rate.
extra-time factor	10	10	If vehicle is return after agreed date/time. Extra charge applies. Extra charge is this percent over the regular charge.
week-end factor	10	10	Week-end refers to the period from collection time on Friday to Return time on Monday. Any rental during that period is subject to extra charge at this percentage. Feature not yet implemented.
days offset	-22	-21	This is for test environment only. This number of days is added to the clock to obtain current date whenever clock is referred to.
hours offset	4	4	This is for test environment only. This number of hours is added to the clock to obtain current time whenever clock is referred to.

Buttons: [Save] [Reset]

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Now change closing time to 17:00, and Collection time to 11:00.

5. Error detected.



The screenshot shows a web browser window titled "carDate - Configurations Mainten". The URL is "localhost:8081/cfgSave". The page header includes a yellow car icon, navigation links for Customers, Vehicles, Hires, Employees, and Configurations, and a user "logout sikan" with a timestamp "2021-04-15 19:03:28".

Business Configurations

(Collection time cannot be before Return time.)

	Current	Next	Remarks
Id	43	0	
Effective Date	2021-04-10	04/16/2021	Date this config comes into effect
Company name	CarDate Leisure Vehicle Hiring Company Limited	CarDate Leisure Vehicle Hiring Company Limited	
Company address line 1	2-111/3, road 6, Bananager, Hyderabad	5 Alpha Road, Bananager, Hyderabad	
Company address line 2	Andhra Pradesh, 500042, India	Andhra Pradesh, 500042, India	
Grace period	30	30	Number of minutes hire/return time can deviate from clock.
Opening time	09:00	10:00:00	Vehicles are returned/hired after this time of the day when the shop opens.
Closing time	18:00	17:00:00	Vehicles must be returned/hired before this time of the day when the shop closes.
Return time	12:00	12:00:00	Vehicles should be returned before this time of the day, after which Additional charge will apply.
Collection time	14:00	11:00:00	Vehicles can be collected after this time of the day. Additional charge applies if hired collects vehicle before this time.
hourly factor	5	5	Additional charges are levied by the hours. Hourly charge is this percentage of the daily rate.
extra-time factor	10	10	If vehicle is return after agreed date/time. Extra charge applies. Extra charge is this percent over the regular charge.
week-end factor	10	10	Week-end refers to the period from collection time on Friday to Return time on Monday. Any rental during that period is subject to extra charge at this percentage. Feature not yet implemented.
days offset	-22	-21	This is for test environment only. This number of days is added to the clock to obtain current date whenever clock is referred to.
hours offset	4	4	This is for test environment only. This number of hours is added to the clock to obtain current time whenever clock is referred to.

Buttons: [Save] [Reset]

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Let's change Collection time to 12:00.

6. New Configuration successfully created with Id 102.

	Current	Next	Remarks
Id	43	102	
Effective Date	2021-04-10	04/16/2021	Date this config comes into effect
Company name	CarDate Leisure Vehicle Hiring Company Limited	CarDate Leisure Vehicle Hiring Company Limited	
Company address line 1	2-111/a3,road6, Balanagar, Hyderabad	5 Alpha Road, Balanagar, Hyderabad	
Company address line 2	Andhra Pradesh, 500042, India	Andhra Pradesh, 500042, India	
Grace period	30	30	Number of minutes hire/return time can deviate from clock.
Opening time	0900	10:00:00	Vehicles are returned/hired after this time of the day when the shop opens.
Closing time	1800	17:00:00	Vehicles must be returned/hired before this time of the day when the shop closes.
Return time	1200	12:00:00	Vehicles should be returned before this time of the day, after which Additional charge will apply.
Collection time	1400	12:00:00	Vehicles can be collected after this time of the day. Additional charge applies if hirer collects vehicle before this time.
Hourly factor	5	5	Additional charges are levied by the hours. Hourly charge is this percentage of the daily rate.
extra-time factor	10	10	If vehicle is return after agreed date/time. Extra charge applies. Extra charge is this percent over the regular charge.
week-end factor	10	10	Week-end refers to the period from collection time on Friday to Return time on Monday. Any rental during that period is subject to extra charge at this percentage. Feature not yet implemented.
days offset	-22	-21	This is for test environment only. This number of days is added to the clock to obtain current date whenever clock is referred to.
hours offset	4	4	This is for test environment only. This number of hours is added to the clock to obtain current time whenever clock is referred to.
	<input type="button" value="Save"/> <input type="button" value="Reset"/>		

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We shall further change Hourly factor to 10.

7. Saved

	Current	Next	Remarks
Id	43	102	
Effective Date	2021-04-10	04/16/2021	Date this config comes into effect
Company name	CarDate Leisure Vehicle Hiring Company Limited	CarDate Leisure Vehicle Hiring Company Limited	
Company address line 1	2-111/a3,road6, Balanagar, Hyderabad	5 Alpha Road, Balanagar, Hyderabad	
Company address line 2	Andhra Pradesh, 500042, India	Andhra Pradesh, 500042, India	
Grace period	30	30	Number of minutes hire/return time can deviate from clock.
Opening time	0900	10:00:00	Vehicles are returned/hired after this time of the day when the shop opens.
Closing time	1800	17:00:00	Vehicles must be returned/hired before this time of the day when the shop closes.
Return time	1200	12:00:00	Vehicles should be returned before this time of the day, after which Additional charge will apply.
Collection time	1400	12:00:00	Vehicles can be collected after this time of the day. Additional charge applies if hirer collects vehicle before this time.
hourly factor	5	10	Additional charges are levied by the hours. Hourly charge is this percentage of the daily rate.
extra-time factor	10	10	If vehicle is return after agreed date/time. Extra charge applies. Extra charge is this percent over the regular charge.
week-end factor	10	10	Week-end refers to the period from collection time on Friday to Return time on Monday. Any rental during that period is subject to extra charge at this percentage. Feature not yet implemented.
days offset	-22	-21	This is for test environment only. This number of days is added to the clock to obtain current date whenever clock is referred to.
hours offset	4	4	This is for test environment only. This number of hours is added to the clock to obtain current time whenever clock is referred to.
	<input type="button" value="Save"/> <input type="button" value="Reset"/>		

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The new Configuration remains at the Next column without being applied to Current. This is because the application has not reached the Effective date yet. At this moment, the next record does not come into effect.

8. Create the following Hire, Hire id 61.

The screenshot shows a web-based application for managing vehicle hires. A new hire record is being created with the following details:

Pinned Customer Id	Customer Name	NRIC	Email	Phone No	Is Active	Alternate Contact	Current Hire	Hire history	Actions
4	Chandler Bing	FRIENDS03	cbing@friends.com	+155534568768	<input checked="" type="checkbox"/>	Rachel Green	MCS2000	2	<input type="button" value="x"/>

Hired Vehicle Id	License Plate	Model	Brand	Veh Status	Daily Rate	Current Hire	Hire History	Actions
10	S Class	Mercedes	MCS2000	HIRED	\$120.0	Chandler Bing	2	<input type="button" value="x"/>

Current Hires

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfilled by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
21	Rachel Green	AUD05	\$240.00	peter		2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00		\$0.00	<input type="button" value="Return"/> <input type="button" value="Invoice"/>
22	Phoebe Buffay	BMW101	\$100.00	peter		2021-Apr-14 17:15	2021-Apr-17 12:00	\$150.00	\$300.00		\$0.00	<input type="button" value="Return"/> <input type="button" value="Invoice"/>
61	Chandler Bing	MCS2000	\$120.00	sikon		2021-Apr-15 19:13	2021-Apr-17 17:00	\$150.00	\$270.00		\$0.00	<input type="button" value="Return"/> <input type="button" value="Invoice"/>

Show all Hires 5 per page Total Rows: 3

0 | \$0.00 | sikon | 04/15/2021 19:14 | 04/16/2021 12:00 | 20 | \$0.00 | \$0.00 |

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Click Invoice.

9. Note that the company address has not changed, and the Late return hourly rate is \$6.00, is still 5% of the Daily rate of \$120. This is despite the Hire ending after the effective date of the next Configuration:

The invoice is for a vehicle hire starting at 2021-04-15 19:13 and ending at 2021-04-17 17:00. The total amount is \$270.00, consisting of a daily rate of \$120.00 and a late return fee of \$150.00. The customer signed the document.

Vehicle Hiring Invoice

Customer ID	4	Name	Chandler Bing
Alternate contact	2	Name	Rachel Green
Vehicle Id	10	Daily rate	\$120.00
Brand	Mercedes	License	MCS2000
Model	S Class		

Hiring Starts	2021-04-15 19:13	Hiring Id	61
Agreed Return	2021-04-17 17:00		

Hire type	Start	End	Quantity	Rate	Amount
Daily rental	2021-04-15	2021-04-17	2 days	\$120.00	\$240.00
Late return	2021-04-17 12:00	2021-04-17 17:00	5 hrs	\$6.00	\$30.00
			Total		\$270.00
Deposit received	2021-04-15				\$150.00
			Balance		\$120.00

I acknowledge that the said Vehicle is received in satisfactory condition:

Customer Signature and Date

Now we wait for the next day.

10. Minutes before Apr 16 the effective date of the next config.

	Current	Next	Remarks
Id	43	102	
Effective Date	2021-04-10	04/16/2021	Date this config comes into effect
Company name	CarDate Leisure Vehicle Hiring Company Limited	CarDate Leisure Vehicle Hiring Company Limited	
Company address line 1	2-111/a3, road6, Balanagar, Hyderabad	5 Alpha Road, Balanagar, Hyderabad	
Company address line 2	Andhra Pradesh, 500042, India	Andhra Pradesh, 500042, India	
Grace period	30	30	Number of minutes hire/return time can deviate from clock.
Opening time	0900	10:00:00	Vehicles are returned/hired after this time of the day when the shop opens.
Closing time	1800	17:00:00	Vehicles must be returned/hired before this time of the day when the shop closes.
Return time	1200	12:00:00	Vehicles should be returned before this time of the day, after which Additional charge will apply.
Collection time	1400	12:00:00	Vehicles can be collected after this time of the day. Additional charge applies if hirer collects vehicle before this time.
Hourly factor	5	10	Additional charges are levied by the hours. Hourly charge is this percentage of the daily rate.
extra-time factor	10	10	If vehicle is return after agreed date/time, Extra charge applies. Extra charge is this percent over the regular charge.
week-end factor	10	10	Week-end refers to the period from collection time on Friday to Return time on Monday. Any rental during that period is subject to extra charge at this percentage. Feature not yet implemented.
days offset	-22	-21	This is for test environment only. This number of days is added to the clock to obtain current date whenever clock is referred to.
hours offset	4	4	This is for test environment only. This number of hours is added to the clock to obtain current date whenever clock is referred to.
			<input type="button" value="Reset"/>

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11. Look into the database:

CONF_ID	CLOSE_TIME	EFFECTIVE_DATE	EXTRA_TIME_FACTOR	GRACE_PERIOD	HIRE_TIME	HOURLY_FACTOR	NEXT_ID	OFFSET_DAYS	OFFSET_HOURS	OPEN_TIME	PREV_ID	RETURN_TIME	WEEKEND_FACTOR	ADDR1	ADDR2	COMPANY_NAME
1	01-JAN-70	10-APR-21	10	30 01-JAN-70	5	102	-22	4 01-JAN-70	43 01-JAN-70	10 2-111/a3... Andhra... CarDate Le...	0 01-JAN-70	10 2-111/a3... Andhra... CarDate Le...				
2	20-1-JAN-70	01-APR-21	10	30 01-JAN-70	5	23	-30	0 01-JAN-70	0 01-JAN-70	10 2-111/a3... Andhra... CarDate Le...	0 01-JAN-70	10 2-111/a3... Andhra... CarDate Le...				
3	23 01-JAN-70	05-APR-21	10	30 01-JAN-70	5	41	-29	-10 01-JAN-70	2 01-JAN-70	10 2-111/a3... Andhra... CarDate Le...	2 01-JAN-70	10 2-111/a3... Andhra... CarDate Le...				
4	41 01-JAN-70	07-APR-21	10	30 01-JAN-70	5	42	-28	0 01-JAN-70	23 01-JAN-70	10 2-111/a3... Andhra... CarDate Le...	23 01-JAN-70	10 2-111/a3... Andhra... CarDate Le...				
5	42 01-JAN-70	08-APR-21	10	30 01-JAN-70	5	43	-26	1 01-JAN-70	41 01-JAN-70	10 2-111/a3... Andhra... CarDate Le...	41 01-JAN-70	10 2-111/a3... Andhra... CarDate Le...				
6	43 01-JAN-70	10-APR-21	10	30 01-JAN-70	5	102	-22	4 01-JAN-70	42 01-JAN-70	10 2-111/a3... Andhra... CarDate Le...	42 01-JAN-70	10 2-111/a3... Andhra... CarDate Le...				
7	102 01-JAN-70	16-APR-21	10	30 01-JAN-70	10	0	-21	4 01-JAN-70	0 01-JAN-70	10 5 Alpha ... Andhra... CarDate Le...	0 01-JAN-70	10 5 Alpha ... Andhra... CarDate Le...				

Record 1 (rootCfg) is still pointing to Record 43 (PREV_ID) as the current config (mstrCfg), while NEXT_ID points to Record 102 as the nextCfg.

12. Sign in as Manager:

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Derived application date shows Apr 19 at 13:00 which is -21 day and +4 hours from current hardware clock of May 10 at 09:00.

13. Check the database again:

ID	CONFIG_ID	CLOSE_DATE	EFF_DATE	EXTRA_TIME_FACTOR	GRACE_PERIOD	HIRE_TIME	HOURLY_FACTOR	NEXT_ID	OFFSE..._HOURS	OFFSET_DAYS	OPEN_TIME	PREV_ID	RETURN_TIME	ADDR1	ADDR2	COMPANY_NAME
1	1	01-JAN-70	10-APR-21	10	30 01-JAN-70		5	102	-22	4 01-JAN-70	4 01-JAN-70	10 2-11/43...	Andhra...	CarDate Le...		
2	2	01-JAN-70	01-APR-21	10	30 01-JAN-70		5	23	-30	0 01-JAN-70	0 01-JAN-70	10 2-11/43...	Andhra...	CarDate Le...		
3	23	01-JAN-70	05-APR-21	10	30 01-JAN-70		5	41	-29	-10 01-JAN-70	2 01-JAN-70	10 2-11/43...	Andhra...	CarDate Le...		
4	41	01-JAN-70	07-APR-21	10	30 01-JAN-70		5	42	-28	0 01-JAN-70	20 01-JAN-70	10 2-11/43...	Andhra...	CarDate Le...		
5	42	01-JAN-70	09-APR-21	10	30 01-JAN-70		5	43	-26	1 01-JAN-70	41 01-JAN-70	10 2-11/43...	Andhra...	CarDate Le...		
6	43	01-JAN-70	10-APR-21	10	30 01-JAN-70		5	102	-22	4 01-JAN-70	42 01-JAN-70	10 2-11/43...	Andhra...	CarDate Le...		
7	102	01-JAN-70	16-APR-21	10	30 01-JAN-70		10	0	-21	4 01-JAN-70	0 01-JAN-70	10 8 Alpha ...	Andhra...	CarDate Le...		

The internal has not changed yet.

14. Create a new Hire:

The screenshot shows the carDate software interface for managing vehicle hires. A new hire record has been created with the following details:

Pinned Customer Id	Customer Name	NRIC	Email	Phone No	Is Active	Alternate Contact	Current Hire	Hire history	Actions
1	Monica Geller	FRIENDS01	m.geller@friends.com	+15534567865	<input checked="" type="checkbox"/>	Chandler Bing	BEN610	1	X

Hired Vehicle Id	Licence Plate	Model	Brand	Veh Status	Daily Rate	Current Hire	Hire History	Actions
8	Continental GTC	Bentley	BEN610	HIRED	\$150.0	Monica Geller	2	X

Current Hires

Hire Id (MSC)	Hired by	Vehicle	Daily Rate	Fulfilled by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
21	Rachel Green	AUDI6	\$240.00	peter		2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00		\$0.00	Return / Invoice
22	Phoebe Buffay	BMW101	\$100.00	peter		2021-Apr-14 17:15	2021-Apr-17 12:00	\$150.00	\$300.00		\$0.00	Return / Invoice
61	Chandler Bing	MCS3000	\$120.00	sikor		2021-Apr-15 19:13	2021-Apr-17 17:00	\$150.00	\$270.00		\$0.00	Return / Invoice
81	Monica Geller	BEN610	\$150.00	sikor		2021-Apr-19 13:01	2021-Apr-20 15:00	\$150.00	\$195.00		\$0.00	Return / Invoice

Show all Hires 5 per page Page 1 of 1 Total Rows 4

0 \$0.00 sikor 04/19/2021 13:02 04/20/2021 12:00 0.0 \$0.00 \$0.00 Trial Save Reset

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New Hire 81 has been created. Click Invoice...

15. Note that the new configurations have been applied to this new Hire:

The PDF invoice for hire 81 is displayed in Adobe Acrobat Reader DC. The details are as follows:

CarDate Leisure Vehicle Hiring Company Limited
5 Alpha Road, Balanagar, Hyderabad
Andhra Pradesh, 500042, India

Vehicle Hiring Invoice

Customer ID	1	Name	Monica Geller		
Alternate contact	4	Name	Chandler Bing		
Vehicle Id	8	Daily rate	\$150.00		
Brand	Bentley	License	BEN610		
Model	Continental GTC				
Hiring Starts	2021-04-19 13:01	Hiring Id	81		
Agreed Return	2021-04-20 15:00				
<hr/>					
Hire type	Start	End	Quantity	Rate	Amount
Daily rental	2021-04-19	2021-04-20	1 days	\$150.00	\$150.00
Late return	2021-04-20 12:00	2021-04-20 15:00	3 hrs	\$15.00	\$45.00
				Total	\$195.00
Deposit received	2021-04-19				\$150.00
				Balance	\$45.00

I acknowledge that the said Vehicle is received in satisfactory condition:

Customer Signature and Date

Adobe Export PDF Convert PDF Files to Word or Excel Online

Select PDF File: Hires_81.pdf

Convert to: Microsoft Word (*.docx)

Document Language: English (U.S.) Change

Convert

Edit PDF Create PDF Comment Combine Files Organize Pages Commerce PDF

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- The company address 1 has changed.
- Although the Hire starts at 13:01, there is no early collection charge. This is because the standard collection hour has been changed to 12:00.
- The late return fee starts from 12:00, also because of change in Return hour.
- The Late return hourly rate of \$15.00 is 10% instead of 5% of the daily rate of \$150.

16. Now go on to Configurations page:

	Current	Next	Remarks
Id	102	0	
Effective Date	2021-04-16	04/19/2021	Date this config comes into effect
Company name	CarDate Leisure Vehicle Hiring Company Limited	CarDate Leisure Vehicle Hiring Company Limited	
Company address line 1	5 Alpha Road, Bananagar, Hyderabad	5 Alpha Road, Bananagar, Hyderabad	
Company address line 2	Andhra Pradesh, 500042, India	Andhra Pradesh, 500042, India	
Grace period	30	30	Number of minutes hire/return time can deviate from clock.
Opening time	10:00	10:00:00	Vehicles are returned/hired after this time of the day when the shop opens.
Closing time	17:00	17:00:00	Vehicles must be returned/hired before this time of the day when the shop closes.
Return time	12:00	12:00:00	Vehicles should be returned before this time of the day, after which Additional charge will apply.
Collection time	12:00	12:00:00	Vehicles can be collected after this time of the day. Additional charge applies if hirer collects vehicle before this time.
Hourly factor	10	10	Additional charges are levied by the hours. Hourly charge is this percentage of the daily rate.
extra-time factor	10	10	If vehicle is return after agreed date/time. Extra charge applies. Extra charge is this percent over the regular charge.
week-end factor	10	10	Week-end refers to the period from collection time on Friday to Return time on Monday. Any rental during that period is subject to extra charge at this percentage. Feature not yet implemented.
days offset	-21	-21	This is for test environment only. This number of days is added to the clock to obtain current date whenever clock is referred to.
hours offset	4	4	This is for test environment only. This number of hours is added to the clock to obtain current time whenever clock is referred to.

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Note that the new configuration has been applied upon display of this page. The update to the database takes place when an authorized user makes an enquiry of the Configuration using this page.

17. The database has been changed too:

CONF_ID	CLOSE_TIME	EFF_DATE	EXTRA_TIME_FACTOR	GRACE_PERIOD	HIRE_TIME	HOURLY_FACTOR	NEXT_ID	OFFSET_DAYS	OFFSET_HOURS	OPEN_TIME	PREV_ID	RETURN_TIME	WEEKEND_FACTOR	ADDR1	ADDR2	COMPANY_NAME
1	1 01-JAN-70	16-APR-21	10	30 01-JAN-70		10	0	-21	4 01-JAN-70	10 01-JAN-70	10 2-11/43... Andhra... CarDate Le...					
2	2 01-JAN-70	01-APR-21	10	30 01-JAN-70		5	23	-30	0 01-JAN-70	0 01-JAN-70	10 2-11/43... Andhra... CarDate Le...					
3	23 01-JAN-70	05-APR-21	10	30 01-JAN-70		5	41	-29	-10 01-JAN-70	2 01-JAN-70	10 2-11/43... Andhra... CarDate Le...					
4	4 01-JAN-70	09-APR-21	10	30 01-JAN-70		5	42	-25	0 01-JAN-70	2 01-JAN-70	10 2-11/43... Andhra... CarDate Le...					
5	43 01-JAN-70	09-APR-21	10	30 01-JAN-70		5	43	-26	0 01-JAN-70	4 01-JAN-70	10 2-11/43... Andhra... CarDate Le...					
6	43 01-JAN-70	10-APR-21	10	30 01-JAN-70		5	102	-22	4 01-JAN-70	4 01-JAN-70	10 2-11/43... Andhra... CarDate Le...					
7	102 01-JAN-70	16-APR-21	10	30 01-JAN-70		10	0	-21	4 01-JAN-70	0 01-JAN-70	10 9 Alpha ... Andhra... CarDate Le...					

Note that Record 1 (rootCfg) has PREV_ID pointing to Record 102 (MstrCfg) as the current (or master) configuration. NEXT_ID 0, meaning there is currently no next Configuration.

18. Next we do a return of an earlier Hire:

The screenshot shows a web-based application interface for managing vehicle hires. The main title bar includes tabs for 'carDate - Hires Maintenance', 'Power X Programme | SGInnova', 'Power X Software & Product Dev', and 'CargoAI - Team'. The current page URL is 'localhost:8081/hireActive/0'. The top navigation bar has links for 'Customers', 'Vehicles', 'Hires', 'Employees', and 'Configurations'. On the right, there's a 'logout' link and a timestamp '2021-04-19 13:50:00'. Below the navigation is a blue header bar with the text 'Hires'. The main content area displays a table titled 'Hires' with columns: 'Hire Id (ASC)', 'Hired by', 'Vehicle', 'Daily Rate', 'Fulfilled by', 'Returned to', 'Hire starts', 'Planned hire end', 'Hire deposit', 'Planned fee', 'Actual hire end', 'Actual fee', and 'Actions'. There are 21 rows of data, with row 21 highlighted in yellow. At the bottom of the table are buttons for 'Show only current Hires', '5 per page ▾', 'First', 'Prev', 'Next', 'Last', 'Page 1 of 2', and 'Total Rows 8'. Below the table is a footer with date/time fields: '04/19/2021 13:50' and '04/20/2021 12:00', and buttons for 'Clear', 'Save', and 'Reset'.

Hire 21 is returned. Click Invoice.

19. Invoice is generated with the old Configuration except for the company address:

The screenshot shows a PDF document titled 'CarDate Leisure Vehicle Hiring Company Limited' with the address '5 Alpha Road, Balanagar, Hyderabad, Andhra Pradesh, 500042, India'. The document is a 'Vehicle Hiring Invoice' for 'Hire 21'. It contains a table with customer details: Customer ID 2, Name Rachel Green; Alternate contact 6, Name Ross Geller; Vehicle ID 11, Daily rate \$240.00; Brand Audi, License AUD6; Model RS6. Below this is another table with hire details: Hiring Starts 2021-04-14 17:00, Hiring Id 21; Agreed Return 2021-04-15 12:00, Actual Return 2021-04-19 13:50. A third table lists charges: Daily rental from 2021-04-14 to 2021-04-15 at \$240.00 per day; Early collection fee from 2021-04-15 12:00 to 2021-04-15 14:00 at \$13.20 per hour; Daily rental extra time from 2021-04-15 to 2021-04-19 at \$264.00 per day; Late return extra time from 2021-04-19 12:00 to 2021-04-19 13:50 at \$13.20 per hour. The total amount is \$1,348.80. The deposit received was \$240.00, leaving a balance of \$1,108.80. The right side of the screen shows the Adobe Acrobat Reader toolbar and a sidebar with file conversion options like 'Export PDF' and 'Convert to Microsoft Word (*.docx)'.

As the Hire has returned after the agreed return time, there are extra time charges:

- Early collection fee is charged from 12:00 to 14:00 as per old configuration.
- Late return fee is charged from 12:00 to 14:00 as per old configuration.
- Hour rate for early collection and late return of \$13.20 is \$12.00+10%, and \$12.00 to daily rate of \$240 is 5% as per old Configuration.

20. Go on and return the other two overdue Hires, 22 and 61:

You can generate Invoices to verify that they still us the old Configuration for fare computation.

21. As for Hires after the effective date of the new Configuration, they use new Configurations. Let's verify this by performing Return of one such Hire 81.

Click Invoice button.

22. Note that Late return (extra time) has hourly rate \$15.00, which is 10% of daily rate, 10% as in the new Configuration.

The screenshot shows a PDF document titled "Vehicle Hiring Invoice" in Adobe Acrobat Reader DC. The document details a hire for Monica Geller (Customer ID 1) and Chandler Bing (Alternate contact 4) for a Bentley Continental GTC (Vehicle Id 8). The hire started on 2021-04-19 at 13:01 and ended on 2021-04-20 at 15:37. The daily rate was \$150.00. A late return was recorded for 2021-04-20 from 15:00 to 15:37, which is 3 hours, at a rate of \$15.00 per hour. The total amount for the late return is \$45.00. The total bill is \$211.50, including a deposit received of \$150.00. The document is displayed in a browser window with the right sidebar showing options like "Export PDF" and "Convert to Microsoft Word".

5 Alpha Road, Balanagar, Hyderabad
Andhra Pradesh, 500042, India

Vehicle Hiring Invoice

Customer ID	1	Name	Monica Geller		
Alternate contact	4	Name	Chandler Bing		
Vehicle Id	8	Daily rate	\$150.00		
Brand	Bentley	License	BEN610		
Model	Continental GTC				

Hiring Starts	2021-04-19 13:01	Hiring Id	81		
Agreed Return	2021-04-20 15:00	Actual Return	2021-04-20 15:37		

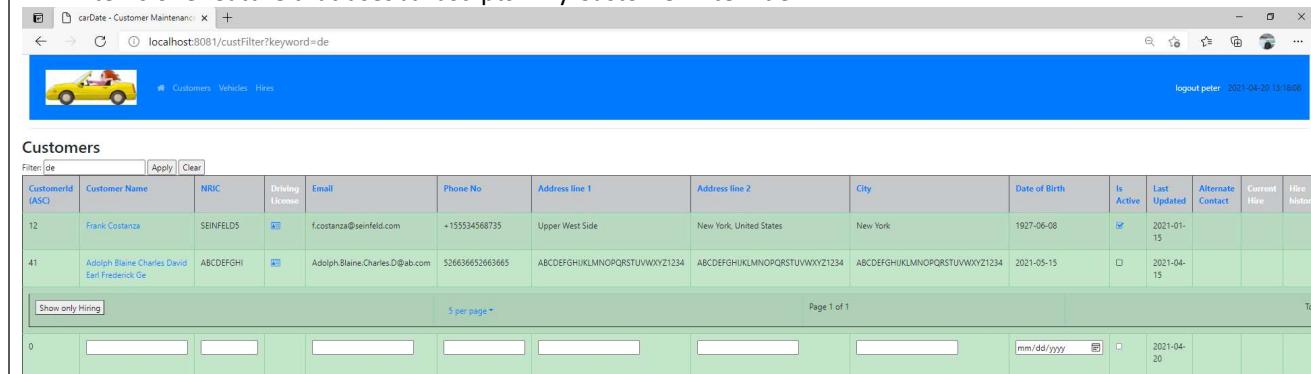
Hire type	Start	End	Quantity	Rate	Amount
Daily rental	2021-04-19	2021-04-20	1 days	\$150.00	\$150.00
Late return	2021-04-20 12:00	2021-04-20 15:00	3 hrs	\$15.00	\$45.00
Late return (extra time)	2021-04-20 15:00	2021-04-20 15:37	1 hrs	\$16.50	\$16.50
			Total		\$211.50
Deposit received	2021-04-19				\$150.00
			Balance		\$61.50

8. Brower Compatibility

This section tests the behaviour of the application using different browsers. The focus is Javascripts.

First we test Edge:

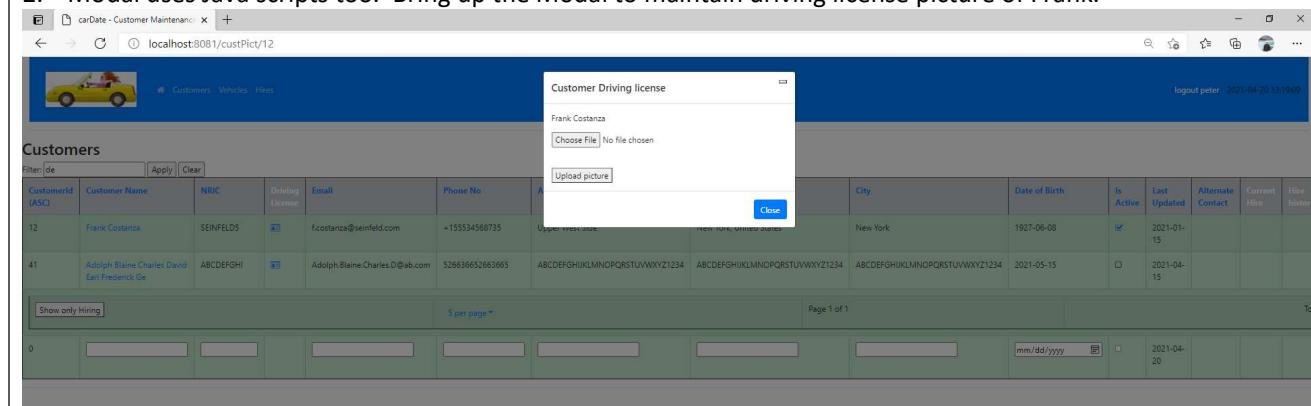
1. Filter is one feature that uses Javascripts. Try Customer filter “de”.



CustomerID (ASC)	Customer Name	NRIC	Driving License	Email	Phone No	Address line 1	Address line 2	City	Date of Birth	Is Active	Last Updated	Alternate Contact	Current Hire	Hire history
12	Frank Costanza	SEINFELDS	ABCD EFGHI	f.costanza@seinfeld.com	+15534568755	Upper West Side	New York, United States	New York	1927-06-08	<input checked="" type="checkbox"/>	2021-01-15			
41	Adolph Blaine Charles David Earl Frederick Ge	ABCDE FGH	ABCD EFGHI	Adolph.Blainge.Charles.D@ab.com	52663652663665	ABCDEFGHIJKLMNOPQRSTUVWXYZ	ABCDEFGHIJKLMNOPQRSTUVWXYZ	ABCDEF GHIJKLMNOPQRSTUVWXYZ	2021-05-15	<input type="checkbox"/>	2021-04-15			

It worked.

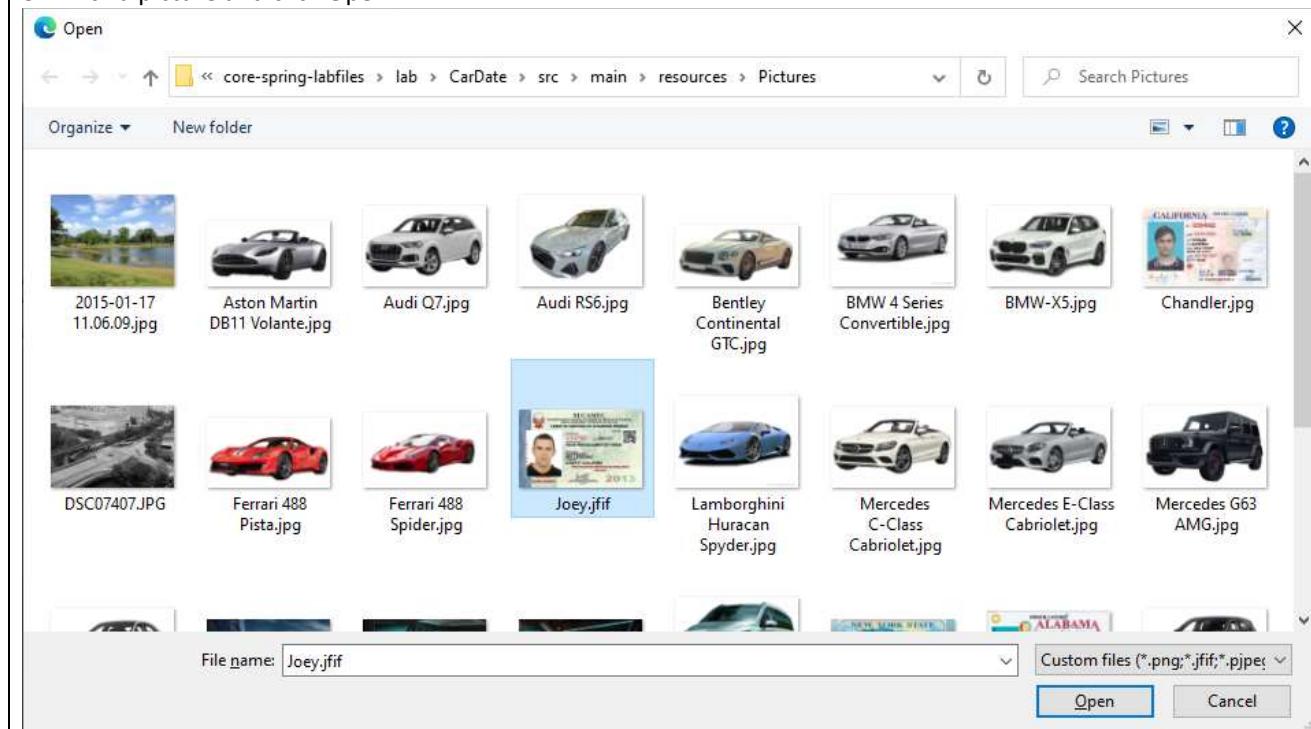
2. Modal uses Java scripts too. Bring up the Modal to maintain driving license picture of Frank.



CustomerID (ASC)	Customer Name	NRIC	Driving License	Email	Phone No	Address line 1	Address line 2	City	Date of Birth	Is Active	Last Updated	Alternate Contact	Current Hire	Hire history
12	Frank Costanza	SEINFELDS	ABCD EFGHI	f.costanza@seinfeld.com	+15534568755	Upper West Side	New York, United States	New York	1927-06-08	<input checked="" type="checkbox"/>	2021-01-15			
41	Adolph Blaine Charles David Earl Frederick Ge	ABCDE FGH	ABCD EFGHI	Adolph.Blainge.Charles.D@ab.com	52663652663665	ABCDEFGHIJKLMNOPQRSTUVWXYZ	ABCDEFGHIJKLMNOPQRSTUVWXYZ	ABCDEF GHIJKLMNOPQRSTUVWXYZ	2021-05-15	<input type="checkbox"/>	2021-04-15			

Click [Choose File].

3. Pick a picture and click Open.



File name: Joey.jfif

Custom files (*.png;*.jfif;*.jpeg)

Open Cancel

4. Click [Upload picture].

5. Picture is uploaded and updated correctly.

Click [Choose File] again.

6. Pick another picture and click Open.

7. Click [Replace with new picture].

The screenshot shows a modal window titled "Customer Driving license" for "Frank Costanza". It displays a placeholder image with the text "DUPLICADO" and "Choose File: Chandler.jpg". Below the file input is a button labeled "Replace with new picture". A "Delete picture" button is also present.

8. Picture updated correctly.

The screenshot shows the same modal window for Frank Costanza, but now it displays a thumbnail of a California driver's license. The license is issued to "LIA MOLAN" with the number "12294562". A message at the bottom states "New picture uploaded successfully".

Click Close.

9. Click the driving license picture thumbnail for Frank.

The screenshot shows the main customer list page. Frank Costanza is listed with his name, address, and phone number. The "Driving License" column shows a thumbnail of the California driver's license from the previous step.

10. Modal displays correctly.

This screenshot is identical to the one in step 8, showing the "Customer Driving license" modal with the California driver's license thumbnail for Frank Costanza.

Click [Delete picture].

11. There is a prompt.

The screenshot shows a web browser window with two main panes. The left pane displays a list of customers with columns for CustomerId, Customer Name, NRIC, Driving License, Email, and Phone No. Two rows are visible: one for Frank Costanza and one for Adolph Blaine Charles David Earl Frederick Ge. The right pane shows a vehicle's driving license details for a California driver named Frank Costanza. A modal dialog box is overlaid in the center, containing the text "localhost:8081 says" and "Proceed to delete this picture?" with "OK" and "Cancel" buttons. The background of the dialog shows a blurred version of the vehicle's license plate and some other UI elements.

Click Cancel.

12. Back out of Delete.

This screenshot shows the same application state as the previous one, but the modal dialog has been closed by clicking "Cancel". The customer list and vehicle details are now fully visible in their respective panes.

Click [Delete picture] again, and click OK to the prompt.

13. Picture is deleted.

This screenshot shows the application after the second attempt to delete the picture. The modal dialog now displays the message "Picture deleted successfully." and has a "Close" button. The background shows the customer list and vehicle details again.

Click Close.

14. Switch to Vehicles page.

This screenshot shows the "Vehicles" page. It lists several vehicles with the following details:

Vehicle Id (ASC)	License Plate	Pictures	Brand	Model	Engine	BHP	Top Speed	Current Hirer	Status	Daily Rate	Hire history	Actions
7	BMW101		BMW	X5	4800	350	241		FREE	\$100.00	2	
8	BEN10		Bentley	Continental GTC	6000	552	314	Monica Geller	HIRED	\$150.00	2	
9	MCD2000		Mercedes	C Class Cabriolet	2000	390	248		SUSPENDED	\$150.00		
10	MCS2000		Mercedes	S Class	2000	254	249		FREE	\$120.00	2	
11	AUDS		Audi	RS6	4000	591	250		FREE	\$240.00	2	

At the bottom, there are buttons for "Show only Hired", "5 per page", "First", "Prev", "Next", "Last", and "Page 1 of 4". To the right, it says "Total Rows: 16".

Page down to MCD2100 that has more pictures in the album.

15. Page 3 has MCD2100.

Vehicles

Vehicle Id (ASC)	License Plate	Pictures	Brand	Model	Engine	BHP	Top Speed	Current Hirer	Status	Daily Rate	Hire history	Actions
17	ASM114		Aston Martin	DB11 Volante	4000	503	300		FREE	\$400.00		
18	FRI4889		Ferrari	488 Spider	3900	660	327		FREE	\$600.00		
19	MCD2100		Mercedes Benz	V Class	2100	190	207		FREE	\$130.00		
20	AUD7		Audi	Q7	3000	225	250		FREE	\$220.00		
21	LBG5200		Lamborghini	Huracan Spyder	5200	571	324		FREE	\$600.00		

Click on the Vehicle profile picture thumbnail of MCD2100.

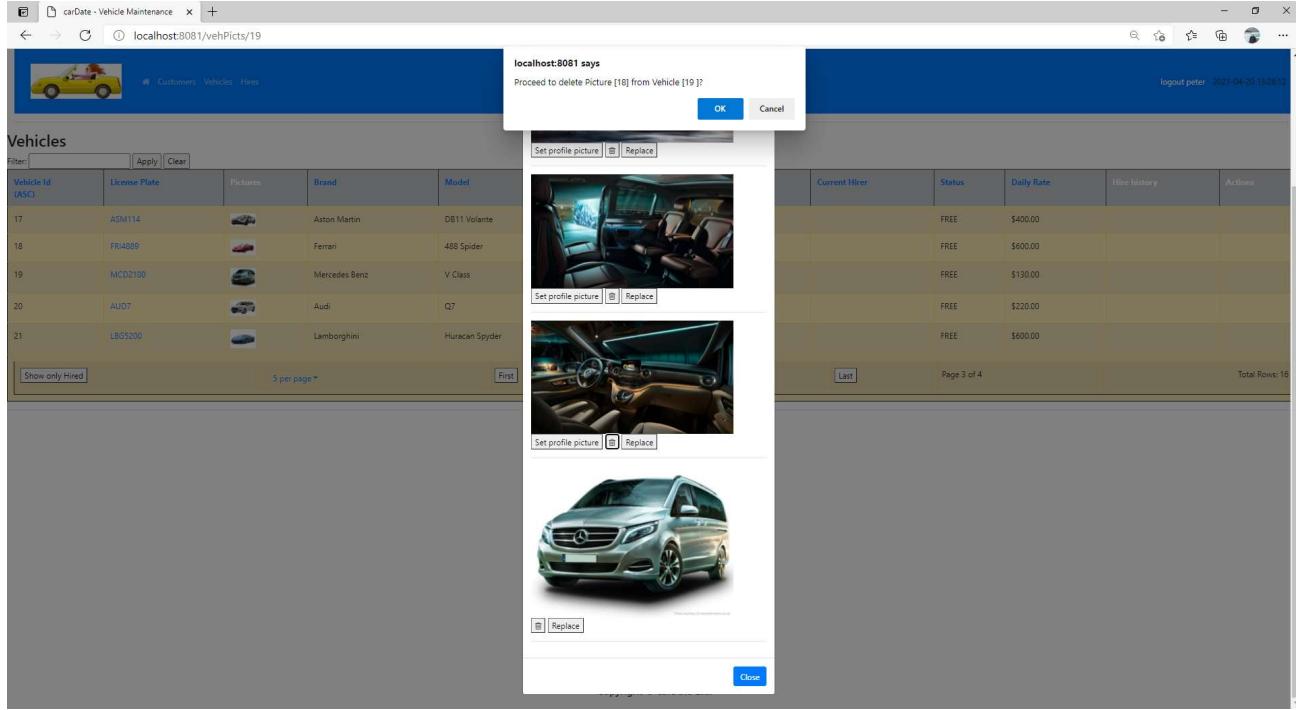
16. The album is shown.

Vehicles

Vehicle Id (ASC)	License Plate	Pictures	Brand	Model	Current Hirer	Status	Daily Rate	Hire history	Actions
17	ASM114		Aston Martin	DB11 Volante		FREE	\$400.00		
18	FRI4889		Ferrari	488 Spider		FREE	\$600.00		
19	MCD2100		Mercedes Benz	V Class		FREE	\$130.00		
20	AUD7		Audi	Q7		FREE	\$220.00		
21	LBG5200		Lamborghini	Huracan Spyder		FREE	\$600.00		

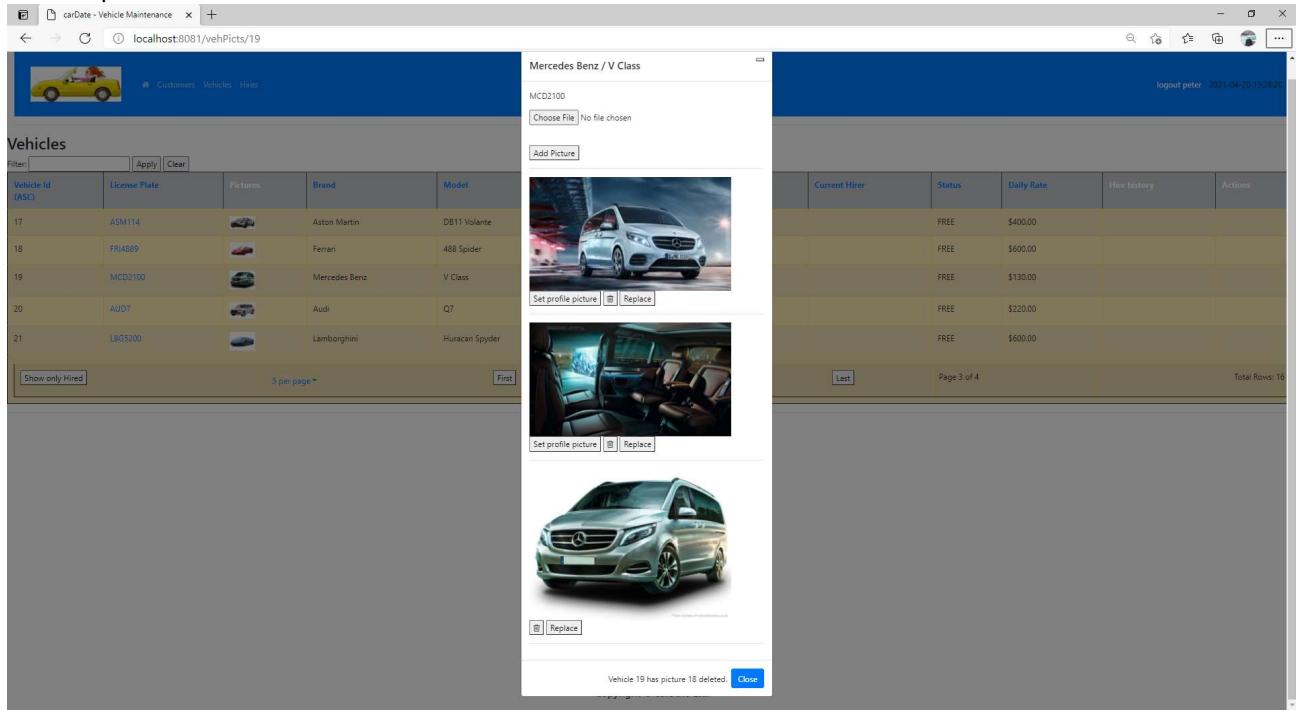
Click bin button of the third picture.

17. You will get a prompt.



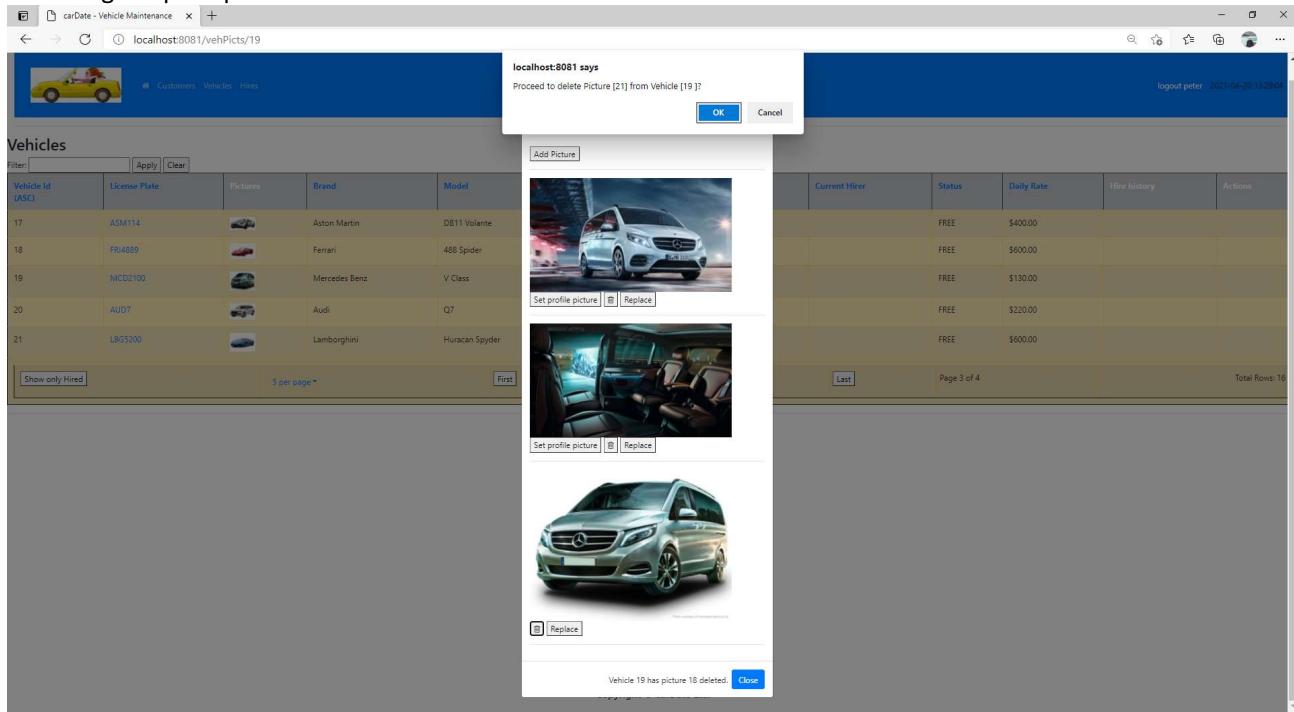
Click OK.

18. The picture is removed from the album.



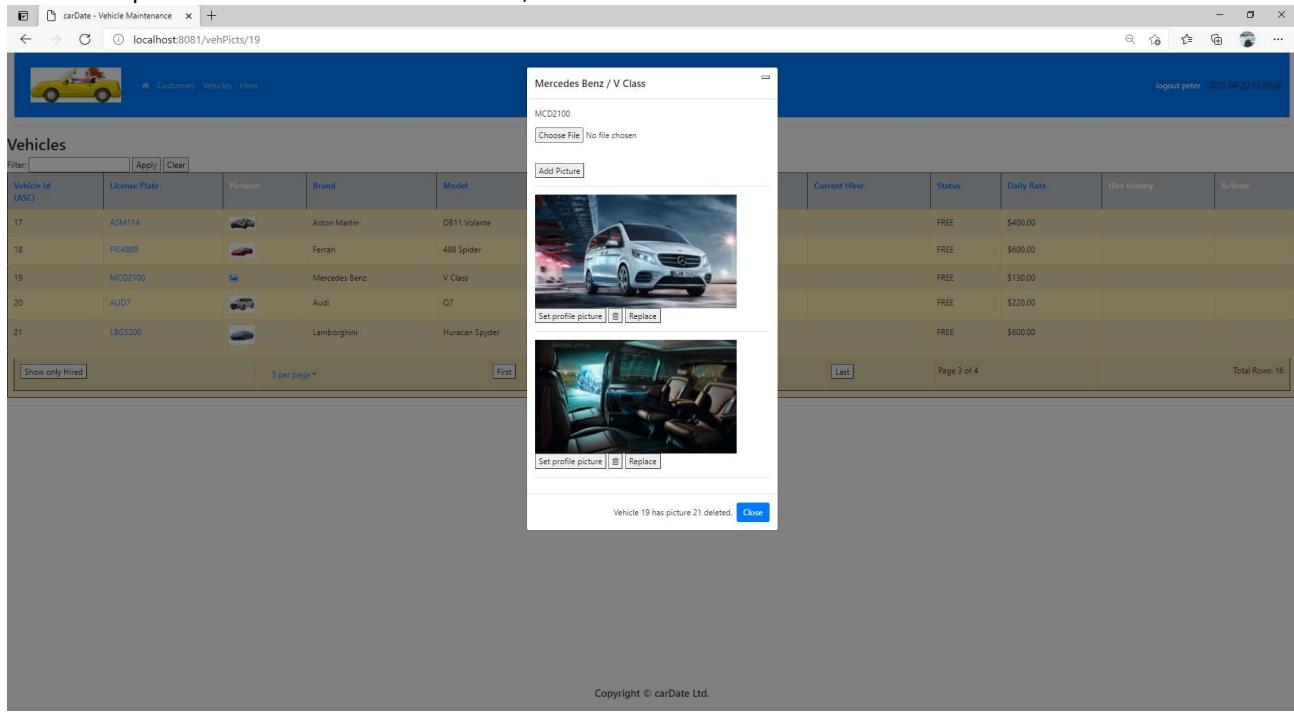
Click bin button to remove the last picture which is also the profile picture.

19. You get a prompt.



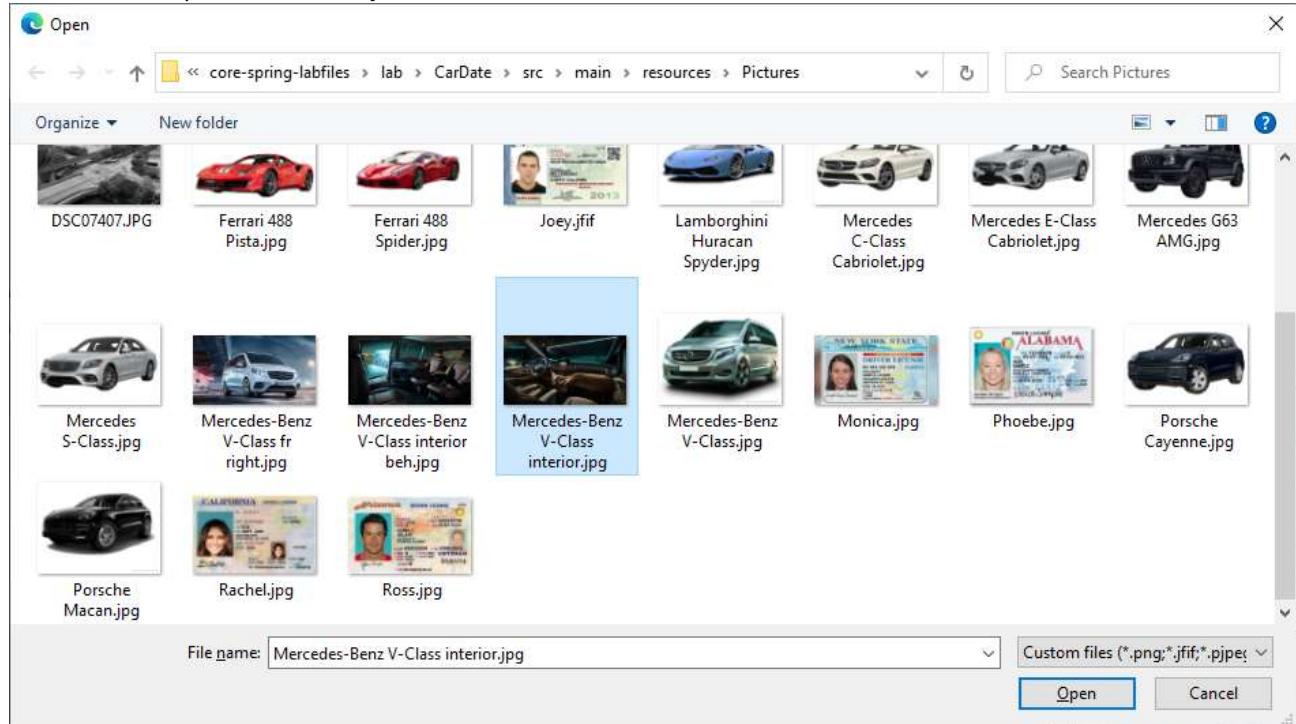
Click OK.

20. Profile picture is removed from the album, as well as from the thumbnail.



Click [Choose File] to put back the pictures.

21. Picture the picture that was just deleted.



Click Open.

22. Picture in preview.

The screenshot shows a web application interface for vehicle maintenance. The main page displays a table of vehicles with columns: Vehicle Id, License Plate, Pictures, Brand, and Model. The 'Pictures' column for vehicle MCD2100 shows a thumbnail of the interior image from the modal. A modal dialog box titled 'Mercedes Benz / V Class' is open, showing a preview of a car's interior. The dialog includes fields for 'Choose File' and 'Add Picture'. The background table has the following data:

Vehicle Id	License Plate	Pictures	Brand	Model
17	ASM114		Aston Martin	DB11 Volante
18	FRI4899		Ferrari	488 Spider
19	MCD2100		Mercedes Benz	V Class
20	AUD07		Audi	Q7
21	LBG5200		Lamborghini	Huracan Spyder

Click [Add Picture].

23. Picture added to the album. Profile picture thumbnail also updated.

carDate - Vehicle Maintenance

localhost:8081/vehPicts/19

Customers Vehicles Hires

logout peter 2023-04-20 13:33:00

Vehicles

Filter: [] Apply Clear

Vehicle Id (ASO)	License Plate	Pictures	Brand	Model
17	43M114		Aston Martin	DB11 Volante
18	FRA4889		Ferrari	488 Spider
19	MCD2100		Mercedes-Benz	V Class
20	4UDT		Audi	Q7
21	LBG5200		Lamborghini	Huracan Spyder

Show only Hired | 5 per page ▾ | First | Last | Page 3 of 4 | Total Rows: 16

Mercedes Benz / V Class

MCD2100

Choose file No file chosen

Add Picture

Set profile picture | Replace

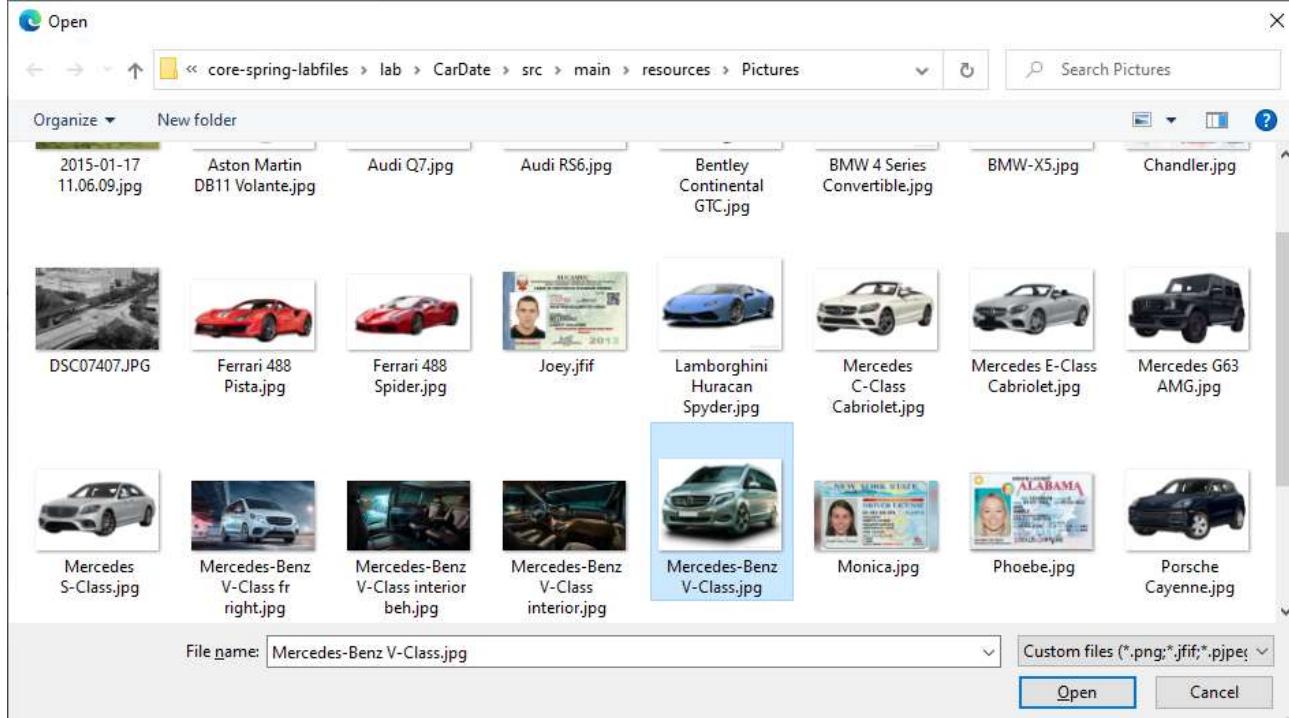
Set profile picture | Replace

New picture uploaded successfully. Close

Copyright © carDate Ltd.

Click [Choose File] to add one more.

24. Pick the correct picture.



Click Open.

25. Picture in preview.

The screenshot shows a web browser window with the URL localhost:8081/vehPicts/19. The main content area displays a list of vehicles with columns for Vehicle Id (ASO), License Plate, Pictures, Brand, and Model. A modal dialog is open over the list, centered on a vehicle entry for a Mercedes-Benz V-Class. The modal has a title bar "Mercedes Benz / V Class" and an identifier "MCD2100". It contains a file input field "Choose File" with the path "Mercedes-Benz V-Class.jpg" selected. Below the file input is a thumbnail image of the car's exterior. There are two buttons below the thumbnail: "Add Picture" and "Replace". To the right of the thumbnail, there are three larger images showing the interior of the vehicle: the front dashboard, the rear interior, and a full view of the interior. Each of these images has a "Set profile picture" button and a "Replace" button. At the bottom of the modal is a "Close" button.

Click [Add Picture].

26. Picture added to album.

This screenshot shows the same web application interface as the previous one, but with a success message displayed at the bottom of the modal. The message reads "New picture uploaded successfully." Below this message is a "Close" button. The rest of the interface, including the vehicle list and the modal content, appears identical to the previous screenshot.

Note that there are no buttons for the two new pictures. There is a technical constraint that prevents functional buttons to be added to the new picture. One has to close the Modal and re-open it to have the buttons assigned. Click Close.

27. Back to the main page.

The screenshot shows a web-based vehicle management system. At the top, there's a navigation bar with links for 'Customers', 'Vehicles', and 'Hires'. On the right side of the header, it says 'logout peter' and the date '2021-04-20 13:36:17'. Below the header is a table titled 'Vehicles' with columns: Vehicle Id (ASC), License Plate, Pictures, Brand, Model, Engine, BHP, Top Speed, Current Hirer, Status, Daily Rate, Hire history, and Actions. There are 16 rows of vehicle data. At the bottom of the table, there are buttons for 'Show only Hired', '5 per page', 'First', 'Prev', 'Next', 'Last', 'Page 3 of 4', and 'Total Rows: 16'.

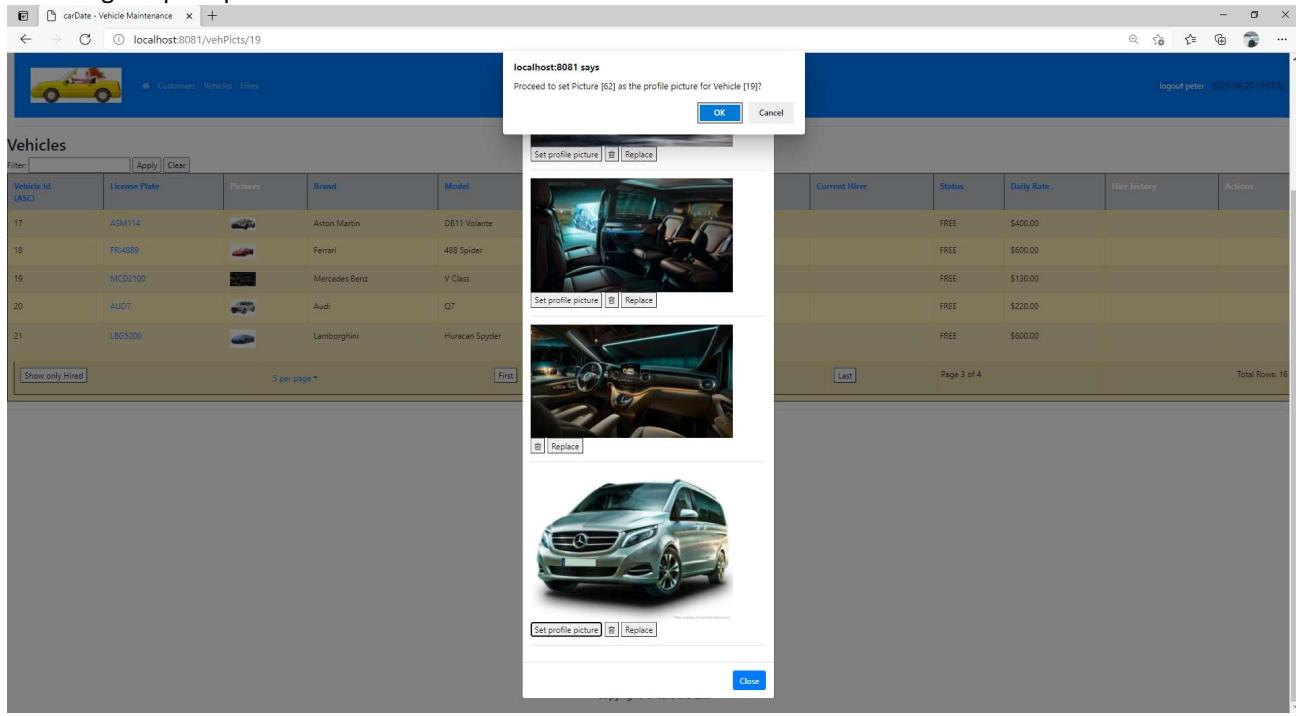
Now click the profile picture thumbnail again.

28. Album displayed in a Modal with buttons assigned.

This screenshot shows the same vehicle management application. A modal dialog is open over the vehicle list, centered on a vehicle with Vehicle ID 19 (MCD2100). The modal contains three images of the vehicle: a front-side view, an interior view of the back seats, and a dashboard view. Each image has a 'Set profile picture' button and a 'Replace' button. At the bottom of the modal is a 'Close' button. The background vehicle list table is partially visible.

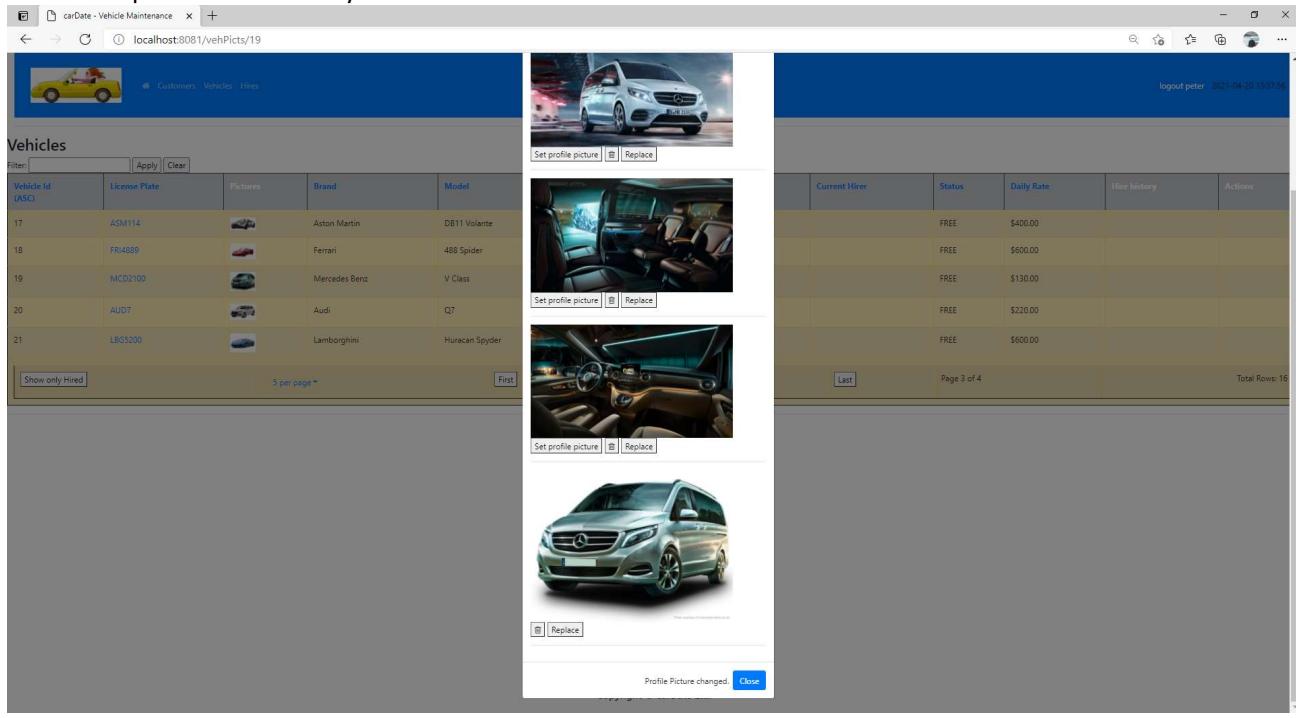
Click the bottom [Set profile picture] button.

29. You get a prompt.



Click OK.

30. Profile picture set correctly.



Click Close.

Next we test Firefox:

31. Try Vehicle filter “de” with page size set to 10.

carDate - Vehicle Maintenance

localhost:8081/VehPageSize/10

Vehicles

Filter: de Apply Clear

Vehicle Id (ASC)	License Plate	Pictures	Brand	Model	Engine	BHP	Top Speed	Current Hirer	Status	Daily Rate	Hire history	Actions
9	MCD2000	 1	Mercedes	C Class Cabriolet	2000	390	248		SUSPENDED	\$150.00		  
10	MCS2000	 1	Mercedes	S Class	2000	254	249		FREE	\$120.00	2	  
14	MCD2200	 1	Mercedes	E Class Cabriolet	2200	249	246		FREE	\$150.00		  
15	MCD6300	 1	Mercedes	G63 AMG	5500	544	210		FREE	\$400.00		  
18	FRI4889	 1	Ferrari	488 Spider	3900	660	327		FREE	\$600.00		  
19	MCD2100	 4	Mercedes Benz	V Class	2100	190	207		FREE	\$130.00		  
21	LBG5200	 1	Lamborghini	Huracan Spyder	5200	571	324		FREE	\$600.00		  

Show only Hired 10 per page Page 1 of 1 Total Rows: 7

0 Aston Martin 0 0 0 FREE 0.0 

It worked.

Click on the Vehicle profile picture thumbnail of MCD2100.

32. The album is shown.

carDate - Vehicle Maintenance

localhost:8081/VehPicts/19

Vehicles

Filter: de Apply Clear

Vehicle Id (ASC)	License Plate	Pictures	Brand	Model	
9	MCD2000	 1	Mercedes	C Class Cabriolet	
10	MCS2000	 1	Mercedes	S Class	
14	MCD2200	 1	Mercedes	E Class Cabriolet	
15	MCD6300	 1	Mercedes	G63 AMG	
18	FRI4889	 1	Ferrari	488 Spider	
19	MCD2100	 4	Mercedes Benz	V Class	
21	LBG5200	 1	Lamborghini	Huracan Spyder	

Show only Hired 10 per page Page 1 of 1 Total Rows: 7

0 Aston Martin 0 0 0 FREE 0.0 

 Set profile picture 

 Set profile picture 

 Set profile picture 

 Set profile picture 



Click bin button of the third picture.

33. You will get a prompt.

The screenshot shows a list of vehicles on the left and a vehicle details panel on the right. In the center, there is a modal dialog box with the message "Proceed to delete Picture [61] from Vehicle [19]?" with "OK" and "Cancel" buttons. The vehicle details panel shows a large image of a silver Mercedes-Benz V-Class van and a smaller image of its interior.

Click OK.

34. The picture is removed from the album.

The screenshot shows the same vehicle list and details panel as the previous step. The modal dialog has been closed, and a message at the bottom of the screen says "Vehicle 19 has picture 61 deleted." The vehicle details panel now shows a different image of the same van.

Click bin button to remove the last picture which is also the profile picture.

35. You get a prompt.

A screenshot of a web-based vehicle management system. On the left, a table lists vehicles with columns for Vehicle Id (ASC), License Plate, Pictures, Brand, and Model. A modal dialog box is centered over the interface, prompting the user with "Proceed to delete Picture [62] from Vehicle [19]?" with "OK" and "Cancel" buttons. In the background, there's a thumbnail view of a white Mercedes-Benz V-Class van and another view of its interior. The top navigation bar includes links for Customers, Vehicles, Hires, Employees, and Configurations. The URL in the address bar is localhost:8081/VehPicts/19.

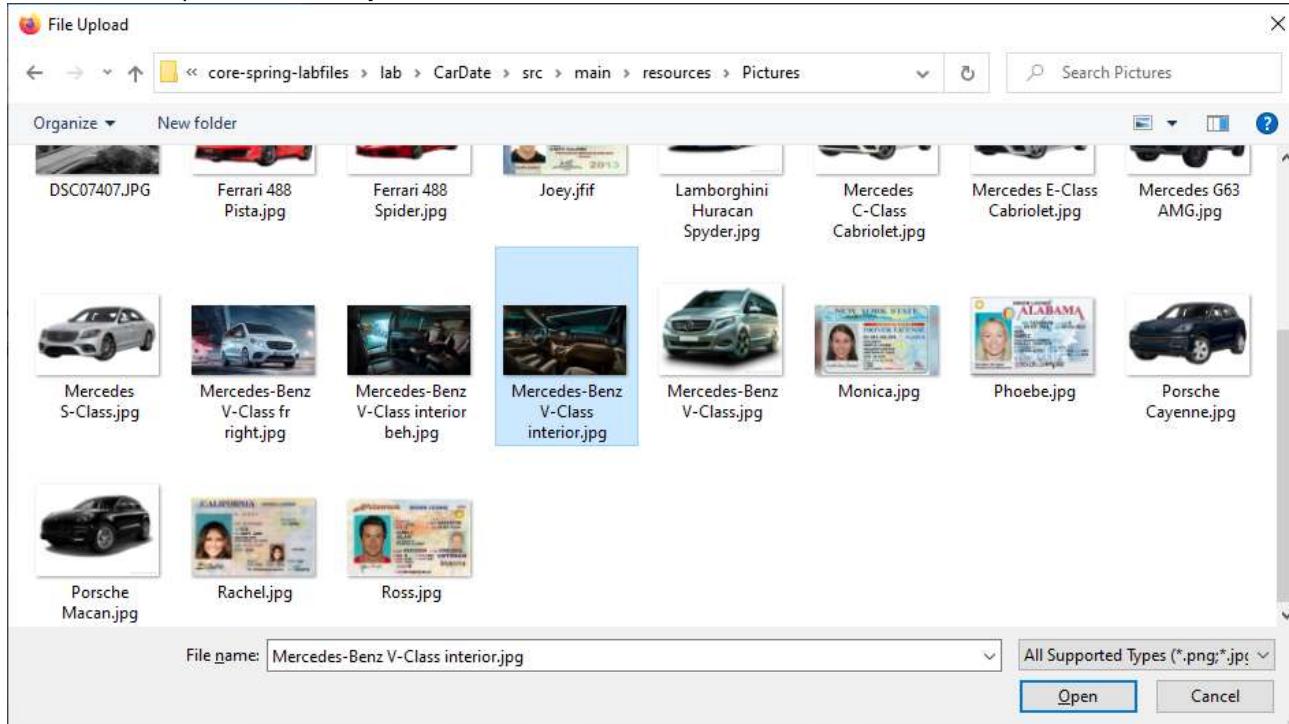
Click OK.

36. Profile picture is removed from the album, as well as from the thumbnail.

A screenshot of the same web-based vehicle management system. The modal dialog from the previous step has been closed, and a message at the bottom of the screen states "Vehicle 19 has picture 62 deleted." The thumbnail view of the white Mercedes-Benz V-Class van is now missing, replaced by a placeholder icon. The rest of the interface, including the vehicle list and background details, remains the same.

Click [Browse...] (equivalent to [Choose File] in other browsers) to put back the pictures.

37. Picture the picture that was just deleted.



Click Open.

38. Picture in preview.

The screenshot shows a web-based vehicle management system. On the left, a table lists vehicles with columns: Vehicle Id (ASC), License Plate, Pictures, Brand, and Model. The table includes rows for various cars like Mercedes C Class Cabriolet, S Class, E Class Cabriolet, G63 AMG, Ferrari 488 Spider, and Lamborghini Huracan Spyder.

In the center, a modal window titled "Mercedes Benz / V Class" is displayed. It shows a preview of the "Mercedes-Benz V-Class interior.jpg" image. Below the preview are buttons for "Set profile picture" and "Replace".

On the right, a table titled "Current Hirer" lists hire details such as Status, Daily Rate, and Actions. The table has columns: Current Hirer, Status, Daily Rate, Hire history, and Actions. The data shows several entries, mostly marked as "FREE".

At the bottom of the page, there is a footer with the text "Copyright © carDate Ltd." and a "Close" button for the modal.

Click [Add Picture].

39. Picture added to the album. Profile picture thumbnail also updated.

The screenshot shows a web-based vehicle management system. On the left, there's a list of vehicles with columns for Vehicle Id, License Plate, Pictures, Brand, and Model. A modal dialog is open for a vehicle with MCD2100. The dialog has a 'Browse...' button, a preview area showing a white Mercedes-Benz V-Class, and a 'Set profile picture' button. Below the preview are two other car interior images with similar buttons. At the bottom of the dialog, a message says 'New picture uploaded successfully.' and a 'Close' button.

Click [Browse...] to add one more.

40. Pick the correct picture.

A file upload dialog from Mozilla Firefox. The path in the address bar is 'core-spring-labfiles > lab > CarDate > src > main > resources > Pictures'. The dialog shows a grid of files:

File Name	Description
DSC07407.JPG	Ferrari 488 Pista.jpg
Ferrari 488 Spider.jpg	Joey.jifif
Lamborghini Huracan Spyder.jpg	Mercedes C-Class Cabriolet.jpg
Mercedes E-Class Cabriolet.jpg	Mercedes G63 AMG.jpg
Mercedes S-Class.jpg	Monica.jpg
Mercedes-Benz V-Class fr right.jpg	Phoebe.jpg
Mercedes-Benz V-Class interior beh.jpg	Porsche Cayenne.jpg
Mercedes-Benz V-Class interior.jpg	Rachel.jpg
Ross.jpg	

At the bottom, the 'File name:' field contains 'Mercedes-Benz V-Class.jpg', the 'Type:' dropdown says 'All Supported Types (*.png;*.jpg)', and the 'Open' and 'Cancel' buttons are visible.

Click Open.

41. Picture in preview.

The screenshot shows a web-based application for vehicle maintenance. On the left, there's a list of vehicles with columns for Vehicle Id, License Plate, Pictures, Brand, and Model. A modal window is open for the vehicle with ID MCD2100, which is a Mercedes-Benz V-Class. The modal has a file input field labeled 'Browse...' with the path 'Mercedes-Benz V-Class.jpg' and a preview image of the exterior of the van. Below the preview are two buttons: 'Add Picture' and 'Set profile picture'. To the right of the modal is a table of vehicle records. The table includes columns for Current Hirer, Status, Daily Rate, Hire history, and Actions. The first row shows a suspended vehicle with a daily rate of \$150.00. The status dropdown is set to 'FREE' and the daily rate dropdown is set to '0.0'. At the bottom of the modal, there are buttons for 'Set profile picture' and 'Replace'.

Click [Add Picture].

42. Picture added to album.

This screenshot shows the same application interface after a new picture has been uploaded. The modal now displays three images: the exterior of the van, the interior view from the back seat, and the interior dashboard view. Below these images are the 'Set profile picture' and 'Replace' buttons. At the bottom of the modal, a success message 'New picture uploaded successfully.' is displayed next to a 'Close' button. The rest of the application interface remains the same, showing the vehicle list and the table of vehicle records.

Note that there are no buttons for the two new pictures. There is a technical constraint that prevents functional buttons from being added to the new picture. One has to close the Modal and re-open it to have the buttons assigned.

Click Close.

43. Back to the main page.

The screenshot shows a web browser window titled "carDate - Vehicle Maintenance". The URL is "localhost:8081/vehPicts/0". The page has a blue header bar with a yellow car icon and navigation links: Customers, Vehicles, Hires, Employees, Configurations. On the right, it shows "logout siklon 2021-04-20 13:50:58". Below the header is a section titled "Vehicles" with a table. The table has columns: Vehicle Id (ASC), License Plate, Pictures, Brand, Model, Engine, BHP, Top Speed, Current Hirer, Status, Daily Rate, Hire history, Actions. There are 7 rows of vehicle data, each with a small thumbnail image of the vehicle.

Now click the profile picture thumbnail again.

44. Album displayed in a Modal with buttons assigned.

The screenshot shows a modal dialog box over a background of the vehicle list. The modal contains a large image of a silver Mercedes-Benz C-Class Cabriolet. Below the image are three buttons: "Set profile picture", "Replace", and a close button. To the left of the modal, there is a partial view of the vehicle list table. To the right, there is another table showing vehicle details: Current Hirer, Status, Daily Rate, Hire history, Actions. The status column shows values like SUSPENDED, FREE, etc. The hire history column shows values like 2, etc. At the bottom of the modal, there is a "Close" button.

Click the bottom [Set profile picture] button.

45. You get a prompt.

A screenshot of a web-based vehicle maintenance application. On the left, a table lists vehicles with columns for Vehicle Id (ASC), License Plate, Pictures, Brand, and Model. A modal dialog box is centered over the interface, asking "Proceed to set Picture [64] as the profile picture for Vehicle [19]?" with "OK" and "Cancel" buttons. In the background, there's a large image of a silver Mercedes-Benz V-Class van and another smaller image of its interior. The top navigation bar includes links for Customers, Vehicles, Hires, Employees, and Configurations. The status bar at the bottom right shows "logout silkon 2021-04-10 13:51:23".

Click OK.

46. Profile picture set correctly.

A screenshot of the same vehicle maintenance application after the profile picture was set. The modal dialog now displays "Profile Picture changed." and a "Close" button. The background shows the same silver Mercedes-Benz V-Class van and interior image. The status bar at the bottom right still shows "logout silkon 2021-04-10 13:51:23".

Click Close.

47. Back to main screen.

caDate - Vehicle Maintenance

localhost:8081/vehPage/0

logout sikan 2021-04-20 13:54:09

Vehicles

Vehicle Id (ASC)	License Plate	Pictures	Brand	Model	Engine	BHP	Top Speed	Current Hirer	Status	Daily Rate	Hire history	Actions
9	MCD2000		Mercedes	C Class Cabriolet	2000	390	248		SUSPENDED	\$150.00		<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
10	MCS2000		Mercedes	S Class	2000	254	249		FREE	\$120.00	2	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
14	MCD2200		Mercedes	E Class Cabriolet	2200	249	246		FREE	\$150.00		<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
15	MCD6300		Mercedes	G63 AMG	5500	544	210		FREE	\$400.00		<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
18	FRI4889		Ferrari	488 Spider	3900	660	327		FREE	\$600.00		<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
19	MCD2100		Mercedes Benz	V Class	2100	190	207		FREE	\$130.00		<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
21	LBG5200		Lamborghini	Huracan Spyder	5200	571	324		FREE	\$600.00		<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Show only Hired

10 per page

Page 1 of 1

Total Rows: 7

0 Aston Martin 0 0 FREE 0.0 Reset

9. Grace Period Override

- Let's say Rachel comes along to Hire a Vehicle. Look her up in Customers page, pin her.

The screenshot shows a web-based application for managing customers. The title bar says "carDate - Customer Maintenance". The main area is titled "Customers". A search bar at the top left has "Filter" and "Apply" buttons. Below the search bar is a table with columns: CustomerId (ASC), Customer Name, NRIC, Driving License, Email, Phone No, Address line 1, Address line 2, City, Date of Birth, Is Active, Last Updated, Alternate Contact, Current Hire, Hire history, and Actions. There are 5 rows of data. Row 2, which is Rachel Green, has a yellow star icon next to it, indicating she is pinned. At the bottom of the table, there are buttons for "Show only Hiring", "5 per page", "First", "Prev", "Next", "Last", and "Page 1 of 5". Below the table, there are buttons for "mm/dd/yyyy", "2021-04-20", "Rachel Green", and "Reset".

Rachel wants to repeat her last Hire, so click the “2” under Hire history to view.

- Rachel's Hire history is shown.

The screenshot shows a web-based application for managing hires. The title bar says "carDate - Hires Maintenance". The main area is titled "Hires of Customer Rachel Green". A table with columns: Hire Id (ASC), Hired by, Vehicle, Daily Rate, Fulfill by, Returned to, Hire starts, Planned hire end, Hire deposit, Planned fee, Actual hire end, Actual fee, and Actions. There are 2 rows of data. Row 2, which is AUD6, has a yellow star icon next to it, indicating it is pinned. At the bottom of the table, there are buttons for "Show only current Hires", "5 per page", "Page 1 of 1", and "Total Rows: 2". Below the table, there are buttons for "0", "Rachel Green", "\$0.00", "sikon", "04/20/2021 15:52", "04/21/2021 12:00", "0.0", "\$0.00", "\$0.00", and "Trial Save Reset".

Rachel confirms she want to hire AUD6 again. Click AUD6 to pin that Vehicle.

- As the Vehicle is available, a Hire record is drafted, using current date time as the Hire start time.

The screenshot shows a web-based application for managing hires. The title bar says "carDate - Hires Maintenance". The main area is titled "Hires of Customer Rachel Green". A table with columns: Pinned Customer Id, Customer Name, NRIC, Email, Phone No, Is Active, Alternate Contact, Current Hire, Hire history, and Actions. There are 2 rows of data. Row 2, which is AUD6, has a yellow star icon next to it, indicating it is pinned. Below this table is another table for drafting a new hire: Pinned Vehicle Id, License Plate, Model, Brand, Veh Status, Daily Rate, Current Hire, and Hire History. Row 11, which is AUD6, is highlighted in yellow. At the bottom of the page, there is a table for the new hire record with columns: Hire Id (ASC), Hired by, Vehicle, Daily Rate, Fulfill by, Returned to, Hire starts, Planned hire end, Hire deposit, Planned fee, Actual hire end, Actual fee, and Actions. There are 2 rows of data. Row 21, which is AUD6, has a yellow star icon next to it, indicating it is pinned. At the bottom of the table, there are buttons for "Show only current Hires", "5 per page", "Page 1 of 1", and "Total Rows: 2". Below the table, there are buttons for "0", "Rachel Green", "AUD6", "\$240.00", "sikon", "04/20/2021 15:53", "04/21/2021 12:00", "0.0", "\$0.00", "\$0.00", and "Trial Save Reset".

Normally, this is fine in production to begin a new Hire.

For testing purpose, we want to back date the Hire by 10 days. Try change Hire start to 04/10.

4. The override is rejected, for good reasons as this is definitely an error.

The screenshot shows a browser window titled "carDate - Hires Maintenance" at "localhost:8081/hireSaveOts/commit". The main content area displays two tables: "Pinned Customer Id" and "Pinned Vehicle Id". The "Pinned Customer Id" table has one row for "Rachel Green" with ID 2. The "Pinned Vehicle Id" table has one row for "RS6" with ID 11. Below these tables is a section titled "Hires of Customer Rachel Green" with a note "Hire start time must be within the last 30 minutes." A table lists two hires: one for BEV610 on 2021-Apr-05 and another for AUD6 on 2021-Apr-14. At the bottom, there are buttons for "Show only current Hires", "5 per page*", "Page 1 of 1", and "Total Rows: 2".

But for testing purpose, we want to give it such a date time. Then we must disable to time proximity check. This can be achieved only when Grace Period in Configurations is changed to 0. We shall try that.

5. Lets change the Configuration as below, setting Grace Period to 0 too.

The screenshot shows a browser window titled "carDate - Configurations Maintenance" at "localhost:8081/cfgPage". The main content area is titled "Businesss Configurations". It contains a table with various configuration parameters like "Effective Date", "Company name", "Grace period", etc., each with a "Current" value and a "Next" value. The "Grace period" field is currently set to 30. A "Remarks" column provides descriptions for each setting. At the bottom right of the table is a "Reset" button.

Click save button.

6. Grace Period cannot be changed to 0.

The screenshot shows a browser window titled "carDate - Configurations Maintenance" at "localhost:8081/cfgPage". The main content area is titled "Businesss Configurations". It contains a table with configuration parameters. The "Grace period" field is highlighted in red, indicating an error. A "Remarks" column provides descriptions for each setting. At the bottom right of the table is a "Reset" button.

Change Grace Period to 30, and click Save button.

The screenshot shows a browser window titled "carDate - Configurations Maintenance" at "localhost:8081/cfgPage". The main content area is titled "Businesss Configurations". It contains a table with configuration parameters. The "Grace period" field now has a value of 30. A "Remarks" column provides descriptions for each setting. At the bottom right of the table is a "Reset" button.

7. New Configuration is saved.

The screenshot shows a web-based application for managing configurations. The URL is localhost:8081/cfgSave. The page title is "carDate - Configurations Maintenace". The main section is titled "Businesss Configurations". A table lists various configuration parameters:

	Current	Next	Remarks
Id	121	0	
Effective Date	2021-04-20	04/20/2021	Date this config comes into effect
Company name	CarDate Leisure Vehicle Hiring Company Limited	CarDate Leisure Vehicle Hiring Company Limited	
Company address line 1	5 Alpha Road, Balanagar, Hyderabad	5 Alpha Road, Balanagar, Hyderabad	
Company address line 2	Andhra Pradesh, 500042, India	Andhra Pradesh, 500042, India	
Grace period	30	30	Number of minutes hire/return time can deviate from clock.
Opening time	08:00	08:00:00	Vehicles are returned/hired after this time of the day when the shop opens.
Closing time	20:00	20:00:00	Vehicles must be returned/hired before this time of the day when the shop closes.
Return time	12:00	12:00:00	Vehicles should be returned before this time of the day, after which Additional charge will apply.
Collection time	14:00	14:00:00	Vehicles can be collected after this time of the day. Additional charge applies if hirer collects vehicle before this time.
hourly factor	10	10	Additional charges are levied by the hours. Hourly charge is this percentage of the daily rate.
extra-time factor	10	10	If vehicle is return after agreed date/time, Extra charge applies. Extra charge is this percent over the regular charge.
week-end factor	10	10	Week-end refers to the period from collection time on Friday to Return time on Monday. Any rental during that period is subject to extra charge at this percentage. Feature not yet implemented.
days offset	-21	-21	This is for test environment only. This number of days is added to the clock to obtain current date whenever clock is referred to.
hours offset	4	4	This is for test environment only. This number of hours is added to the clock to obtain current time whenever clock is referred to.

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8. To change Grace Period to 0, it can only be done by DBA.

The screenshot shows the Oracle SQL Developer interface. The connection is to the "capstone" database. The schema is "CAPSTONE". The table being viewed is "BUSINESS_CONFIG". The data shows two records:

CONFID	CLOSE_TIME	EFF_DATE	EXTRA_TIME_F...	GRACE...	HIRE_TIME	HOURLY_FACT...	NEXT_ID	OFFSE...	OFFSET_HO...	OPEN_TIME	PREV_ID	RETURN_L...	WEEKEND...	ADDR1	ADDR2	COMPANY_NAME
1	01-JAN-70	20-AFR-21	10	30	01-JAN-70	10	0	-21	4	01-JAN-70	121	01-JAN-70	10 2-111/a3...	Andhra...	CarDate Le...	
2	20-01-JAN-70	01-AFR-21	10	30 01-JAN-70		5	23	-30	0 01-JAN-70	0 01-JAN-70	0 01-JAN-70	10 2-111/a3...	Andhra...	CarDate Le...		

Change Grace period from 30 to 0 in both record 1 and record 121. Commit.

9. Configurations show 0 Grace Period.

The screenshot shows the "carDate - Configurations Maintenace" page again. The configuration for ID 121 now has a Grace period of 0. The rest of the fields remain the same as in the previous screenshot.

	Current	Next	Remarks
Id	121	0	
Effective Date	2021-04-20	04/20/2021	Date this config comes into effect
Company name	CarDate Leisure Vehicle Hiring Company Limited	CarDate Leisure Vehicle Hiring Company Limited	
Company address line 1	5 Alpha Road, Balanagar, Hyderabad	5 Alpha Road, Balanagar, Hyderabad	
Company address line 2	Andhra Pradesh, 500042, India	Andhra Pradesh, 500042, India	
Grace period	0	0	Number of minutes hire/return time can deviate from clock.
Opening time	08:00	08:00:00	Vehicles are returned/hired after this time of the day when the shop opens.
Closing time	20:00	20:00:00	Vehicles must be returned/hired before this time of the day when the shop closes.
Return time	12:00	12:00:00	Vehicles should be returned before this time of the day, after which Additional charge will apply.
Collection time	14:00	14:00:00	Vehicles can be collected after this time of the day. Additional charge applies if hirer collects vehicle before this time.
hourly factor	10	10	Additional charges are levied by the hours. Hourly charge is this percentage of the daily rate.
extra-time factor	10	10	If vehicle is return after agreed date/time, Extra charge applies. Extra charge is this percent over the regular charge.
week-end factor	10	10	Week-end refers to the period from collection time on Friday to Return time on Monday. Any rental during that period is subject to extra charge at this percentage. Feature not yet implemented.
days offset	-21	-21	This is for test environment only. This number of days is added to the clock to obtain current date whenever clock is referred to.
hours offset	4	4	This is for test environment only. This number of hours is added to the clock to obtain current time whenever clock is referred to.

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10. Now move on to create a back dated Hire.

Pinned Customer Id: 2, Customer Name: Rachel Green, NRIC: FRIENDS02, Email: r.green@friends.com, Phone No: +155534568766, Is Active: Yes, Alternate Contact: Ross Geller, Current Hire: AUD6, Hire history: 3, Actions: X.

Pinned Vehicle Id: 11, License Plate: RS6, Model: Audi, Brand: AUD6, Veh Status: HIRED, Daily Rate: 240.0, Current Hire: Rachel Green, Hire History: 3, Actions: X.

Hires of Customer Rachel Green

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
1	Rachel Green	BEN610	\$150.00	peter	peter	2021-Apr-05 18:05	2021-Apr-13 16:00	\$700.00	\$1,230.00	2021-Apr-14 16:00	\$1,428.00	<button>Delete</button> <button>Invoice</button>
21	Rachel Green	AUD6	\$240.00	peter	sikon	2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00	2021-Apr-19 13:50	\$1,348.80	<button>Delete</button> <button>Invoice</button>
101	Rachel Green	AUD6	\$240.00	sikon		2021-Apr-10 16:01	2021-Apr-21 12:00	\$1,500.00	\$2,640.00		\$0.00	<button>Return</button> <button>Invoice</button>

Show only current Hires | 5 per page | Page 1 of 1 | Total Rows: 3

0 | \$0.00 | sikon | 04/20/2021 16:01 | 04/21/2021 12:00 | 0.0 | \$0.00 | \$0.00 | \$0.00 | Trial Save Reset

Hire is created.

11. Now proceed to perform forward dated return on Apr 22 at 16:00 despite current date/time shown on top right of the page being Apr 20.

Pinned Customer Id: 2, Customer Name: Rachel Green, NRIC: FRIENDS02, Email: r.green@friends.com, Phone No: +155534568766, Is Active: Yes, Alternate Contact: Ross Geller, Current Hire: AUD6, Hire history: 3, Actions: X.

Pinned Vehicle Id: 11, License Plate: RS6, Model: Audi, Brand: AUD6, Veh Status: FREE, Daily Rate: 240.0, Current Hire: Rachel Green, Hire History: 3, Actions: X.

Hires of Customer Rachel Green

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
1	Rachel Green	BEN610	\$150.00	peter	peter	2021-Apr-05 18:05	2021-Apr-13 16:00	\$700.00	\$1,230.00	2021-Apr-14 16:00	\$1,428.00	<button>Delete</button> <button>Invoice</button>
21	Rachel Green	AUD6	\$240.00	peter	sikon	2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00	2021-Apr-19 13:50	\$1,348.80	<button>Delete</button> <button>Invoice</button>
101	Rachel Green	AUD6	\$240.00	sikon	sikon	2021-Apr-10 16:01	2021-Apr-21 12:00	\$1,500.00	\$2,640.00	2021-Apr-22 16:00	\$3,062.40	<button>Delete</button> <button>Invoice</button>

Show only current Hires | 5 per page | Page 1 of 1 | Total Rows: 3

0 | Rachel Green | AUD6 | \$240.00 | sikon | 04/20/2021 16:04 | 04/21/2021 12:00 | 0.0 | \$0.00 | \$0.00 | \$0.00 | Trial Save Reset

Hire return accepted. Now click Invoice.

12. Let's repeat the back dated Hire creation:

Pinned Customer Id: 2, Customer Name: Rachel Green, NRIC: FRIENDS02, Email: r.green@friends.com, Phone No: +155534568766, Is Active: Yes, Alternate Contact: Ross Geller, Current Hire: AUD6, Hire history: 4, Actions: X.

Pinned Vehicle Id: 11, License Plate: RS6, Model: Audi, Brand: AUD6, Veh Status: HIRED, Daily Rate: 240.0, Current Hire: Rachel Green, Hire History: 4, Actions: X.

Hires of Customer Rachel Green

Hire Id (ASC)	Hired by	Vehicle	Daily Rate	Fulfill by	Returned to	Hire starts	Planned hire end	Hire deposit	Planned fee	Actual hire end	Actual fee	Actions
1	Rachel Green	BEN610	\$150.00	peter	peter	2021-Apr-05 18:05	2021-Apr-13 16:00	\$700.00	\$1,230.00	2021-Apr-14 16:00	\$1,428.00	<button>Delete</button> <button>Invoice</button>
21	Rachel Green	AUD6	\$240.00	peter	sikon	2021-Apr-14 17:00	2021-Apr-15 12:00	\$240.00	\$240.00	2021-Apr-19 13:50	\$1,348.80	<button>Delete</button> <button>Invoice</button>
101	Rachel Green	AUD6	\$240.00	sikon	sikon	2021-Apr-10 16:01	2021-Apr-21 12:00	\$1,500.00	\$2,640.00	2021-Apr-22 16:00	\$3,062.40	<button>Delete</button> <button>Invoice</button>
102	Rachel Green	AUD6	\$240.00	sikon		2021-Apr-10 12:00	2021-Apr-16 16:00	\$1,000.00	\$1,584.00		\$0.00	<button>Return</button> <button>Invoice</button>

Show only current Hires | 5 per page | Page 1 of 1 | Total Rows: 4

0 | \$0.00 | sikon | 04/20/2021 16:09 | 04/21/2021 12:00 | 0.0 | \$0.00 | \$0.00 | \$0.00 | Trial Save Reset

Hire 102 is created. Click Invoice button.

13. Invoice is generated:

CarDate Leisure Vehicle Hiring Company Limited					
5 Alpha Road, Balanagar, Hyderabad Andhra Pradesh, 500042, India					
Vehicle Hiring Invoice					
Customer ID	2	Name	Rachel Green		
Alternate contact	6	Name	Ross Geller		
Vehicle Id	11	Daily rate	\$240.00		
Brand	Audi	License	AUD6		
Model	RS6				
Hiring Starts	2021-04-10 12:00	Hiring Id	102		
Agreed Return	2021-04-16 16:00				
Hire type	Start	End	Quantity	Rate	Amount
Early collection fee	2021-04-10 12:00	2021-04-10 14:00	2 hrs	\$24.00	\$48.00
Daily rental	2021-04-10	2021-04-16	6 days	\$240.00	\$1,440.00
Late return	2021-04-16 12:00	2021-04-16 16:00	4 hrs	\$24.00	\$96.00
			Total		\$1,584.00
Deposit received	2021-04-10				\$1,000.00
			Balance		\$584.00
I acknowledge that the said Vehicle is received in satisfactory condition:					
Customer Signature and Date					

Note that the hourly rate for early collection and late return are \$24.00, which is 10% of the Daily rate. This factor used to be 5%, and was only changed to 10% for effective date Apr 16. As the Grace Period override only disables the time proximity check, it does not affect the use of Configurations. So when a Hire is created, it looks up the database for the current Configuration, and thus 10% is used.

You should also note that Vehicles and Customers shouldn't have been able to double Hire. However, the Hire records now reflects such. Going forward, if statistics are generated from such data, it may reflect impossible patterns.

The design of the application is such that it can naturally prevent double Hire. The patch of Grace Period to 0 should only be used in extreme test cases.

For those who wonder why I go the extend to introducing Offset days and hours in the configurations, this should explain.

14. Now change the Grace Period back to 30.

	Current	Next	Remarks
Id	141	0	
Effective Date	2021-04-20	04/20/2021	Date this config comes into effect
Company name	CarDate Leisure Vehicle Hiring Company Limited	CarDate Leisure Vehicle Hiring Company Limited	
Company address line 1	5 Alpha Road, Balanagar, Hyderabad	5 Alpha Road, Balanagar, Hyderabad	
Company address line 2	Andhra Pradesh, 500042, India	Andhra Pradesh, 500042, India	
Grace period	30	30	Number of minutes hire/return time can deviate from clock.
Opening time	08:00	08:00:00	Vehicles are returned/hired after this time of the day when the shop opens.
Closing time	20:00	20:00:00	Vehicles must be returned/hired before this time of the day when the shop closes.
Return time	12:00	12:00:00	Vehicles should be returned before this time of the day, after which Additional charge will apply.
Collection time	14:00	14:00:00	Vehicles can be collected after this time of the day. Additional charge applies if hirer collects vehicle before this time.
hourly factor	10	10	Additional charges are levied by the hours. Hourly charge is this percentage of the daily rate.
extra-time factor	10	10	If vehicle is return after agreed date/time, Extra charge applies. Extra charge is this percent over the regular charge.
week-end factor	10	10	Week-end refers to the period from collection time on Friday to Return time on Monday. Any rental during that period is subject to extra charge at this percentage. Feature not yet implemented.
days offset	-21	-21	This is for test environment only. This number of days is added to the clock to obtain current date whenever clock is referred to.
hours offset	4	4	This is for test environment only. This number of hours is added to the clock to obtain current time whenever clock is referred to.
			<input type="button" value="Reset"/>

End of document