DESCRIPTION OF THE PROGRAM

- **Login screen**

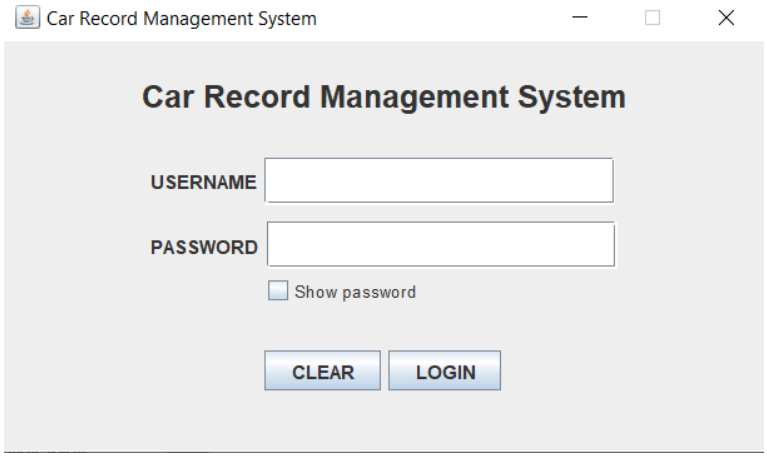


Figure 1.0: System login screen

When the system starts, it will display a login screen. Users will need to enter the correct details to gain access, which is **HelloWorld** for username and **123** for password. If the user leaves the input fields empty, the system will display an error message to let them know they need to fill them. If the user enters the incorrect login details, the system displays an error message that says their username or password is invalid.

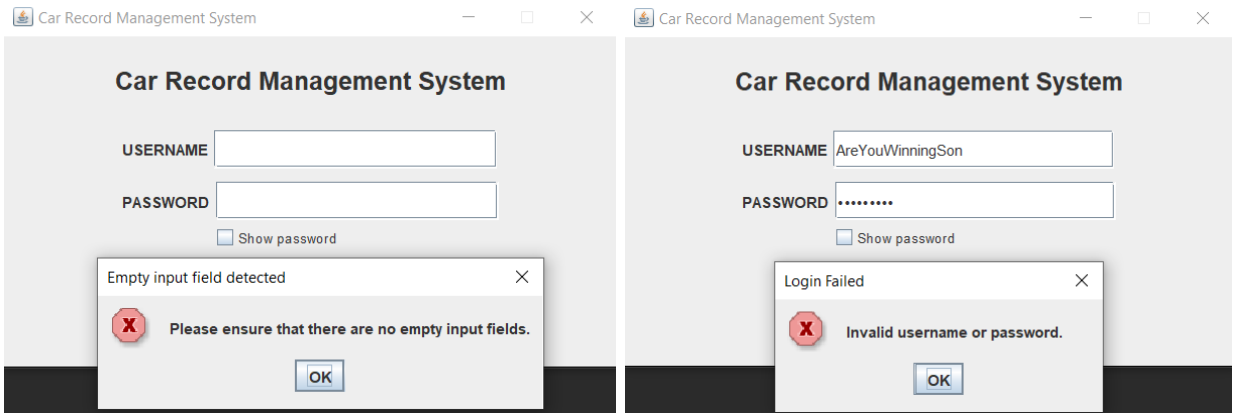


Figure 1.1: Error messages for invalid inputs

The ‘Show password’ checkbox in the login screen allows the user to reveal their password in plain text. Giving people the option to view their password allows them to easily check if they’ve correctly typed what they intended to type. It also allows users to type their password quickly and accurately while also reducing the chances of the user encountering an error due to mistyping something.

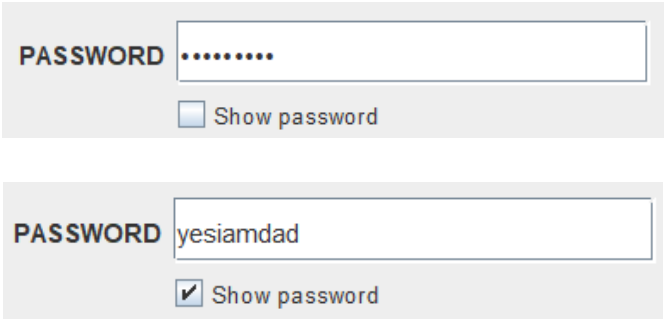


Figure 1.2: Usage of ‘Show password’

If the user enters the correct login details, the system notifies that they have successfully logged in and redirects them to the system's main menu.

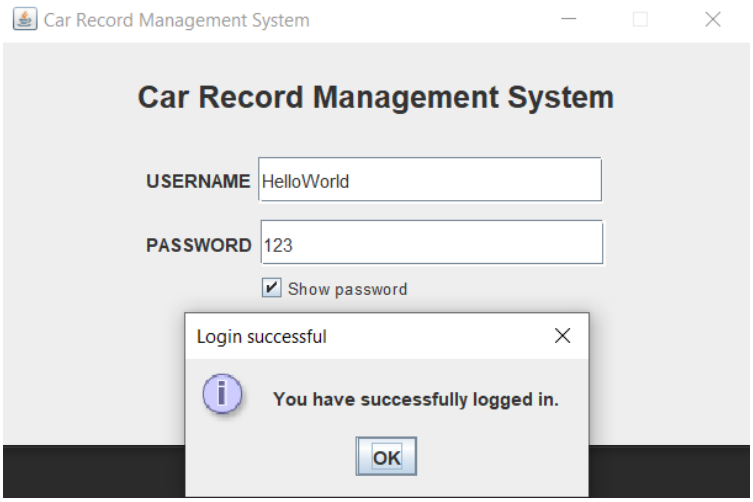


Figure 1.3: System notifies login successful

- **Main Menu**

The main menu of the system consists of 5 buttons that users can select from. Each of the buttons allows the user to access the main functions of the system, which include “Create Record”, “Delete Record”, “Edit Record”, “Search Record”, and “Display All Records”.

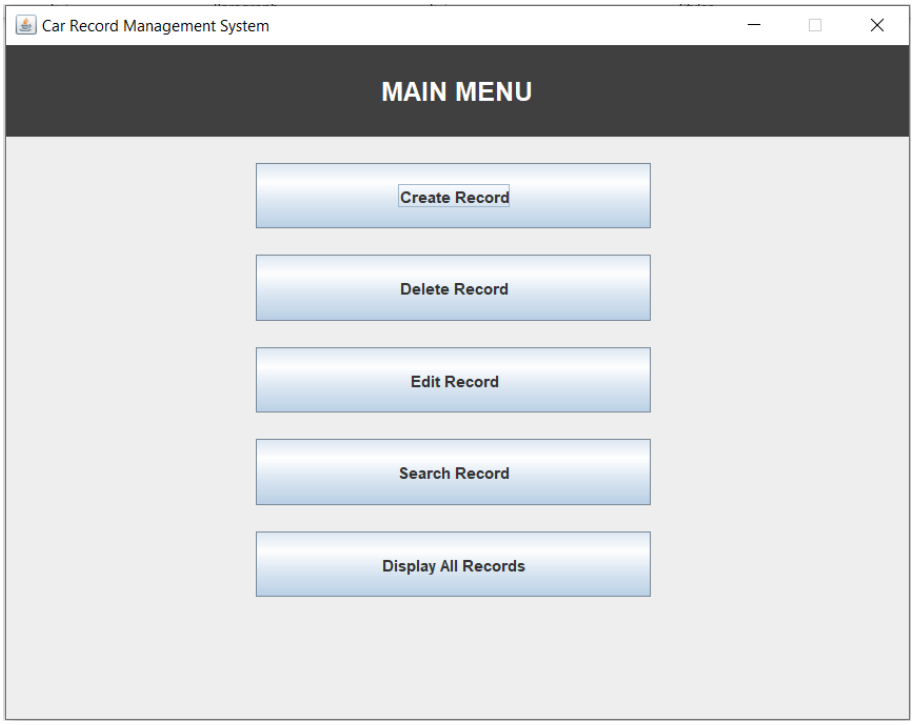


Figure 2.0: Main menu of the system

- **Create Record**

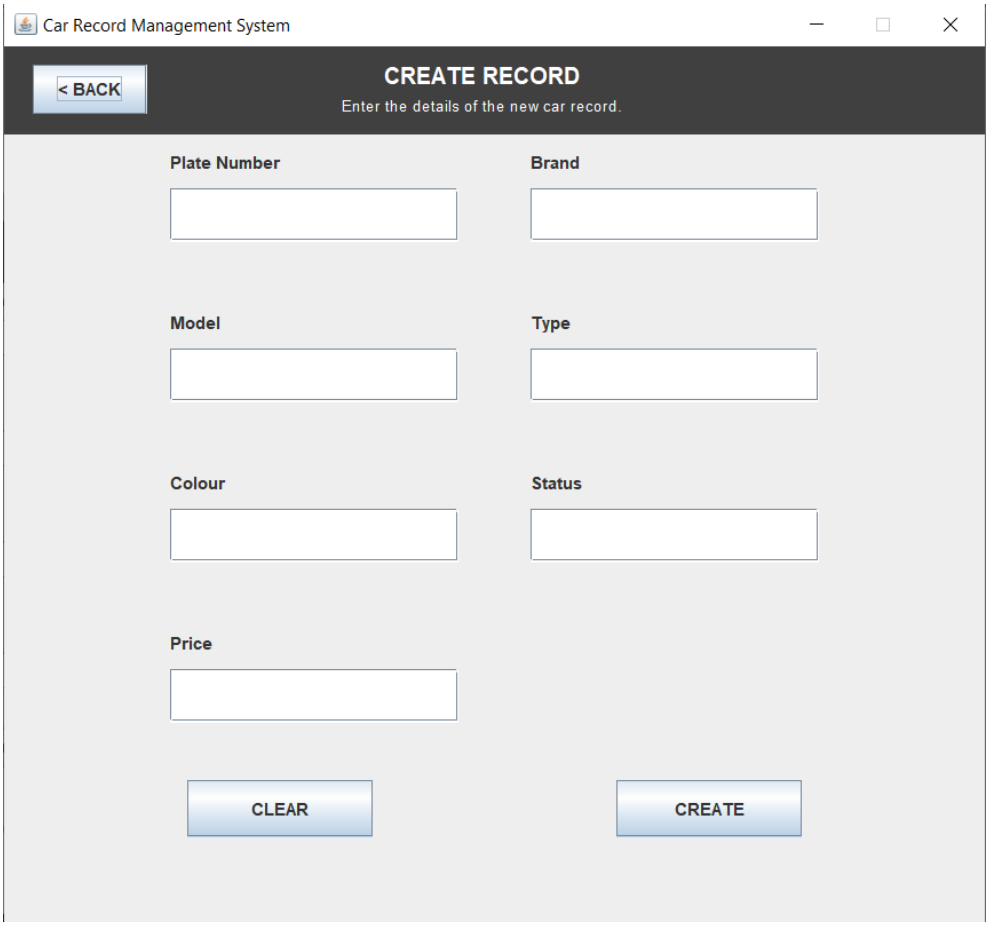


Figure 3.0: Create Record screen

When the 'Create Record' button in the main menu is clicked, the window content changes, and the 'Create Record' form is displayed. The 'Create Record' function allows users to create new car records by entering their details in the input fields and adding them into the system.

There are some constraints when users input values. First, all of the input fields must have a value and cannot be left empty. Next, the new car record's plate number must be unique to differentiate other records currently in the system. The new record's price must also be floating numbers and must not contain any non-integer characters. Each input field must comply with set character limits: At most, 12 characters are allowed for plate numbers, 9 characters for prices, and 16 characters for other input fields.

Corresponsive error messages are displayed instantaneously under the input fields with invalid input while the users enter their input. Certain error messages only show when the system performs thorough checking, such as checking the uniqueness of plate numbers and the data type of the value of the price field, which is performed when the user clicks on the ‘CREATE’ button.

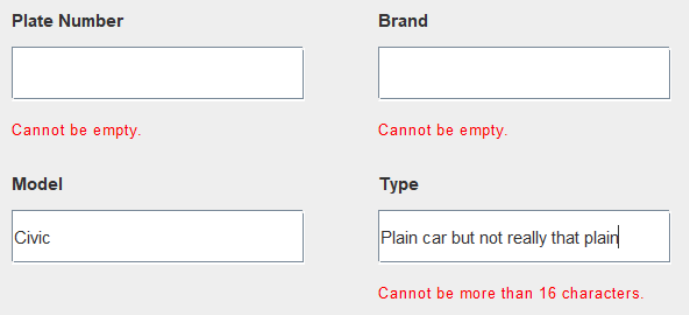


Figure 3.1: Examples of error messages shown under input fields

If the user tries to submit the form when it still contains errors, the system will deny the submission and notify the user to recheck their inputs.

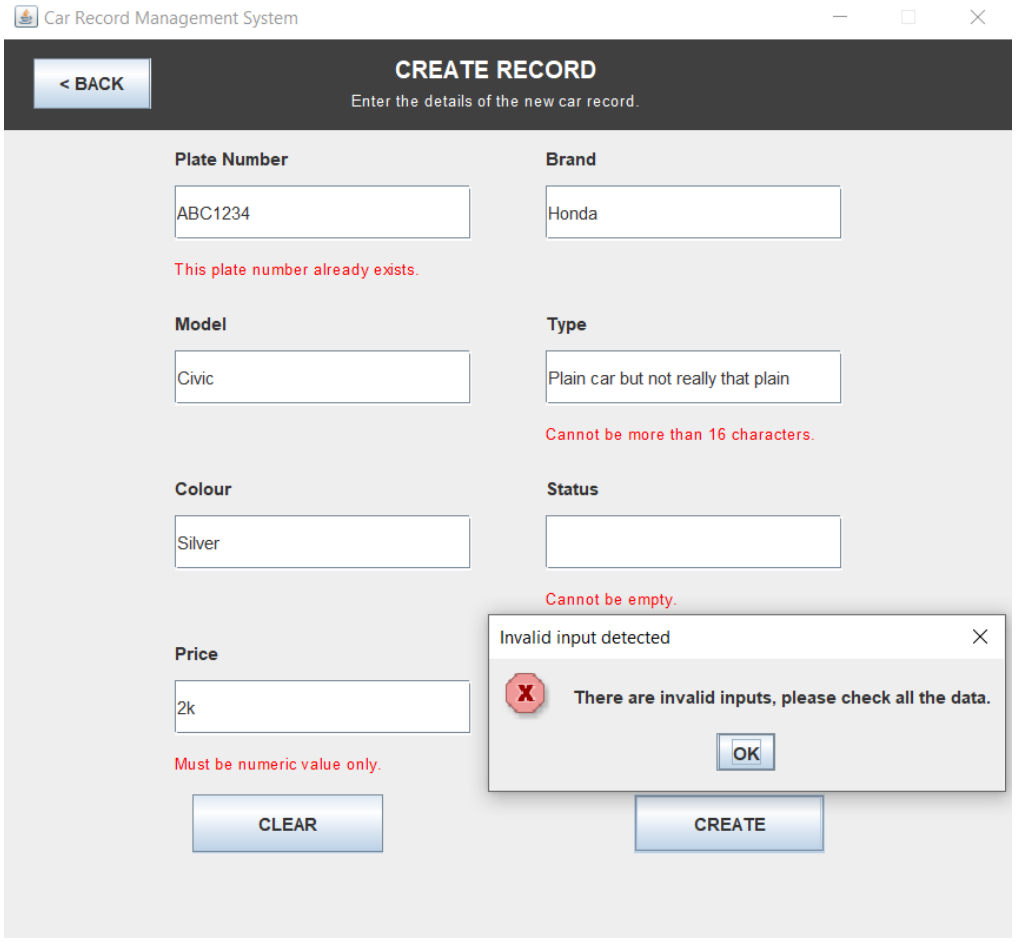


Figure 3.2: System denies submission if there are invalid input fields

If there are no errors, the system confirms with the user if they want to create the new car record. If the user clicks 'Yes', the system tells the user that the record has been created successfully and added to the system. If the user clicks 'No', the system will close the confirmation dialog and let the user recheck their inputs.

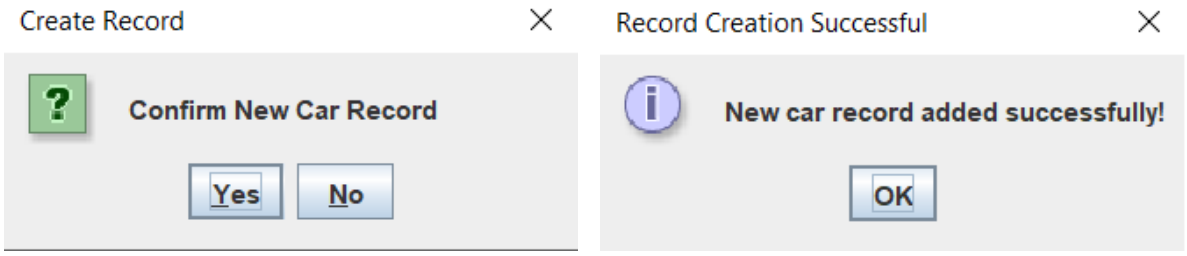


Figure 3.3: Confirmation dialog for creating a record **(left)** and system output if user clicks 'Yes' **(right)**

There are also 'Back' and 'Clear' buttons. The 'Clear' button is used to quickly empty all inputs fields in the form, while the 'Back' button redirects the user back to the main menu. When the 'Back' button is pressed, the system confirms with the user if they want to go back to the main menu and tells them that all data that they have entered will be lost if they do. If they want to proceed, the system discards the data entered and returns the user to the main menu, or else the system will cancel the redirecting process.

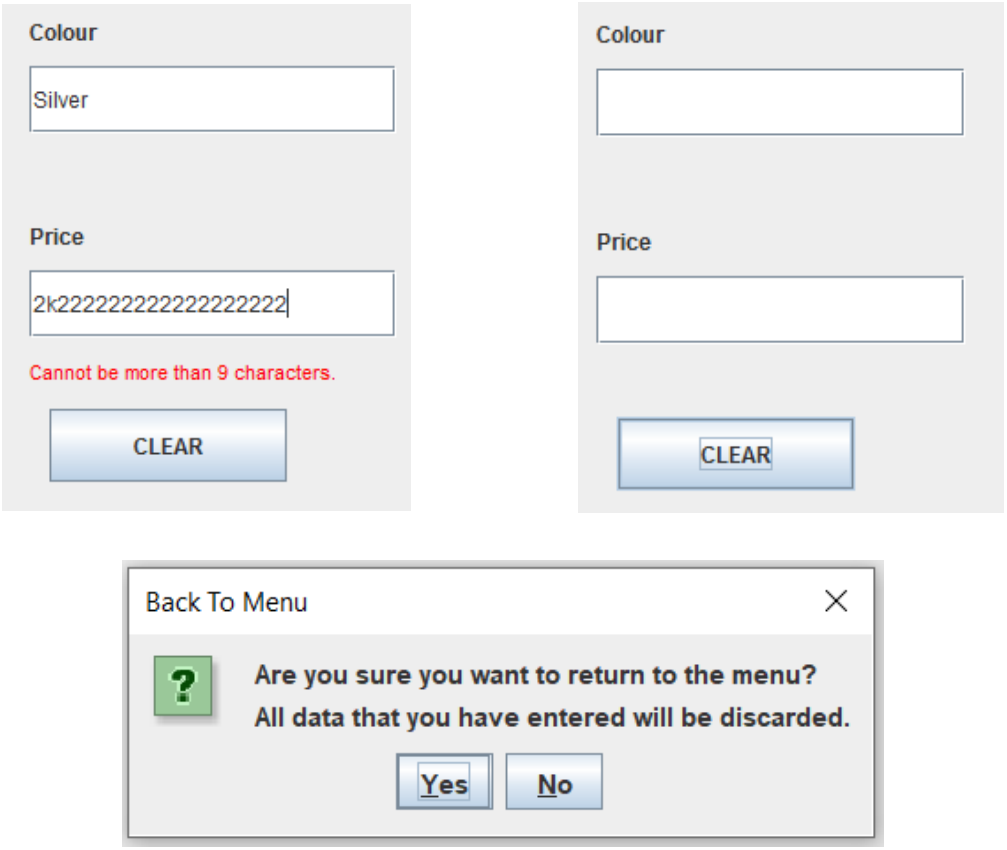


Figure 3.4: Usage of 'Clear' button **(top left and right)** and confirmation dialog that appears when users click the 'Back' button **(bottom)**

- **Delete Record**

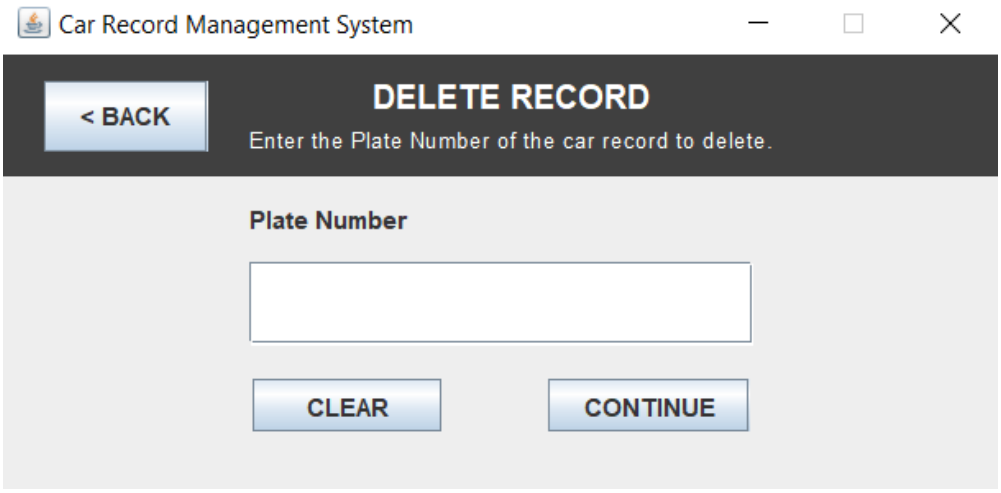


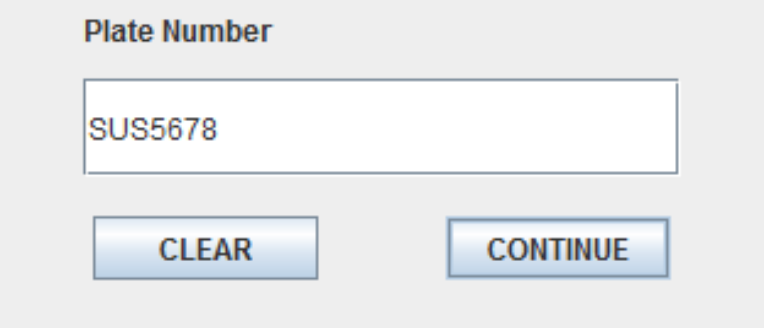
Figure 4.0: Delete Record screen

When the 'Delete Record' button in the main menu is clicked, the window content changes, and the 'Delete Record' screen is displayed. The 'Delete Record' function allows users to delete existing car records in the system that are identified using their plate number.

If the user enters a plate number that does not exist, the system displays an error message saying that no car record with the entered plate number is found within the system.

Figure 4.1: Error message for searching a non-existent plate number

Otherwise, the system displays the details of the car record with the matching plate number that the user entered.



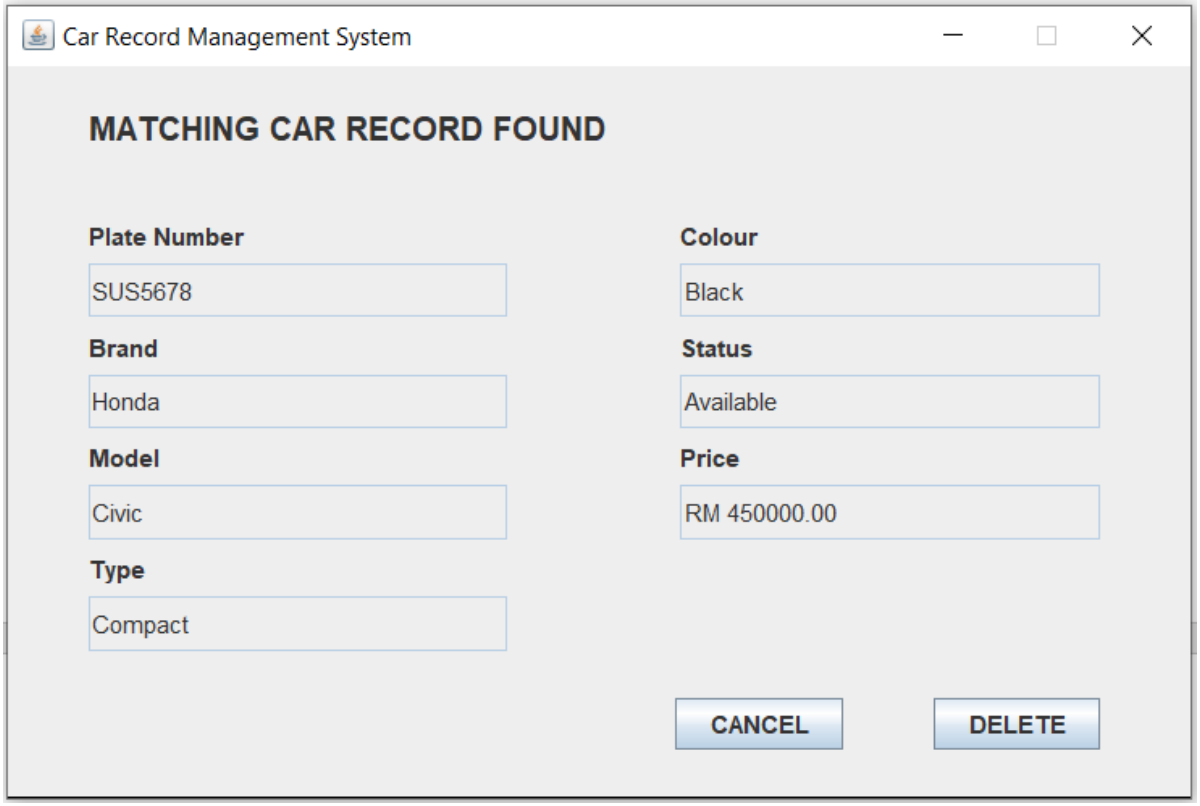


Figure 4.2: Screen output for searching a valid plate number in 'Delete Record'

When the user clicks the 'Delete' button, the system confirms with the user if they want to delete the record. If the user clicks 'Yes', the system notifies the user that the record with the entered plate number has been deleted successfully, and the user is returned to the main menu. Otherwise, the delete process is denied, and the user is allowed to check the details of the car record again.

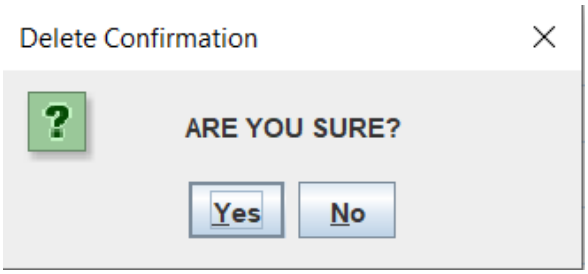


Figure 4.3: Confirmation dialog for deleting a record

Figure 4.4: System output if user clicks 'Yes'

If the user presses the 'Cancel' button, the system displays a message saying that the deletion process is cancelled, and the user is returned to the main menu.

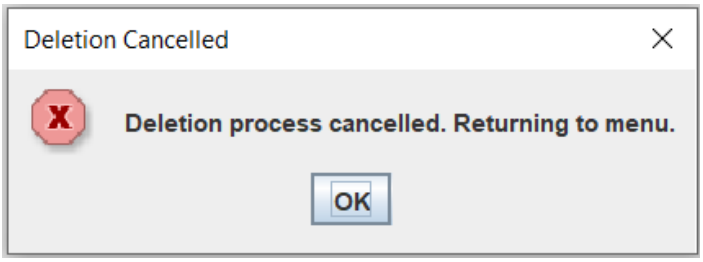


Figure 4.5: System output if user clicks 'No'

- **Edit Record**

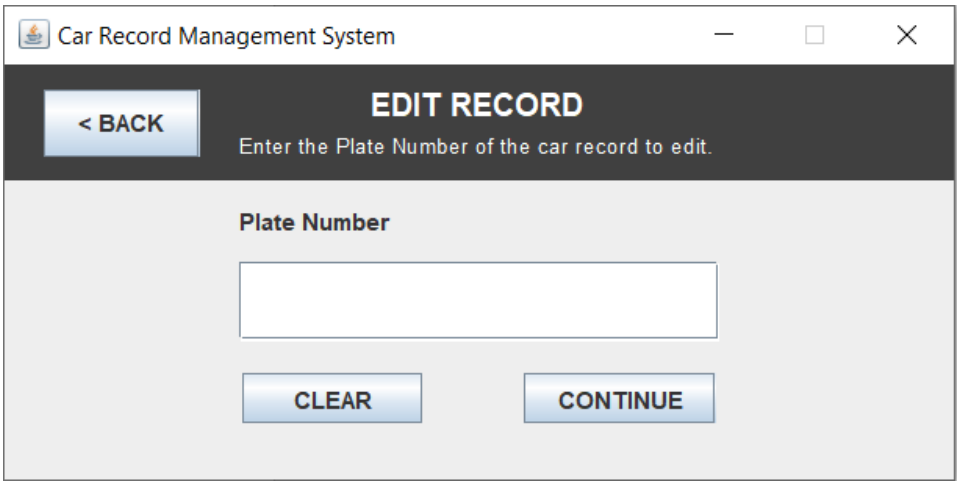


Figure 5.0: Edit Record screen

When the 'Edit Record' button in the main menu is clicked, the window content changes, and the 'Edit Record' screen is displayed. The 'Edit Record' function allows users to edit details of existing car records in the system that are identified using their plate number.

If the user enters a plate number that does not exist, the system displays an error message notifying that no car record with the entered plate number is.

Figure 5.1: Error message for searching a non-existent plate number

Otherwise, the system displays the details of the car record with the matching plate number that the user entered.

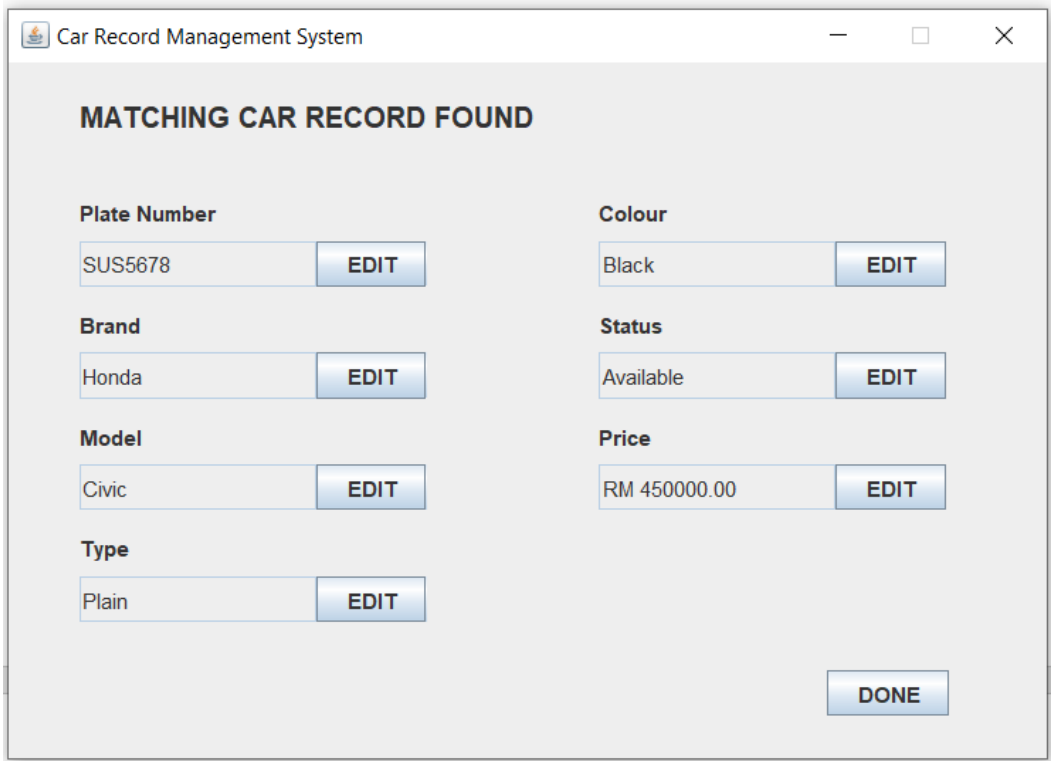


Figure 5.2: Screen output for searching a valid plate number in 'Edit Record'

On the screen, as seen in the image above, there are 'EDIT' buttons next to every car record detail. When the user presses any of the 'EDIT' buttons, the system displays an input dialog and prompts the user to enter new data for the selected record detail. For example, when the user clicks on 'EDIT' in the 'Price' field, the system prompts the user to enter new price data.

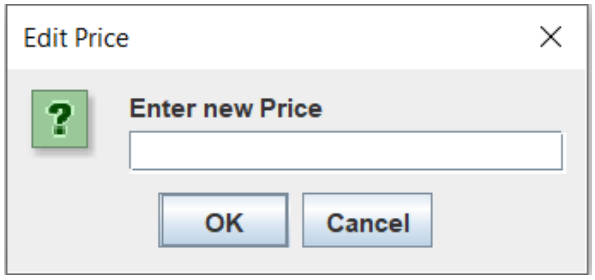


Figure 5.3: System prompts user for the new car price

After entering new data, the user may press the 'OK' button to confirm and apply the data change. Then, the system will update the data within the edited data field. Otherwise, the user may press 'Cancel' to cancel the editing process and close the input dialog.

Figure 5.4: System instantly updates new values on the screen

When receiving new data, the system will also check for invalid input, prevent invalid input from changing the current data, and display appropriate error messages to notify the user of the specific errors. If there are errors, the user is prompted to enter another input.

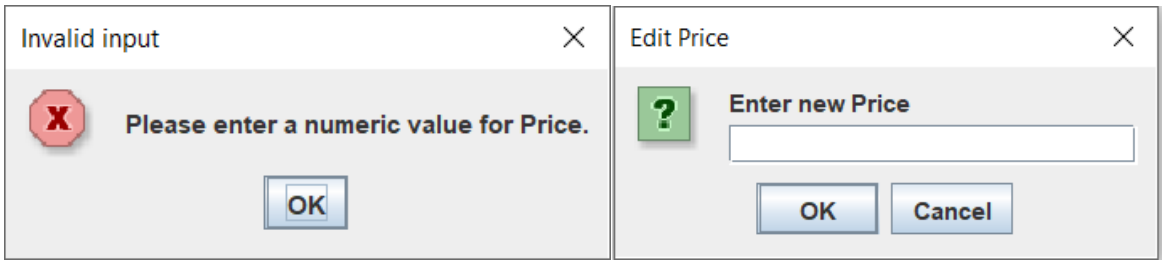


Figure 5.5: Example of error message for invalid price value **(left)**;
System prompts user for new price value again **(right)**

- **Search Record**

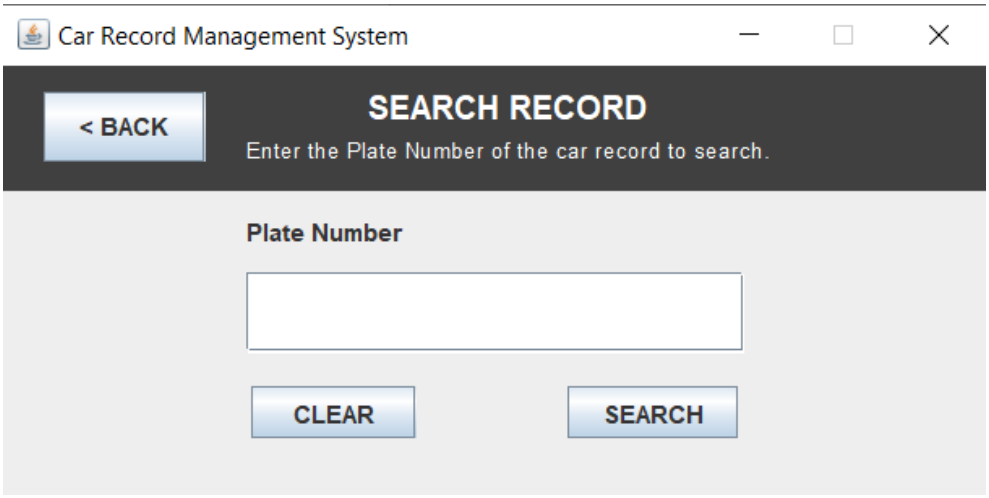


Figure 6.0: Search Record screen

When the 'Search Record' button in the main menu is clicked, the window content changes, and the 'Search Record' screen is displayed. The 'Search Record' function allows users to search and view the details of existing car records in the system that are identified using their plate number.

If the user enters a plate number that does not exist, the system displays an error message saying that no car record with the entered plate number is found.

Figure 6.1: Error message for searching a non-existent plate number

Otherwise, the system displays the details of the car record with the matching plate number that the user entered.

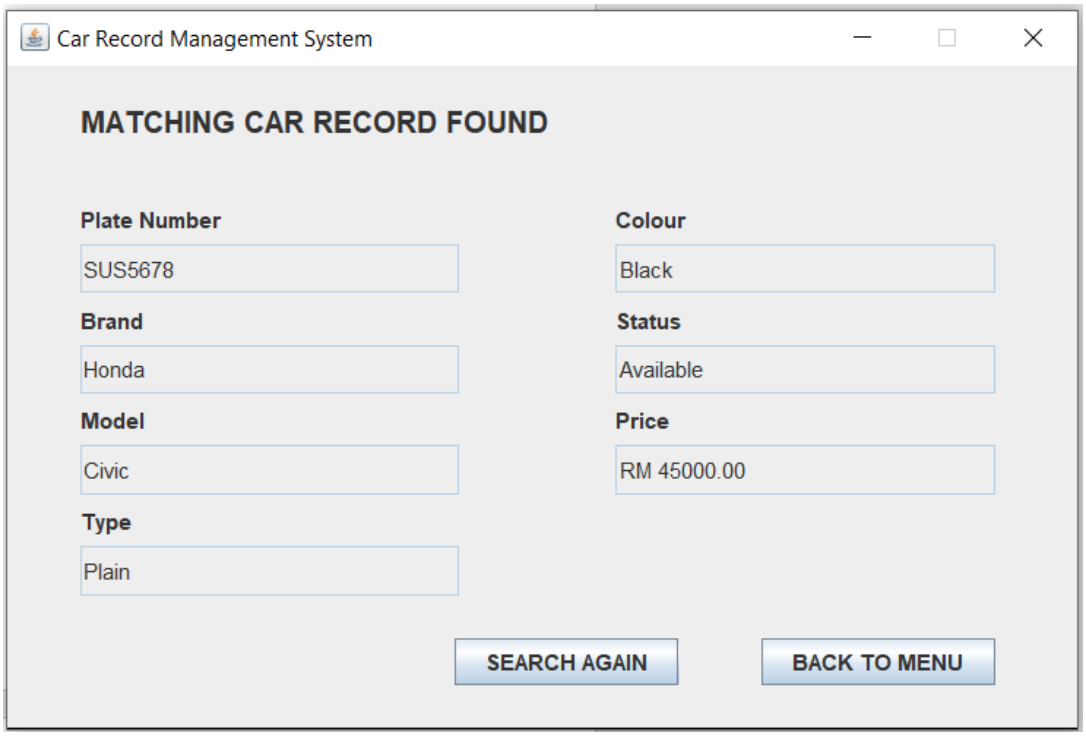
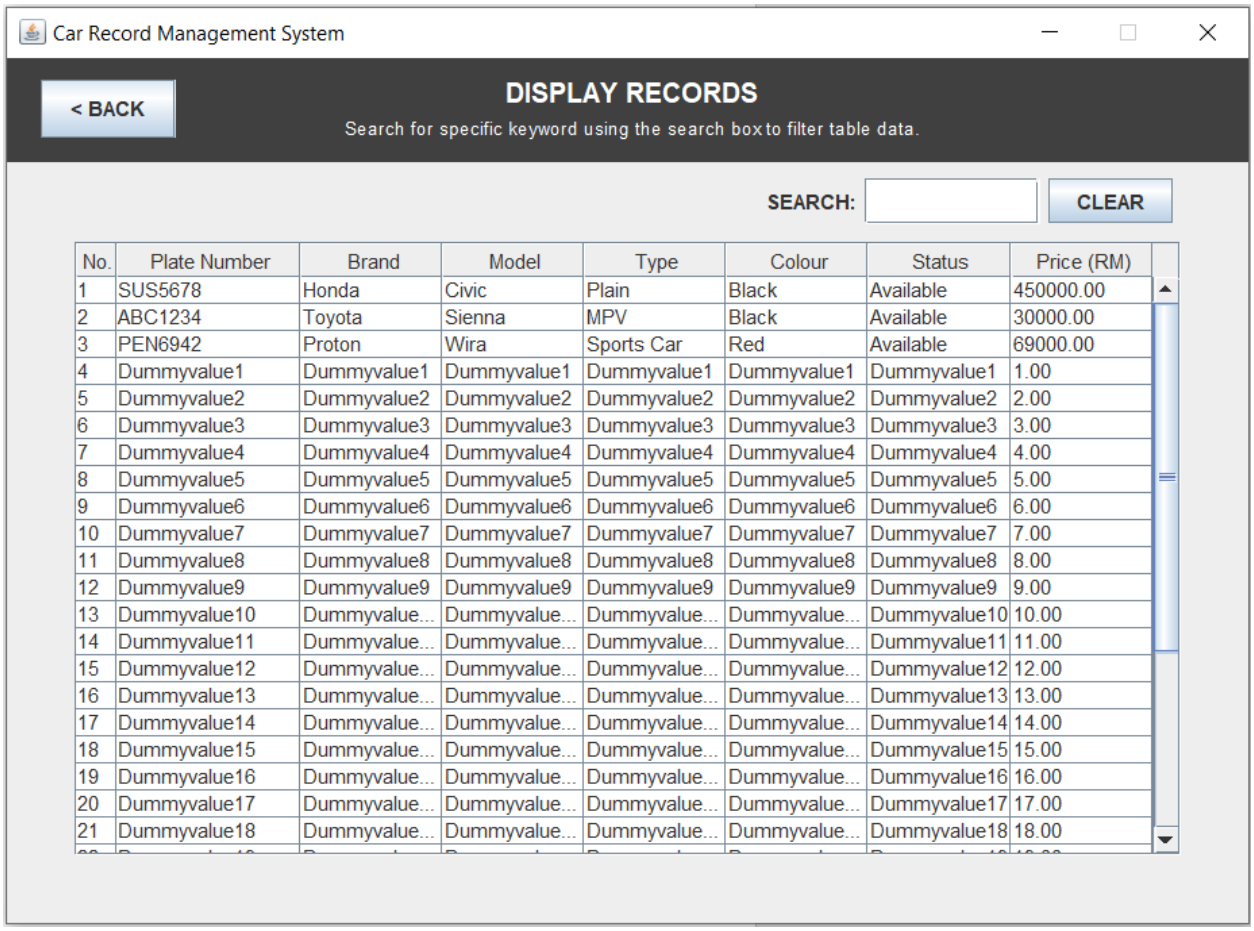


Figure 6.2: Screen output for searching a valid plate number in 'Search Record'

If the user presses the 'SEARCH AGAIN' button, the system will redirect the user to the previous page, where they are prompted to search for a plate number again. If the user presses the 'BACK TO MENU' button, the system returns the user to the main menu.

- **Display Records**



No.	Plate Number	Brand	Model	Type	Colour	Status	Price (RM)
1	SUS5678	Honda	Civic	Plain	Black	Available	450000.00
2	ABC1234	Toyota	Sienna	MPV	Black	Available	30000.00
3	PEN6942	Proton	Wira	Sports Car	Red	Available	69000.00
4	Dummyvalue1	Dummyvalue1	Dummyvalue1	Dummyvalue1	Dummyvalue1	Dummyvalue1	1.00
5	Dummyvalue2	Dummyvalue2	Dummyvalue2	Dummyvalue2	Dummyvalue2	Dummyvalue2	2.00
6	Dummyvalue3	Dummyvalue3	Dummyvalue3	Dummyvalue3	Dummyvalue3	Dummyvalue3	3.00
7	Dummyvalue4	Dummyvalue4	Dummyvalue4	Dummyvalue4	Dummyvalue4	Dummyvalue4	4.00
8	Dummyvalue5	Dummyvalue5	Dummyvalue5	Dummyvalue5	Dummyvalue5	Dummyvalue5	5.00
9	Dummyvalue6	Dummyvalue6	Dummyvalue6	Dummyvalue6	Dummyvalue6	Dummyvalue6	6.00
10	Dummyvalue7	Dummyvalue7	Dummyvalue7	Dummyvalue7	Dummyvalue7	Dummyvalue7	7.00
11	Dummyvalue8	Dummyvalue8	Dummyvalue8	Dummyvalue8	Dummyvalue8	Dummyvalue8	8.00
12	Dummyvalue9	Dummyvalue9	Dummyvalue9	Dummyvalue9	Dummyvalue9	Dummyvalue9	9.00
13	Dummyvalue10	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue10	10.00
14	Dummyvalue11	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue11	11.00
15	Dummyvalue12	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue12	12.00
16	Dummyvalue13	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue13	13.00
17	Dummyvalue14	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue14	14.00
18	Dummyvalue15	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue15	15.00
19	Dummyvalue16	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue16	16.00
20	Dummyvalue17	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue17	17.00
21	Dummyvalue18	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue...	Dummyvalue18	18.00

Figure 7.0: Display Records screen

When the ‘Display All Records’ button in the main menu is clicked, the window content changes and the ‘Display Records’ screen is displayed. The ‘Display Records’ function allows users to view the details of all car records that have been added to the system.

The car records are inserted into a table that becomes scrollable if the number of records causes the table to overflow. Users can also use the search box provided above the table to filter the car records displayed on the screen by searching a specific keyword. Any records that contain the entered keyword in any of their columns will be displayed.

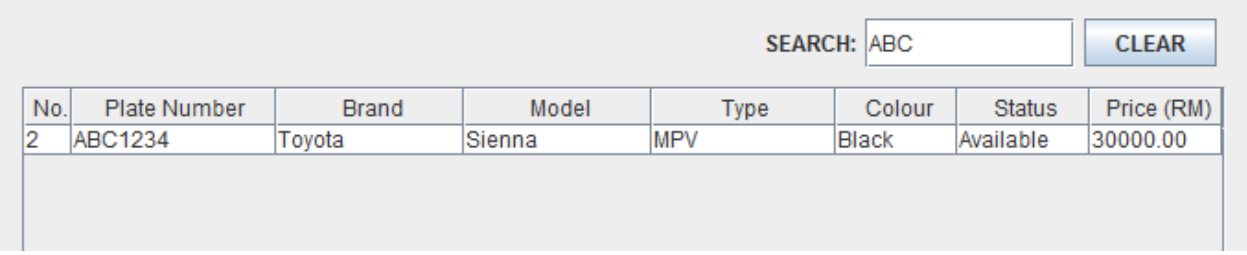


Figure 7.1: System filters table records using the specific keyword

The table columns are also resizable, so users can drag the left or right borders of the columns to view overflowing characters that were previously hidden.

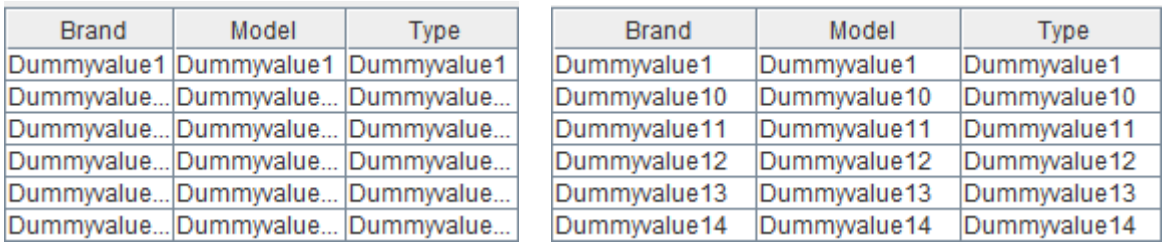


Figure 7.2: Resizable table columns that can be utilized to show hidden characters

- **Exit**

Users may click on the close button at the far right of the window's title bar to exit the system. When users click on it, the system displays a confirmation dialog and prompts them to confirm if they want to exit the system. If the user clicks 'Yes', the system ends; if the user clicks 'No', the system will not end, and it redirects the user to the main menu.

Figure 8.0: Default close button in window title bar

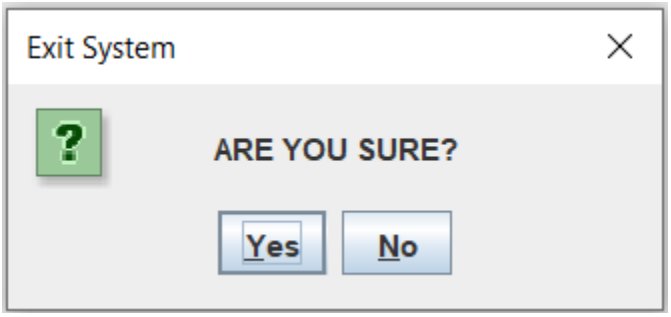


Figure 8.1: Confirmation dialog for exiting the program