

4. Description of the Program

- Login

When the system starts, a big “WELCOME” message is shown. Then, the user is prompted to log into the system before they are granted access. This function operates with the assumption that the user is a registered user. The user must enter the correct username and password to gain access to the system. The user is granted 3 attempts to enter the correct username and password, and they will be denied access when they run out of attempts. If the user enters the correct username and password, they will be granted access and redirected to the main menu of the system.



Figure 1.0: Big “WELCOME” message displayed to user

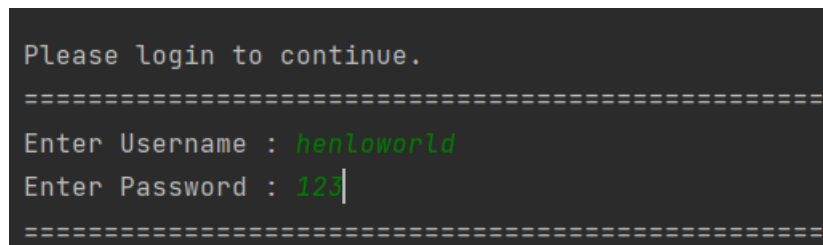


Figure 1.1: User is prompted to enter username and password to login

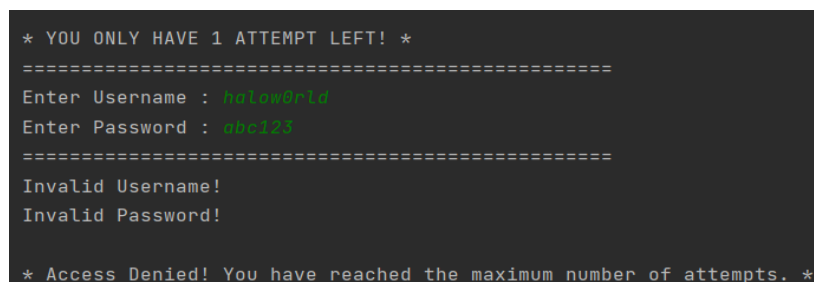


Figure 1.2: User is denied access and the system exits when attempts are depleted

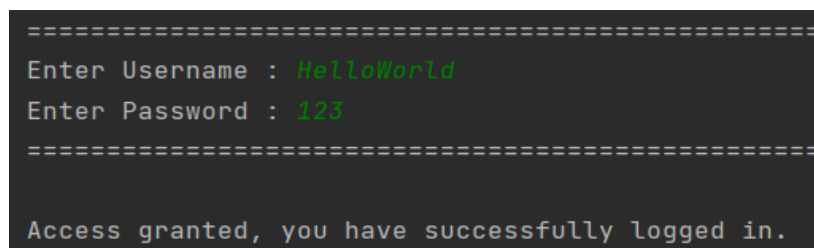


Figure 1.3: User is granted access when they enter the correct username and password

- **Main Menu**

The main menu consists of 6 options for the user to choose from. The 6 options include “Add Record”, “Delete record”, “Edit record”, “Search record”, “Display all records”, and “Exit”. These are basically the main functions of the system.

```
=====
                        MENU
=====

1. Add record
2. Delete record
3. Edit record
4. Search record
5. Display all records
6. Exit

Selection:
```

Figure 2.0: Main menu of the system

In the main menu, the user is also prompted for a “Selection” input, which represents the main function that the user wants to select. The system only accepts integer values from 1 to 6; if any other value is entered, the system will display an error message notifying the user that the input is invalid. The system will continuously prompt the user for a new input until a valid input is entered. When a valid input is received, the system will redirect the user to their selected function.

```
Selection: 8
Invalid input, please choose from 1 - 6.
Selection: 0
Invalid input, please choose from 1 - 6.
Selection: 0
Invalid input, please choose from 1 - 6.
```

Figure 2.1: System rejects any invalid selection input, and repeatedly prompts user for new input

- **Add Record**

```
Selection: 1

Please enter details of the car.
-----
Plate Number: |
```

Figure 3.0: System redirects user to “Add record” function when user enters 1 in the menu

If the user enters “1” in the menu, the system redirects the user to the “Add record” function. The purpose of this function is to allow the user to add new car records into the inventory management system. In this function, the system prompts the user for details of the car that they want to add, including the plate number, car brand, car model, car type, colour, status, and price. The user must enter a unique plate number each time they want to add a new car record, otherwise the system will notify the user that there is an existing car record with the entered plate number. The user is also not allowed to enter empty values. Any time the user enters an invalid input, the system will notify them of the error and prompt them to re-enter the data again.

```
Please enter details of the car.
-----
Plate Number:
Invalid input, Plate Number cannot be empty.
Plate Number: ABC1234
Invalid input, there is an existing car record with this plate number.
Plate Number: ABC1234567DEF
Plate Number cannot be longer than 12 characters, please try again.
Plate Number: PPP4200
Brand: Volkswagen
Model: Passat
Type: Large family car
Colour:
Invalid input, Colour cannot be empty.
Colour: Black
Status: Available
Price: 180000
```

Figure 3.1: Process of entering details of new car record

Once the user has finished entering details of the car, the system asks the user to confirm whether they really want to create the new record. If the user enters 'Y', the system will save the new car record and notify the user that the record has been successfully created; if the user enters 'N', the system cancels the record creation process. Regardless of the user's choice, the system will redirect them to the main menu. If the user enters neither 'Y' nor 'N', the system will continuously prompt them for another input until a valid input is entered.

```
Confirm new Car record? (Y/N): Y
```

```
+ + + New Car record has been added. + + +
```

Figure 3.2: User enters 'Y'

```
Confirm new Car record? (Y/N): N
```

```
* * * Process cancelled, returning to menu. * * *
```

Figure 3.3: User enters 'N'

The process of adding record is the same each time the user performs this function. However, when the record limit of 100 is reached, the system the notify the user that the maximum number of records has been reached. If the user attempts to add another car record after the limit has been reached, the system will not allow the user to create any new record and will redirect the user back to the main menu.

```
Confirm new Car record? (Y/N): Y
```

```
+ + + New Car record has been added. + + +
```

```
* * * MAXIMUM AMOUNT OF RECORDS HAS BEEN REACHED * * *
```

Figure 3.4: System notifies the user that the maximum amount of records has been reached

```
Selection: 1
```

```
* * * Maximum amount of records reached, unable to add new record. * * *
```

Figure 3.5: System denies the user from making adding records once the limit is reached

- **Delete Record**

```
Selection: 2

Please enter the Plate Number of the car you want to delete.
-----
Plate Number: |
```

Figure 4.0: System redirects user to “Delete record” function when user enters 2 in the menu

If the user enters “2” in the menu, the system redirects the user to the “Delete record” function. The purpose of this function is to allow the user to delete existing car records in the system. If there are currently no existing car records in the system, this function is not usable. Otherwise, the user will be prompted to enter the plate number of the car record that they want to delete. If the user enters a plate number that does not exist in the system, the system will notify the user that there is no existing car record with the entered plate number, and it redirects them to the main menu.

```
Selection: 2

There are no existing car records in the system for you to delete.
```

Figure 4.1: User is unable to delete any records when there are no existing car records

```
Please enter the Plate Number of the car you want to delete.
-----
Plate Number: PPP4269

No such car record found, returning to menu.
```

Figure 4.2: User enters plate number that does not exist in the system, user is then redirected to the menu

If the user enters a valid plate number of an existing car record, the system will display the current details of that car record. Then, the user is asked to confirm whether they want to delete the car record or not. If the user enters ‘Y’, the system deletes the car record; if the user enters ‘N’, the system keeps the record as it is and redirects the user to the menu.

```
Please enter the Plate Number of the car you want to delete.
-----
Plate Number: PPP4200

Car with Plate Number "PPP4200" found. Displaying its details:
-----
Brand: Volkswagen           Model: Passat
Type: Large family car      Colour: Black
Status: Available           Price: 180000.00

Are you sure you want to delete this car record? (Y/N): |
```

Figure 4.3: When a valid plate number is found, the system displays the car’s details and asks user for confirmation on deleting the car record

```
Are you sure you want to delete this car record? (Y/N): N

* * * Process cancelled, returning to menu. * * *
```

Figure 4.4: User enters 'N', car record is not deleted

```
Are you sure you want to delete this car record? (Y/N): Y

- - - The car record of PPP4200 has been deleted. - - -
```

Figure 4.5: User enters 'Y', car record gets deleted

- **Edit Record**

```
Selection: 3

Please enter the Plate Number of the car you want to edit.
-----
Plate Number: |
```

Figure 5.0: System redirects user to "Edit Record" function when user enters 3 in the menu

If the user enters "3" in the menu, the system redirects the user to the "Edit Record" function. The purpose of this function is to allow the user to edit the details of an existing car record in the system. If there are currently no existing records in the system, this function is not usable. Otherwise, the system will first prompt the user to enter the plate number of the car record that they want to edit. If the user enters a plate number that does not exist in the system, the system will notify the user that there is no existing car record with the entered plate number, and it redirects them to the main menu.

```
Selection: 3

There are no existing car records in the system for you to edit.
```

Figure 5.1: User is unable to edit any records when there are no existing car records

```
Please enter the Plate Number of the car you want to edit.
-----
Plate Number: PAA4269

No such car record found, returning to menu.
```

Figure 5.2: User enters plate number that does not exist in the system, and is redirected to the menu

If the user enters a valid plate number of an existing car record, the system will display the current details of that car record. Then, a submenu for “Edit Record” is displayed and the user is prompted to select the specific data which the user wants to edit. The user may enter numbers from 1 to 7 to select the data they want to edit, including plate number, car brand, car model, car type, colour, status, and price; or they can enter 8 to return to the menu. For example, if the user selects 6, the system prompts the user to enter a new status for the selected car. The system will repeatedly allow the user to edit data until they enter 8 to return to the menu.

```
Car with Plate Number "ABC1234" found. Displaying its details:
-----
Brand: Perodua           Model: Myvi
Type: Subcompact         Colour: White
Status: Available        Price: 30000.00
```

Figure 5.3: When a matching plate number is found, the system displays the car’s details

```
Please select the data that you want to edit.
-----
1. Plate Number      5. Colour
2. Brand              6. Status
3. Model              7. Price
4. Type               8. Back to main menu

Selection: |
```

Figure 5.4: “Edit Record” submenu is displayed, and the system prompts the user to select a data to edit

```
Selection: 6

Status: Booked

+ + + Status successfully changed. + + +
```

Figure 5.5: User enters 6 to change the status, then the system notifies them that the change was successful

```
Selection: 8

Returning to main menu.
```

Figure 5.6: User enters 8, and is redirected to the main menu

- **Search Record**

```
Selection: 4

Please enter the Plate Number of the car you want to search.
-----
Plate Number: |
```

Figure 6.0: System redirects user to “Search record” function when user enters 4 in the menu

If the user enters “4” in the menu, the system redirects the user to the “Search record” function. The purpose of this function is to allow the user to search for an existing car record and check all its current details. If there are currently no existing records in the system, this function is not usable. Otherwise, the system will prompt the user to enter the plate number of the car record that they want to search. If the user enters a plate number that does not exist in the system, the system will notify the user that there is no existing car record with the entered plate number.

```
Selection: 4

There are no existing car records in the system for you to search.
```

Figure 6.1: User is unable to search records when there are no existing car records

```
Please enter the Plate Number of the car you want to search.
-----
Plate Number: AM06US42

No such car record found.
```

Figure 6.2: User enters a plate number that does not exist in the system

On the other hand, if a valid plate number of an existing car record is entered, the system will display all the details of that car record to the user. Regardless of whether a valid plate number is found in the system or not, the system will ask the user if they want to search again. If the user enters ‘Y’, the system will once again prompt the user to enter a plate number to search; if the user enters ‘N’, the system will end this function and redirect the user to the menu.

```
Please enter the Plate Number of the car you want to search.
-----
Plate Number: ABC1234

Car with Plate Number "ABC1234" found. Displaying its details:
-----
Brand: Perodua           Model: Myvi
Type: Subcompact         Colour: White
Status: Booked           Price: 30000.00
```

Figure 6.3: If a matching plate number is found, the system displays all its details


```
Do you want to continue searching? (Y/N): Y

Please enter the Plate Number of the car you want to search.
-----
Plate Number: |
```

Figure 6.4: User enters 'Y', user is prompted for a plate number again

```
Do you want to continue searching? (Y/N): N

=====
                        MENU
=====

    1. Add record
    2. Delete record
    3. Edit record
    4. Search record
    5. Display all records
    6. Exit

Selection:
```

Figure 6.5: User enters 'N', user is redirected to the menu

- **Display All Records**

If the user enters “5” in the menu, the system redirects the user to the “Display all records” function. The purpose of this function is to allow the user to check the details of all existing car records in the system. If there are currently no existing car records in the system, the system would display “NO RECORDS” to the user. Conversely, if there are existing records in the system, the details of every car record will be displayed. The details of each car record are displayed row by row, under their respective columns of data, and the car records are listed from top to bottom based on which records were created earlier. After that, the user is prompted to press the “Enter” key to return to the menu.

```
=====
                        NO RECORDS
=====

PRESS ENTER TO RETURN TO MAIN MENU|
```

Figure 7.0: System displays “NO RECORDS” if there are no existing car records in the system

```
=====
No.  Plate Number  Brand      Model      Type        Colour      Status      Price
=====
1    ABC1234        Perodua    Myvi        Subcompact   White       Booked      30000.00
2    PPP4200        Volkswagen Passat      Large family car Black       Available   180000.00
3    PPB5612        Proton     Saga        Sedan        Black       Available   35000.00

PRESS ENTER TO RETURN TO MAIN MENU|
```

Figure 7.1: System displays a table containing all existing car records in the system

- **Exit**

```
Selection: 6  
  
Are you sure? (Y/N): |
```

Figure 8.0: System redirects user to “Exit” function when user enters 6 in the menu

If the user enters “6” in the menu, the system redirects user to the “Exit” function. The purpose of this function is to allow the user to end and exit the system. Before exiting, the system asks the user to confirm whether they really want to exit the system or not. If the user enters ‘Y’, the system ends; if the user enters ‘N’, the system does not end, and it redirects the user to the main menu. If any other input besides ‘Y’ or ‘N’ is entered, the system will repeatedly prompt the user for input until a valid input is entered.

```
Are you sure? (Y/N): Y  
  
Process finished with exit code 0
```

Figure 8.1: User enters ‘Y’, system ends

```
Are you sure? (Y/N): N  
  
===== MENU =====  
1. Add record  
2. Delete record  
3. Edit record  
4. Search record  
5. Display all records  
6. Exit  
  
Selection: |
```

Figure 8.2: User enters ‘N’, system redirects user to main menu

```
Are you sure? (Y/N): poq  
Invalid input, please enter 'Y' or 'N'.  
Are you sure? (Y/N): 420  
Invalid input, please enter 'Y' or 'N'.  
Are you sure? (Y/N): N
```

Figure 8.3: System rejects invalid inputs, and repeatedly prompts user for valid input