Objective

This project aims to develop a system for managing a single car rental service. This system will enable the rental company to manage their fleet of vehicles, track bookings, and handle customer registrations. Customers will be able to search for and reserve cars, while the rental staff can oversee check-ins and check-out, manage maintenance schedules, and generate detailed reports

Functional requirements:

The website and mobile, will aim to accomplish the following tasks

Vehicle management:

1. Fleet management:

\*Rental managers must be able to add, update, and remove vehicles from the fleet

\* Each vehicle entry should include details such as the vehicle make, model, year, category ( economy, luxury, SUV) and availability status

2. Vehicle Details:

Each vehicle should have attributes such as color, number of seats, mileage, features

Customer management:

1. Customer Registration:

Customers must be able to register for an account by providing details such as name, address, phone number, email, and driver’s license

Customers should be assigned a unique customer ID upon registration

2. Profile Management:

\* Customers should be able to view and update their profile information

\* Customers should be able to view their rental history and current bookings

Vehicle booking:

1 Search and reserve:

\*Customers should be able to search for available cars by make, model, category, or features

\* Customers can reserve available cars for specified dates

2. Booking confirmation:

\* The system will confirm availability and allow customers to proceed with the booking

\* Customers can link bookings to their profile, which can be modified if needed

3 Check – out

\*Rental staff should handle the check out process, assigning cars to customers and setting return dates

Each rental include details of the pick up and drop off locations

4. Check – In

\* Rental staff should handle the check in process when cars are returned

\* The system should update the availability status of the vehicle and record the return

5. Maintenance Management:

\* The system will track vehicle maintenance schedules and availability for booking accordingly

6. Invoice generation:

Upon return of the vehicle, the system will generate an invoice for the rental period and any additional charges (including late fees and damages)

Reports:

Fleet Reports

\* Managers should be able to generate reports on the fleet’s status, including availability, rented, and under-maintenance vehicles

Customer activity Reports:

Reports on customer activity, such as cars rented, overdue returns, and frequent renters, should be available

3. Usage statistics:

Generate statistics on the most rented vehicles, popular categories, and rental trends

Non functional requirements:

As the system is being developed the following requirements(non functional ) need to implemented

Security of the project, both the website and the mobile,

\* When the user creates an account including their details, all of their information will be encrypted using [blank] algorithm

\* The website and mobile login pages, using username/email address and password, if the password is incorrect for the same account 3 times it will be blocked until the user confirms with an email that they are secured

\* Other than permission to create files and delete the files and caches no other permissions will be needed

\* [ I can’t think of another mitigation strategy ]

\* The main function or services will not be automatically used, unless they are given permission

Security at deployment

\* Upon first use of the website and the mobile, the program will make a tutorial to help them navigate and tell the risks associated with certain things

\* All the log- in times, the amount of login’s done , the most popular feature and reported features will be shown so that the admin will be able to fix or monitor it

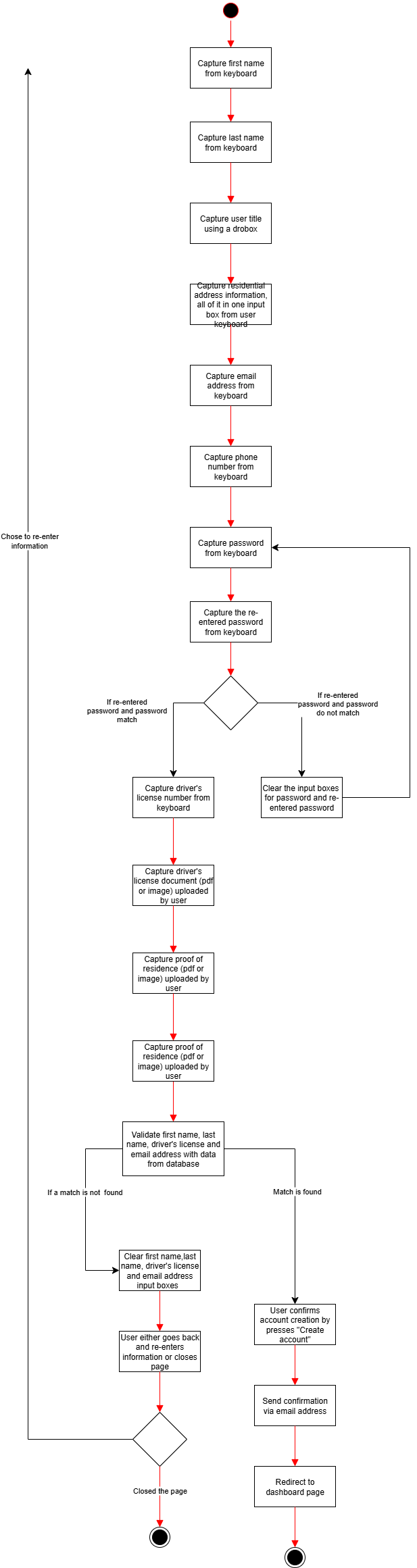
Website

1. Customer registration, it will be the called the create account page for user side, using the details

* First-name
* Last name
* Title
* Residential address
* Email address
* Enter phone number
* Enter driver’s license
* Uploaded drivers image or pdf
* Uploaded proof residence
* Uploaded image of client
* Password
* Re-enter password

Using this information, after clicking the “create account” button the system will validate the information, if the name, last name, email address and license number match with an existing account information, throw an “error” message telling them account exists. If the account is created it will have the status “Waiting for confirmation” while the staff, make the decision either to authorize account to be legible using its services

Pseudo-code account creation

1. Capture first name from keyboard
2. Capture last name from keyboard
3. Capture user title from drop box
4. Capture user residential address information
5. Capture user email address
6. Capture user phone number
7. Capture password
8. Capture re-entered password
9. Capture user driver’s license number
10. Capture uploaded driver's license
11. Capture uploaded proof of residence
12. Capture uploaded self-image
13. Capture user input, "remember password"
14. Compare the first name, last name and driver’s license number
15. If the already exists, throw an error, clear the driver's license input box, first name and last name
16. If the not, the account will be created, and user will be redirected to dashboard 

The link to the about image in case is blurry: [Account creation image](https://github.com/Mbuyelo-Hlebela-J/Informatics-Mini-project-B/blob/main/Design-images/Account%20creation.drawio.png)

2. Customer registration for the staff side; this page will be dedicated to the staff to handle and approve of the customer’s new account information after it's created. The staff will have access to the user’s uploaded first name, uploaded last name, uploaded self-image, uploaded driver’s license number, uploaded driver’s license, uploaded proof of residence and uploaded place of residence document only for security reasons

Pseudo code account creation - staff

1. Display all “waiting for confirmation” account, based on the time it was created (the older the account, the higher it is on the list)
2. Click on an account using mouse input
3. Display clientele information but redact all information, user’s uploaded first name, uploaded last name, uploaded self-image, uploaded driver’s license number, uploaded driver’s license, uploaded proof of residence and uploaded place of residence document
4. If the information matches for both the uploaded information and the uploaded documents, then the staff can approve the client’s account profile or not approve if under the suspicion of anything
5. If the account is approved, the staff can close the profile, which automatically sends a confirmation email to the user and continue with another account or close the page
6. If the account is not approved, automatically sends a rejection email to the user, the staff can continue with other accounts or close the program

2. Profile management , this page will allow users to modify their information, though because some information is very sensitive an should not be modified, user’s can only modify the email address, Title, residential address and phone number

Pseudo code for profile management

Changing the email address

1. Capture user’s new email address

2. Compare if the email address captured is already on the database

3. If the email address is not valid, throw an error message, clear the form and go back to (1)

4. if the email address is the same email as the email address as before, throw an error message

5. On button “ save “ pressed, change the email address on the database, redirect back to the profile management page

Changing the Title

1. Capture user’s new Title

2. Change user’s title in the database

Changing the residential address

1. Capture user’s new residential address

2. Residential address is captured

3. On button “ save “ pressed, change the residential address on the database

Changing the phone number

1. Capture user’s new phone number

2. Compare if the phone number captured is already on the database

3. If the phone number is not valid, throw an error message, clear the form and go back to (1)

4. if the phone number is the same phone number as the phone number as before, throw an error message

5. On button “ save “ pressed, change the phone number on the database, redirect back to the profile management page

Pseudo code Changing all the information

1. Apply all the code (steps) for each piece of information

2. On “ save “ button pressed, change all the information, and redirect to the profile page, showing the new information

3.Vehicle booking,

this page will handle searches and looking at the reserves, by using unique car information, such as the make, model, category, and some distinct features this being for example, a user searches, (Make: Toyota, Model: Camry,Category: SUV, features: Sunroof)

Pseudo code for vehicle searching

1. Capture vehicle make from keyboard input

2. Filter and display all the vehicles with that make (brand)

3. If the user clicks on one of the vehicles that are in the display, redirect to the vehicle's reserve page and the searching page will be dormant else move to (4)

4. Capture vehicle model from the keyboard input

5. Filter and display all the vehicles with the make and model

6. If the user clicks on one of the vehicles that are in the display, redirect to the vehicle's reserve page and the searching page will be dormant else move to (7)

7. Capture vehicle category from keyboard input

8. Filter and display all the vehicles with that make (brand),model and category

9. If the user clicks on one of the vehicles that are in the display, redirect to the vehicle's reserve page and the searching page will be dormant else move to (10)

10. Capture vehicle features from keyboard input

11. Filter and display all the vehicles with that make (brand),model, category and features

12. If the user clicks on one of the vehicles that are in the display, redirect to the vehicle's reserve page and the searching page will be dormant

13. If user clicks "search again" button, clear the page keyboard input and return to (1)

Pseudo code for vehicle reserve

1. Capture beginning of the reserve date from calendar widget

2. Validate if the date is valid for example ( it is not in the previous years than the current or in the future of the current year )

3. Capture end of the reserve date from calendar widget

4. Validate if the date is valid for example ( it is not in the previous years than the current or in the future of the current year )

5. Calculate and display the amount that it will cost, for the rental for that car

6. Display the late fees which will be for 1 day,2 days, 3 days, more than 3 days but less than a week, 7 days and more but less than 2 weeks, and legal steps to be taken if more than 2 weeks. All of these calculations will be based formula, that will use buying price of the car, the period it has been late for

and a fixed price for a late fee for a day)

7. If the user confirms the reservation and clicks " Check out ", redirect to the Book confirmation page, user can

8. If user clicks, "Go back " button, redirect back to vehicle searching page

Pseudo code for booking confirmation

1. Take the information from the vehicle reserve page

2. Display the information

3. Display if the vehicle is available

4. if the vehicle is available, show the button " Finalize " else go (6)

5. If user clicks "Finalize", link the profile with the car and go back to Home page and assign the task to make sure the customer is "legally good" and show display "finalizing order" on their profile for that car

6. Show the, "Go back" button, when clicked go back to home page

The features will use a hierarchy, including, Home page component will include log in, create account, about us,

Home page:

This is our opening page, it will have links for the create account pages, log in. About us, services description page, it will contain an images that automatically slide through, those images describing the solution and about the solving, also the problems as well (The English is not englishing well )

Log in:

This is a page that allows the users, including the general users, admin and the potential third user to log in their accounts and use the services, the log in will use the users details including the username or the email and password. If the user attempts to log in with the same username/email address and if is incorrect 3 times it will block the account until the user confirms with an email confirmation. If the details are correct, the program will redirect the user depending on who they are, to their respective landing pages

Create account

Use the user’s details, including the user name , email address, password and re-enter password, after clicking the create account the system will check the email address if it already exists, if it does it will stop the account creation and redirect back to the create account page. If all conditions are met properly, the account will be created, and user will be directed to the dashboard

About us:

This is just the descriptions page about the company (stakeholders), including their goals and ambitions, with buttons to link to the main website of the [company]