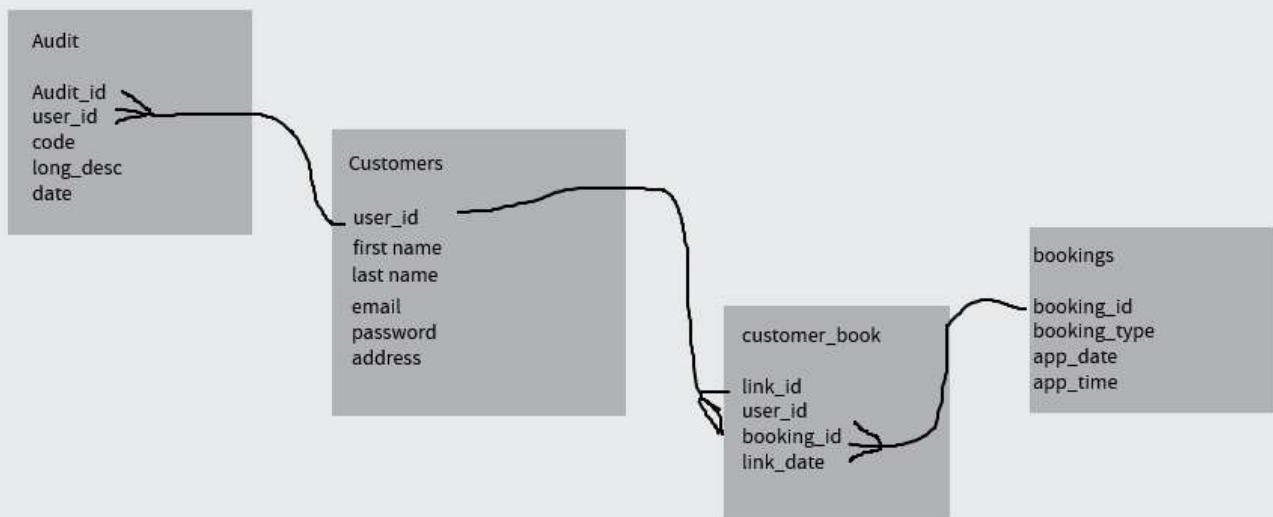


Design Documentation

Table of Contents

Design Documentation.....	1
Database Design.....	2
User interface.....	2
Algorithm design.....	9
Sign up.....	9
Login.....	10
Booking.....	10
Auditing.....	11
Testing Strategy.....	11

Database Design



For my database design I have made sure to include the minimum tables needed for the system I plan to create to function in a way that can be adaptable to a change in plans later down the line in development and/or for future improvements. A system that is adaptable to change is crucial for long term solutions.

I included a table for customer data to be held securely, only storing data I have seen as necessary to keep eg name and address as per the data protection act (only keeping the data you need) to ensure

that the customer isn't giving up vital information. For a wider scope I would've included card details but that is outside of my spec for this project.

I also included an audit table to track what users are doing. This is crucial to keep the system and users safe so we can know what they are up too in case someone hacks into their account, we can track what the hacker has done on their account.

Finally I included a booking and a link table. For users to be able to book appointments a table for it is necessary to hold appointment details and a link table to link the appointments to the users. This can keep user data safe as it not being stored insecurely with the appointments and it is not repeated which helps keep this data up to date and improves the data integrity.

User interface

The user interface is important for any system or website on the internet. Users judge how webpages look before anything else. A website could have an incredible back end but it is worthless without a good front end because it makes a website look cheaply put together and insecure.

For colours I went with green (99c658) for the main colour as it associated with green energy and renewable energy sources, with a cream (e9ead9) for the background to give the page a warmer feel. I chose to use light colours so paired it with a darker background to make sure the text is readable to those with dyslexia and colour-blindness (especially since green is a common colour to change with colour blindness).

On the sign up, login and booking page, I ensured that there was ample understanding of what needs to be entered into each field by including a label on each field and text that will disappear once a user starts typing in the fields. This will help users who struggle understanding things (eg limited technological knowledge, un-gifted mentally) and ensure that screen readers will read the fields out to those who need one. (eg blindness, illiteracy)

I also ensured that the buttons were large amongst the webpage to make sure they are easy to click for those who may struggle to keep a mouse steady or those browsing the internet by other means (eye tracking etc)

For the pictures I went with stock images to create a placeholder logo and images that will be replaced when proper permanent content is sent through by Rolsa technologies. This ensures that all images on the webpage is signed off and approved by Rolsa.

For this same reason for any text I used lorem ipsum as placeholder text to allow Rolsa to send other the content (information) to be sent over so that it can be fact checked and signed off by Rolsa themselves to ensure that all the information they want to have on their website is up to their standards.



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Calculate your carbon footprint
today!

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[Home](#) [Calculator](#) [sign up](#) [log in](#)

First Name:

Last Name:

Email:

Address:

Password:

Confirm Password:

Sign Up

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Sign Up page



Rolsa Technologies

Home Calculator sign up log in

Email:

Password:

Confirm Password:

Login

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login page



[Home](#) [Calculator](#) [sign up](#) [log in](#)

Energy

- How much electricity do you use (in kWh)?
- Do you use renewable electricity, or do you generate your own?
- How much gas do you use (in kWh)?
- How much water do you use (in cubic meters)?

Transportation

- What types of vehicles does your business use, and how much fuel do they consume (or what is the total distance driven)?
- How do employees commute to work?
- What is the total distance traveled by air or train for work?
- What is the total distance traveled by public transport (bus, train)?

Waste

- How much waste is sent to landfill versus recycled?
- How much waste does your business generate annually?

Consumption and Lifestyle

- How often do you eat red meat, or what is your general diet?
- How many employees do you have, and what is your company's home-working pattern?
- What is your annual household or gross income?

[Calculate](#)

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Calculator

 Rolsa Technologies

Home book view bookings settings log out

Book a consultation/ installation today!





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Login index



Enter Consultation or Installation:

select consultation or installation

Enter type of service:

select a type of service

Enter appointment date:

Enter Appointment Date

Enter appointment time:

Enter Appointment time

Book

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bookings page

Algorithm design

The algorithm design will be designed to be written in php

Sign up

User inputs data into fields and presses enter and is then sent to the following function in common.php (common is used to keep the code organised) →

```
sql = "INSERT INTO CUSTOMERS (first name, last name, email, password, sign up date)
VALUES (?,?,?,?,?) [using pdo as it is more secure]
```

```
conn → prepare(sql)
date = date("Y-m-D")
hashed password = password_hash('password', PASSWORD_DEFAULT)
bind params of each value.
Execute the sql statement
close db connection
return true
```

system will inform user the account is created and send user to the login page to keep the system secure.

Login

User inputs data into fields and presses enter and is then sent to the following function in common.php (common is used to keep the code organised) →

```
sql = "SELECT user id, password FROM customers WHERE email = ?"
conn → prepare(sql)
bind params of each value.
Execute the sql statement
close db connection
return true
```

the system will run the sql in the database and if the password is correct then it will send the user to the logged in index page so they can access options like booking appointments.

Booking

User inputs data into fields and presses enter and is then sent to the following function in common.php (common is used to keep the code organised) →

```
sql = "INSERT INTO link (user id, appointment date and time, date booked) VALUES (?,?,?,?,?)"
```

```
conn → prepare(sql)
time = time()
bind params of each value.
Execute the sql statement
close db connection
return true
```

this will update the link table between the users and the appointment which is booked separately.

Auditing

When a user does an action eg, make an account, login, logout, book an appointment etc it will automatically audit it meaning that a record of it is kept. This is important to do to improve customer security and tracking if someone infiltrates a user's account without their consent.

User does an action (eg login), that will be tracked and the code will send the following function in common.php →

```
sql = "INSERT INTO audit (date, user id, code, longdesc) VALUES (?,?,?,?,?)"
date = date("Y-m-D")
conn → prepare(sql)
bind params of each value.
Execute the sql statement
close db connection
return true
```

the audit that is logged is then sent to db and kept secure.

Testing Strategy

For my testing strategy, I decided to go down testing the pure essentials that will need to be tested during development. I cannot predict testing for errors and issues that is run into during development as they are difficult to predict. Please see the testing document attached for the testing strategy.