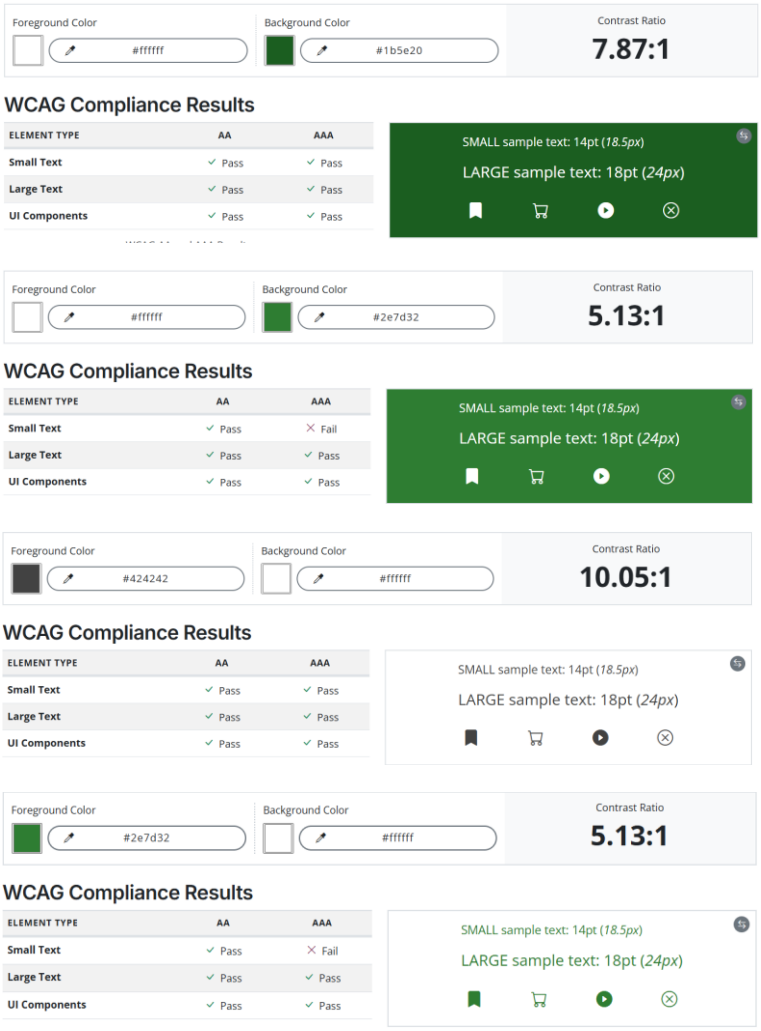
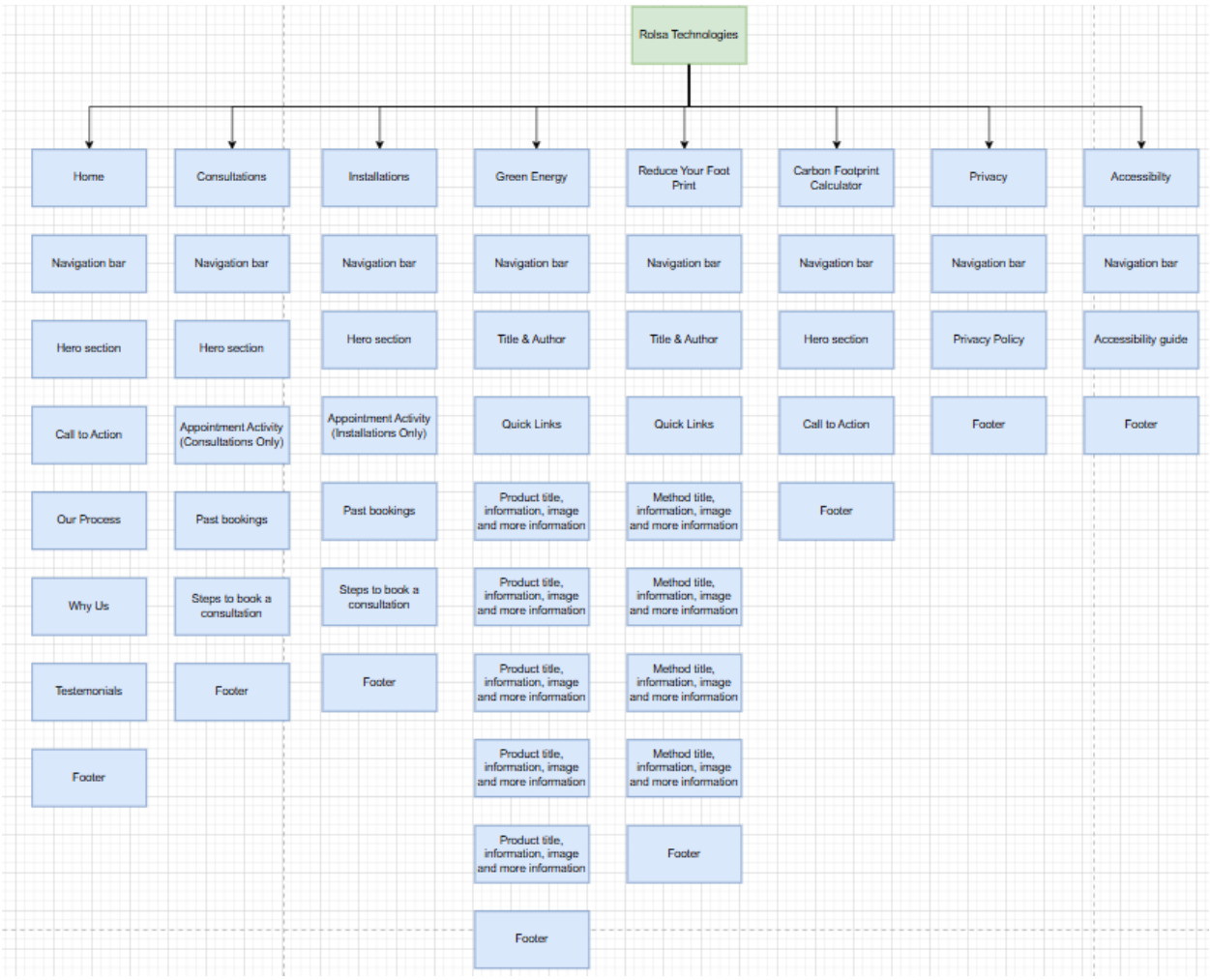
Visual Designs: https://www.figma.com/design/Lv556IjzsBCefAOYCWiZ1C/Exam-Designs?node-id=0-1&t=7ktI0tTLyCV8CPYl-1

(If for any reason this link does not work, please contact my college for a working link. If for some reason this is not possible, please refer to the visual designs document with the images note these may be harder to read Thank you.)

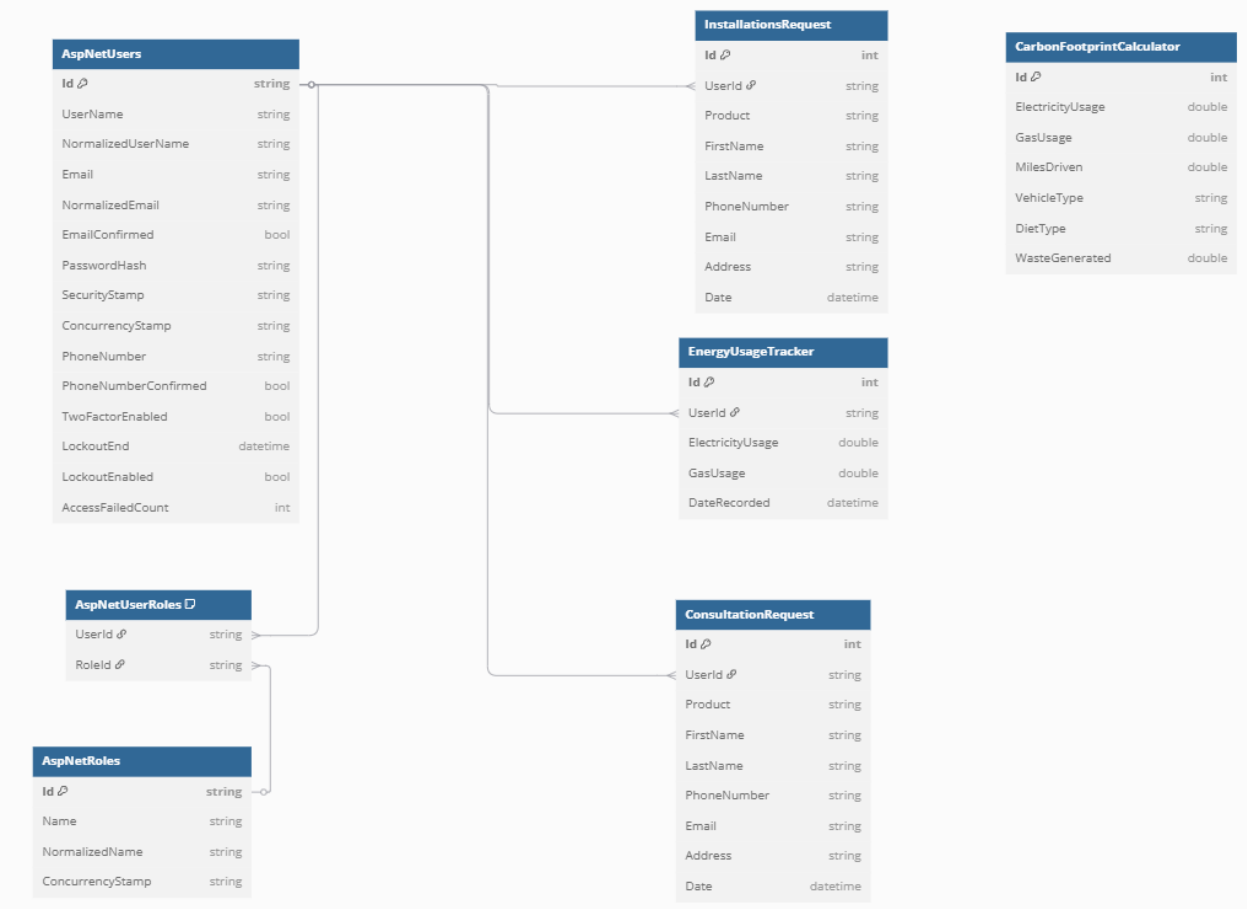


(The above color is used for large text which it passed)

Site Map


Rolsa Technologies
Home
Navigation bar
Hero section
Call to Action
Our Process
Why Us
Testemonials
Footer
Consultations
Navigation bar
Hero section
Appointment Activity (Consultations Only)
Past bookings
Steps to book a consultation
Footer
Installations
Navigation bar
Hero section
Appointment Activity (Installations Only)
Past bookings
Steps to book a consultation
Footer
Green Energy
Navigation bar
Title & Author
Quick Links
Product title, information, image and more information
Product title, information, image and more information
Product title, information, image and more information
Product title, information, image and more information
Product title, information, image and more information
Footer
Reduce Your Foot Print
Navigation bar
Title & Author
Quick Links
Method title, information, image and more information
Method title, information, image and more information
Method title, information, image and more information
Method title, information, image and more information
Footer
Carbon Footprint Calculator
Navigation bar
Hero section
Call to Action
Footer
Privacy
Navigation bar
Privacy Policy
Footer
Accessibilty
Navigation bar
Accessibility guide
Footer

Database Design



Data Dictionary

ConsultationRequest

Collum	Data Type	Required	Default	Validation	Primary/ Foreign
Id	int	Yes			Primary
UserId	string	Yes	Users Id		Foreign
Product	string	Yes		Users must select a product from the dropdown menu.	
FirstName	string	Yes			
LastName	string	Yes			

PhoneNumber	string	Yes		Must include valid numeric digits, must be in the correct format	
Email	string	Yes		Must include a valid structure, must have a “@” symbol, must have a domain name, must be in the correct format	
Address	string	Yes			
Date	DateTime	Yes		User cannot select a date before the current date	

InstallationRequest

Collum	Type	Required	Default	Validation	Primary/ Foreign
Id	int	Yes			Primary
UserId	string	Yes	Users Id		Foreign
Product	string	Yes			
FirstName	string	Yes			
LastName	string	Yes			
PhoneNumber	string	Yes		Must include valid numeric digits, must be in the correct format	
Email	string	Yes		Must include a valid	

				structure, must have a “@” symbol, must have a domain name, must be in the correct format	
Address	string	Yes			
Date	DateTime	Yes		User cannot select a date before the current date	

EnergyUsageTracker

Collum	Type	Required	Default	Validation	Primary/ Foreign
Id	int	Yes			Primary
UserId	string	Yes	Users Id		Foreign
ElectricityUsage	double	Yes		It must be a number	
GasUsage	double	Yes		It must be a number	
WaterUsage	double	Yes		It must be a number	
DateRecorded	datetime	Yes		User cannot select a date before the current date	

CarbonFootprintCalculator

Collum	Type	Required	Default	Validation	Primary/ Foreign
Id	int	Yes			Primary
ElectricityUsage	double	yes		It must be a number	

GasUsage	double	Yes		It must be a number	
MilesDriven	double	Yes		It must be a number	
VehicleType	string	Yes			
DietType	string	Yes			
WasteGenerated	double	Yes		It must be a number	

AspNetUsers

Collum	Type	Required	Default	Validation	Primary/ Foreign
Id	string	Yes			Primary
UserName	string	Yes			
NormalizedUserName	string	Yes			
Email	string	Yes		Must include a valid structure, must have a “@” symbol, must have a domain name, must be in the correct format	
NormalizedEmail	string	Yes			
EmailConfirmed	bool	Yes		Users must confirm their email	
PasswordHash	string	Yes			
SecurityStamp	string				

ConcurrencyStamp	string				
PhoneNumber	string				
PhoneNumberConfirmed TwoFactorEnabled	bool				
LockoutEnd	bool				
LockoutEnabled	datetime				
AccessFailedCount	int				

AspNetUserRoles

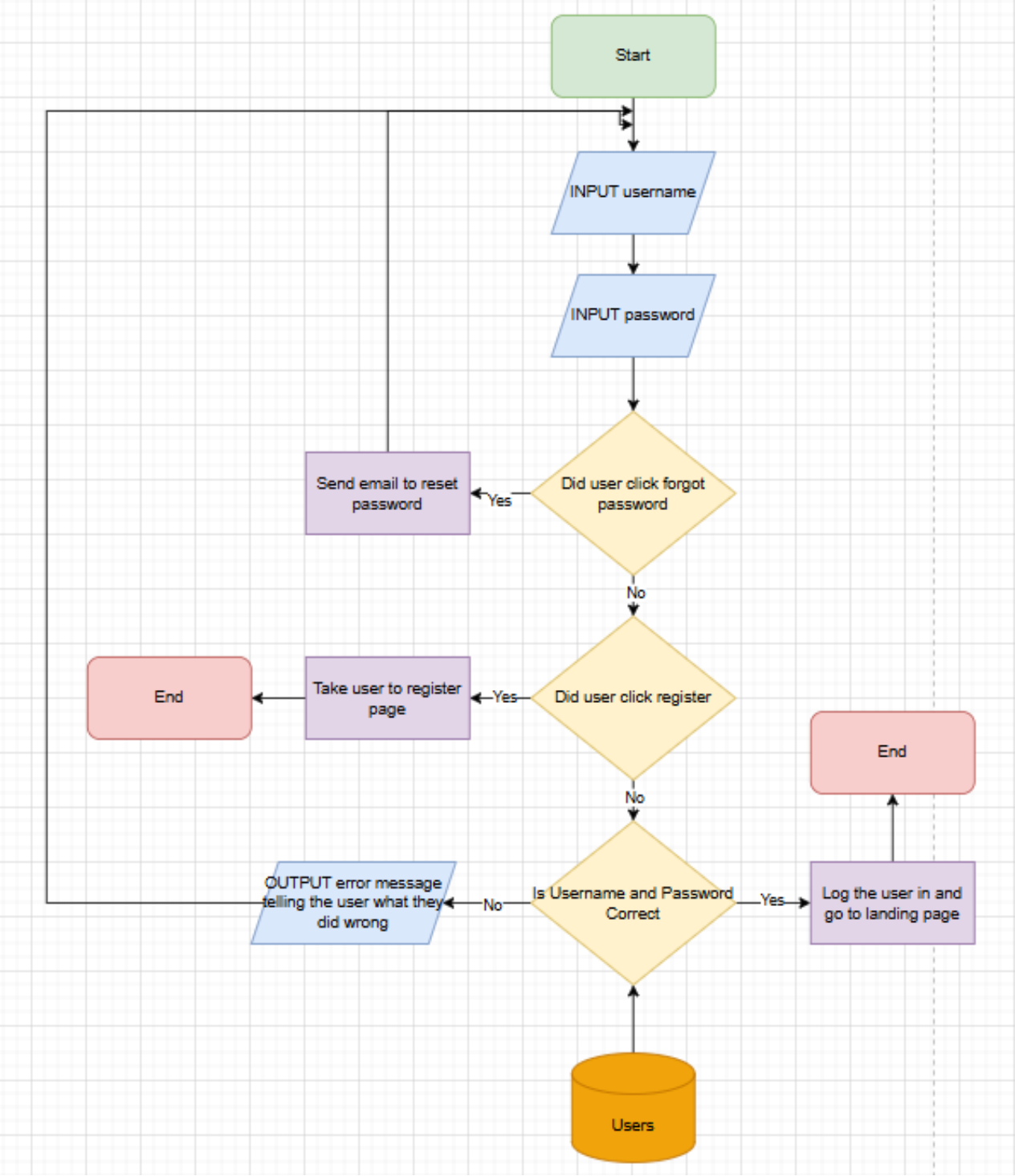
Collum	Type	Required	Default	Validation	Primary/ Foreign
Id	int	Yes			Primary
UserId	string	Yes	Users Id		Foreign
RoleId	string	Yes			

AspNetRoles

Collum	Type	Required	Default	Validation	Primary/ Foreign
Id	string	Yes			Primary
Name	string	Yes			
NormalizeName	string	Yes			
ConcurrencyStamp	string	Yes			

Flow Charts

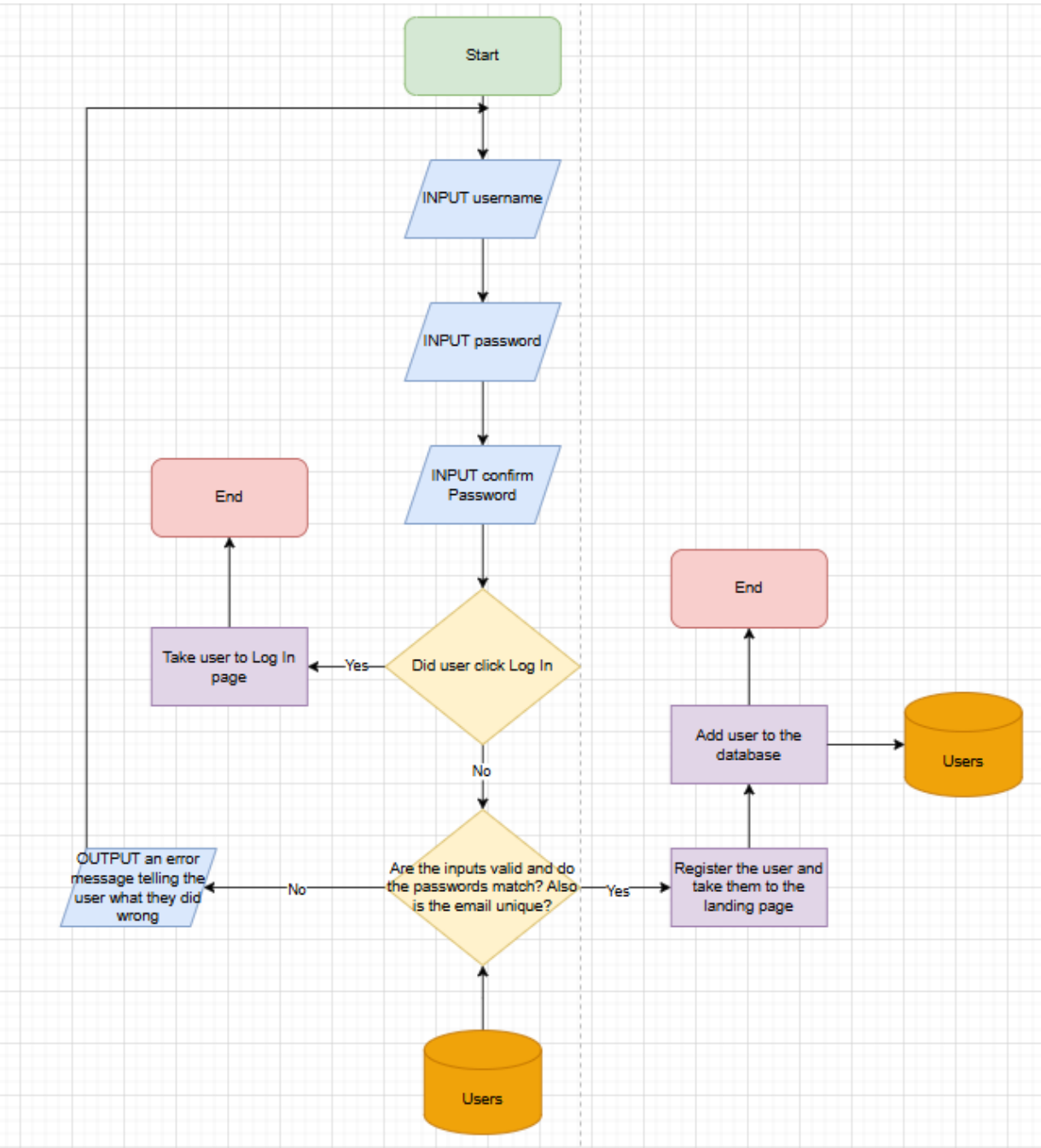
Log In



The user will be prompted to enter their username and password the system will then check if the user clicked other options like forgot password or register if they did it will take the appropriate actions like sending a reset email link or taking the user to the register page if not the system will check if the username and password match the ones in the database of not it

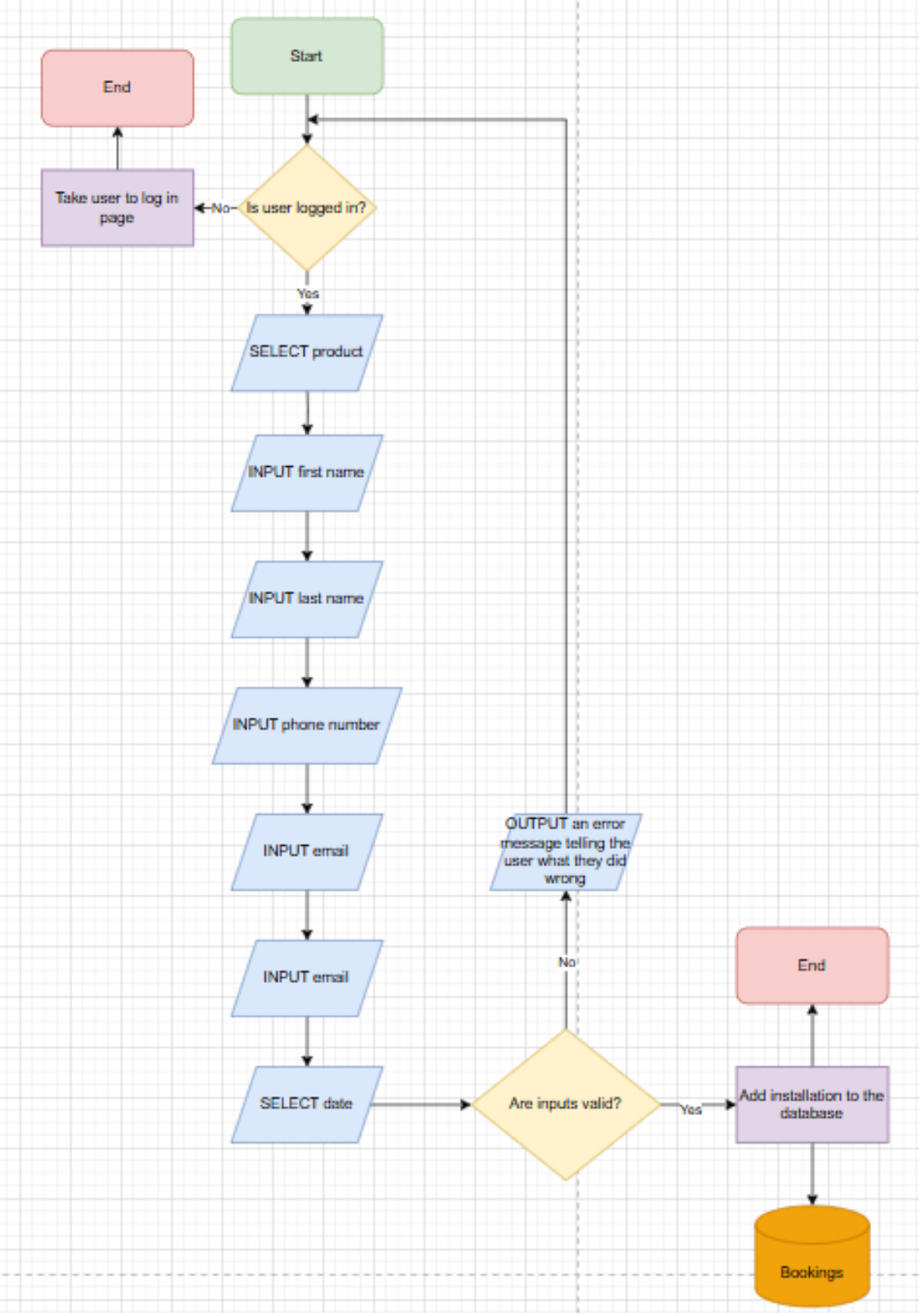
will send an error message telling the user what they did wrong if its correct the system will log the user in return them to the landing page.

Register



The user will be prompted to enter their username and password the system will then check if the user clicked other options like log in if it did it will send the user to the log in page otherwise it will check if the users details are valid, if the passwords match and if the email isn't already registered if all this is correct and it isn't an existing email the system will register the user and send them to the lading page and add there details to the database.

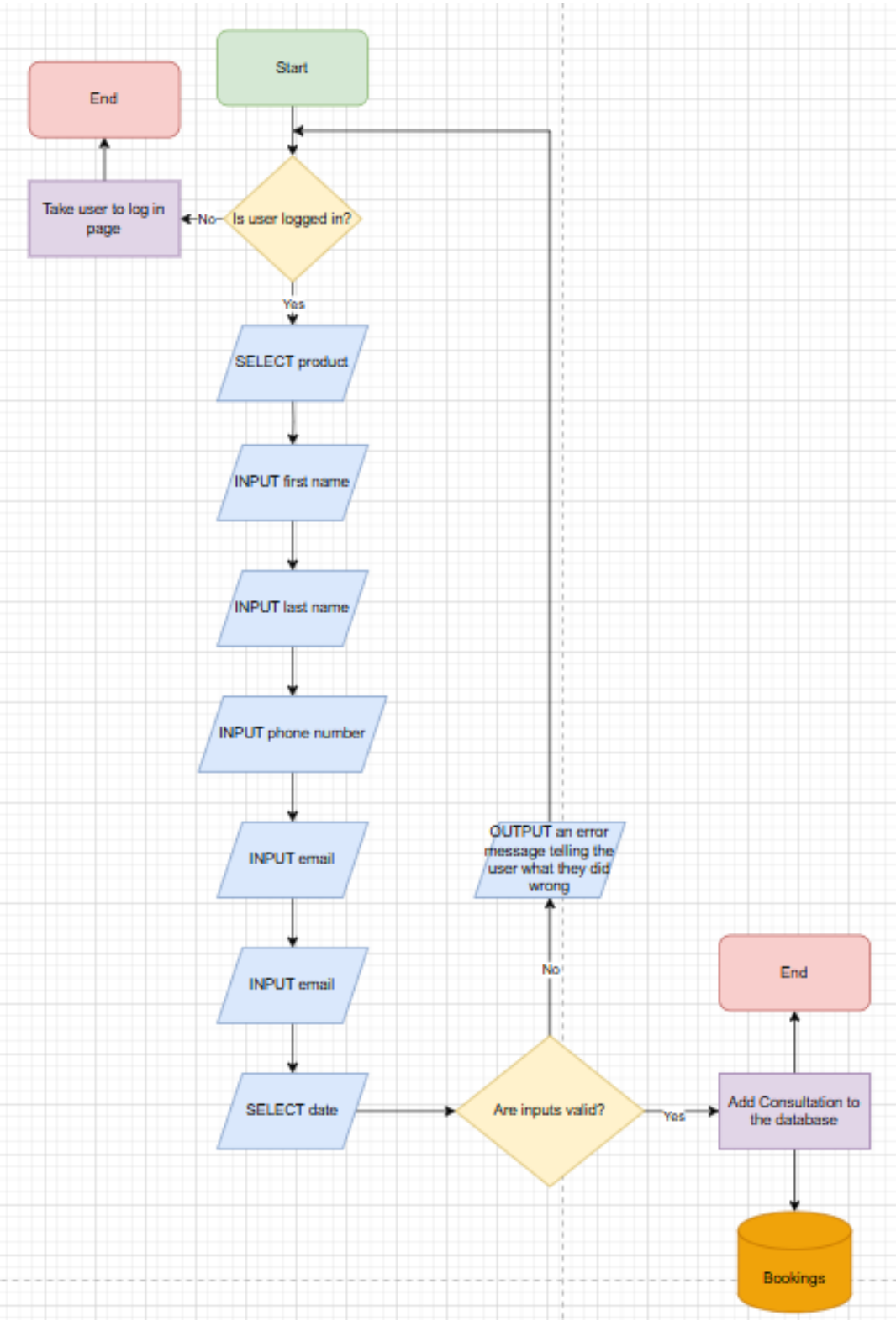
Schedule an Installation



The system will check if the user is logged in if not it will send them to the log in page if the user is then it will prompt them to enter the data needed and check if its valid if not it will send an

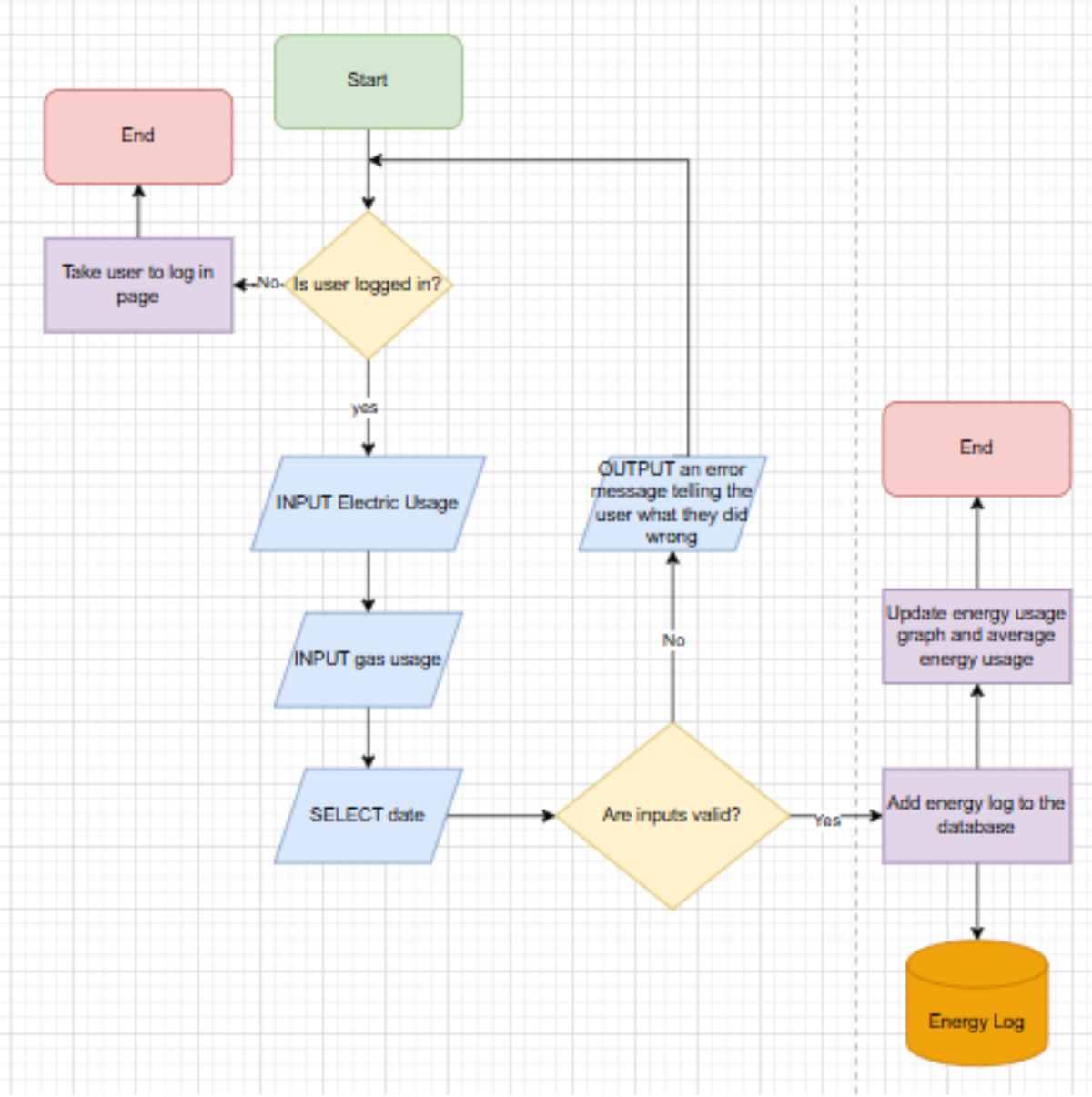
error message telling the user what they did wrong and if the data is valid it will add the installation to the database.

Schedule a Consultation



The system will check if the user is logged in if not it will send them to the log in page if the user is then it will prompt them to enter the data needed and check if its valid if not it will send an error message telling the user what they did wrong and if the data is valid it will add the consultation to the database.

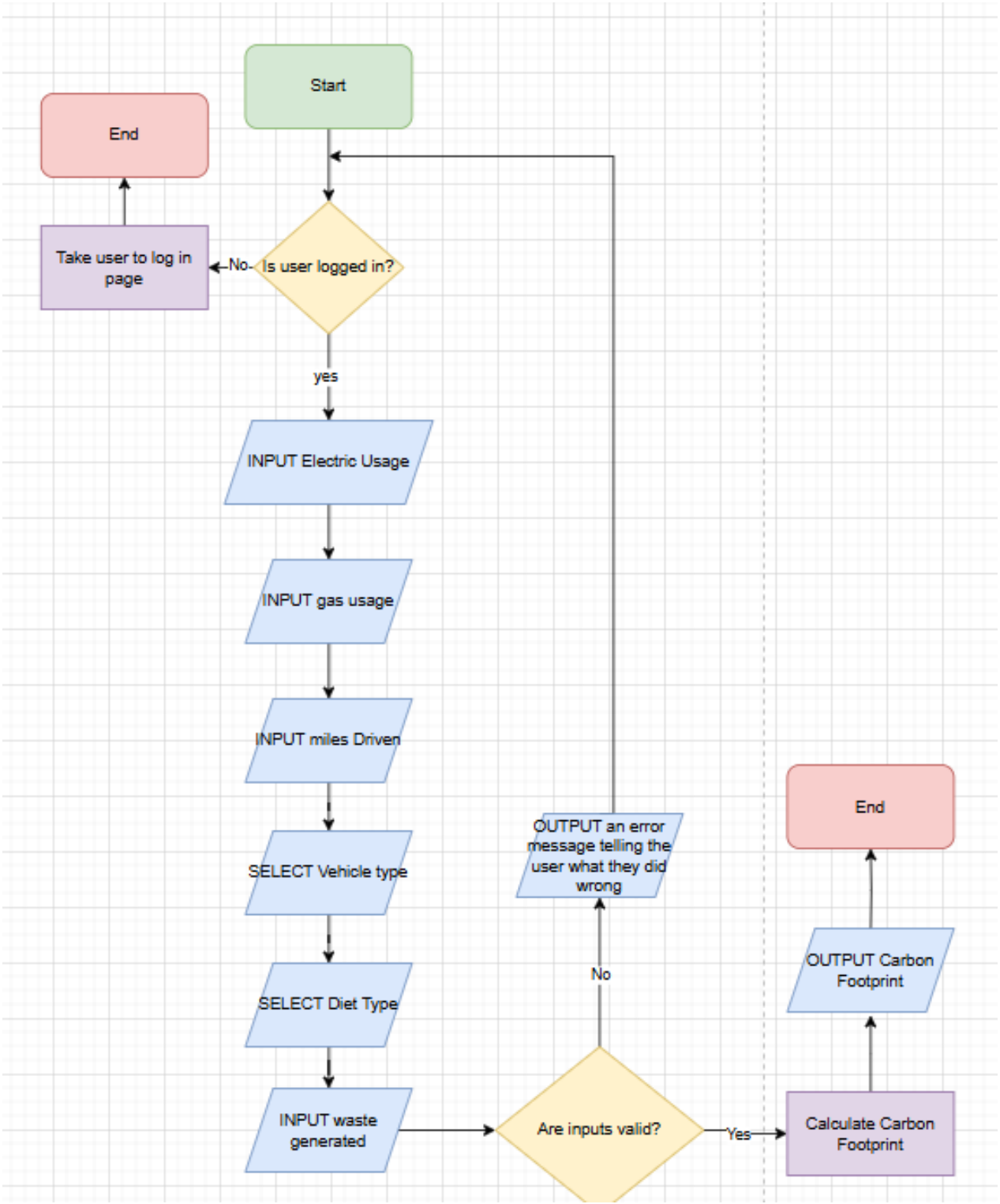
Calculate and log energy usage



The system will check if the user is logged in if not it will send them to the log in page if the user is then it will prompt them to enter the data needed and check if its valid if not it will send an

error message telling the user what they did wrong and if the data is valid it will add the energy log to the database and update the graph.

Calculate Carbon Footprint



The system will check if the user is logged in if not it will send them to the log in page if the user is then it will prompt them to enter the data needed and check if its valid if not it will send an error message telling the user what they did wrong and if the data is valid it will calculate their carbon footprint and display it to the user.

Test Strategy

Date of Test	**Component to be Tested**	**Type of Test to be Carried out**	**Prerequisites and dependencies**
01/04/2025	User Register system	White box testing, black box testing, functionality testing, Security testing, Integration Testing.	The register function should be fully functional and implemented. Migrations and update database must be applied. The controller logic should be completed to handle user registration and error handling for incorrect inputs duplicate accounts and password complexity must be set up. Tests should include valid/invalid Test data needed. The log-in page must be created, and the migration and update database must be completed. There must be working controller logic. Testers must test valid/invalid credentials, session management, variability's (SQL injection) and password encryption.

			Example of test data: - **Normal:** Email: “Test@testemail.com,” Password: "Password123?”, Confirm Password: “Password123?” - **Erroneous:** Email: “falseemail” (Should contain a “@ symbol”, Should contain a domain e.g. “.com”), Password: “111” (Should be longer, should be a string, should have a capital letter and a symbol), Confirm Password: “1er” (Dose not match original password) - **Extreme:** test@testemail.com, Password: “QwE12?” (Exactly 6 characters which is the minimum and

			includes 1 symbol which is the minimum)
01/04/2025	User log in system	White box testing, black box testing, functionality testing, Security testing, Integration Testing.	Test data needed. The log-in page must be created, and the migration and update database must be completed. There must be working controller logic. Testers must test valid/invalid credentials, session management, variability's (SQL injection) and password encryption. **Example of test data:** - **Normal:** Email: "Test@testemail.com", Password: "Password123?" - **Erroneous:** Email: "falseemail" (Should contain a "@ symbol", Should contain a domain e.g. ".com"), Password: "pass" (Should be longer, should be a string, should have a

			capital letter and a symbol) - **Extreme: "**test@testemail.com", Password: QwE12? (Exactly 6 characters which is the minimum)
01/04/2025	log out function	Black box testing, Functionality testing, Security testing, Session management testing.	No test data required, the log in system must be fully functional and allow users to create accounts and save their data to a database and the log out button should be clear and easily visible.
01/04/2025	Log in button on the top right of the home page on the navigation bar	Black box testing, Functionality Testing, Intergration Testing	No test data required. The log-in page and form should have been created and fully functional. The tester should click the button to ensure it loads the correct page.
01/04/2025	Log in button on the top right of the home page on the navigation bar	Black box testing, Functionality Testing, Intergration Testing	No test data required. The register page and form should have been created and fully functional. The tester should click the button to ensure it loads the correct page.

01/04/2025	Schedule an Installation Function	Black box testing, White box testing, Functionality testing, Security testing, Session management testing.	Test data required. The models and controller logic must have been created and there must be a logged in user to test it. The tester should book an installation and fill out all fields and make sure it successfully logs the installation and displays it in the correct place. They should be able to edit, delete and view the details of the booking. **Example of Test Data:** **Normal:** - Product: Solar panels, First Name: “Joe”, Last Name: “Carter”, Phone Number: “07836430801”, Email: test@testemail.com, Address: 215 Ansty road, Date: 01/12/2025 - **Erroneous:** Product: “Carbon” (this is not an option in the drop-down menu), First

			Name: “ ” (name must include characters not spaces), LastName: “ ” (name must include characters not spaces), Phone Number: “number” (must be a valid phone number format), Email: “mail” (Should contain a “@ symbol”, Should contain a domain e.g. “.com”), Address: “ ” (name must include characters not spaces) - **Extreme:** Phone Number: “0745873 2896” (maximu m number of characters for a UK phone number),
01/04/2025	Schedule a consultation	Black box testing, White box testing,	Test data required. The models and

		Functionality testing, Security testing, Session management testing.	controller logic must have been created and there must be a logged in user to test it. The tester should book a consultation and fill out all fields and make sure it successfully logs the consultation and displays it in the correct place. They should be able to edit, delete and view the details of the booking. **Example of Test Data:** **Normal:** - Product: Solar panels, First Name: “Joe”, Last Name: “Carter”, Phone Number: “07836430801”, Email: test@testemail.com, Address: 215 Ansty road, Date: 01/12/2025 - **Erroneous:** Product: “Carbon” (this is not an option in the drop-down menu), First Name: “ ” (name must

			include characters not spaces), LastName: “ ” (name must include characters not spaces), Phone Number: “number” (must be a valid phone number format), Email: “mail” (Should contain a “@ symbol”, Should contain a domain e.g. “.com”), Address: “ ” (name must include characters not spaces) - **Extreme:** Phone Number: “0745873 2896” (maximu m number of characters for a UK phone number)
01/04/2025	Carbon Footprint Calculator	Black box testing, White box testing, Functionality testing	Test data needed. The models and controller logic must

			have been created. The tester must make a carbon footprint calculation to ensure it provides the correct result and displays the result clearly. **Example Test Data:** - **Normal:** Electric Usage: “123”, Gas Usage: “1234”, Miles Driven: “321”, Vehicle Type: “Diesel”, Diet Type: “Vegan”, Waste Generated: “25” - **Erroneous:** Electric Usage: “ten” (Must be a double/number), Gas Usage: “!” (Must be a double/number), Miles Driven: “t3n” (Must not contain letters), Vehicle Type: “van” (Not an option in the drop-down menu), Diet Type: “2” (Not an option in the drop-

			down menu), Waste Generated: “three” (should be a double/number and not contain letters)
01/04/2025	Energy Tracker	Black box testing, White box testing, Functionality testing, Security testing, Session management testing.	Test data needed. The models and controller logic must have been created, and the log-in system must be fully functional. There must be a logged in user to test it. The tester should complete an energy log and fill out all the fields to ensure the system usefully logs the energy log and displays it in the correct place and format. **Example Test Data:** - **Normal:** Electric Usage: “1234”, Gas Usage: “123”, Date: “06/11/2025” - **Erroneous:** Electric Usage: “one hundred” (Should be a double/number and not contain letters), Gas

			Usage: “***” (Should be a double/number and not contain symbols)
01/04/2025	The logo on the navigation bar	Black box testing, Functionality Testing, Intergration Testing.	No test data needed. The home page must be created and fully functional. The tester should click the logo to ensure it takes the user to the home page.
01/04/2025	Energy Tracker link on the navigation bar	Black box testing, Functionality Testing, Intergration Testing.	No data input required. The navigation bar must be created and fully functional and the energy tracker page must be created. The account registration functionality must be created and the log-in and register forms must exist. Testers should click the energy tracker page to verify that non logged in users are prompted to log in and logged in users are shown the correct page (the energy tracker page).
01/04/2025	Consultation link on the navigation bar	Black box testing, Functionality Testing, Intergration Testing.	No data inputs required. The navigation bar must be completely functional, and the consultation page should be created. The account registration

			functionality must also be created, and the log-in and register forms should be made. Testers should click the consultation page to verify that non logged in users are prompted to log in and logged in users are shown the correct page (the consultation page).
01/04/2025	Instillation link on the navigation bar	Black box testing, Functionality Testing, Intergration Testing.	No data inputs required. The navigation bar must be completely functional, and the installation page should be created. The account registration functionality must also be created, and the log-in form should be made. Tester should click the link to verify that non logged in users are prompted to log I and logged in users are shown the correct page (the installation page).
01/04/2025	Home page link on the navigation bar	Black box testing, Functionality Testing, integration testing	No data inputs needed. The navbar should be completely functional and the home page must have been created. The tester should click the link to ensure it takes the

			user to the correct page e.g. the home page should load the home page.
01/04/2025	Green energy link on the navigation bar	Black box testing, Functionality Testing, integration testing	No data inputs needed. The navbar should be completely functional and the green energy page must have been created. The tester should click the link to ensure it takes the user to the correct page.
01/04/2025	Reduce your footprint on the navigation bar	Black box testing, Functionality Testing, integration testing	No data input needed. The navbar should be fully functional and the reduce your carbon footprint page must have been created. The tester should click the link to ensure it takes the user to the correct page.
01/04/2025	Carbon footprint calculator on the navigation bar	Black box testing, Functionality Testing, integration testing	No data inputs needed. The navbar should be completely functional and the carbon footprint page must have been created. The tester should click the link to ensure it takes the user to the correct page.
01/04/2025	Get a Consultation button on the home page	Black box testing, White box testing, Functionality Testing	No data inputs required. The home must be completely functional, and the consultation page should be created.

			The account registration functionality must also be created, and the log-in and register forms should be made. Also, the booking functionality should be made in the controller. Testers should click the button to verify that non logged in users are prompted to log in and logged in users are shown the correct page (the consultation page).
01/04/2025	Book Now button on the home page	Black box testing, White box testing, Functionality Testing	No data inputs required. The home must be completely functional, and the consultation page should be created. The account registration functionality must also be created, and the log-in and register forms should be made. Also, the booking functionality should be made in the controller. Testers should click the button to verify that non logged in users are prompted to log in and logged in users are shown the correct page (the consultation page).

01/04/2025	Home page link on the footer	Black box testing, Functionality Testing, Intergration Testing	No data inputs needed. The footer should be completely functional, and the home page must have been created. The tester should click the link to ensure it takes the user to the correct page
01/04/2025	Consultation link on the footer	Black box testing, Functionality Testing, Intergration Testing	No data inputs required. The footer must be completely functional, and the consultation page should be created. The account registration functionality must also be created, and the log-in and register forms should be made. Testers should click the consultation page to verify that non logged in users are prompted to log in and logged in users are shown the correct page (the consultation page).
01/04/2025	Green energy link on the footer	Black box testing, Functionality Testing, Intergration Testing	No data inputs needed. The footer should be completely functional, and the green energy page must have been created. The tester should click the link

			to ensure it takes the user to the correct page.
01/04/2025	Installation link on the footer	Black box testing, Functionality Testing, Intergration Testing	No data inputs required. The footer must be completely functional, and the installation page should be created. The account registration functionality must also be created, and the log-in and register forms should be made. Testers should click the link to the installation page to verify that non-logged-in users are prompted to log in and logged in users are shown the correct page (the installation page).
01/04/2025	Reduce Your Footprint button on the footer	Black box testing, Functionality Testing, Intergration Testing	No data inputs needed. The footer should be completely functional, and the reduction of your footprint page must have been created. The tester should click the link to ensure it takes the user to the correct page.
01/14/2025	Carbon Footprint Calculator on the footer	Black box testing, Functionality Testing, Intergration Testing	No data inputs needed. The footer should be completely functional, and the Carbon Footprint Calculator page must

			have been created. The tester should click the link to ensure it takes the user to the correct page.
01/04/2025	Privacy policy link on the footer	Black box testing, Functionality Testing, Intergration Testing	No data inputs needed. The footer should be completely functional, and the Privacy page must have been created. The tester should click the link to ensure it takes the user to the correct page.
01/04/2025	Accessibility link on the footer	Black box testing, Functionality Testing	No data inputs needed. The footer should be completely functional, and the Privacy page must have been created. The tester should click the link to ensure it takes the user to the correct page.
01/04/2025	Energy Tracker link on the footer	Black box testing, Functionality Testing	No data inputs needed. The footer should be completely functional, and the Energy Tracker page must have been created. The tester should click the link to ensure it takes the user to the correct page.
01/04/2025	The Facebook link on the footer	Black box testing, Functionality Testing	No test data needed, the footer should be fully functional, and the social media

			platform must exist. The tester should click the link to ensure it takes the user to the home page of Facebook.
01/04/2025	The Instagram link on the footer	Black box testing, Functionality Testing	No test data needed, the footer should be fully functional, and the social media platform must exist. The tester should click the link to ensure it takes the user to the home page of Instagram.
01/04/2025	The YouTube link on the footer	Black box testing, Functionality Testing	No test data needed, the footer should be fully functional, and the social media platform must exist. The tester should click the link to ensure it takes the user to the home page of YouTube.
01/04/2025	Accessibility Features	Black box testing, Functionality Testing	No test data needed. The logic for the accessibility features should have already been made and they should be easily accessible. The tester should click each accessibility feature e.g. text resize, dark mode, high contrast mode and text to speech to ensure they all work.
02/04/2025	Book Now button on Consultation page	Black box testing, Functionality Testing, Intergration Testing	No test data needed. The book a consultation page

			must have already been created, and the booking consultation functionality must have been created. The account registration must have also been created and there must be a logged-in user to test it. The tester should click the button to ensure it goes to the correct page.
02/04/2025	Details button on the Consultation page	Black box testing, Functionality Testing, Intergration Testing	No test data needed. The book a consultation page must have already been created, and the booking consultation functionality must have been created. The account registration must have also been created and there must be a logged-in user to test it. The tester should click the details button to ensure it loads the correct page with all the booking details.
02/04/2025	Edit button on the Consultations page	Black box testing, Functionality Testing, Intergration Testing	No test data needed. The book a consultation page must have already been created, and the booking consultation functionality must

			have been created. The account registration must have also been created and there must be a logged-in user to test it. The tester should click the details button to ensure it loads the correct page.
02/04/2025	Delete button on the Consultation page.	Black box testing, Functionality Testing, Intergration Testing	No test data needed. The book a consultation page must have already been created, and the booking consultation functionality must have been created. The account registration must have also been created and there must be a logged-in user to test it. The tester should click the details button to ensure it allows the user to delete the booking.
02/04/2025	Details button on the Installation page	Black box testing, Functionality Testing, Intergration Testing	No test data needed. The book an Installation page must have already been created, and the booking Installation functionality must have been created. The account registration must have also been created and there

			must be a logged-in user to test it. The tester should click the details button to ensure it loads the correct page with all the booking details.
02/04/2025	Edit button on the Installation page	Black box testing, Functionality Testing, Intergration Testing	No test data needed. The book an Installation page must have already been created, and the booking Installation functionality must have been created. The account registration must have also been created and there must be a logged-in user to test it. The tester should click the details button to ensure it loads the correct page.
02/04/2025	Delete button on the Installation page.	Black box testing, Functionality Testing, Intergration Testing	No test data needed. The book an Installation page must have already been created, and the booking Installation functionality must have been created. The account registration must have also been created and there must be a logged-in user to test it. The tester should click the details button to ensure it allows the

			user to delete the booking.
02/04/2025	Quick links on the Green Energy Page	Black box testing, Functionality Testing	No test data needed. The green energy page must have been created. The tester should ensure links take the user to the corresponding sections on the page.
02/04/2025	Quick links on the Reduce your footprint page	Black box testing, Functionality Testing	No test data needed. The green energy page must have been created. The tester should ensure links take the user to the corresponding sections on the page.
02.04/2025	Calculate Now button on the carbon footprint calculator page	Black box testing, White box testing, Functionality Testing, Intergration Testing	No test data needed. The carbon footprint calculator page should be created and the logic for in should be made in the models and controllers. The tester should click the button to ensure it loads the carbon footprint calculator form.
02/04/2025	Book now button on the carbon footprint calculator page	Black box testing, White box testing, Functionality Testing, Intergration Testing	No data inputs required. The Carbon footprint calculator page must be created, and the consultation page should be created. The account registration functionality must also be created, and the log-in and register forms should

			be made. Also, the booking functionality should be made in the controller. Testers should click the button to verify that non logged in users are prompted to log in and logged in users are shown the correct page (the consultation page).
02/04/2025	Cookies functionality	Black box testing, testing, Functionality Testing,	No test data needed.
02/04/2025	Accept All button on the cookies pops up	Black box testing, White box testing, Functionality Testing, Intergration Testing	No test data needed. The cookies that pop up should be made and the cookies functionality should be made in JavaScript and be fully functional.
02/04/2025	Decline All button on the cookies pops up	Black box testing, White box testing, Functionality Testing, Intergration Testing	No test data needed. The cookies that pop up should be made and the cookies functionality should be made in JavaScript and be fully functional.
02/04/2025	Terns & Conditions pop up	Black box testing, testing, Functionality Testing,	No test data needed. The pop up should have been created and the cookies pop up should be created and be fully functional. Tester should ensure the pop up appears on the site after the cookies pop up is accepted or decided

			if accepted it should only pop up once.
02/04/2025	Accept All button on the terms & conditions pop up	Black box testing, Functionality Testing,	No test data needed. The cookies that pop up should be made and the cookies functionality should be made in JavaScript and be fully functional. The tester should ensure the pop-up closes once Accept All is clicked
02/04/2025	Remember Me check box on the log in page	Black box testing, White box testing, Functionality Testing, Intergration Testing.	No test data needed. The log-in page should be created, and the log-in functionality should be fully working and there must be a valid existing account. The user should click the remember me check box and log in then leave the page and come back to see if the site remembered their device and kept them logged in
02/04/2025	Forgot password button on the log in page	Black box testing, White box testing, Functionality Testing, Intergration Testing.	No test data needed. The log-in page should be created, and the log-in functionality should be fully working and there must be a valid existing account. The forgotten password should be fully functional. The tester should click forgot password and reset the password

			through the email sent.
02/04/2025	Register as a new user button on the log in page	Black box testing, Functionality Testing, Intergration Testing.	No test data needed the log in page and function should be fully working and the register page and function should be fully working. The tester should click the link to ensure it takes the user to the register page.
02/04/2025	Log in button on the register page	Black box testing, Functionality Testing, Intergration Testing.	No test data needed the log in page and function should be fully working and the register page and function should be fully working. The tester should click the link to ensure it takes the user to the log in page.
02/04/2025	Go back button on the Schedule an installation form	Black box testing, Functionality Testing, Intergration Testing.	No test data needed. The schedule an installation form should be created and fully functional. The tester should click the link to ensure it takes the user back to the page they came from
02/04/2025	Go back button on the Schedule a Consultation form	Black box testing, Functionality Testing, Intergration Testing.	No test data needed. The schedule a consultation form should be created and fully functional. The tester should click the link to ensure it takes the user back to the page they came from

02/04/2025	Go back button on the Energy Tracker form	Black box testing, Functionality Testing, Intergration Testing.	No test data needed. The Energy Tracker form should be created and fully functional. The tester should click the link to ensure it takes the user back to the page they came from
02/04/2025	Go back button on the Carbon Footprint Calculator form	Black box testing, Functionality Testing, Intergration Testing.	No test data needed. The carbon footprint calculator form should be created and fully functional. The tester should click the link to ensure it takes the user back to the page they came from