

Description of test	Test data to be used (if required)	Expected outcome	Actual outcome	Comments and intended actions
Navbar/footer				
Tested the basic structure of the navigation bar with menu items and dropdown menus.	None	Navigation bar should display properly on large screens.	Navigation bar displayed correctly with dropdown menus.	Successfully established the basic navbar structure using Bootstrap.
Checked the responsive behaviour of the navigation bar's 'hamburger' menu.	Click on Hamburger menu when browser window is resized to small screen	'Hamburger' menu should appear on small screens and expand on click.	'Hamburger' menu behaved as expected on small screens.	Responsive functionality added for all screen sizes.
Tested CSS styling (colours, padding, hover effects) for the navigation bar.	None	Links should have the chosen colours, padding, and hover effects.	All styles were applied successfully, matching design requirements.	Styling applied as planned using CSS.
Tried centring navigation links using mx-auto on ul element in combination with flex display.	None	Links should be centred in the navbar.	Links were properly centred	Centred navigation links work as intended.
Hover-tested dropdown menus (Information, Calculators, Services).	Hover test	Dropdown menus should display sub-options on hover.	Sub-options displayed successfully on hover.	Added hover effect using CSS for better user experience on desktop.
Attempted to show dropdown on hover using custom CSS	Hover test	Dropdown menus should appear on hover.	Hover effect works successfully	Hover functionality achieved using: <code>.dropdown:hover .dropdown-menu { display: block; }</code> .
Tested left and right alignment of footer logo, social media icons, and footer links.	None	Footer logo/social media icons should align left, links should align right.	Alignments were correct.	Successfully implemented the footer layout with proper alignment using Flexbox.
Click tested social media icons (Facebook, LinkedIn, YouTube, Instagram).	Click on social media links	Clicking icons should navigate to social media pages.	All links navigated to the correct pages	Social media links work as intended.
Applied hover effect for footer links to ensure interactivity.	Hover test on footer links	Footer links should display an underline effect on hover.	Hover effect successfully applied to footer links.	interactivity for footer links using hover effect.
Tested responsiveness of footer links on small screens (browser resize).	Resize browser window	Footer links should wrap into multiple rows on smaller screens while keeping alignment.	Links wrapped and aligned correctly on smaller screens as expected.	Footer links wrapped and aligned as intended.

Tested horizontal alignment of footer columns	None	Footer columns should maintain identical spacing and alignment.	Footer columns alignment has identical spacing and alignment.	alignment has identical spacing as planned
Terms and Conditions page				
Tested base structure of terms.php with HTML and included global navbar.php and footer.php	None	Navigation bar and footer included across the page	As expected	Reused common layout parts for consistency and maintainability
Tested terms and conditions banner section with large title	None	Background colour of terms and conditions with a clear title in the centre	As expected	Created specific class in CSS: terms-section, for styling the banner
Tested the description section with a title and paragraph describing terms and conditions.	None	The text should display properly with a heading and describing terms and conditions of the company.	The section displayed the heading of terms and conditions and description of terms and conditions with appropriate spacing and styling.	Added terms and conditions section as intended.
Home page				
Tested the overall structure of the homepage to ensure all sections are present.	None	Homepage should display Navigation Bar, Hero Section, About, Services, Calculators, Testimonials, Footer.	Homepage displayed correctly with all sections.	All sections were implemented as planned.
Validated PHP includes for navigation bar and footer for a consistent structure.	None	Navigation bar and footer should display correctly on the homepage.	Navbar and footer displayed as expected.	Successfully used 'include' for reusable PHP components across the website.
Tested Hero Section display with background image and centred text.	Resize browser window	Hero Section should fill the screen and centre text and buttons appropriately.	Hero Section filled the screen with proper alignment and responsive design.	Achieved visual alignment using flexbox and background image styling.
Clicked on the "Find out more" button in the Hero Section.	Click on button	Button should redirect to the 'How to reduce carbon footprint' page.	Button worked and navigated to the intended page.	Navigation functionality worked successfully.
Checked the display of the "Who We Are" section text.	None	The heading and description should display properly with spacing and styling.	Section displayed properly with all required elements.	Section worked as intended
Click-tested links in the "We Provide" section.	Click on each service item	Service items should display correctly and	Links worked as expected, and service	Successfully created visually appealing

		link to detailed pages.	items appeared visually as designed.	and functional service items.
Tested responsiveness of the "We Provide" section across different screen sizes.	Resize browser window	Service items should adjust their layout responsively.	Service items adjusted correctly to smaller screens.	Ensured responsive design for better user experience.
Click-tested buttons in the Carbon Footprint Calculator and Energy Usage Calculator sections.	Click on each button	Buttons should navigate to their calculator pages.	Buttons worked and led to calculator pages.	Interactive calculators were successfully linked with good visual design.
Reviewed Testimonials section for layout, placeholder content, and responsiveness.	None	Testimonial boxes should appear with appropriate spacing and responsive alignment.	Testimonial boxes displayed with proper styling and adapted to various screen sizes.	Templates for testimonials are created, text of which can be changed in future
Tested overall responsiveness of the homepage.	Resize browser window	All homepage elements should adjust to different screen sizes.	Elements adjusted responsively across all screen sizes as intended.	Homepage successfully optimized for responsive design.
Solar Panel				
Tested the global inclusion of navbar.php and footer.php across all pages.	None	Navbar and footer should display correctly on all pages.	Successfully displayed navbar and footer across all pages.	Correct layout achieved using PHP includes.
Validated Solar Panel banner section with background image styling.	None	Banner should have a background image and centred title.	Banner appeared as expected.	Applied CSS styling for clear and visually appealing design.
Reviewed Solar Panel "Who We Are" text section for clarity.	None	Text should display correctly with proper spacing.	Section displayed as expected.	"Who We Are" section displayed as intended
Tested Solar Panel product comparison table for content and layout.	None	Table should display features and products in a readable format.	Table appeared with proper alignment and content.	Comparison table displayed as intended
Tested Solar Panel "Book a Consultation" button functionality.	Click on consultation button	Button should redirect to consultation.php page.	Button worked as expected.	Enhanced user interaction with styled buttons.
Tested navigation links between related pages on Solar Panel page.	Click on each link	Links should lead to Charger, Home, and Reduce Carbon Footprint pages.	Links redirected to correct pages.	Links working as intended
EV Charger				
Tested the global inclusion of navbar.php and footer.php across all pages.	None	Navbar and footer should display correctly on all pages.	Successfully displayed navbar and footer across all pages.	Correct layout achieved using PHP includes.

Verified EV Charger page structure and banner display.	None	Banner should display EV charging station image with centred heading.	Banner appeared correctly.	Styled with `infostyle.css` for consistent layout across sections.
Reviewed EV Charger "Who We Are" text section for clarity.	None	Text should display correctly with proper spacing.	Section displayed as expected.	"Who We Are" section displayed as intended
Reviewed EV Charger comparison table for content clarity.	None	Table should display product features with readable structure.	Table displayed correctly.	Achieved user-friendly layout for product comparison.
Tested EV Charger "Book a Consultation" button functionality.	Click on consultation button	Button should redirect to consultation.php page.	Button worked as expected.	Functionality for consultation button worked as intended.
Tested navigation links between related pages on EV Charger page.	Click on each link	Links should lead to Solar Panel, Home, and Reduce Carbon Footprint pages.	Links redirected to correct pages.	Links working as intended
Smart Home				
Tested the global inclusion of navbar.php and footer.php across all pages.	None	Navbar and footer should display correctly on all pages.	Successfully displayed navbar and footer across all pages.	Correct layout achieved using PHP includes.
Tested Smart Home System banner and "About" section for readability and styling.	None	Text should display correctly with proper styling.	Elements displayed as expected.	Elements displayed as intended.
Reviewed Solar Panel "Who We Are" text section for clarity.	None	Text should display correctly with proper spacing.	Section displayed as expected.	"Who We Are" section displayed as intended
Tested Smart Home System product comparison table for content and layout.	None	Table should display features and products in a readable format.	Table appeared with proper alignment and content.	Comparison table displayed as intended
Tested Solar Panel "Book a Consultation" button functionality.	Click on button	Button should redirect to consultation.php page.	Button worked as expected.	Functionality for consultation button worked as intended.
Tested navigation links between related pages on Solar Panel page.	Click on each link	Links should lead to Charger, Home, and Reduce Carbon Footprint pages.	Links redirected to correct pages.	Links working as intended
Reduce Carbon footprint				
Tested the global inclusion of navbar.php and footer.php across all pages.	None	Navbar and footer should display correctly on all pages.	Successfully displayed navbar and footer across all pages.	Correct layout achieved using PHP includes.

Tested Reduce Carbon Footprint banner section styling and functionality.	None	Banner should appear visually consistent with the rest of the site.	Banner displayed correctly.	Banner displayed as expected.
Reviewed "Reduce carbon footprint" "Who We Are" text section for clarity.	None	Text should display correctly with proper spacing.	Section displayed as expected.	"Who We Are" section displayed as intended
Tested Reduce Carbon Footprint product comparison table for content and layout.	None	Table should display features and products in a readable format.	Table appeared with proper alignment and content.	Comparison table displayed as intended
Tested Solar Panel "Book a Consultation" button functionality.	Click on button	Button should redirect to consultation.php page.	Button worked as expected.	Enhanced user interaction with styled buttons.
Reviewed "Links to other pages" sections across all pages for navigation.	Click on each link	Links should redirect to relevant pages like Solar, Charger, and Home.	Links navigated correctly across all pages.	Improved site usability with clear and responsive navigation options.
Validated responsive design across all pages with browser resizing.	Resize browser window	All pages should adjust to small screens without layout breaking.	Pages were fully responsive as expected.	Pages were fully responsive as intended.
Carbon Calculator				
Validated the structure of the Carbon Calculator page.	None	Page should display title, slider, results, and recommendation sections without errors.	Page structure appeared as expected.	Successfully created the layout with section for user interaction.
Tested navigation bar and footer for the Carbon Calculator.	None	Navbar and footer should display correctly.	Successfully displayed navbar and footer.	Successfully displayed navbar and footer as intended.
Tested heating type selection using radio buttons.	Electric, Gas	User should be able to select between electric and gas options.	Switching options worked as expected.	Developed functional radio buttons for energy source selection.
Tested dynamic updates to carbon footprint calculations using JS script.	Electric 500, Gas 500	Correct CO2 estimation displayed and updated in real-time.	Calculations appeared and updated correctly based on user input.	Calculations appeared and updated correctly based on user input as intended.
Tested slider functionality for energy consumption selection.	Values: 0 to 1000	Slider should adjust consumption value within the specified range.	Slider worked correctly, limiting values between 0 and 1000.	Ensured user-friendly input slider for energy consumption.

Tested Recommendations Section for visibility and information.	None	Energy-saving tips should display clearly below the calculation section.	Section displayed with informative content as expected.	Added a helpful section to guide users on reducing carbon footprint.
Tested validation for slider input limits.	-50, 2000 (manual change)	Values outside the range should not be allowed.	Values were automatically limited to 0-1000.	Slider input limits work as intended.
Tested responsiveness of the Carbon Calculator page on small screens.	Resize browser window	Page elements should adjust to fit smaller screens.	Page was fully responsive.	Page was fully responsive as intended.
Tested Energy Usage Calculator page structure and layout.	None	Page should display title, sections for appliance selection, sliders, and results.	Structure appeared as expected.	Clean and intuitive layout is displayed as intended.
Tested appliance checkbox system functionality.	Refrigerator, Washing Machine	User should be able to select appliances using checkboxes.	Checkboxes worked correctly, and appliance inputs displayed dynamically.	Used containers to organize appliance sections with sliders for usability.
Verified energy usage calculation based on wattage, usage time, and appliance count.	Refrigerator (150W), 5 hours, 3 appliances	Correct total energy usage should be displayed dynamically.	Calculation appeared correct based on user inputs.	Implemented energy calculation logic to ensure real-time response.
Tested dynamic update functionality for Energy Usage Calculator.	Adjust sliders for multiple appliances	Total energy consumption should recalculate instantly whenever sliders are adjusted.	Updates appeared dynamically as expected.	Slider updates are linked to calculation logic as intended.
Tested Recommendations Section for energy-saving tips visibility.	None	Section should display informative recommendations.	Recommendations displayed correctly.	Recommendations displayed correctly as intended.
Tested responsiveness of the Energy Usage Calculator page on small screens.	Resize browser window	Page elements should adjust without breaking the layout.	Page was fully responsive.	Page was fully responsive as intended.
Login/Register/Personal				
Tested basic login form display on login.php page.	None	Login form with email and password fields should display correctly.	Login form displayed as expected.	Successfully created basic structure for the login page.
Verified navigation bar and footer on login page using PHP includes.	None	Navigation bar and footer should appear consistently.	Displayed correctly across the login page.	Displayed correctly across the login page as intended.
Tested user authentication with correct credentials.	Correct email, correct password	User should be redirected to personal.php.	User redirected as expected.	User redirected as intended.

Checked invalid login attempts with incorrect credentials.	Wrong email	Error message should display "Invalid email or password!"	Error messages displayed appropriately.	Improved user experience by providing meaningful feedback for invalid inputs.
Tested session handling for storing user data after successful login.	Correct email and password	Session should be set with user ID and firstname for personalized experience.	User redirected to personal.php.	Session handling works as expected
Verified registration form on register.php for displaying all input fields.	None	Registration form with first name, last name, email, password and repeat password fields should display correctly.	Form displayed as expected.	Basic structure for user registration is created.
Tested password validation to ensure both password fields match.	Different passwords entered	Error message should display "Passwords do not match!"	Error message displayed correctly.	User-friendly error handling for mismatched passwords.
Checked email uniqueness during registration.	Same email entered twice	Error message should display "Email already exists!"	The system works as expected.	Ensured unique emails by checking for existing emails before inserting user data.
Tested secure password storage in database.	johndoe1	Password should be hashed and stored securely.	Password hashed and stored successfully.	Enhanced security using <code>password_hash()</code> and by avoiding plain text password storage.
Tested checkbox system to accept rules and terms of the company	Tick a checkbox	User can agree to terms and conditions of the company using checkbox	Worked as expected	Used checkboxes for user to agree to terms and conditions of the company.
Tested personal.php page for displaying user-specific data after login.	None	Page should display "Welcome, [Firstname]!".	Personal greeting displayed as expected.	Personal greeting displayed as intended.
Tested consultations section for fetching and displaying user bookings from database.	User with 2 consultations booked	List of consultations should appear with details like type, date, and time.	Consultations displayed successfully.	Consultations displayed successfully as intended.
Verified cancel booking feature for consultations and installations.	Cancel consultation booking	Booking should be removed from database.	Booking removed successfully.	Booking removed successfully as intended.

Checked account page responsiveness across different screen sizes.	Resize browser window	Content should adjust to fit screen sizes.	Content adapted as expected.	Content adapted as intended.
Edit Account Page				
Tested if structure of the page is correct	None	All of the sections of the website should be properly structures.	The website structure is correct, as expected	The website structure is correct, as intended
Tested if system's functional part works correctly if the user provides correct inputs	Input correct information. Click on "Save Changes"	The system should save the new information about user in database, and redirect them to personal account page.	The system worked as expected	The system worked as intended
Tested if system's functional part works correctly if the user provides same inputs as	Input same information. Click on "Save Changes"	The system should accept the same information about user and save it in database, and redirect them to personal account page.	The system worked as expected	The system worked as intended
Tested if system's functional part works correctly if the user clicks "Save Changes" but don't provide any information	None	The system should ask the user to input information if the user presses "Save Changes" button when input bars are blank.	The system worked as expected	The system worked as intended
Consultation page				
Tested HTML structure of the Consultation page with form fields.	None	Consultation form with type and time fields should display correctly.	Form fields displayed as expected.	The basic layout is used for user consultation booking.
Checked session validation for logged in users accessing Consultation page.	None	Non-logged in user should be redirected to login.php.	Redirection worked successfully.	Improved security by ensuring only logged in users can book consultations.
Tested past date selection logic in Consultation page.	2023/01/01	User should be restricted from selecting past dates.	Restriction worked successfully.	Restriction worked successfully as intended.
Verified booked time slots display as disabled in Consultation page.	Existing data in consultations table	Already booked slots should appear disabled and styled differently (grey colour).	Worked successfully; booked slots displayed with correct styling.	Used prepared statements to fetch and manage time slot availability securely.

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