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**Reg #** FA22-BCE-028

Requirement Analysis Document

# 1. Functional Requirements

1. Users shall be able to view a catalogue of solar panels.
2. Users shall be able to view detailed specifications of each product.
3. Users shall be able to add products to a cart.
4. Users shall be able to place orders via a checkout form.
5. Total price of all the items in the cart will be shown

# 2. Non-Functional Requirements

1. The application shall be responsive on mobile, tablet, and desktop devices.
2. The website shall have cool animations.
3. The system shall be built using a modular React + Vite structure for faster builds.
4. The system shall secure user data with HTTPS and input validation.

# 3. Use Case Specifications

## Use Case 1: View Catalogue

| **Field** | **Description** |
| --- | --- |
| **Use Case Name** | View Catalogue |
| **Priority** | High |
| **Trigger** | Customer opens the homepage |
| **Scope** | Solar Panel Catalogue Website |
| **Level** | User goal |
| **Precondition** | Website is accessible; customer is on the homepage |
| **Basic Path** | 1. Customer lands on homepage2. Catalogue is displayed |
| **Alternative Path** | 1. If no products are found, a "No products available" message is shown |
| **Postcondition** | Catalogue of solar panels is visible to the customer |
| **Exception Path** | 1. Internet/server issue: show error message |

## Use Case 2: Add to Cart and Checkout

| **Field** | **Description** |
| --- | --- |
| **Use Case Name** | Add to Cart and Checkout |
| **Priority** | High |
| **Trigger** | Customer clicks "Add to Cart" and proceeds to checkout |
| **Scope** | Solar Panel Catalogue Website |
| **Level** | User goal |
| **Precondition** | Customer has selected at least one product |
| **Basic Path** | 1. Customer clicks "Add to Cart"2. Cart updates3. Customer proceeds to checkout4. Fills form and submits order |
| **Alternative Path** | 1. Customer removes item from cart before checkout |
| **Postcondition** | Order is placed, and customer sees confirmation |
| **Exception Path** | 1. Validation error in checkout form2. Server error during order |

## Use Case 3: View Product details

| **Field** | **Description** |
| --- | --- |
| **Use Case Name** | View Product Details |
| **Priority** | Medium |
| **Trigger** | Customer clicks on a product |
| **Scope** | Solar Panel Catalogue Website |
| **Level** | Subfunction |
| **Precondition** | Customer is on the catalogue page |
| **Basic Path** | 1. Customer clicks a product2. Product detail page opens with full specs |
| **Alternative Path** | 1. Image or spec missing: Show fallback UI |
| **Postcondition** | Product details are shown |
| **Exception Path** | 1. Product ID invalid → Show "Product not found" error |

## Use Case 4: View Total Price in Cart

Actor: Customer

Description: The user can see total price in the product cart that updates if you increase quantity.

| **Field** | **Description** |
| --- | --- |
| **Use Case Name** | View Total Price in Cart |
| **Priority** | Medium |
| **Trigger** | Customer opens cart or updates product quantity |
| **Scope** | Solar Panel Catalogue Website |
| **Level** | Subfunction |
| **Precondition** | Cart contains at least one item |
| **Basic Path** | 1. Customer opens cart2. System displays product list with prices3. Total price is updated based on quantity |
| **Alternative Path** | 1. User sets quantity to 0 → item is removed from cart |
| **Postcondition** | Cart reflects updated total price |
| **Exception Path** | 1. Price data not loaded → show default/error value |

A screenshot of a solar panel

AI-generated content may be incorrect.

# Use Case Diagram

# UI screenshots

# DFD 0

A diagram of a solar panel shopping system

AI-generated content may be incorrect.

# DFD 1

A diagram of a diagram

AI-generated content may be incorrect.