

**Project Design Phase-II**  
**Solution Requirements (Functional & Non-functional)**

Date	9 October 2023
Team ID	NM2023TMID09752
Project Name	Solar Panel forecasting

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	<ul style="list-style-type: none"><li>• Create user registration form</li><li>• Validate user input</li><li>• Display error message for invalid input</li><li>• Store user data in database</li><li>• Send confirmation email to user</li><li>• Allow user to log in with new credentials</li></ul>
FR-2	User Confirmation	<ul style="list-style-type: none"><li>• Enable users to verify their email address during account creation.</li><li>• Allow users to confirm their phone number by sending a verification code.</li><li>• Provide an option for users to confirm their identity using a government-issued ID or passport.</li><li>• Ensure that user confirmation is required before accessing certain features or completing transactions.</li></ul>
FR-3	Account security	<ul style="list-style-type: none"><li>• Require users to create strong passwords and periodically prompt them to update their passwords.</li><li>• Allow users to enable two-factor authentication for added security.</li><li>• Implement anti-fraud measures, such as limiting the number of login attempts and monitoring for suspicious activity.</li><li>• Provide users with the ability to view and track their login history.</li></ul>
FR-4	Payment Processing	<ul style="list-style-type: none"><li>• Allow users to add and manage payment methods, such as credit/debit cards and bank accounts.</li><li>• Provide users with the ability to view and track their payment history, including transactions and receipts.</li><li>• Implement secure payment processing systems that comply with industry standards and regulations.</li><li>• Ensure that users are notified of payment processing errors or issues, and provide options for resolving them.</li></ul>
FR-5	User Management System	<ul style="list-style-type: none"><li>• Allow users to edit and update their personal information, such as name, email, and phone number.</li><li>• Provide users with the ability to upload and manage profile pictures.</li><li>• Allow users to update their notification settings, such as opting in or out of promotional emails and push notifications.</li><li>• Provide users with the ability to delete their accounts and associated data.</li></ul>

FR-6	Search Functionality	<ul style="list-style-type: none"> <li>• Enable users to search for products/services.</li> <li>• Provide advanced search filters for users.</li> <li>• Display search results in a clear and concise manner.</li> <li>• Implement autocomplete suggestions for search queries.</li> <li>• Allow users to save search queries for future reference</li> </ul>
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### Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	<b>Usability</b>	The focus on usability ensures that the forecasting system is accessible, practical, and valuable for a wide range of stakeholders, enhancing its appeal and usefulness in the renewable energy ecosystem.
NFR-2	<b>Security</b>	Security is a critical component of the solar panel forecasting system, given its role in energy infrastructure and data management. A comprehensive security strategy is vital to safeguard the system's integrity and user data while maintaining the reliability and availability of the service
NFR-3	<b>Reliability</b>	Reliability is crucial for the solar panel forecasting system, as it directly affects users' ability to make informed decisions about energy consumption, grid management, and overall operational efficiency. By focusing on data quality, redundancy, real-time updates, and transparency, the system can earn and maintain users' trust and deliver dependable predictions
NFR-4	<b>Performance</b>	High performance is essential for a solar panel forecasting system, ensuring that users have access to accurate and timely predictions, which, in turn, supports effective energy management, grid stability, and sustainable energy use. By optimizing computational efficiency and responsiveness, the system can meet the demands of users and deliver reliable forecasts.

NFR-5	<b>Availability</b>	It refers to its ability to be accessed and used by customers at all times without interruption. This
		includes the availability of the system online or through mobile applications, as well as the responsiveness and reliability of the system during peak usage times. High availability is important to ensure customers can pay their bills and access important account information without delay.
NFR-6	<b>Scalability</b>	Scalability is vital for accommodating the growing demand for accurate solar panel forecasts, whether it's for residential solar installations, large commercial solar farms, or grid operators managing a broader network. A scalable system ensures that users have access to timely and reliable predictions as the system expands to meet their needs..