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

Date	03 November 2023
Team ID	NM2023TMID04191
Project Name	How to Create Brand Name, Brand Mail and Brand Logo in Canva

Functional Requirements:

Following are the functional requirements of the proposed solution for Smart billing system for water suppliers.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Customer Management	❖ Customer Registration via online. ❖ Account Updates through the online portal. ❖ Customer Support via online.
FR-2	Meter Data Management	❖ Automated Data Collection transmit data through billing system. ❖ Data Validation and Accuracy. ❖ Historical Data Storage via online database.
FR-3	Billing Management	❖ Bill Generation to generate accurate bills based on the meter data, applying appropriate rates and billing periods. ❖ Payment Processing provide multiple payment options (e.g., online payment, bank transfer) and update customer balances upon successful transactions. ❖ Bill Delivery and Notifications to send bills to customers via email or through the online portal, with notifications for new bill availability.
FR-4	Data Analytics	❖ Consumption Patterns Analysis to analyze consumption patterns across customer segments to identify trends, peak usage periods, and potential water-saving opportunities. ❖ Revenue Analysis to analyze revenue data to gain insights into billing performance, outstanding balances, and revenue forecasts. ❖ Customer Behavior Analysis to analyze customer behavior and preferences based on usage patterns, demographics, and feedback to improve service offerings.
FR-5	Reporting	❖ Consumption Reports to generate consumption reports for individual customers or groups, showcasing usage trends, comparisons, and conservation tips. ❖ Financial Reports to generate financial reports, including revenue summaries, overdue payments, and billing statistics, for management and auditing purposes. ❖ Customer Insights Reports to generate reports that provide insights into customer

		demographics, satisfaction levels, and service utilization patterns.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution for Smart billing system for water suppliers.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	❖ The system should have a user-friendly interface that is easy to navigate and understand for both customers and system administrators. ❖ Clear and concise error messages should be provided to assist users in troubleshooting issues or input errors. ❖ The system should be accessible, accommodating users with different levels of technical expertise or disabilities.
NFR-2	**Security**	❖ The system should have robust security measures to protect customer data, billing information, and financial transactions from unauthorized access or breaches. ❖ User authentication and authorization mechanisms should be implemented to control access to sensitive information and system functionalities. ❖ Data encryption should be employed during data transmission and storage to maintain data confidentiality.
NFR-3	**Reliability**	❖ The system should have a high level of reliability to ensure uninterrupted billing operations. It should minimize downtime and be resilient to hardware or software failures. ❖ Meter data collection and storage should be reliable, with mechanisms in place to detect and handle data transmission errors or discrepancies. ❖ The system should have data backup and disaster recovery mechanisms to protect against data loss and ensure business continuity.
NFR-4	**Performance**	❖ The system should be able to handle a large volume of meter data and process billing calculations efficiently, ensuring minimal delay in generating bills. ❖ Response times for customer queries and interactions should be fast to provide a seamless user experience.

		❖ The system should be capable of scaling to accommodate an increasing number of customers and meters without compromising performance.
NFR-5	**Availability**	❖ The system should be highly available, ensuring that customers can access their billing information and perform necessary actions without significant disruptions. ❖ Redundancy and failover mechanisms should be in place to minimize downtime and ensure continuous operation even in the event of hardware or network failures. ❖ Scheduled maintenance and system updates should be performed during low usage periods to minimize impact on availability.
NFR-6	**Scalability**	❖ The system should be scalable to accommodate the growing number of customers, water meters, and data volume without compromising performance or functionality. ❖ It should be able to integrate with additional systems or modules in the future to support new features or expand functionality as required by the water supplier.