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

Date	12 May 2023
Team ID	NM2023TMID21221
Project Name	Project - Smart billing system for water suppliers

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	Registration through Form
FR-2	User Confirmation	Confirmation via Email
FR-3	User Booking	Request to book an order for water supply
FR-4	Tank Filling	When lorry is filling the water tank, the total time taken to fill the tank is monitored and updated into the database.
FR-5	Bill Display	The total time that was taken along with the pipe speed and motor capacity is used to mathematically calculate the total amount of water supplied. Along with lorry and motor charges the total bill amount is displayed to the user.
FR-6	Bill payment	The user is able to pay the bill amount through the RFID smart card and is also able to recharge the smart card whenever needed.
FR-7	Usage Statistics	The water usage statistics can be viewed by the user whenever needed. All orders, bills and recharges can also be viewed whenever needed.
FR-8	View and edit details	The user is allowed to view his profile, edit personal details.
FR-8	Logout	The user can also logout of their account and login whenever needed.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The application is really easy to use and interact with and it provides an easy water billing system and usage report in seconds.
NFR-2	**Security**	The data collected is secured and private. The usage report is unique to all users and is not made public. The user is only able to login after password

		verification and hence the account is accessible only by the user.
NFR-3	**Reliability**	The application is highly reliable with a secure database to store user data and a backend which processes the water usage of the user and the calculation of the water bill as well. The user is able to interact with a dynamic frontend website which displays the bill amount and water usage statistics as well. The application is reloaded in case of a system failure and obtains the data stored in the backend easily.
NFR-4	**Performance**	The application has a fast response time as the requests are handled quickly and sent to the frontend. Data insertion, updation and retrieval is done easily. Usage analysis is done simultaneously using python and hence the computed data is quickly sent to the frontend as well.
NFR-5	**Availability**	The requests sent to the backend are processed accurately and data retrieval is done accordingly as well. The system is ensured to work without any system failures as much as possible.
NFR-6	**Scalability**	The system is highly scalable. The water supplying system can be expanded to more regions and the database and processing servers can be scaled easily. As more and more users add on, the system infrastructure can be scaled to handle more users as well.