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Completed the project named as:

Phase 1

TECHNOLOGYPROJECTNAME : **USER REGISTERATION AND VALIDATION**

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Phase 1 – Problem Understanding & Requirements (Manual Notes – Expanded)

1. Problem Statement

In today's digital era, most applications require a user registration system as the first step toward secure access and personalized services. However, poorly designed registration systems often result in issues such as weak password policies, invalid email formats, duplicate registrations, and lack of real-time feedback during the sign-up process. These limitations can lead to security vulnerabilities, poor user experience, and data inconsistency.

Users often face frustration when forms allow invalid inputs or fail to clearly indicate errors. For example, entering an invalid email or mismatched passwords should be detected immediately on the frontend, but in many systems, such validation only occurs on the backend, leading to unnecessary server requests. Similarly, a lack of strong password enforcement increases the risk of account breaches. From the developer's perspective, failure to validate inputs before storing them in a database increases the likelihood of storing incorrect or insecure data.

To address these challenges, our project focuses on developing a User Registration Validation System that integrates frontend validation with backend verification through a Node.js REST API. The frontend (HTML, CSS, JavaScript) ensures real-time validation of inputs such as username length, email format, password strength, and password confirmation. The backend (Node.js with REST APIs) provides secure validation, duplicate checking, and encrypted password storage before committing data into the database.

This project aims to provide a robust, user-friendly, and secure registration workflow that not only improves the user experience but also ensures system reliability and data integrity. The outcome will be a modular, reusable registration component that can be integrated into larger applications, ensuring both usability and security from the very first interaction of the user with the system.

2. Users & Stakeholders

Any project should clearly define its users and stakeholders.
Users are the people who directly interact with the system, while stakeholders include both direct and indirect beneficiaries who gain value from the system.

Primary Users

1. New Users / Customers – Register and create accounts securely with proper validation.

2. Registered Users – Log in, update profiles, and reset passwords as needed.

3. Administrators – Monitor registrations, handle duplicate or suspicious accounts, and maintain data integrity.

Secondary Stakeholder

1. Developers – Reuse the REST API for other applications, ensuring modularity and scalability.

2. Organizations / Businesses – Maintain secure user directories and protect sensitive user data.

3. Educational Institutions – Implement student/teacher registration systems with strong validation to improve management processes.

Stakeholder Benefit Table

User/Stakeholder	Role	Benefit from API
New user	End User	Register with validation ensuring and onboarding
Registered user.	End User	Access services ,update profile ,and reset passwords securely.
Administrator	Admin	Monitor accounts.

Developer	Integrator	Reuse Node.js Rest API
Organization	Administrator	Maintain centralized and secure
Educational Institution	Admin/Support	manage students and staff registration

3. User Stories

1. User Registration

Story: As a user, I want to register with a username, email, and password so that I can create an account.

Acceptance: Must only accept valid email addresses, strong passwords (minimum 8 characters, including letters and numbers), and unique usernames.

2. User Login

Story: As a user, I want to log in using my email/username and password so that I can access my account.

Acceptance: Must only allow login with correct credentials and provide a session/token for authentication.

3.View Profile

Story: As a user, I want to view my profile details so that I can see the information I've registered.

Acceptance: Must return user details (username, email, registration date) securely in JSON format.

4.Update Profile

Story: As a user, I want to update my profile information so that I can correct or add new details.

Acceptance: Only allow updates for valid inputs, such as properly formatted email and unique username.

5.Delete Account

Story: As a user, I want to delete my account so that I can remove all my personal information from the system.

Acceptance: Must confirm deletion and remove all user data permanently

6.Password Reset

Story: As a user, I want to reset my password if I forget it so that I can regain access to my account. Acceptance: Must verify identity via email, allow password reset with valid new password, and notify the user

4. MVP Features

The Minimum Viable Product (MVP) of the User Registration with Validation project includes:

1. User Registration – Add a new user with username, email, and password.
2. User Login – Authenticate a user using email/username and password.
3. View Profile – Retrieve user details.
4. Update Profile – Modify existing username or email.
5. Delete Account – Remove a user account permanently.

Importance of MVP

1.Allows quick development of a working authentication system.
2.Provides immediate value to users for account creation and management.
3.Can be extended later with advanced features like password reset, token-based authentication, or role-based access.
4.Ensures a working prototype is available even in early stages.