Business Requirements Document (BRD)

Project Name: Armstrong Number Validation Service

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1. Project Overview

The goal of this project is to design and develop a service that validates whether a given number is an Armstrong number. An Armstrong number (also known as a narcissistic number) is an n-digit number that is equal to the sum of its digits each raised to the power n.

Example:

153 is an Armstrong number because:

1^3 + 5^3 + 3^3 = 153

2. Objectives

Create a user-friendly service (CLI or API) that accepts numeric input.

Validate if the given number is an Armstrong number.

Return a boolean result and optionally, the calculation breakdown.

Maintain logs of inputs and validation results for analytics.

3. Business Requirements

4. Functional Requirements

Input:

- Integer number (e.g., 370)

Output:

- Boolean result (e.g., `true`)

- Optional: Equation breakdown (e.g., `3^3 + 7^3 + 0^3 = 370`)

5. Non-Functional Requirements

6. Technical Flow Diagram

7. Sample Test Cases

8. Assumptions

All inputs are integers.

Negative numbers are considered invalid.

Input interface can be CLI or HTTP-based.

9. Out of Scope

- Batch processing of multiple numbers.

- UI-based front-end interface.

- Storing results in a database.