Product Mapping System

1. Overview of the System

The Product Mapping System is designed to assist in mapping product names provided by multiple suppliers to standardized product names used within an organization. The system allows users to manually input mappings for first-time entries and builds a dictionary for automatic matching based on user search queries. This tool helps automate the process of matching product names with their standard names, which can be difficult due to the variation in naming conventions.

2. Technologies Used

The system is built using the following technologies:

- Frontend: HTML, CSS, JavaScript (for creating the user interface and interacting with the backend)
- Backend: Node.js ,Express.js(for handling requests, managing data, and providing API endpoints)
- Database: In-memory data structure i.e. Inside Node.js Server(an object for storing mappings during development)
- Image Handling: The system includes basic image handling for product images (stored in the 'images' folder).

3. Features and Functionality

The key features and functionalities of the Product Mapping System are as follows:

1. Manual Mapping: Users can manually enter product names from suppliers and their corresponding standard names. The system allows for the creation of new mappings between supplier products and standard products.

2. Automatic Matching: The system supports search functionality, where users can type in a product name and the system will attempt to match it with the standard product names. Matches are displayed along with product images if available.

3. Image Display: For products that have matching images (based on their standard names), images are displayed in the search results.

4. Technical Details

1. Frontend Details:
   - The frontend consists of HTML for structure, CSS for styling, and JavaScript for functionality.
   - The frontend interacts with the backend through HTTP requests (using fetch API).
   - The search results are displayed dynamically, including product names and images if available.

2. Backend Details:
   - The backend is built using Node.js.
   - It listens for requests on specific routes, including POST for adding new mappings and GET for retrieving mappings and auto-matching results.
   - Data is stored temporarily in an in-memory JavaScript object (for simplicity). A more robust database solution could be integrated in the future.

3. File Structure:
   - public/: Contains the static assets such as the HTML file, CSS, JavaScript, and images.
   - server.js: The main backend file that handles incoming requests and provides API endpoints.
   - images/: Folder for storing product images.

5. Identified Cases Handled

1. No Mapping Found: When a search query does not match any existing mapping, the system displays a message stating 'No matches found.'

2. Multiple Matches: If multiple matches are found for a search query, the system currently displays only the first match. Future updates can include listing multiple matches.

3. Invalid or Empty Search: If a user searches with an empty query, the system does not send a request to the backend.

4. Invalid Data Submission: When adding new mappings, if any of the required fields are left empty, the system alerts the user to provide both a supplier name and a standard name.

6. How to Use the Software

To use the Product Mapping System, follow these steps:

1. Manual Mapping:
   - Enter the supplier product name in the 'Supplier Product Name' field.
   - Enter the standard product name in the 'Standard Product Name' field.
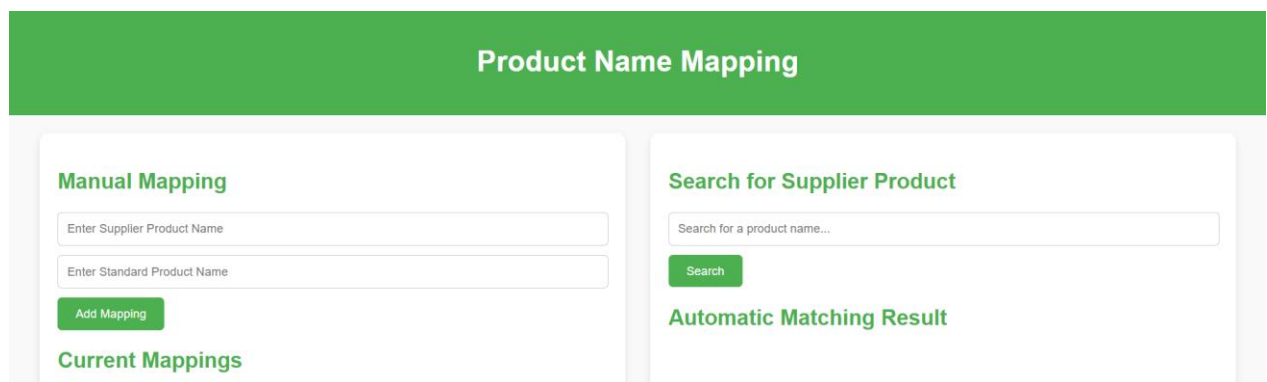
- Click 'Add Mapping' to save the mapping.

2. Search for Matches:
  - Enter a product name in the 'Search for Supplier Product' field.
  - Click 'Search' to see matching results based on the supplier's name.
  - If a match is found, it will be displayed along with an image (if available).

3. Viewing Mappings:
  - All the current mappings are displayed in the 'Current Mappings' section, showing the supplier name and its corresponding standard name.

7. Prototype Images

Image 1(Interface)

Manual Mapping

Enter Supplier Product Name

Enter Standard Product Name

Add Mapping

Current Mappings

A4 Paper 500sh → A4 paper

A4 → A4 paper

A4 Paper 500 → A4 paper

Image -2 Manual Mapping Result

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