Domain Brain Concept Overview

1. Overview

The Domain Brain is a specialized AI-powered HVAC matching system designed for professionals who need to replace package HVAC units. It supports model number parsing from any manufacturer and provides precise Daikin R32 replacements. The tool ensures all matches conform to Daikin's family, series, and configuration rules, and supports real-time editing, comparison, export, and learning features.

2. Input Methods

Users can start with:
- An existing model number (any brand), which the system parses into specs.
- Full manual specification input (equipment type, cooling capacity, voltage, heating, efficiency).
Users can override equipment type and edit any field before generating match results.

3. Matching Logic

The Domain Brain returns three Daikin R32 units:
- Direct Match: Closest match to original specs.
- Size Up: Next larger capacity.
- Size Down: Next smaller capacity.
All matches:
- Must belong to the same Daikin equipment series and family.
- Must conform to valid configurations from spec sheets.
- Must match allowable voltages (208-230/1/60, 208-230/3/60, 460/3/60, 575/3/60).

4. Nomenclature & Specification Tabs

Each replacement model is presented with two tabs:
- Tab 1: Nomenclature Breakdown (24-character model number, editable).
- Tab 2: Specification Sheet Data (dimensions, airflow, power, noise, etc., read-only).
Users can adjust nomenclature fields and rerun matching logic to generate updated results.

5. Projects & Unit Management

Users can create and manage up to 20 projects. Each project can store up to 10 replacement units.
- Each project must be named.
- Each unit saved to a project must also be uniquely named (e.g., 'Package Unit 1').
- Units and projects can be edited, exported, or shared.
- Projects include optional customer data, project notes, and per-unit notes.

6. Notes & PDF Export

Users can attach notes to both individual units and entire projects.
- Notes help document decisions, customer requests, and field constraints.
- Export generates a comprehensive, formatted PDF report including:
  - Project name and details

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  - Original inputs
  - Matchup tables (Direct, Up, Down)
  - Full nomenclature and spec data per unit
  - All notes

7. Self-Learning & Adaptation

The system improves over time by learning from:
- User corrections to parsed model numbers.
- Manual edits and confirmed matches.
- New spec sheet data updates.
It adapts to new manufacturer formats and expands its intelligence with each use, ensuring future-ready performance.

8. Standalone Decoder

In addition to full replacements, the Domain Brain can decode any manufacturer model number as a standalone task.
This is ideal for field techs or sales reps needing to understand unfamiliar models.
Parsed data includes capacity, type, voltage, efficiency, and inferred configurations.