

KnowB4YouGo - Final Product Requirements Document (Phase 3)

Author: Eoin O'Loughlin

Version: 3.0 (Final)

1. Product Overview (Updated)

KnowB4YouGo addresses a persistent frustration faced by college students and young professionals: finding current restaurant and bar deals is unnecessarily difficult. Deal information is scattered across multiple platforms—restaurant websites, social media pages, Yelp, Google Maps—and is frequently outdated or incomplete. Users waste time hunting for specials, only to arrive at venues and discover deals have ended or never existed.

Our target users are primarily college students (18-24) and young professionals (25-35) who want to maximize their limited budgets without sacrificing social experiences. The product serves budget-conscious individuals who actively seek dining discounts but lack a reliable, centralized source for real-time deal information.

KnowB4YouGo is a mobile-first web application that aggregates live restaurant and bar deals in a single, trustworthy interface. The current prototype demonstrates the core value proposition through a clean browsing experience, location-based deal discovery, and an AI-powered conversational search feature that allows users to find deals naturally (e.g., "happy hour near campus under \$10") rather than navigating complex filter systems.

2. Core Features & Status

Feature	Status	AI-Dependent
Home/Browse Page with deal grid	Implemented	No
Location selection (city/neighborhood)	Implemented	No
Deal detail view	Implemented	No
AI-powered natural language search	Implemented	Yes
Category filtering (Happy Hour, Food Specials, Student Discounts)	Implemented	No
Mobile-responsive design	Implemented	No
Save/Favorites functionality	Future	No

Feature	Status	AI-Dependent
Backend automated deal aggregation	Future	Yes
AI deal verification system	Future	Yes
User accounts and preferences	Future	No
Venue-submitted deal portal	Future	No

Notes on Implementation:

- The prototype uses sample deal data to demonstrate functionality; automated real-time scraping is scoped for future development.
- The AI search feature is fully functional, interpreting natural language queries and returning relevant results from the sample dataset.
- The deal verification badges shown in the UI represent the intended UX; automated verification pipelines remain a future enhancement.

3. AI Specification (Final)

AI Component: Natural Language Search

What the AI Does:

The AI interprets conversational search queries from users and returns relevant deal results. Instead of requiring users to manually select filters (cuisine type, price range, deal category), users can type natural queries like "cheap Mexican food near me" or "bars with student discounts downtown."

Inputs:

- User text query (free-form natural language)
- Current location context (selected city/neighborhood)

Process:

1. User query is sent to the Gemini API via Google AI Studio
2. The model extracts structured intent: cuisine type, deal type, location references, price sensitivity, time preferences
3. Extracted parameters are matched against the deal database

4. Results are ranked by relevance using semantic similarity to the original query
5. Ranked results are returned to the user with matching criteria highlighted

Outputs:

- Ordered list of deals matching the interpreted query
- Visual indication of which aspects matched (cuisine, deal type, location, price)
- Interpretation display showing how the query was understood (allowing users to refine if needed)

Model/Tool:

Google Gemini API (accessed through Google AI Studio)

Where in User Flow:

The AI search bar appears prominently on the home page. Users can either browse deals directly or use the search feature at any point. The AI processing happens on query submission, with results appearing within 1-2 seconds.

Constraints and Guardrails:

- Query length limited to 200 characters to prevent abuse
 - Rate limiting: maximum 20 searches per user session
 - Fallback to keyword matching if API call fails
 - Interpretation shown to user with option to clarify or refine
 - No personal data stored beyond the current session
-

4. Technical Architecture (Reality Check)

Frontend

- HTML5, CSS3, JavaScript (vanilla JS with minimal dependencies)
- Mobile-first responsive design using CSS Flexbox/Grid
- Hosted on GitHub Pages (static site)

AI Integration

- Google AI Studio / Gemini API for natural language processing

- API calls made client-side with appropriate rate limiting
- Prompt engineering handles query interpretation and intent extraction

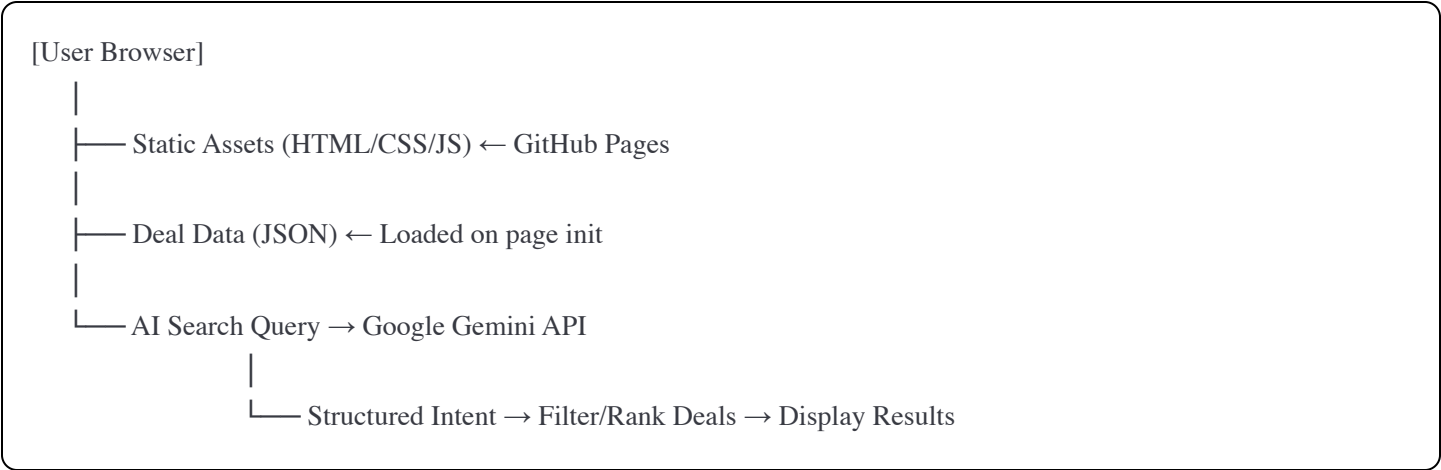
Data Layer

- Sample deal data stored in JSON format (prototype phase)
- Future: Firebase Firestore or Airtable for production database
- Deal schema includes: venue_id, deal_text, category, start_time, end_time, verification_status, confidence_score, last_updated

External Services

- Google Gemini API (AI processing)
- Google Fonts (typography)
- No other external dependencies in current prototype

Architecture Diagram (Simplified)



5. Prompting & Iteration Summary

Key Development Prompts

Prompt 1 - Initial Landing Page:

"Generate a simple responsive landing page for KnowB4YouGo with: Header with logo and location selector, Search bar with placeholder 'Find deals near you...', Grid of deal cards showing venue name, deal

description, and distance, Mobile-friendly styling. Use modern CSS with flexbox/grid. Include sample deal data."

This prompt established the core visual structure. Iteration focused on refining the card layout and improving mobile responsiveness.

Prompt 2 - AI Search Integration:

"Extract search intent from this user query: '[USER_QUERY]'. Return a JSON object with: cuisine_type, deal_type, location, max_price, time_preference. If any field is not mentioned, return null."

This prompt template powers the production search feature. Early versions returned inconsistent JSON formatting; iterations added explicit format examples and handling for edge cases.

Prompt 3 - Deal Matching Logic:

"Given a user's search intent and a list of available deals, rank the deals by relevance. Consider partial matches and semantic similarity. Return the top 10 results with a relevance score."

This prompt evolved significantly. Initial versions produced poor rankings for ambiguous queries. Adding explicit scoring criteria and examples of partial matches improved result quality.

Prompt 4 - UI Refinement:

"Create HTML/CSS/JS for a deal search interface where users can: Enter natural language queries in a search bar, See results displayed as cards with venue info and deal details, Filter by category (All, Happy Hour, Food Specials, Student Discounts). Make it responsive and visually clean."

This prompt helped consolidate the browsing and search experiences into a cohesive interface.

What I Learned About Prompt Design

- Explicit output format specifications (JSON schema, field names) dramatically improve consistency
 - Including 2-3 examples of desired input/output pairs in prompts yields better results than abstract descriptions
 - Breaking complex tasks into sequential prompts (extract intent → match deals → rank results) works better than single monolithic prompts
 - Iterative refinement is essential — first-draft prompts rarely produce production-quality output
-

6. UX & Limitations

Intended User Journey

1. User opens KnowB4YouGo on their phone or laptop
2. App detects or asks for location (city/neighborhood)
3. User sees current deals nearby, sorted by relevance
4. User can browse by scrolling or use AI search for specific needs
5. User types natural query: "taco Tuesday deals downtown"
6. AI interprets query, displays understanding, shows matching deals
7. User taps a deal card to see full details (venue, hours, restrictions)
8. User makes informed decision about where to go

Known Limitations ("Janky Bits")

- **Sample data only:** Current prototype uses static sample deals; real-time aggregation not yet implemented
- **Limited location support:** Only South Bend/Notre Dame area represented in sample data
- **No user accounts:** Favorites and preferences don't persist between sessions
- **AI interpretation edge cases:** Highly ambiguous queries may produce unexpected results; shown interpretation helps but doesn't fully solve this
- **No deal verification:** Verification badges are illustrative; automated verification pipeline is future work
- **Desktop-first testing:** While responsive, mobile experience may have undiscovered issues

Ethical and Trust Limitations

- **Users should not rely on this tool for:** Confirming deal validity before traveling significant distances; always call ahead for high-stakes plans
- **AI may misinterpret:** Unusual phrasing, slang, or highly specific requests; the interpretation display exists to surface these issues
- **Data freshness:** Until real-time aggregation is implemented, deal information may not reflect current venue offerings
- **No venue accountability:** We display deal information but cannot guarantee venues honor their posted specials

7. Future Roadmap

If development continued, the following priorities would guide the next phases:

1. **Automated Deal Aggregation Pipeline** - Build web scraping infrastructure to pull deal information from restaurant websites, Facebook pages, and Instagram posts automatically. This is essential for scaling beyond sample data.
2. **AI Verification System** - Implement the planned confidence scoring and cross-reference verification to automatically flag potentially outdated or inaccurate deals.
3. **User Accounts & Personalization** - Allow users to create accounts, save favorite venues, and receive personalized recommendations based on past behavior.
4. **Geographic Expansion** - Extend coverage beyond South Bend to other college towns (Ann Arbor, Bloomington, Madison) with localized deal databases.
5. **Venue Dashboard** - Create a portal for restaurant owners to submit and manage their own deals, improving data accuracy and creating a potential monetization path.

Safety and Evaluation Work:

- Implement systematic evaluation of AI search quality using test queries and human ratings
 - Add user feedback mechanisms to flag inaccurate deals or AI misinterpretations
 - Develop content moderation for user-generated content (reviews, deal reports)
 - Conduct bias auditing on search results to ensure fair representation of venues
-

Appendix: AI Tools Used in Document Creation

This PRD was created with assistance from Claude (Anthropic), used for:

- Structuring document sections based on Phase 3 requirements
- Refining language for clarity and conciseness
- Ensuring consistency with Phase 1 PRD terminology and concepts

Human editing focused on: accuracy verification, ensuring alignment with actual prototype state, and adding project-specific context that AI could not infer.