نبهان

Transforming Raw Data into intelligent Visual Stories

THE PROBLEM

(THE "WHY")

Strategic Decision Makers & Procurement Officers: Individuals in Saudi companies who need to track thousands of daily opportunities on the "Etimad" platform.

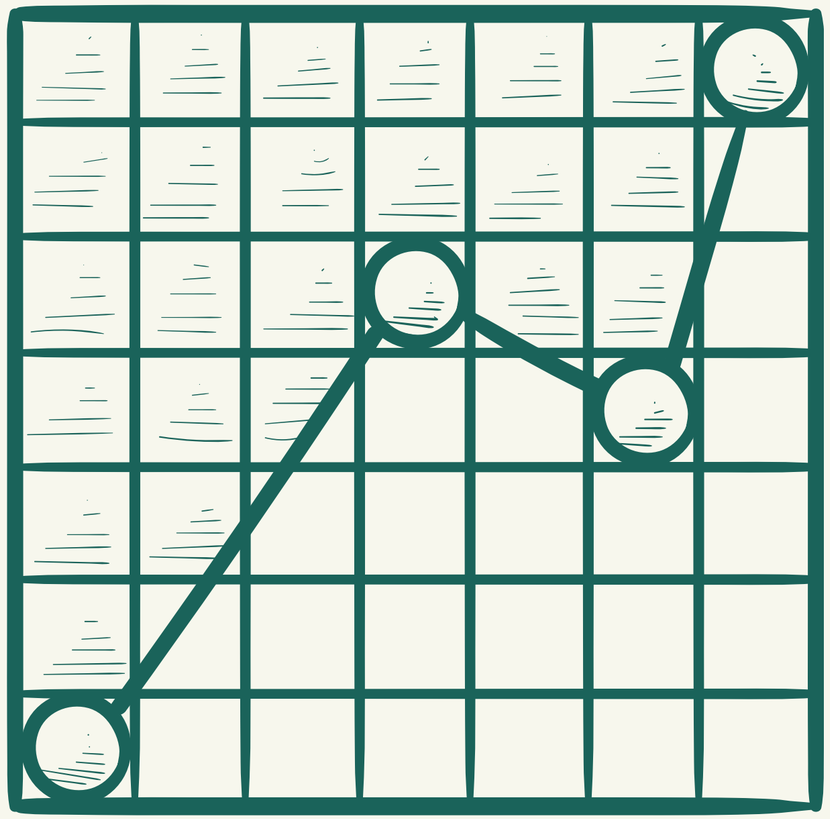
The Pain: The "Cost" of Manual Tracking
Information Overload: Managing thousands of new daily tenders manually is slow, exhausting, and leads to missing critical deadlines.

Current Solution: How do they do it now?
Manual Search & Filtering: Spending hours scrolling through the "Etimad" portal using basic filters.

SOLUTION

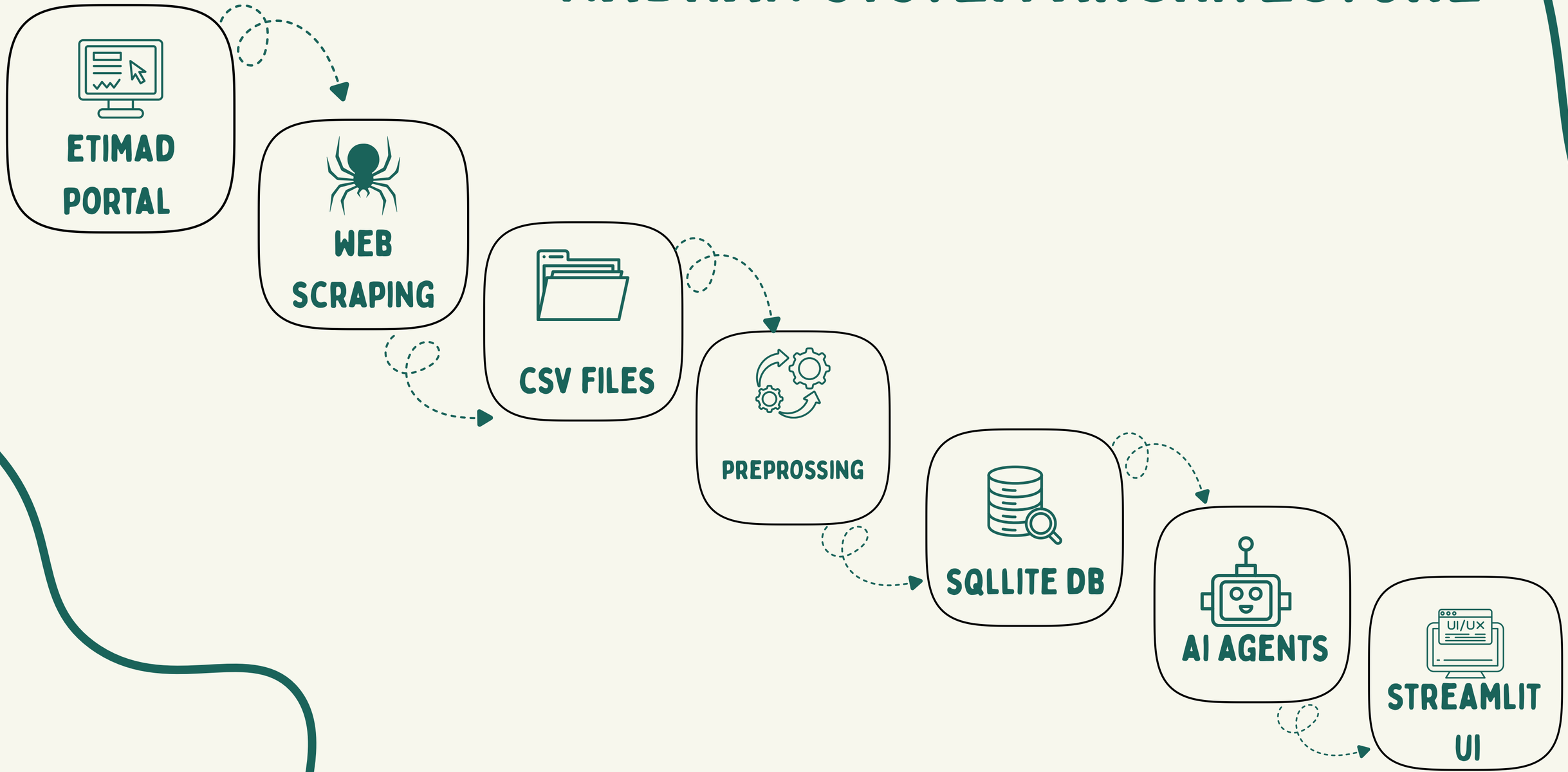
We built an AI-Driven InsightAgent that transforms complex Etimad portal data into clear strategic insights. Using an Agentic SQL approach, it enables decision-makers to perform deep data analysis through simple natural language questions, eliminating the need for technical or programming skills

KEY FEATURES



- Multi-Agent Orchestration System
- End-to-End Data Pipeline
- Arabic-First Insight Engine

NADHAN SYSTEM ARCHITECTURE

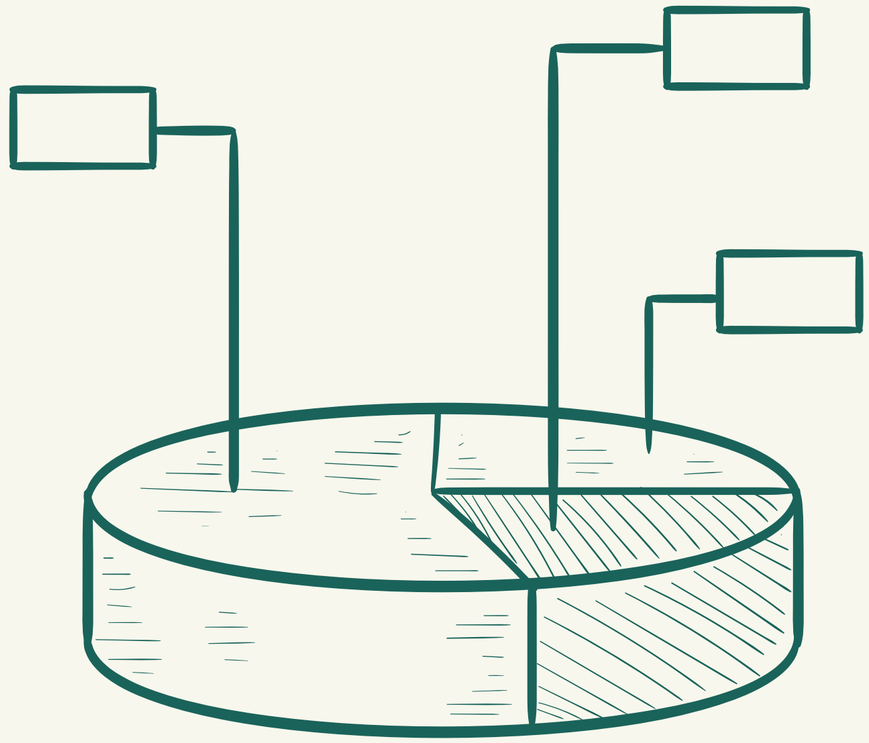


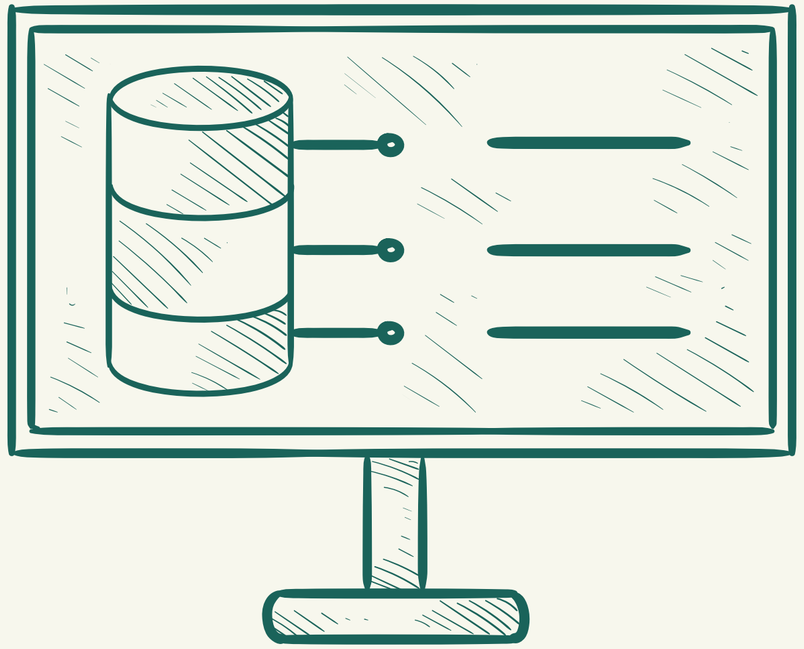
THE "AGENTIC" LOGIC

THE "BRAIN"

(REASONING ENGINE)

- **Model:** LLaMA-3.3-70B via Groq for high-speed inference.
- **Why Groq**? We chose it for its high-speed inference (1.2s latency), allowing the "Brain" to process complex Arabic queries and generate SQL in real-time without delays.

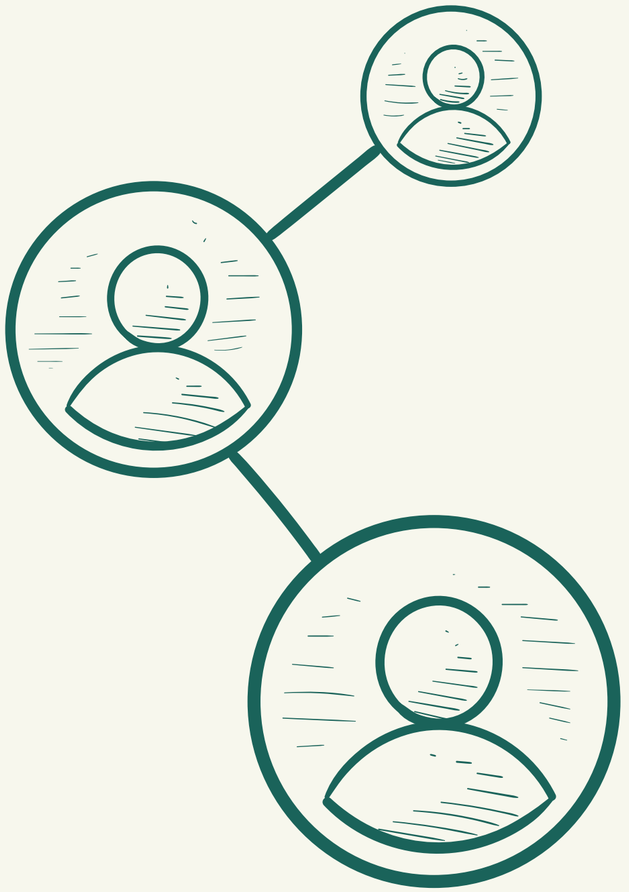




AGENT TOOLS

(THE SKILL-SET)

- **is_in_scope():** The Gatekeeper. Scans for 20+ procurement keywords to filter out-of-scope queries.
- **generate_sql():** The Translator. Converts Arabic → SQL with complex JOINs and schema awareness.
- **execute_sql():** The Bridge. Safely interfaces with SQLite to fetch raw DataFrames.
- **generate_insights():** The Analyst. Processes numbers into Arabic summaries and selects the best Plotly chart.



DECISION PROCESS

(LOGIC FLOW)

- **User Question** → [Scope Check] → NO → Return: "Out of Scope"

|

YES

▼

- **[SQL Generation]** → [Validation] → FAIL → Retry (up to 3x)

|

SUCCESS

▼

- **[Data Execution]** → [Insights Agent] → Output: (Table + Text + Chart)

DEMO


Nabahan Pro | نبهان - Streamlit
تفاصيل المنافسة
https://nabhan-project.streamlit.app
Chat
كيفية استخدام المساعد الذي
اسال نبهان اي سؤال حول البيانات، مثل: "ما هي اكثر الانشطة طلبا؟" او "كم عدد المناقصات في الرياض؟" سيقوم النظام باستخراج البيانات وتقديم التحليلات المناسبة.
استعلم عن المنافسات الحكومية
2,414
اجمالي المنافسات
37,764
المشاريع المستقبلية
1,681
الجهات الحكومية
19
الانشطة الاساسية
احصائيات السوق العامة
انشطة المنافسات
طبيعة المشاريع
الأنشطة الطبية
تجارة قطع الغيار الجديدة
تجارة مواد البناء والأدوات الكهربائية والد
التشغيل والصيانة والنظافة للمنشآت -
تجارة الأدوات والآلات والأجهزة
تقنية المعلومات
مقاولات عامة للمباني (الانشاء، الإصلاح،
تجارة الكماليات
اطرح سؤالك هنا...

EVALUATION & METRICS

HOW DO WE KNOW IT WORKS?

Challenges

Solutions

- **Data Noise:** Scraped data from the "Etimad" portal was inconsistent, with merged text in the location field (e.g., 'الرياضالرياض').
- **Schema Mapping:** Ensuring the AI correctly maps Arabic user queries to the English column names we defined in the cleaned CSV/Database.

- **Data Engineering:** Performed extensive cleaning on CSV files and standardized region names to ensure 100% query accuracy.
- **Self-Correction Logic:** Implemented a "Retry Logic" with fuzzy search ($LIKE$ $\%$) to handle naming variations and empty results.

Future Work

1. **User Personalization**

Adding secure logins to save history and provide AI-driven business recommendations.

2. **Real-time Alerts & API Integration**

Transitioning to live APIs for instant data updates and automated tender notifications.

3. **Data Ecosystem Expansion**

Scaling "Nabhan" to include diverse procurement data beyond the Etimad

4. **Multi-lingual Support**

Enhancing NLP to support multiple languages for global investor

Conclusion

Nabahan is more than just a search tool; it is an intelligent engine utilizing Agentic AI to convert natural language into complex SQL queries with high precision. We developed this agent to break the 'Big Data' barrier, transforming fragmented numbers into immediate strategic insights. With Nabahan, we don’t just save time; we create insight in the era of Vision 2030."