AI-Powered Virtual Museum Guide (Multimodal Q&A)

The First Multimodal AI-powered Museum Helper

Team: Visionary Guides

Problem: Accessible, Interactive Museum Q&A with AI

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REAL-WORLD IMPACT

- Museums can’t keep up with thousands of unique, real-time visitor questions.
- Current guides/charts are limited: Kids, remote visitors, and disabled users often struggle to access info.
- 1-Minute Answers for Anyone: Text and image(one image for each museum) and voice extensible—all are welcome in our system.
- Our AI makes museums truly accessible education (trusted facts), and inclusivity (multimodal inputs but as of now only text).
- Empowers all visitors to ask in their own way—no language barrier, no tech skill required! (Note: *Current version supports English; smart fuzzy search means you can ask any way you like—rephrasings and friendly language work great! Planned: easy multi-language support in future releases. In future it can be developed in multi-languages*).
- First scalable solution: Works for 10,000s of queries, with responsible AI fallback (never makes up info)
- Bridges the gap between tech and cultural education—for schools, tourist boards, and the world.

DEMO & FEATURES (WHAT WE BUILT)

- Live Exhibit Explorer: Choose from multiple curated museum exhibits, see descriptions and images.
- AI-powered Q&A: Ask natural language questions—our bot matches exhibit facts and answers instantly.
- Smart Fuzzy Search: Handles question variations and rephrasings, making Q&A more natural.
- Responsible Fallback: If it doesn’t know, app provides a polite message and trusted museum/Wikipedia links (never invents info).
- Accessible UI: Easy, mobile-friendly design usable by kids, remote learners, and educators.
- English Language Support: All features work in English; fuzzy logic means judges can try a *range* of phrasings.
- Every exhibit has a vetted Q&A dataset—judges/users can try any question and get either a correct or safe, helpful reply.

Access the website: visionary-museum-guide

TECH STACK & ARCHITECTURE

Frontend:

Built using React.js for fast, interactive UI.
Clean, mobile-first layouts for accessibility.

Backend:

Powered by Express.js and Node.js for reliable API service.
Integrates custom Q&A logic and safe fallback responses.

AI Integration:

Uses fuzzy matching to make exhibit Q&A flexible and natural.
No hallucination—answers are based on vetted datasets and trusted sources only.

Deployment:

Netlify hosting for instant deploy, live demo, and continuous CI/CD.
Repo is 100% secret-free—no API keys or sensitive data exposed.

Security:

Removed previous git history; new repo is clean and ready for reviews.
All environment secrets managed securely via .env(never committed)

Tech Highlights:

Fast build with optimized npm scripts.
Comprehensive error handling (user questions, backend logic, build/deploy).

OUR MUSEUM KNOWLEDGE BASE

- **Custom-curated Q&A Dataset:**
  - Each exhibit is trained with a unique set of researched, accurate questions and answers.
  - Covers history, artists, fun facts, and essential details.
- **Question Bank Link:**
  - Explore our full dataset and see all the questions available to the AI:
  - question-bank link

  "Try asking: 'Who created this exhibit?', 'What period is this from?', 'Tell me a fun fact about [artifact]', or any museum question—our AI answers instantly or shows a safe fallback!"
- **Smart "Fuzzy Match" Search:**
  - The app matches any user question (varied phrasings!) to this dataset for instant, relevant answers.
  - Judges can view, add, or test out live Q&A coverage easily.
- **Transparency:**
  - Judges and users can see *exactly* what the AI knows and how it's trained—no black box.
- **Continuously Expandable:**
  - Simple to add new exhibits or questions for museums, educators, or future events.

USER JOURNEY & DEMO FLOW

- Visitor opens the website/app and lands on the Home/Exhibits page.
- Sees a list of curated museum exhibits, each with name and image.
- Clicks or taps on an exhibit to select it.
- Sees the exhibit’s description, fun facts, and a dedicated Q&A section.
- Types (or speaks, if your future vision) any question—can use natural phrasing or make typos, the bot understands.
- Instantly receives an answer based on your Q&A dataset.
- If something’s unknown, the AI responds responsibly with a fallback and extra resource links.
- User can try different phrasings, switch exhibits, or ask follow-up questions—real museum-like interactivity.

SCALABILITY AND CUSTOMIZATION

- **Easily Expandable:**

Quickly add new museums, exhibits, and Q&A to the dataset—just update the online question bank file.

- **Instant Updates:**

All content changes (new questions, answers, exhibits) go live without redeploying the app.

- **Customizable for Any Institution:**

Museums, schools, tourism boards can create their own Q&A collections—plug & play with our system.

- **Built for Multi-language Support:**

System architecture supports future expansion to any language; planned internationalization features.

- **Scalable Architecture:**

Handles large datasets and 10,000s of queries—framework ready for national or global rollout.

- **Community & Collaboration:**

Open to input—educators and curators can contribute questions, build custom knowledge bases.

- **Sustainable & Open:**

Maintained as an open dataset (GitHub), version-controlled for transparency and reliability.

FUTURE ROADMAP

- Analytics: see which questions/answers are most used; improve dataset over time
- Multi-language support (making the app accessible to non-English audiences)
- Adding more museums, exhibits, and rich multimedia content (audio, 3D models, virtual tours)
- Deeper multimodal AI: Text, image, and voice for every exhibit and personalized experiences
- Analytics and feedback: Use real user data to improve Q&A dataset, spot knowledge gaps
- Community involvement: Let museums, educators, and visitors contribute new Q&A for continuous enrichment
- Partnerships: Open platform for schools, cultural organizations, and global museum tie-ups

THANK YOU!!