

RADPAIR Full Stack Engineer Assessment

Voice-Activated Chatbot Web Application

Objective: Create a basic web application featuring a voice-activated chatbot. This chatbot should use a large language model (LLM) and a speech-to-text and text-to-speech engine of your choice. The web application should allow users to communicate verbally with the bot and receive spoken responses.

Specifications:

1. Voice Activation:

- Implement speech-to-text functionality for user input, allowing the user to communicate with the bot by speaking.
- Implement text-to-speech for the bot's responses so that the user can hear replies.

2. Backend Logic:

- Integrate an LLM (e.g., OpenAI, Hugging Face, or other open-source models) for generating responses based on user input.
- Use a cloud-based or local speech engine of your choice for speech recognition and synthesis.

3. Web Interface:

- Design a UI that effectively supports a voice-interactive experience. The design and layout are up to you but should prioritize usability and a smooth conversational flow.

4. Use of AI Tools:

- We encourage you to leverage AI tools to support or enhance your development process, whether in coding, debugging, UI design, or project organization. Be ready to explain how you used AI tools to streamline or enhance your work, and how this contributed to the final product.

5. Technical Requirements:

- Use any web framework (e.g., Flask, Django, Node.js) and front-end technology (React, Vue, or Vanilla JavaScript) of your choice.
- Ensure compatibility across common web browsers.
- The code should be modular, maintainable, and well-documented.

6. Additional Considerations (Optional):

- Implement error handling (e.g., if the speech engine fails to recognize the input).
- Consider caching responses or managing user sessions for continuity.

Deliverables:

- A link to a GitHub repository with your code.
- A brief README explaining your tech stack, setup instructions, and any libraries used.
- Optional: a short video demo showing the app in action.

Evaluation Criteria:

- Completeness of the voice-activated functionality.
- Quality of the interface and user experience.
- Code organization and readability.
- Documentation and ease of setup.

Deadline: Thursday, October 31 at 4pm CST