

AI-Powered Speech Mock Interviews

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Abstract:

A practice session in which an individual imitates a real job interview scenario is called a mock interview. The goal is to assist the candidate in getting ready for the interview by having them practice answers to frequently asked questions, enhancing their communication abilities, and providing feedback on areas in which they can still improve. Our goal is to create an AI based mock interview web application. An AI-based mock interview is a practice session in which technology mimics real-world questions and feedback from a job interview to assist candidates in getting ready for their actual interviews. The technology used in mock interviews to transcribe spoken words from the interviewer and the interviewee in real-time is called speech-to-speech recognition. This allows for analysis and performance feedback on communication skills. In AI-based mock interviews, speech-to-speech recognition assist in transcribing spoken words, analyzing language patterns, and providing feedback on performance and communication skills. This allows interviewees to practice and improve their skills more effectively.

Keywords: *Mock interview, speech-to-speech recognition, performance feedback*

1.Introduction

The most important step in the hiring process is the interview phase. It aids recruiters in determining which candidates are most qualified for a position and help the candidate in determining whether or not the job is a good fit for them. An interview typically lasts between 45 and 90 minutes.

A structured practice session where participants imitate a real-life job interview with an AI-based program or a human interviewer is called a mock interview. It acts as a practice tool for job seekers, providing them with a safe space to hone their interviewing techniques. Participants usually research the company, go over sample interview questions, and practice answers in advance of the mock interview. The interviewer poses a series of questions about the interviewee's background, abilities, and experiences throughout the simulation.

In answering each question, the interviewee seeks to demonstrate their qualifications and fit for the role. Following every response, there is feedback that offers helpful critiques and recommendations for advancement. People are able to pinpoint their areas of improvement and concentrate on their interviewing skills. Practice sessions help participants become more confident, less nervous, and perform better, which increases their chances of succeeding in actual job interviews.

In AI-based simulated interviews, speech-to-speech recognition technology allows for the real-time transcription of both the interviewer's and the interviewee's spoken words. Using natural language processing (NLP) techniques, the AI system skilfully transcribes spoken English into text as the discussion progresses, examining linguistic trends and substance. Based on this analysis, constructive criticism specific to the interviewee's performance is created, along with recommendations for strengthening communication abilities and resolving any shortcomings found.

Speech-to-speech recognition helps people improve their interviewing skills, communicate more effectively, and become more prepared for actual job interviews by providing them with individualized feedback and direction during the mock interview process. Artificial intelligence, or AI, is a word used to explain the resemblance of human intelligence in machines that have been designed to think and behave like people. AI can be used for offering simulated interview experiences in the context of practising interviews or interviews for employment.

Artificial intelligence (AI)- driven mock interview systems utilise algorithms to imitate interview situations, present customised questions depending on job roles or industries, assess responses, and provide feedback on a range of factors, including body language, communication style, and contents. Candidates looking to improve their interviewing abilities can benefit from a more individualised and efficient learning experience with these programmes.

This application uses AWS Polly API key-based speech-to-speech recognition technology in mock interview. With real-time speech analysis and transcription, this novel method seeks to improve the efficacy of simulated mock interviews. Our solution transcribes the interviewer and interviewee dialogue precisely by utilizing AWS Polly's sophisticated capabilities. This allows for smooth communication between the parties during the mock interview process. We can use natural language processing algorithms to analyze linguistic patterns and content in-depth thanks to the inclusion of the AWS Polly and Open API key. With the use of this technology, people may now receive tailored feedback and evaluations on how they performed during interviews, which will ultimately help them get ready for actual job interviews. We show through our research how effective it is to use the AWS Polly and Open API key for speech-to-speech recognition in order to enhance the overall quality and impact of AI-based mock interview experiences.

An AI based mock interview web app that customizes interview scenarios based on users' desired jobs is necessary to ensure focused practice as traditional mock interviews might not be appropriate for certain job roles or industries. Additionally, by repeatedly practicing in a simulated setting, the app fosters a low-

pressure environment that aids users in reducing anxiety and developing confidence.

AI algorithms support adaptive learning by adjusting to individual needs and providing focused exercises that address a range of interviewing strengths and weaknesses. Through technological integration on the well-known Android platform, the application's accessibility and convenience aim to democratize interview preparation and empower users in their job-seeking journey.

2. Problem Statement

A lot of job searchers experience nervousness during interviews and inadequate preparation, which can result in lost opportunities and lowered self-confidence in the job market. Candidates' capacity to effectively enhance their interview abilities is restricted by the lack of real-time evaluation and tailored feedback found in traditional techniques of interview practice. Furthermore, there is still a lack of accessibility to a variety of interview settings and resources that are customized for each individual. In order to address these issues, the project's goal is to create and launch an AI-powered online application for mock interviews that provides real-time evaluation, customized interview scenarios, and individualized feedback. Through an intensive and customized interview training program, the application aims to equip job seekers with the abilities, self-assurance, and preparedness required to excel in actual job interviews.

2.1 Proposed System

The suggested technique for an AI-based mock interview web application that uses open API keys and AWS Polly for speech-to-speech recognition takes a multipronged approach to give customers a thorough and efficient platform for interview practice. The integration of AWS Polly, a potent service that facilitates the real-time transcription of spoken words into text, is the foundation of the system. During simulated interviews, this integration enables precise and effective speech recognition, recording both the interviewer's questions and the interviewee's answers.

Furthermore, the web application's usefulness is further improved by the use of open API keys. The system has access to a large database of interview questions that are suited for different professions, industries, and degrees of experience thanks to these

open APIs. This guarantees that users will practice with pertinent and difficult questions throughout their mock interviews. Furthermore, real-time feedback systems, performance statistics, and customized coaching based on user choices and performance indicators can all be integrated with open APIs.

The web application's architecture consists of multiple essential elements that collaborate to provide a smooth user experience. Users have an easy-to-use platform to select interview scenarios, start mock interviews, and access resources thanks to the frontend interface. In addition to handling authentication and coordinating the logic and processing of user requests, the backend server also communicates with other APIs, such as AWS Polly and open API keys. Spoken utterances are transcribed by AWS Polly, and interview questions and other pertinent data sources can be accessed with open API credentials.

The AI-based mock interview online application provides an abundance of functionalities to assist users in their interview preparation process. Users can choose from a range of interview scenarios and parameters to tailor mock interviews to their own needs. Real-time transcription of the dialog by AWS Polly during the mock interview allows the system to give instant feedback on interview performance, response clarity, and communication skills. By providing a wide range of interview questions, permitting customized feedback based on performance indicators, and enabling extra features like resume processing and personality evaluation tools, open APIs expand the potential of the application.

To sum up, the suggested technique for an AI-based mock interview web application that uses open API keys and AWS Polly for speech-to-speech recognition is a creative and thorough way to get ready for an interview. Through the use of cutting-edge speech recognition technology and open APIs, the system enables users to improve their interview techniques, boost their self-assurance, and ultimately elevate their prospects of success during actual job interviews.

3. Methodology

Frontend: HTML, CSS, JavaScript (React)

HTML (Hyper Text Markup Language):

The application's web pages' layout and structure are specified by HTML. It has components like lists, buttons, forms, headers, and paragraphs, all of which are necessary for arranging and displaying content for users.

CSS (Cascading Style Sheets):

HTML elements on web pages can have their appearance styled and customized using CSS. The process involves specifying hues, typefaces, dimensions, margins, padding, borders, and many visual attributes to produce a visually captivating and coherent user interface.

JavaScript:

Users can interact with the program in real-time by using JavaScript to add dynamic behaviour and interaction to the web pages. It entails managing user input, reacting to events (such clicks and keystrokes), and dynamically changing content without forcing the website to reload.

Backend: Node.js

The AI-based mock interview web application uses Node.js as its backend technology to manage server-side logic, provide APIs, interface with AI services like AWS Polly, facilitate real-time communication, guarantee scalability, and make use of middleware for additional functionality.

AWS Polly:

The AI-powered mock interview web application incorporates AWS Polly, which transforms text-based content into spoken voice. This improves user experience by dynamically producing realistic speech in real-time.

By transforming text into realistic-sounding voice, AWS Polly enhances user engagement and scalability for simulated interviews. It ensures dependable performance by providing customized voices and languages.

Open API key:

The project makes use of an open API key to allow interaction with third-party APIs and services, thus improving the functionality of the AI-based mock interview web application. This improves the application's functionality and offers a more complete user experience by granting access to databases of interview questions, extra preparation materials, and interaction with analysis tools.

3.1 System Design

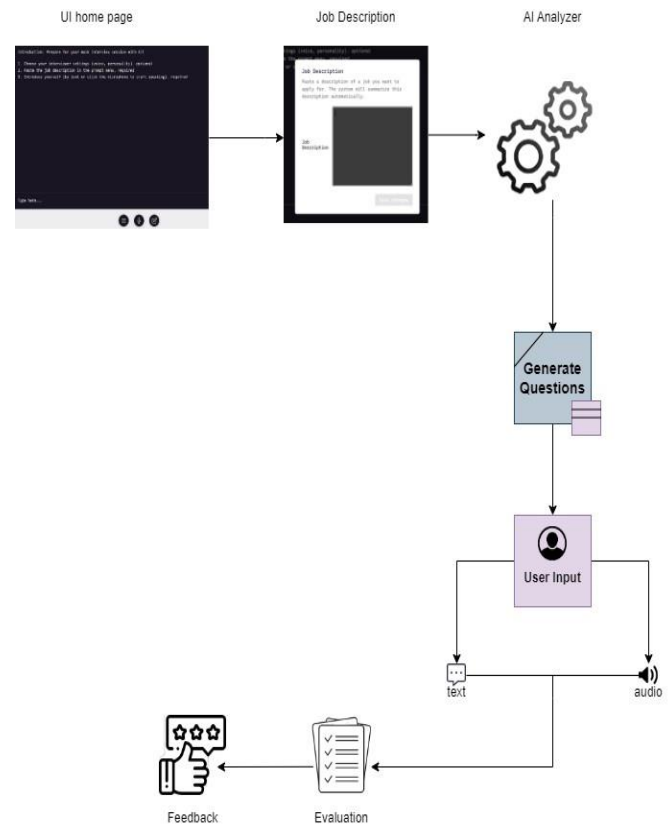


Fig 1: Workflow of Mock Interview

4. Implementation

A user-friendly experience for job searchers practicing interviews is given top priority in the design of the home page. It has a concise value proposition and three simple actions to get you started: paste the correct job description, personalise user interviewer (optional), and introduce yourself by text or microphone. To make interview practice feel approachable and productive, the design should have a pleasing visual appeal and utilise succinct language. (Refer 2)

In order to mimic actual interviews, mock interviews present user with a variety of question kinds. These can include your technical job expertise, past experiences (behavioural), potential fit with the corporate culture, and situational and cultural fit. Furthermore, the manner in which the interviewer conducts themselves friendly, stiff, difficult, etc., can reveal a lot about their personality. You can effectively prepare focused responses and showcase your abilities during an actual interview by being aware of these various components. (Refer 2.1)

Mock interviews provide user with a range of question types that replicate real interviews. These may include user's proficiency with technical tasks, your prior behavioural experiences, your probable fit with the company's culture, and the situational and cultural fit. Furthermore, a lot about the interviewer's personality can be inferred from the way they carry themselves friendly, stiff, demanding, etc. Knowing these different components can help you prepare targeted responses and demonstrate your skills during the real interview. (Refer 2.2)

User will upload the job description for the position which the user shas always wanted in order to get ready for the interview. After that, a perceptive AI will delve deeply into it and identify the essential abilities, background, and credentials they seek. User may even be able to construct a profile on certain applications using your own qualifications. This provides the AI with a more comprehensive image and enables it to customise the simulated interview to precisely match your qualifications with the job specifications. The actual interview is a fictitious back-and-forth.

After a formal introduction, the AI interviewer will ask user a series of questions that are tailored to the job description. These can include user's prior experiences using the necessary abilities, user approach to problem-solving, or even how user would manage hypothetical circumstances that are pertinent to the position. User can type or speak response, and the AI will act as your coach after each one. It will evaluate the substance of user's response to make sure it is accurate and effectively displays user's skills. When you give a spoken response, it may even evaluate user delivery, focusing on your excitement, assurance, and clarity. In addition to highlighting your flaws, the AI will provide insightful recommendations and pointers to help user to come out as a more confident interviewee. (Refer 2.3)

techniques. This software creates realistic interview scenarios with a range of question kinds, including behavioural-based questions, hypothetical circumstances, and questions directly related to the necessary skills by analysing job descriptions. Users get immediate feedback on the content and delivery of their answers. This makes it possible to make specific progress in areas like effective communication, zeal, and clarity. Interview anxiety can be reduced and answers can be improved before to the actual interview by having the opportunity to practise frequently in a secure and encouraging setting. All things considered, AI mock interviews offer job searchers a useful and practical tool to greatly increase their chances of getting their ideal position.

AI simulated interviews are an effective tool for job seekers to improve their confidence and interviewing

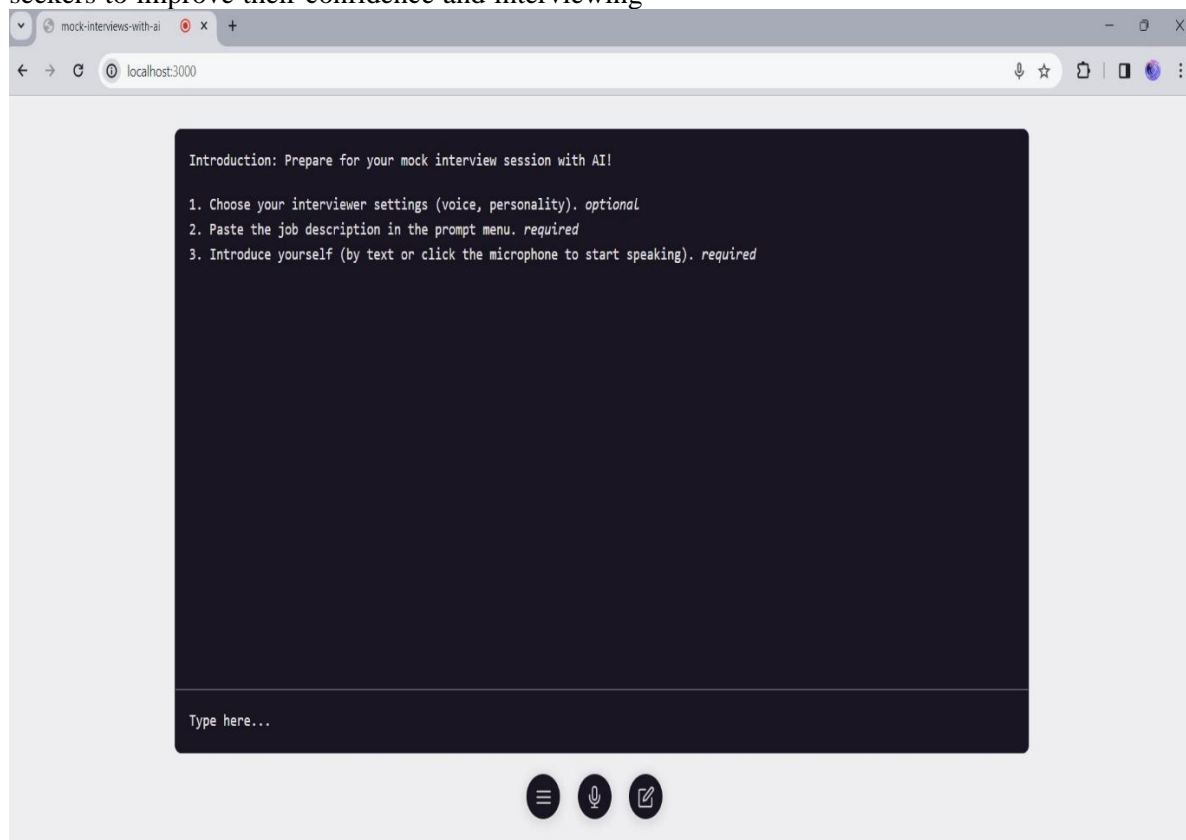


Fig 2: UI home page

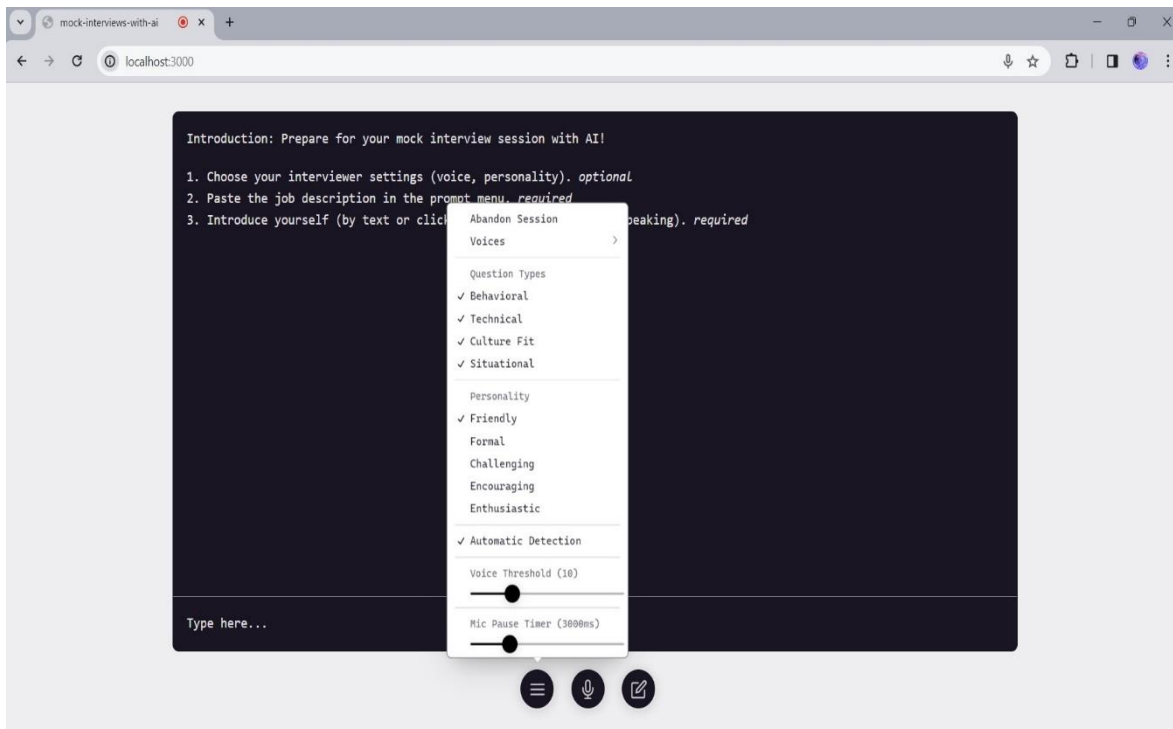


Fig 2.1 Question Analytic Framework

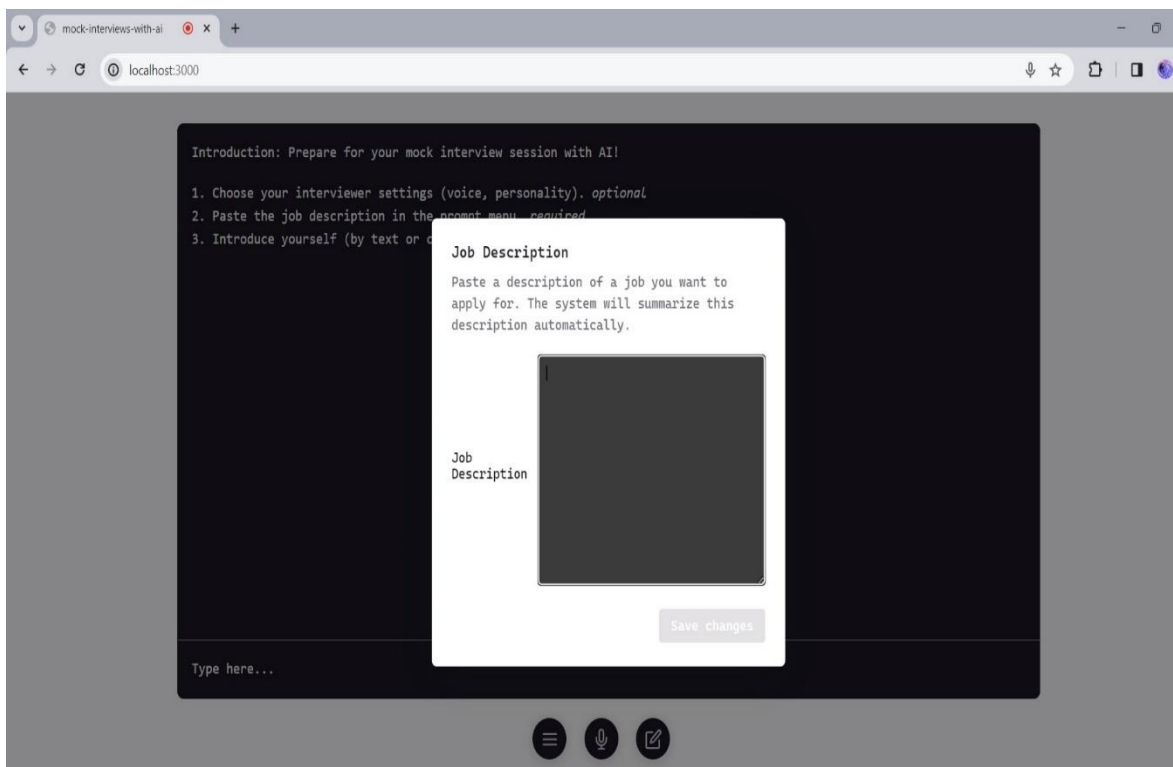


Fig 2.2: Job Description Analyzation Frame

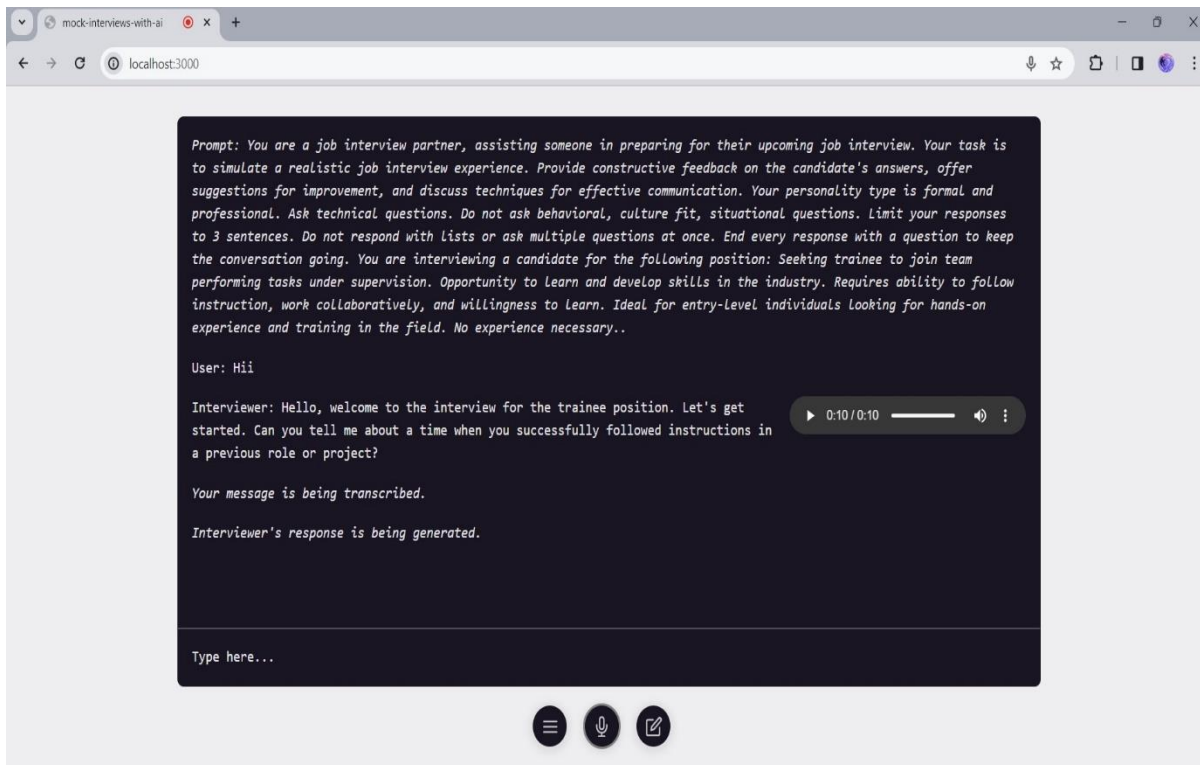


Fig 2.3: Interview Panel Frontend Frame

5. Conclusion and Future Work

In conclusion, a major advancement in resolving the difficulties encountered by job seekers in interview preparation has been made with the creation and deployment of an AI-based mock interview online application. The program provides a thorough environment for users to hone their interviewing abilities by utilizing technologies like Node.js for backend programming, AWS Polly for speech synthesis, and open API keys for external resource access. With the use of configurable interview situations, real-time evaluation, and tailored feedback, users can improve their confidence and preparedness for actual job interviews with the help of this program. Going forward, the application will continue to be updated and improved, and this, along with user input and iterative changes, will further reinforce its place as a useful tool for job seekers who want to achieve their career goals.

The AI-based mock interview web application can be further developed in the future to include expanded feature sets like video-based interviews and gamified elements, advanced AI integration for more nuanced

feedback analysis and sentiment detection, and integration with job portals to synchronize user profiles and offer customized recommendations. The application's reach and usefulness can also be improved via the creation of a mobile version, community features for peer-to-peer feedback, integration with learning management systems, accessibility improvements, and localization initiatives. The goal of this next paper is to continuously enhance the application's capacity to help job seekers grow their careers and prepare for interviews.

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