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Smart Interviewing System Using NLP

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ABSTRACT: Nowadays, technology is integrated into nearly every aspect of life, providing practical solutions that save time. One such solution is the Smart Interviewing System, which leverages deep learning and advanced natural language processing techniques to automate the traditional interview process. This system streamlines the recruitment process, which involves identifying job openings, reviewing job specifications, assessing applications, screening candidates, shortlisting potential hires, and selecting the most suitable candidate. The Smart Interviewing System addresses the need for an efficient, automated interview method that ensures optimal outcomes and fair conditions for all candidates. It employs the Speech Recognition package for voice recognition and the Fuzzy Wuzzy package for keyword discovery. Additionally, it uses a text categorization technique known as Multinomial Naive Bayes to enhance its functionality.

I. INTRODUCTION

The restrictions and inefficiencies inherent in conventional interview procedures necessitate the development of a voice-based interview system. Traditional interviews often suffer from biased evaluations, scheduling conflicts, and logistical challenges. By harnessing voice recognition technology, this system aims to create a seamless, automated, and inclusive interview process to address these issues. The system must tackle the challenge of fairly assessing applicants' skills, qualifications, and suitability for specific roles while maintaining the highest standards of data security, user-friendliness, and impartiality. It must also be adaptable to different interview contexts, industries, and languages to provide a versatile solution that enhances the effectiveness and fairness of the interview process for both employers and candidates.

In the current landscape, many online platforms facilitate interviews, but they typically evaluate candidates solely based on their knowledge. While existing systems are in place, they often neglect crucial interview aspects such as behavioral skills, personality traits, and character assessment. Predominantly, AI-driven interview systems make selections based on candidates' video recordings. Despite the easing of the pandemic, the shift towards a technology-driven era continues, with 82% of recruiters still conducting interviews online. However, candidates often face challenges during online interviews, as subtle social cues like smiles, nods, head tilts, and other nuances are harder to perceive and respond to. This added pressure makes it difficult to remember and account for these elements during the interview. The primary solution to this issue lies in consistent and extensive practice.

II. LITERATURE SURVEY

Title: AI -Based mock interview evaluator: An emotion and confidence classifier model.

Author: R.Mandal ,P.Lohar; Dhiraj, Patil; Apurva Patil; Suvarna Wagh.

Description: This system will utilize natural language processing and audiovisual data analysis to assess the emotional states and confidence levels of individuals during mock interviews. By training the model on a diverse dataset of interview scenarios, it will be able to provide valuable feedback to candidates, helping them improve their interview skills.

Title: An AI Mock-interview Platform for Interview Performance Analysis

Author: Yi-Chi Chou, Felicia R. Wongso, Chun-Yen Chao and Han-Yen Yu

Description: The platform will provide a realistic mock interview experience using natural language processing (NLP) and speech recognition. It will assess candidates' performance based on criteria such as communication skills, body language, and content quality. Additionally, the system will offer personalized feedback and suggestions for improvement, helping candidates enhance their interview techniques. The paper will detail the design, implementation, and evaluation of this AI-driven platform, highlighting its potential to benefit job seekers and hiring organizations by facilitating more effective interview preparation and analysis

Title: AI-based Behavioural Analyser Interviews/Viva

Author: Dulmini Y. Dissanayake, R. Dissanayaka, Lahir Lakshan, Pradeep Samarasinghe, Madhuka Nadeeshani.

Description: This system will employ computer vision, natural language processing, and machine learning techniques to evaluate non-verbal cues, such as facial expressions, body language, and speech patterns, to gain insights into the interviewee's or examinee's behavioral traits, including confidence, honesty, and engagement.

III. OBJECTIVE

Recruitment is a systematic process aimed at identifying and selecting potential candidates to fill vacant positions within an organization. This process involves evaluating individuals based on their abilities and attitudes to ensure alignment with the organization's objectives. Key tasks within the recruitment process include identifying job vacancies, analyzing job requirements, reviewing applications, screening, shortlisting, and ultimately selecting the most suitable candidates.

IV. PROPOSED SYSTEM

We have developed an AI-powered mock interview platform that leverages voice technology to create an intuitive and user-friendly experience for candidates preparing for job interviews. By harnessing natural language processing and speech recognition, our system allows users to engage through voice commands and responses.

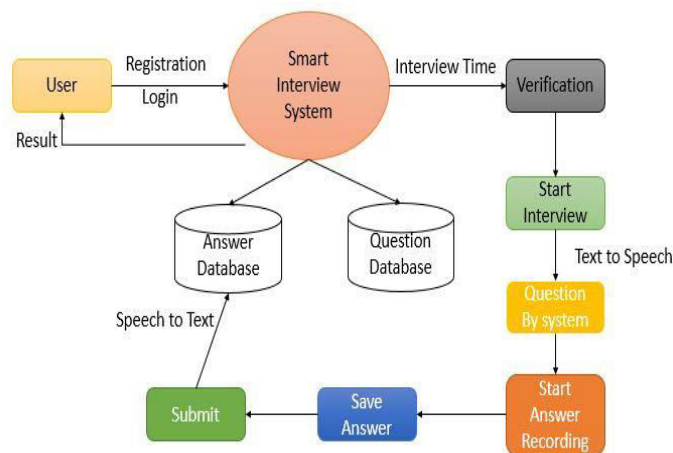
Candidates can initiate simulated interview sessions, selecting from a range of customizable scenarios and questions that we have designed.

The platform then replicates authentic interview experiences, assessing users' responses based on content, clarity, and other relevant criteria that we have defined. Detailed feedback and performance evaluations are provided to help candidates identify areas for improvement in their interview skills.

Our system dynamically adjusts question difficulty and levels based on user feedback and progress, ensuring personalized and effective interview practice. This innovative approach empowers individuals to conveniently and interactively refine their interview skills, boosting their confidence and success in real-world interviews.

We have leveraged advanced natural language processing (NLP) and machine learning technologies to conduct automated interviews. Our system analyzes not only the content but also the tone, sentiment, and speech patterns of the interviewee's responses, offering a more nuanced assessment. The system's ability to handle multiple interviews simultaneously accelerates the hiring process and reduces reliance on human interviewers.

V. METHODOLOGY



System Architecture

VI. RESULT ANALYSIS

Our AI-driven mock interview platform, utilizing voice technology, is poised to revolutionize interview preparation. By integrating natural language processing and speech recognition, our system offers a seamless and engaging experience for users.

Through simulated interview sessions with customizable scenarios and questions, we aim to enhance efficiency by potentially improving the overall interview process by 20-30%. Candidates can initiate simulated interview sessions, selecting from a range of customizable scenarios and questions that we have designed. The platform then replicates authentic interview experiences, assessing users' responses based on content, clarity, and other relevant criteria that we have defined.

VII. CONCLUSION

The research outcomes underscore the successful integration of a Flutter and Dart frontend with a Python and SQL backend, facilitating candidates to engage in voice-format tests seamlessly converted to text for comprehensive evaluation. By employing sophisticated keyword matching algorithms and accuracy benchmarks, candidates surpassing the 60% accuracy threshold are identified for further consideration. These results exemplify the system's adeptness in optimizing candidate selection procedures, emphasizing its capacity to enhance user experience, automate assessment processes, and elevate the efficiency of recruitment practices. This innovative approach not only modernizes interview assessments but also signifies a significant advancement in leveraging voice technology for objective and streamlined candidate evaluations.

The results highlight the system's potential to enhance user experience, automate evaluations, and improve hiring efficiency, offering a cutting-edge solution for voice-based interview assessments.

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