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AI Mock Interview Platform

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ABSTRACT: The Artificial Intelligence (AI) Mock Interview Platform is designed to help students and job seekers improve their interview skills through an automated virtual system. The system simulates real interview scenarios using AI technologies such as Natural Language Processing (NLP) and Computer Vision. Users register and log in to the platform, where their identity is verified through face recognition using Convolutional Neural Networks (CNN). The platform then conducts mock interviews by asking domain-specific and HR-related questions and evaluates the user's responses based on accuracy, tone, and confidence. The system provides feedback and scores to help users identify areas of improvement. This platform aims to make interview preparation more accessible, personalized, and effective using AI-driven analysis and automation, providing an effective tool for well-rounded candidate development.

KEYWORDS: Artificial Intelligence, Mock Interview, Face Recognition, Convolutional Neural Network, Natural Language Processing, Deep Learning, Virtual Interview System.

Problem Statement-In today's competitive job environment, many students and job seekers struggle to perform well in interviews due to a lack of real interview practice, personalized feedback, and confidence. Traditional mock interviews require human interviewers, which makes them time-consuming, costly, and limited in availability. There is a need for an intelligent, automated system that can simulate real interview scenarios, verify user identity securely, and provide instant, data-driven feedback.

The proposed AI Mock Interview Platform aims to solve this problem by using Artificial Intelligence (AI) techniques such as Natural Language Processing (NLP) and Convolutional Neural Networks (CNN) for automated interviews and face verification, helping users practice, analyze, and improve their performance effectively.

I. INTRODUCTION

Interviews play a crucial role in the recruitment process, as they assess a candidate's communication skills, technical knowledge, confidence, and overall personality. However, many candidates face anxiety and lack proper preparation due to limited access to mock interviews and expert feedback. To overcome this challenge, technology can be used to simulate realistic interview experiences.

The AI Mock Interview Platform is designed to provide an automated and intelligent system where users can practice interviews anytime and anywhere. The system allows users to register and log in securely, with data managed by an admin. It uses AI techniques such as Natural Language Processing (NLP) to analyze responses and Convolutional Neural Networks (CNN) for face verification and emotion analysis. This ensures authenticity while giving detailed feedback on user performance.

This platform helps users build confidence, identify strengths and weaknesses, and improve their communication and presentation skills, making interview preparation more accessible and efficient.

II. LITERATURE SURVEY

Rubi Mandal et al.: The paper "AI-Based Mock Interview Evaluator" reviews various studies on virtual interview systems, emphasizing emotion recognition, sentiment analysis, and confidence evaluation. It highlights the use of machine learning models to analyze non-verbal cues such as facial expressions, eye movements, and head posture. Additionally, EEG-based techniques for tracking emotions are explored. The study also delves into speech recognition and natural language processing, utilizing databases like Ryerson and Sentiment Speech to classify emotions in speech. Personality traits and behavioral characteristics are assessed using human

computer interaction (HCI) systems, enabling candidates to improve their interview performance in realistic scenarios. This research supports the development of an AI system that evaluates both emotional and confidence aspects, delivering a comprehensive mock interview experience.

Nirgide Shubhangi Vishal et al.: The paper "AI-Based Interview Critique System" examines advancements in AI-driven mock interview platforms, focusing on speech emotion recognition, behavioral analysis, and real-time evaluation techniques. Studies discussed include the integration of deep learning models such as EmoConfidNet for speech emotion recognition, enhancing confidence estimation through data preprocessing. The research also emphasizes the importance of mock interview systems in improving candidate performance by assessing nonverbal cues, including facial expressions and posture. Collectively, these studies contribute to the development of a comprehensive AI system that offers personalized feedback, helping candidates refine both technical and behavioral skills.

Aditi S. More et al.: The paper titled "Smart Interviews Using AI" proposes an AI-based system that evaluates candidates' personality traits through video and speech emotion recognition. The system aims to address the inefficiencies of traditional interview methods by offering an objective, efficient, and unbiased solution. By analyzing facial expressions and speech emotion, the system gauges candidates' emotional states and behavioral traits during interviews. This AI-based approach enhances the recruitment process by saving time and improving accuracy, particularly in online interviews. The paper reviews various AI models, including Convolutional Neural Networks (CNN) and TensorFlow-based systems, for real-time emotion and personality analysis. Future improvements are suggested, such as incorporating additional parameters to further refine the system's accuracy and effectiveness for AI-driven interviews.

Dulmini Yashodha Dissanayake et al.: The paper "AI-Based Behavioral Analyser for Interviews/Viva" presents a system that enhances the assessment of behavioral cues in online interviews. Using deep learning techniques, the system analyzes non-verbal cues, including emotions, eye movements, head movements, and smile patterns, to evaluate personality traits based on the Big Five model. The proposed system demonstrates high accuracy (over 85%) in detecting behavioral changes, offering a comprehensive analysis that allows for fair comparisons among candidates. This solution addresses the limitations of previous systems that focused primarily on verbal communication by providing a more detailed analysis of non-verbal behavior. The paper highlights the system's applicability in both professional and academic settings, demonstrating significant improvements in accuracy and comprehensiveness.

B C Lee et al.: The paper "Development of an AI-Based Interview System for Remote Hiring" introduces a deep-learning powered solution designed to improve recruitment processes, particularly for remote settings. The AI system, developed using over 400,000 interview image datasets, achieved a high Pearson reliability score of 0.88 and was successfully applied in multiple public enterprises in South Korea, with a satisfaction rate of 85%. The paper highlights the growing global trend of AI adoption in hiring processes, focusing on job fitness evaluations, personality assessments, and applicant screening. By incorporating advanced facial, vocal, and linguistic analysis, the AI system aims to provide objective and unbiased evaluations, streamlining recruitment processes and increasing overall hiring efficiency. The research underscores the potential of deep learning models in enhancing both candidate evaluation and recruitment practices.

S. Sridhar et al.: In this paper, a stacked ensemble model that predicts the chances of admit of a student to a particular university has been proposed. The proposed model takes into consideration various factors related to the student including their research experience, industry experience etc. Further, the system proposed has been evaluated against various other machine learning algorithms including other deep learning methods. It is observed that the proposed model easily outperforms all other models and provides a very high accuracy.

Motivation

Many students and job seekers struggle to prepare effectively for interviews due to a lack of access to professional mock interviewers and real-time feedback. Traditional interview preparation methods often focus only on theory rather than practical experience. This creates a gap between what candidates learn and how they perform under real interview conditions. edge by enhancing both technical and behavioral skills.

Proposed system

The AI Mock Interview Platform is designed to provide users with an intelligent and interactive environment for practicing job interviews. The system combines Natural Language Processing (NLP), Speech Recognition, and Computer Vision (CNN-based face verification), haar cascade to simulate a real interview experience and evaluate a candidate's performance. The proposed system allows users to register or log in securely. After authentication, CNN face verification ensures user identity before starting the interview. The system then conducts mock interviews in voice or text mode, where the AI interviewer asks questions and evaluates the user's responses based on accuracy, tone, grammar, and confidence. All user data, including responses and performance scores, are securely stored in a database. Finally, the platform generates feedback reports highlighting strengths, weaknesses, and areas for improvement, helping users prepare better for real-world interviews.

III. ARCHITECTURE

Architecture - AI Mock Interview Platform

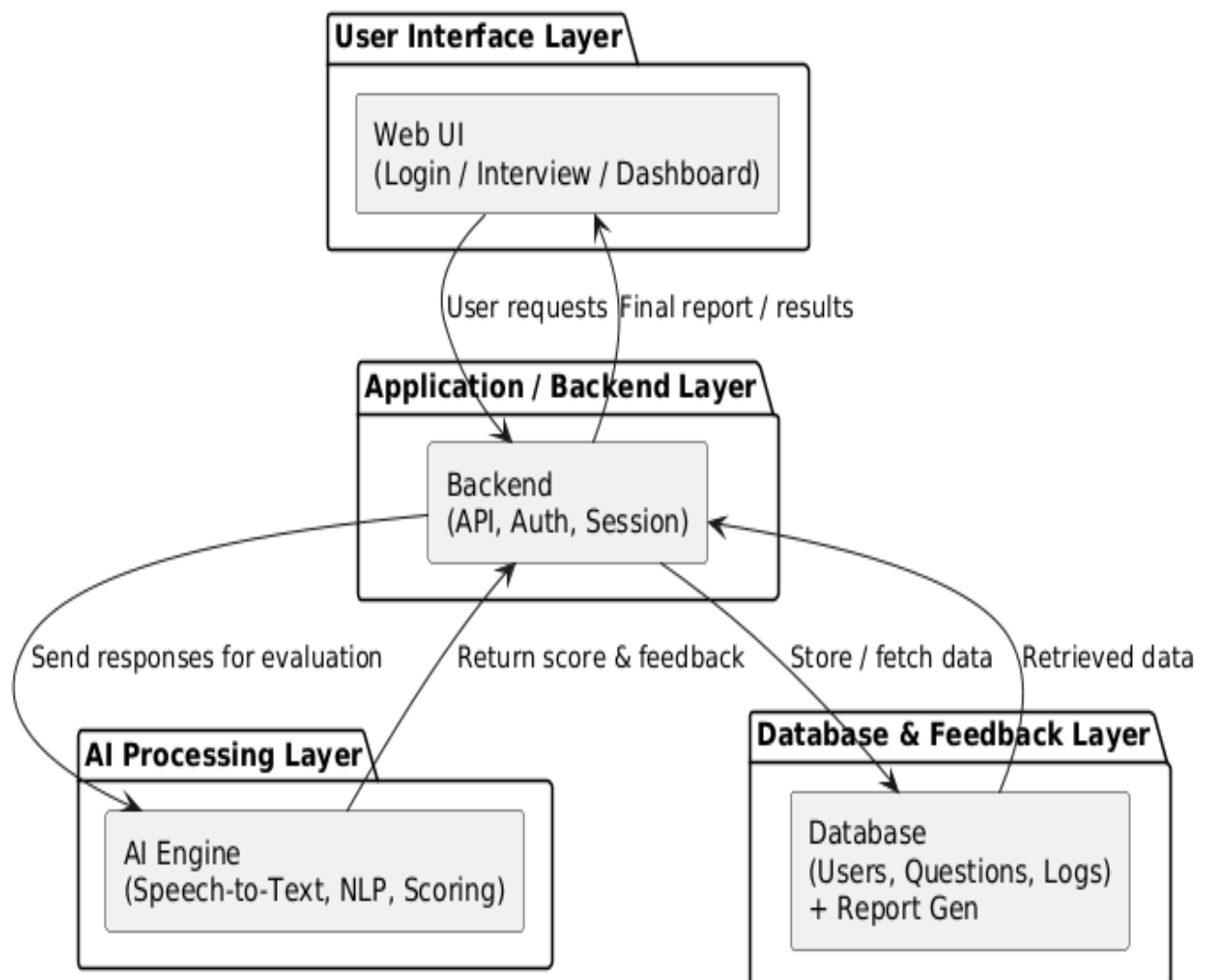
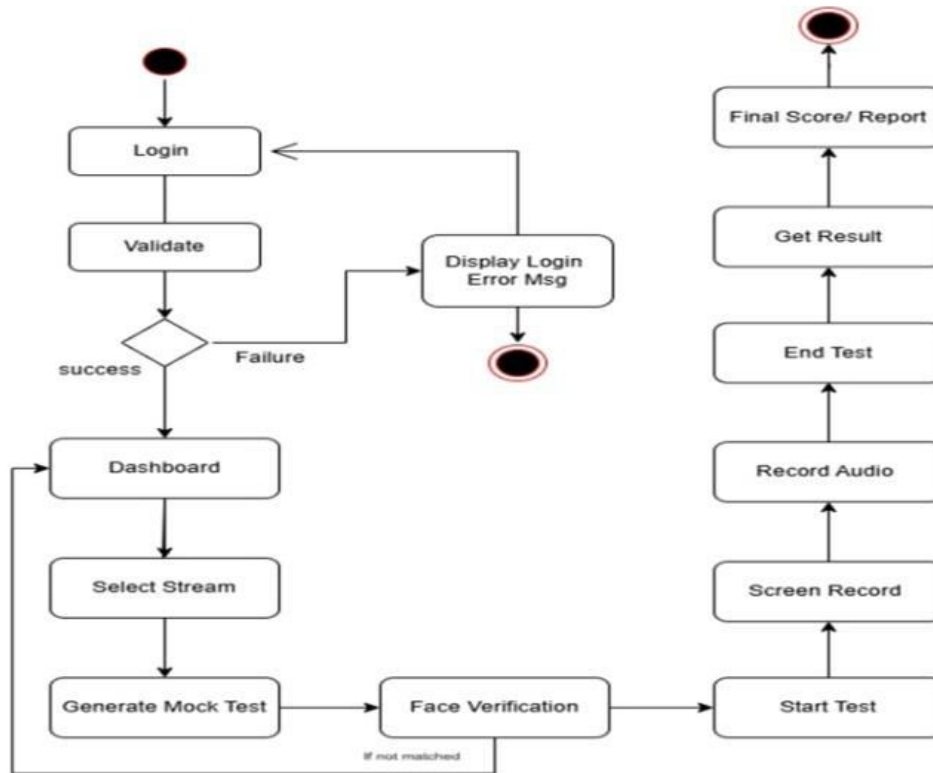


Fig 1:Mock Interview System

FLOWCHART



IV. CONCLUSION

The AI Mock Interview Platform provides an efficient and interactive way for candidates to prepare for real interviews. By using AI technologies like NLP and CNN, it evaluates user performance, confidence, and facial expressions. This system helps users identify their strengths and weaknesses, making interview preparation more effective and accessible.

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