e-ISSN:2582-7219

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH IN SCIENCE, ENGINEERING AND TECHNOLOGY

Volume 6, Issue 5, May 2023

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 7.54

International Journal Of Multidisciplinary Research In Science, Engineering and Technology (IJMRSET)

| ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 7.54|

| Volume 6, Issue 5, May 2023 |

Interview Decoder Using AI & Ml Algorithms

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ABSTRACT: This research paper introduces an interview decoding system that utilizes a dataset comprising of questions and their corresponding answers. The system generates random questions in audio format and assesses the user's input by converting their speech to text. The evaluation process is carried out using an MLPRegressor model. The primary objective of the interview decoder is to replicate a realistic interview scenario, providing users with an interactive experience. By randomly selecting questions from the dataset, the system ensures a wide range of topics and challenges for the user. The conversion of speech to text allows users to respond orally, facilitating a more natural and engaging interaction. To evaluate the user's input, an MLPRegressor model is utilized. This model harnesses the capabilities of multilayer perceptron neural networks to predict the appropriateness of the response based on the available dataset. By assessing the user's answers, the system provides feedback on their performance, helping them enhance their interview skills. In summary, the interview decoder project integrates audio-based question generation, speech-to-text conversion, and MLPRegressor evaluation to create a valuable and immersive tool for interview practice.

I. INTRODUCTION

In today's highly competitive job market, it is crucial to revolutionize the way individuals prepare for interviews and enhance their interview skills. The ability to effectively communicate qualifications and skills during these critical interactions can significantly impact career success. However, many individuals struggle to master this art of self-presentation. To address this challenge, the "Interview Decoder" project offers a comprehensive platform that combines cutting-edge technology with proven interview techniques. The project aims to provide users with an innovative and immersive interview practice experience. One of the key components of the "Interview Decoder" is the integration of advanced image enhancement techniques, commonly employed in medical diagnostics, such as adaptive unsharp masking and contrast stretching. By adapting these techniques to the context of interview preparation, the platform enhances user engagement and interaction.

The incorporation of adaptive unsharp masking allows for the sharpening of interview-related visual content, such as question prompts, interview scenarios, and accompanying multimedia materials. This technique enhances the clarity and definition of these visuals, providing users with a more immersive and realistic interview environment. Additionally, contrast stretching is employed to optimize the visibility and distinguishability of interview-related images and text. By expanding the dynamic range of visual elements, this technique improves legibility and ensures that important details are not lost or overlooked. By combining these image enhancement techniques with the established principles of effective interview preparation, the "Interview Decoder" aims to empower individuals to develop and refine their interview skills. Through realistic and engaging interview simulations, personalized feedback, and expert guidance, users can gain confidence and proficiency in presenting themselves during job interviews.

In conclusion, the "Interview Decoder" project strives to transform interview preparation by leveraging innovative technology and proven techniques. Through the integration of image enhancement methods, users can experience a more immersive and effective interview practice, ultimately enhancing their ability to excel in the competitive job market.

II. RELATED WORK

In related work, previous research has focused on interview preparation tools and techniques to enhance interview skills. Some studies have explored the use of virtual reality (VR) simulations for interview practice, providing realistic environments and scenarios. Others have utilized natural language processing (NLP) algorithms to analyze interview responses and provide feedback. [2]

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However, few projects have explored the integration of image enhancement techniques from medical diagnostics into interview practice platforms. The "Interview Decoder" project fills this gap by incorporating adaptive unsharp masking and contrast stretching to enhance user engagement and create a more immersive interview experience.

This novel approach combines innovative technology with established interview techniques, offering a comprehensive platform for individuals to refine their interview skills.

III. PROPOSED SYSTEM

Text Pre-processing:

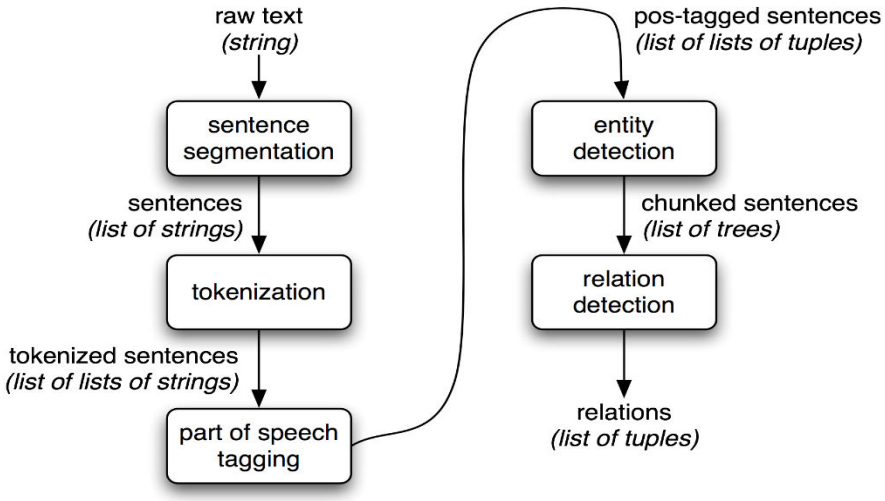
Text preprocessing is a crucial step in natural language processing (NLP) tasks, as it helps to clean and prepare textual data for further analysis. Several techniques and libraries are available for text preprocessing, and one popular combination includes NLTK (Natural Language Toolkit) functions such as word tokenization, word lemmatization using WordNet, and stopwords removal, along with the Universal Sentence Encoder.

NLTK provides a wide range of functionalities for NLP tasks. Word tokenization, implemented using NLTK's word_tokenize() function, splits a text into individual words or tokens, which serves as the foundation for various text analysis tasks. This process helps in breaking down a sentence or paragraph into its constituent words. Next, the NLTK WordNet Lemmatizer is used for lemmatization. Lemmatization reduces words to their base or root form, which is helpful for tasks like word frequency analysis or building word embeddings. WordNet is a lexical database that maps words to their corresponding lemmas, providing access to synonyms, antonyms, and other related word relationships. Stopwords are common words in a language that do not carry significant meaning and can be safely removed from text for many NLP tasks. NLTK provides a predefined set of stopwords for various languages, and removing them using the stopwords.words() function helps eliminate noise and reduce the dimensionality of the text data.

In addition to NLTK, the Universal Sentence Encoder (USE) is a powerful tool for text preprocessing. It is a pre-trained deep learning model developed by Google that converts sentences or short texts into dense fixed-length vectors, capturing their semantic meaning. These vectors can be used as input for downstream tasks like text classification, clustering, or similarity matching.

Combining NLTK's word tokenization, WordNet lemmatization, stopwords removal, and the USE allows for comprehensive text preprocessing. The resulting clean and normalized text data is well-suited for a wide range of NLP applications, such as sentiment analysis, information retrieval, text summarization, and more.

The image.resize function takes an input image and outputs a new image with a different size. It can be used to reduce the size of an image to make it more manageable or to increase its size for better visualization or analysis.
In our case, it takes an input image and converts it into 64x64 dimension.



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IV. RESULTS

A. User Interface

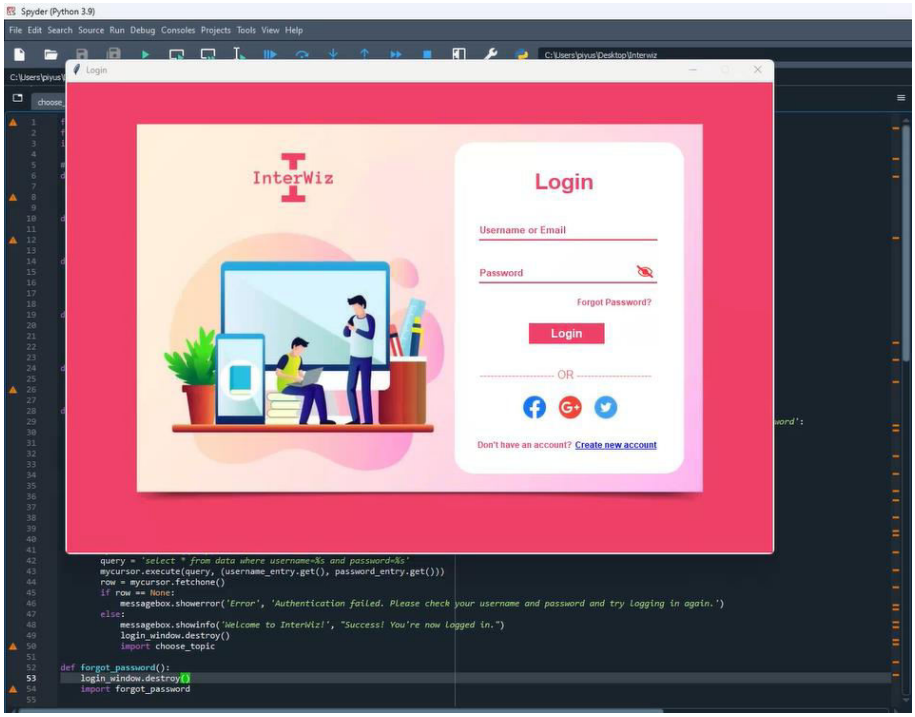

Fig.4.1 Home/Loginpage

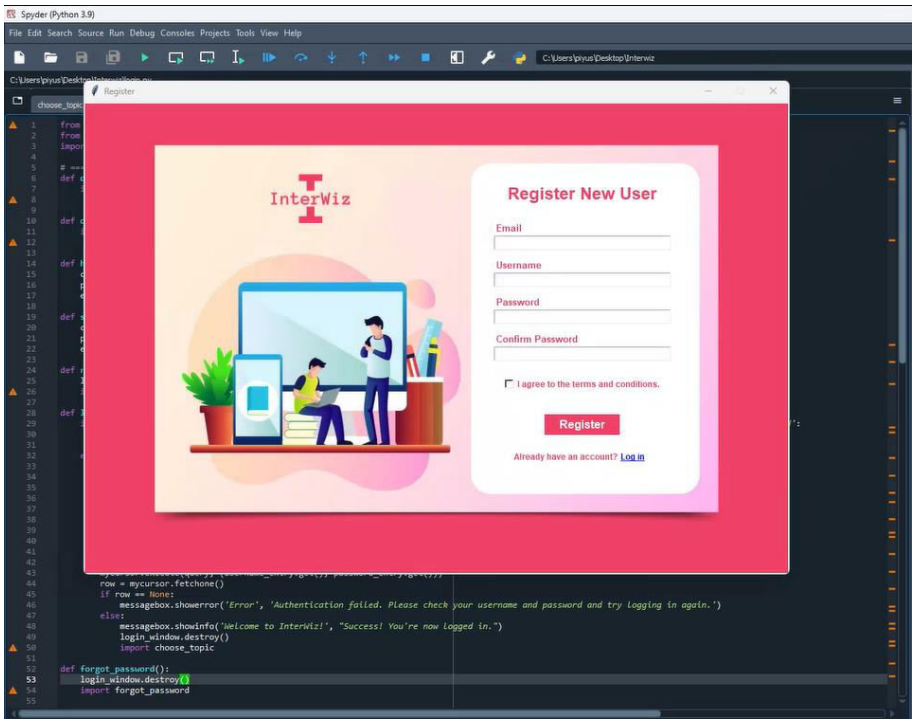

Fig. 4.2 Registration page

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Home Page/Login Page: The home page, designed using the Tkinter library, serves as the login page for the application. It features a clean and intuitive user interface, with fields for entering the username or email and password. A login button is provided to initiate the login process. Additionally, there is an option to create a new account, which is linked to the register page for user registration. The home page also showcases the InterWiz logo, providing brand recognition and a professional look. To enhance user convenience, icons of popular social media platforms are displayed, enabling users to log in through their social media accounts if desired. Overall, the home page offers a seamless and secure login experience for users, while also incorporating branding elements and providing alternative login options through social media integration.
Registration Page: This button would redirect the user to the about page of your website. This page contains informationabouttheuser of the system including his/her Full Name, Address, E-mail, Phone number, Username and Password.

Register Page: The register page, developed using Tkinter, serves as the user registration form for the application. It includes essential fields such as email, username, password, and confirm password. These fields are carefully validated to ensure the accuracy and security of the user's information. To comply with legal requirements and user agreements, a checkbox for agreeing to terms and conditions is provided. Users must agree to the terms before proceeding with the registration process. The register page also includes a register button, which allows users to submit their information and create a new account. Additionally, there is an option to log in, which is linked to the login page for existing users to access their accounts.

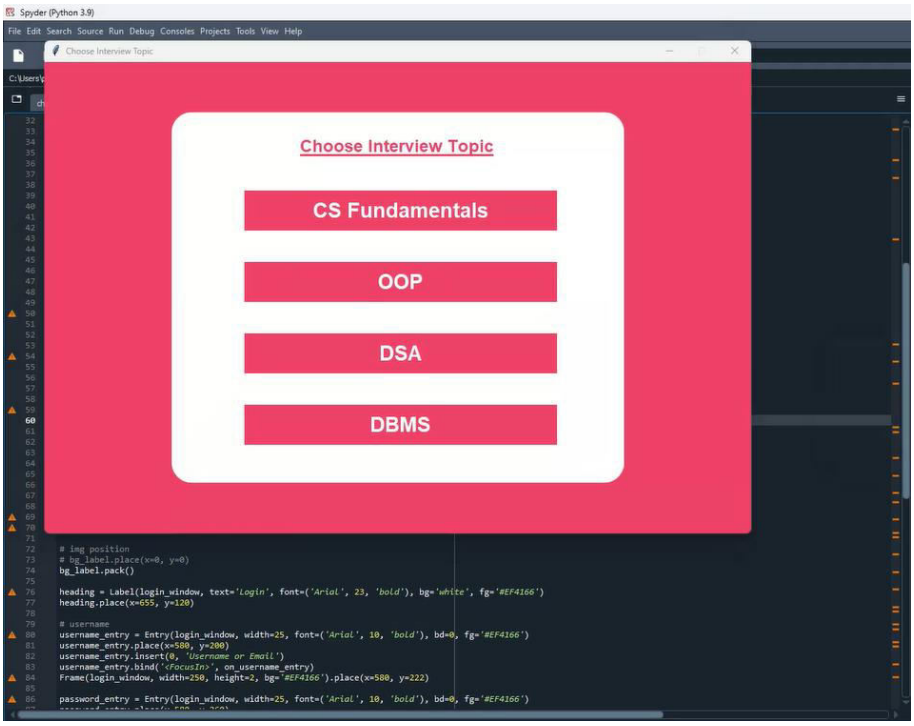

Fig.4.3 Choose Interview Topic

The "Choose Interview Topic" page serves as a gateway to a tailored interview experience. Users are presented with an extensive list of subjects, covering a wide range of domains and areas of knowledge. Each subject is represented by a button, providing a visually intuitive interface. Upon selecting a subject, users can expect a targeted set of interview questions related to that specific topic. This not only allows users to showcase their expertise in a particular area but also enables them to focus their preparation and practice on subjects that are most relevant to their goals.

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The availability of diverse subjects ensures that users have ample choices to explore and engage with. Whether it's technology, literature, science, or any other field, users can select a subject of their interest, making the interview experience more enjoyable and meaningful. This feature encourages users to delve deeper into their chosen subjects and engage in a focused and enriching interview session.

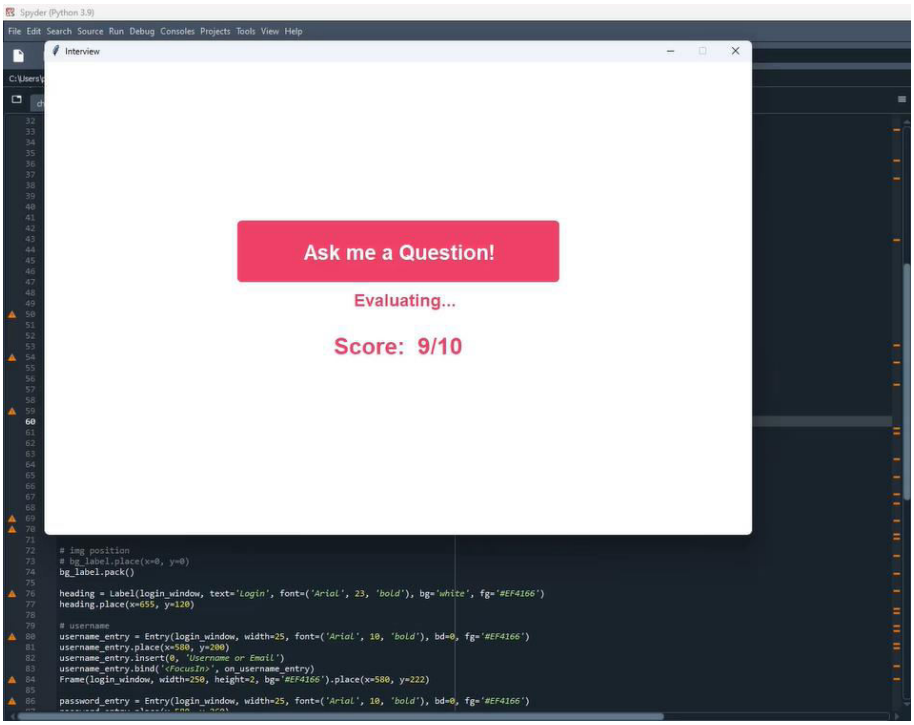

Fig. 4.4 Ask Me A Question Page

The "Ask Me a Question" page provides users with a simulated interview experience. A prominent button is displayed, prompting the user to click when they are ready to hear a question. Once the user clicks the button, the application narrates a question aloud, simulating a real interview scenario. This feature adds an interactive and immersive element to the interview training process. By listening to the questions instead of reading them, users can simulate the experience of being interviewed verbally, helping them enhance their listening and comprehension skills. It also creates a more dynamic and engaging experience, replicating the environment of a face-to-face interview, and preparing users for the real-life challenges they may encounter.

Evaluation

After the user listens to the question on the "Ask Me a Question" page and understands it, they proceed to answer the question. The application collects the user's speech data and converts it into text using speech recognition techniques. The converted text is then passed through the pre-trained model, such as the MLPRegressor, which analyzes the response and generates a score. By collecting the user's speech data, the application enables a more natural and intuitive interaction. Converting the speech to text allows for easier processing and analysis of the user's response. The pre-trained model, such as the MLPRegressor, leverages machine learning techniques to evaluate the quality and relevance of the user's answer based on various factors.

The generated score serves as feedback for the user, providing an objective assessment of their performance. This score can be used to track progress over time and identify areas of improvement in their interview skills. Ultimately, this process helps users enhance their interview performance by providing valuable insights and guidance.

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V. CONCLUSION

In conclusion, The paper presents a comprehensive and user-friendly platform for improving interview skills and performance. By integrating innovative image enhancement techniques and proven interview strategies, the application enhances user engagement and provides valuable feedback. The system's ability to generate interview questions and evaluate responses in real-time empowers users to refine their communication and problem-solving abilities. The project holds great potential in assisting individuals in preparing for job interviews, boosting their confidence, and increasing their chances of success. With further advancements in natural language processing and question generation, the "Interview Decoder" project can continue to evolve and offer even more advanced features. Overall, this project represents a significant step towards revolutionizing the interview preparation process and supporting individuals in achieving their professional goals.

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Impact Factor
7.54

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

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