

MyStory Speak's: English Learning Application

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Abstract—This research paper presents the development and implementation of a comprehensive language learning application based on React Native technology. The application's major goal is to promote real-time interactions and conversations that assist users enhance their proficiency in English. The application offers a unique story-based experience. The advanced level enables users to upload their own stories with characters, which are subsequently scanned and detected by the application. Users are able to select characters from their stories and have real-time interactions based on the story setting, customizing their learning experience. The application also alerts users if their uploaded tale is missing characters, ensuring the availability of captivating material. This unique approach not only encourages interactive language learning, but also allows users to practice language skills in the context of their own tales. The application aims to provide a dynamic and engaging platform for language learners to improve their English proficiency while enjoying immersive storytelling by incorporating a user-centric design, real-time interactions, personalized learning experiences, and continuous improvement.

Index Terms—React Native technology, user-centric design, real-time interactions, personalized learning experiences,

I. INTRODUCTION

Language acquisition, especially when learning English as a second language, is a complex procedure that often requires dynamic and interactive ways to properly engage learners. With the increasing popularity of mobile technology, language learning applications have emerged as promising tools for assisting language acquisition outside of traditional classroom settings. In response to this demand, our research aims to develop a comprehensive language learning application using React Native, with a primary focus on encouraging realtime interactions and conversations that help users improve their English language skills. The proposed application has the advanced level which incorporates a unique story-based experience that promotes immersive learning. At this advanced level, the system distinguishes itself with its unique approach to personalized learning. The advanced level's central feature is the opportunity for users to contribute their own stories with characters they created. The application uses intricate algorithms to scan and detect characters in these stories,

enabling users to select and engage in real-time conversations based on the context of their narratives. This new feature not only personalizes the learning experience, but also allows users to practice language skills in the at ease context of their own stories.

Furthermore, In this paper, we will dive into the design, development, and implementation of our language learning application. We discuss the underlying technology, strategies used in their development, and their implications for language learning research and practice. Additionally, we investigate possibilities for future enhancements and improvements, demonstrating our commitment to developing the field of language instruction through innovative technical approaches.

II. PROBLEM STATEMENT

The challenge of attaining proficiency in English persists for many learners, exacerbated by the limitations of existing language learning applications. These applications often lack the capacity to provide engaging, real-time interactions and personalized learning experiences tailored to individual learners' needs and contexts. Furthermore, they fail to bridge the gap between language learning materials and users' personal narratives, hindering the practical application of acquired language skills in real-life scenarios. This research seeks to address these deficiencies by developing a comprehensive language learning application using React Native. By leveraging innovative technologies and methodologies, the proposed application aims to provide users with dynamic and immersive learning experiences, fostering both language proficiency and the practical application of language skills in diverse contexts.

III. OBJECTIVES

- Develop a comprehensive language learning application using React Native technology to provide users with a flexible and accessible platform for improving English language skills

- Design and integrate a story-based experience level into the application, allowing users to upload their own stories containing characters and engage in real-time conversations based on the story context.
- Utilize character detection algorithms to scan uploaded stories and enable users to select characters for conversation, ensuring seamless integration of user-generated content into the language learning experience.
- Bridge the gap between traditional language learning methodologies and modern technological advancements by leveraging innovative technologies to create a platform that fosters language proficiency and practical language application in real-life contexts.

IV. SCOPE

- The story-based experience level will allow users to upload their own stories containing characters, with the application providing the capability to detect characters and facilitate real-time conversations based on the story context.
- Real-Time Interaction Features: The application will allow users to interact with the application interface in real time, such as through chat-based language practice, interactive exercises, and immersive storytelling experiences.
- Character detection algorithms will be developed and integrated into the application to analyze uploaded stories and identify characters, enabling seamless interaction within the user-generated content.
- Identifying areas for improvement based on user feedback and evaluation results, with a focus on enhancing usability, effectiveness, and overall user experience.
- The language learning application will be designed with scalability in mind, allowing for future updates and enhancements to further improve its functionality and adaptability to evolving user needs and technological advancements. However, the initial scope will focus on the development and evaluation of the core features outlined above.

V. SURVEY OF EXISTING SYSTEM

A. *Duolingo App* Ajisoko, P. (2020). *The Use of Duolingo Apps to Improve English Vocabulary Learning. International Journal of Emerging Technologies in Learning (iJET)*, 15(7), 149-155. Kassel, Germany: *International Journal of Emerging Technology in Learning*. Retrieved April 4, 2024

The paper likely discusses the effectiveness of using Duolingo apps as a tool to enhance English vocabulary learning. It may explore how technology, specifically language learning applications like Duolingo, can be utilized to improve

vocabulary acquisition in the context of English language education. The study could involve empirical research, surveys, or experiments to evaluate the impact of Duolingo apps on learners' vocabulary skills. The findings and conclusions drawn in the paper may provide insights into the benefits and challenges of integrating technology into language learning practices, particularly concerning vocabulary development.

B. *StoryBuddy: A Human-AI Collaborative Chatbot for*

Parent-Child Interactive Storytelling with Flexible Parental Involvement. Zheng Zhang, Ying Xu, Yanhao Wang, Bingsheng Yao, Daniel Ritchie, Tongshuang Wu, Mo Yu, Dakuo Wang, and Toby Jia-Jun Li. 2022. *StoryBuddy: A Human-AI Collaborative Chatbot for Parent-Child Interactive Storytelling with Flexible Parental Involvement. In CHI Conference on Human Factors in Computing Systems (CHI '22), April 29-May 5, 2022, New Orleans, LA, USA. ACM, New York, NY, USA, 21 pages.*

The paper presented at the CHI Conference on Human Factors in Computing Systems (CHI '22) introduces a novel system called StoryBuddy. This system is designed to facilitate interactive storytelling sessions between parents and children while incorporating the capabilities of artificial intelligence (AI). StoryBuddy serves as a collaborative chatbot that assists in the co-authoring of stories with children. It provides suggestions, prompts, and interactive elements to enhance the storytelling experience and engage both parents and children in creative narrative creation. Importantly, StoryBuddy allows for flexible parental involvement, accommodating varying levels of participation based on parental preferences. The paper likely discusses the design principles underlying StoryBuddy, including its technical architecture and user interface details. It may also present results from user studies or evaluations conducted to assess the system's effectiveness, usability, and impact on parent-child storytelling dynamics. Overall, the paper contributes to the fields of human-computer interaction (HCI) and AI by showcasing how collaborative AI systems like StoryBuddy can enrich interpersonal interactions and learning experiences, particularly in the context of parent-child bonding through storytelling activities.

VI. PROPOSED SYSTEM

- 1) User Inputs Story: The user inputs the story from the frontend interface. This story can be entered manually or uploaded as a text.
- 2) Divide into Chunks: The Python backend receives the story text and divides it into smaller chunks for processing. This can be done to improve processing efficiency and facilitate further analysis.
- 3) Names: The backend extracts names of characters mentioned in the story using natural language processing techniques such as named entity recognition (NER). This step identifies the characters in the story.

- 4) Character Selection: The user selects a character from the story perspective for further interaction. This character selection can be done through the frontend interface.
- 5) User Queries: The user asks questions about the story from the perspective of the selected character. These questions are sent to the backend for processing.
- 6) Response Generation: The backend utilizes a pretrained model or a conversational AI system to generate responses to the user's questions based on the story context and the selected character's perspective.
- 7) Interaction Flow: The backend handles the interaction flow between the user and the system. It receives user queries, processes them, generates responses, and sends them back to the frontend for display.

VII. SYSTEM DESIGN

A. flowchart of the Application

The Application describes a sophisticated conversational AI system tailored for interactive storytelling. It begins with user input through an interface, allowing users to input stories or upload text files. The backend processes this input by cleaning and normalizing the text, then breaking it into manageable chunks for efficient processing. The Named Entity Recognition (NER) techniques are applied to identify character names in the story, which users can later select for interaction. User queries related to the story, from the perspective of the chosen character, are handled by the backend. A pretrained language model, such as Llama, is then utilized to generate responses based on these inputs, incorporating character perspectives and story contexts. The generated responses undergo reformatting for coherence and human-like quality before being delivered back to the user for user display in a chat interface. Overall, this application integrates multiple NLP techniques, character selection mechanisms, and advanced text generation models to create an engaging and immersive conversational experience based on story contexts and character perspectives.

VIII. IMPLEMENTATION

A. Named Entity Recognition (NER) Algorithm

We've integrated a Named Entity Recognition (NER) algorithm powered by deep learning to enhance user experiences and personalize learning journeys. The NER algorithm is primarily used for character detection in user-uploaded stories, effectively detecting and categorizing entities such as names and locations. This functionality improves conversation contexts during language practice sessions, allowing users to have relevant conversations based on tale content. Also, the NER algorithm encourages a personalized learning experience, improves in real-time interactions by highlighting named things, and assist the users' language skills.

B. Vectorization Algorithm

A vectorization algorithm based on transformer models for encoding text into high-dimensional vectors. This process enables the app in recognizing semantic linkages within user interactions, such as chat conversations and uploaded stories. The encoded vectors allow for context-aware learning experiences, semantic similarity computations to determine content relevance, and personalized learning paths based on user interactions and comprehension level. Our app improves user learning outcomes by enhancing content understanding, increasing engagement, and implementing transformer-based models.

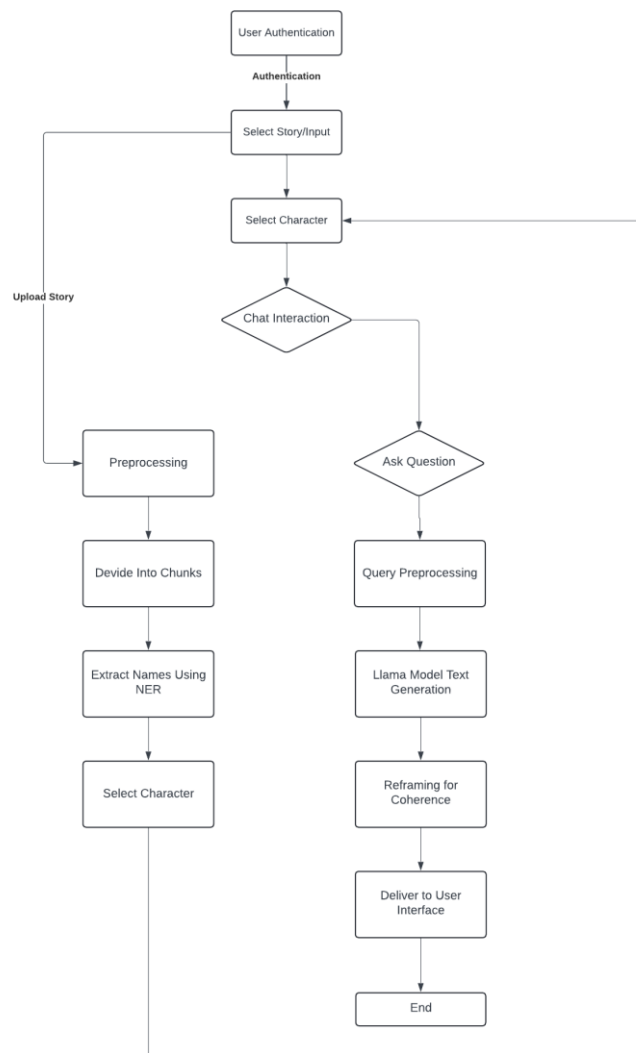
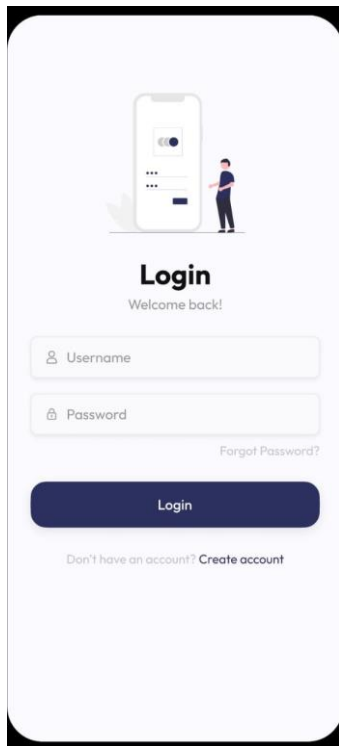


Fig. 1. Flowchart of the application

IX. RESULTS

The Snapshots of the Android Application are show below in fig.2-6. The project has successfully met its objectives of improving language proficiency, enhancing user engagement, promoting inclusivity, and laying the groundwork for future advancements in language learning technologies



2. Login Page

X. CONCLUSIONS

In conclusion, Using innovative technologies and unique approaches, we developed a platform that breaks down traditional language learning boundaries, encouraging engaging and effective learning experiences. Our project focuses on the implementation of React Native, an innovative framework which enables for cross-platform app development with native-like performance. Using React Native, we developed a seamless and intuitive interface that enhances accessibility and usability for language learners at all levels.



Fig. 4. Pre-uploaded Story Fig.

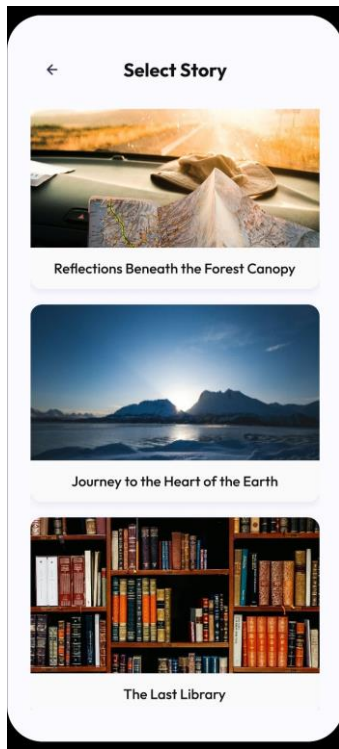


Fig. 3. Pre-uploaded Story Selection

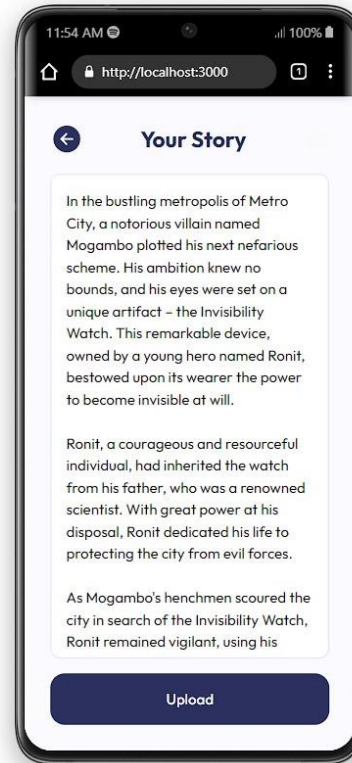
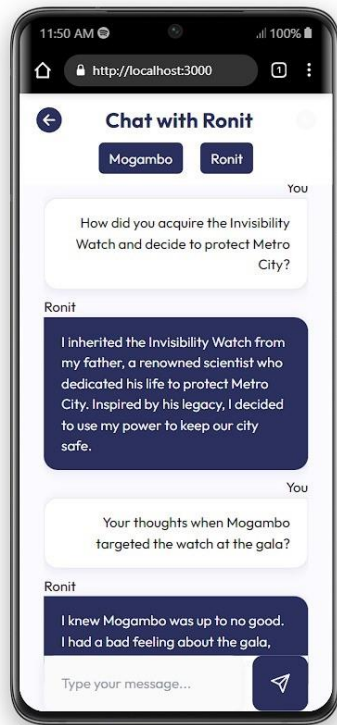


Fig. 5. Story Uploaded by the User



Furthermore, our blend of real-time interactions and personalized learning elements enables users to personalize their language learning journey to their particular interests, proficiency levels, and learning objectives. The use of storybased learning, character detection algorithms, and interactive conversations based on user-generated content enhances the learning experience by encouraging engagement and retention of language abilities. Thinking over our project's accomplishments, we are satisfied of the progress made in changing language learning experiences. Our commitment to excellence is obvious in the continuous enhancement process, and ongoing optimization efforts. We believe that our Language Learning Companion has the ability to significantly improve language proficiency, cultural understanding, and global communication among users worldwide.

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 - Human a Question: Question and Answer Pair Generation for Children
- Storybooks in FairytaleQA Dataset. arXiv:2109.03423 [cs.CL]

Fig. 6. Conversation with the Characters