ANALYSIS

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1 Version Table.

Version	Author	Changes	Date
1.0	Lokesh Agnihotri	Initial Draft	6/7/2023
2.1	Lokesh Agnihotri	Added the requirements as per stakeholder	6/8/2023
2.2	Lokesh Agnihotri	Created Acceptance criteria	6/9/2023

2 Contents

Abstract:

This document provides a comprehensive overview of the requirements and acceptance criteria for the development of a pronunciation improvement tool. The tool is specifically aimed at assisting young Dutch students (14-15 years old) and non-English-speaking students from diverse countries in enhancing their English pronunciation skills and promoting effective communication within a multicultural student population.

Leveraging advanced speech recognition and analysis techniques, the tool enables users to speak words, receive immediate feedback on their pronunciation, and obtain personalized suggestions for improvement.

The requirements analysis encompasses various aspects, including capturing audio input, analyzing pronunciation accuracy, providing feedback and tailored suggestions, implementing a user-friendly interface, conducting accuracy testing, and catering to the specific needs of the target audience, particularly MBO kids.

Additionally, the document considers stakeholder preferences, such as incorporating sentence-based learning, a simple and intuitive design, options for sentence database or user input, automatic feedback mechanisms, and the ability to highlight incorrect pronunciation. The document concludes by addressing important project details, such as the presentation date, stakeholder availability and user testing requirements.

By establishing a solid foundation of outlined requirements and acceptance criteria, this document serves as a roadmap for the development of an effective and tailored pronunciation improvement tool that aligns with the stakeholders' needs and objectives.

2 Requirements Analysis

Objective: The purpose of this requirements analysis is to define the necessary features and functionalities for a pronunciation improvement tool that caters to the learning needs of MBO kids from diverse backgrounds. This document outlines the stakeholder's preferences, specifications, and acceptance criteria, which will serve as a guideline for the development process.

2.1 Sentence-based Learning:

The stakeholder emphasizes a learning approach that focuses on sentences rather than individual words, allowing learners to grasp pronunciation in context.

2.2 Simple Design:

The app's user interface should feature a clean and intuitive design, akin to the simplicity and usability of a Google page layout. This design principle will enhance user engagement and facilitate seamless navigation.

2.3 Sentence Database or User Input:

The stakeholder will determine whether the app should include a pre-existing database of sentences or provide users with the ability to create their own sentences. The chosen approach should support effective language practice and accommodate individual learning preferences.

2.4 Automatic Feedback:

Immediate automatic feedback is a crucial requirement. The stakeholder expects the system to analyze recorded sentences accurately and provide prompt feedback on pronunciation. This real-time evaluation will facilitate continuous learning and improvement.

2.5 Highlight Bad Pronunciation:

The app should employ a visual mechanism to highlight incorrectly pronounced words or sentences. By using different colors or other distinctive indicators, learners can readily identify their mistakes and focus on specific areas for improvement.

2.6 Sentence Practice at Launch:

Upon launching the app, users should be presented with a sentence for practice. Upon clicking the “next” button, new sentence shall be shown on the screen.

2.7 Rehearse Option for Bad Pronunciation:

To address and rectify poorly pronounced sentences, the app must include a rehearsal option. This functionality allows users to practice and refine their pronunciation, enhancing their overall language proficiency.

2.8 Presentation Date:

The project presentation is scheduled for 7th July. Therefore, it is imperative that the app is fully developed and ready for demonstration by that date. Adherence to the project timeline is essential.

2.9 Availability for Talks and Discussions:

The stakeholder is available for regular talks and discussions once or twice a week. Open communication channels will enable effective collaboration and ensure that the project aligns with the stakeholder's expectations.

2.10 User Testing:

To validate the effectiveness of the pronunciation improvement tool, user testing needs to be done.

3 Acceptance Criteria:

To meet the stakeholder's requirements and deliver a high-quality pronunciation improvement tool, the following acceptance criteria must be fulfilled:

3.1 Sentence-Based Learning:

The learning approach should prioritize sentence-based learning, allowing learners to comprehend pronunciation in the context of complete sentences.

Measurement:

This will be included in the feedback form as a checkbox for user to check while testing. A minimum of 80% satisfaction is expected from user.

3.2 Simple Design:

The app's design should reflect simplicity, emulating the user-friendly layout akin to a Google page. This design philosophy will contribute to user engagement and ease of use.

Measurement:

User feedback and surveys will be collected to evaluate the perceived simplicity and user-friendliness of the app's design.A minimum satisfaction rate of 75% is expected from the user feedback.

3.3 Sentence Database or User Input:

The stakeholder will confirm it later.
In the meantime, I will try to implement both the features.

3.4 Automatic Feedback:

The system should thoroughly analyze the pronunciation of captured sentences, providing clear and insightful feedback on any inaccuracies.

Measurement:

The accuracy of the system in analyzing pronunciation and providing feedback will be assessed manually. The percentage of correctly identified pronunciation inaccuracies will be measured. A minimum accuracy rate of 80% is expected for the pronunciation analysis.

3.5 Highlighting Incorrect Pronunciation:

The app must utilize visual cues, such as distinct colors or other indicators, to highlight incorrectly pronounced words or sentences. This visual feedback will aid learners in recognizing and rectifying their mistakes effectively.

Measurement

The effectiveness of visual cues in highlighting incorrect pronunciation will be evaluated through user feedback. Users should be able to easily identify and understand the visual feedback. A minimum satisfaction rate of 80% is expected from the user feedback.

3.6 Sentence Practice at Launch

Upon launching the app, users should be presented with a word for initial practice. Subsequently, the random word button should transform into a "Next" button, facilitating a continuous learning flow.

Measurement

The user flow and transition from the initial word practice to the "Next" button will be assessed for smoothness and usability. User feedback and surveys will be collected to evaluate the experience of continuous learning flow. A minimum satisfaction rate of 80% is expected from the user feedback.

3.7 Rehearsal Option for Incorrect pronunciation:

To address poor pronunciation, the app should provide users with a rehearsal option. This functionality allows users to practice and refine their pronunciation skills, promoting ongoing improvement.

Measurement:

Users' ability to practice and improve their pronunciation skills through the rehearsal option will be evaluated through user feedback and surveys. The effectiveness of the rehearsal option in promoting improvement will be assessed. A minimum satisfaction rate of 80% is expected from the user feedback.

3.8 Project Presentation:

The app should be fully developed and prepared for demonstration by the scheduled presentation date on 7th July, ensuring a successful showcase of the project's capabilities.

Measurement:

The app should be fully developed and prepared for the scheduled presentation date. The demonstration of the project's capabilities should effectively showcase its features and functionalities.

3.9 Thorough Testing:

The tool should undergo comprehensive testing to ensure its accuracy in analyzing pronunciation and providing meaningful feedback. Testing sessions should be conducted with the chosen users in a suitable location, such as the TQ building.

Measurement:

Testing sessions will be conducted with 10 Dutch and non-Dutch speakers of English. The app's accuracy in pronunciation analysis and training will be evaluated based on user feedback and surveys. A minimum satisfaction rate of 60% from the chosen users is expected for the app's performance in pronunciation analysis and training.

3.10 Security Of Data

Since the tool at the given moment indulges only in speech analysis and pronunciation improvement and does not include any login information or user specific information, hence the security aspect is irrelevant in this scenario.

By adhering to these acceptance criteria, the development process will align with the stakeholder's requirements, resulting in the creation of a pronunciation improvement tool that fulfills their expectations and enhances the learning experience of MBO kids seeking to improve their English proficiency.

Analysis

- Carry out a requirement analysis for a software system with various stakeholders in a context of existing systems.
- Define acceptance criteria based on quality properties and a risk analysis carried out with, among others, attention for security aspects.