Software Requirement Specification Document for Language Learning Chatbot Platform

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Table 1: Document version history

Version	Date	Reason for Change
1.0	18-Oct-2024	SRS First version's specifications are defined.

GitHub: https://github.com/Mariam-Elbishbeashy/Language-Learning-Chatbot-Project

Contents

Abstract

In the evolving landscape of language acquisition, the integration of artificial intelligence presents a transformative opportunity for enhancing learning experiences. Language learners often face obstacles in practicing and refining their skills, which can hinder their progress and engagement. This prompts the exploration of an innovative solution: a Language Learning Chatbot Platform designed to facilitate interactive and personalized language practice. The proposed chatbot serves as a dynamic tool that engages students in meaningful conversations, providing real-time feedback on grammar, vocabulary, and pronunciation. Key features include user registration for students and tutors, an admin dashboard for oversight and analytics, customizable learning paths tailored to individual preferences, and a discussion forum for collaborative learning. By incorporating gamification elements, the platform not only motivates learners but also fosters a supportive community for language exploration. Ultimately, this chatbot aims to bridge the gap between traditional learning methods and the needs of modern language learners, making language acquisition more accessible, enjoyable, and effective.

1 Introduction

1.1 Purpose of this document

The Software Requirements Specification (SRS) document defines the system's goals, functions, and operations, guiding developers and stakeholders. It acts as a roadmap, detailing system components and expected capabilities. This SRS specifically focuses on developing deep learning models for network anomaly detection, outlining features, objectives, and algorithms. It ensures a shared understanding of the system's goals and limitations, directing the creation of an efficient anomaly detection system using advanced deep learning techniques to enhance network security and reliability

1.2 Scope of this document

This document provides a comprehensive overview of the application, detailing its functional and non-functional requirements, fundamental interface and data designs, as well as an analysis of the necessary classes and their interrelationships.

1.3 Business Context

In an increasingly globalized world, the demand for effective language learning solutions is on the rise, with millions of students seeking innovative ways to acquire new languages. According to a report from the British Council, over 1.5 billion people are currently learning English worldwide, highlighting a significant market potential for language education technologies. As traditional methods often fall short in providing personalized and engaging experiences, there is an urgent need for interactive platforms that can cater to diverse learning styles. Additionally, the rise of digital learning tools has transformed educational practices, prompting educational institutions and language learners to adopt technology-driven solutions that enhance engagement and accessibility. The Language Learning Chatbot Platform addresses these market needs by providing a dynamic and customizable learning experience, ensuring that users receive immediate feedback and support

in their language journey. Furthermore, leveraging gamification elements not only boosts motivation but also promotes sustained engagement, making it a vital asset for both learners and educators in a competitive landscape where user satisfaction and learning outcomes are paramount.

2 Similar Systems

2.1 Academic

Nuria Haristiani [1] developed a chatbot called "Gengobot," aimed at assisting learners with Japanese grammar. The study categorized chatbots by structure, purpose, and audience, emphasizing the effectiveness of AI-driven chatbots in educational settings. Gengobot, accessible via the LINE app, provides immediate feedback, helping learners gain confidence in grammar. However, Haristiani's study noted some limitations, including restricted interactivity due to fixed responses, indicating the need for more advanced chatbot capabilities to handle broader language applications.

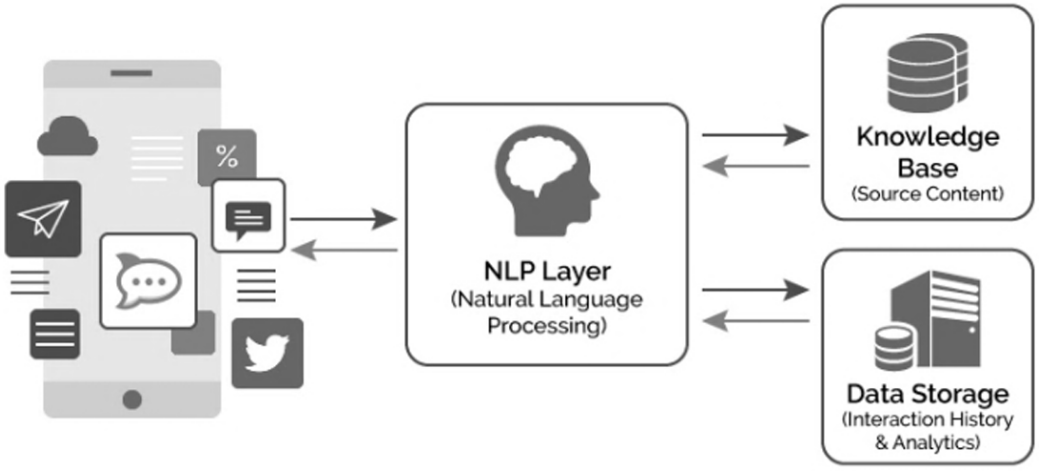

Figure 1: The mechanism of chatbot

Kleopatra Mageira, Dimitra Pittou, Andreas Papasalouros, Konstantinos Kotis, Paraskevi Zangogianni, and Athanasios Daradoumis [2] conducted field experiments with an AI chatbot called AsasaraBot, exploring its role in supporting Content and Language Integrated Learning (CLIL) for high school students in Greece. Designed as an interactive tutor, AsasaraBot engages students in English or French, focusing on cultural topics, such as the Minoan Snake Goddess. Using SnatchBot, the platform provided multilingual support, text-to-speech features, and interactive media, enabling seamless communication across Webchat, Facebook Messenger, and Viber.

The evaluation, conducted in both public and private schools, compared chatbot-based and other ICT-based methods. Results indicated positive reception for cultural learning via chatbot, although students favored traditional methods for language learning. AsasaraBot allowed students to interact at their own pace, supporting self-guided learning, and helped teachers analyze student needs based on conversation data. Despite technical limitations, the authors view AsasaraBot as

a promising supplement to human instruction and plan further studies to refine chatbot-based and blended learning approaches.

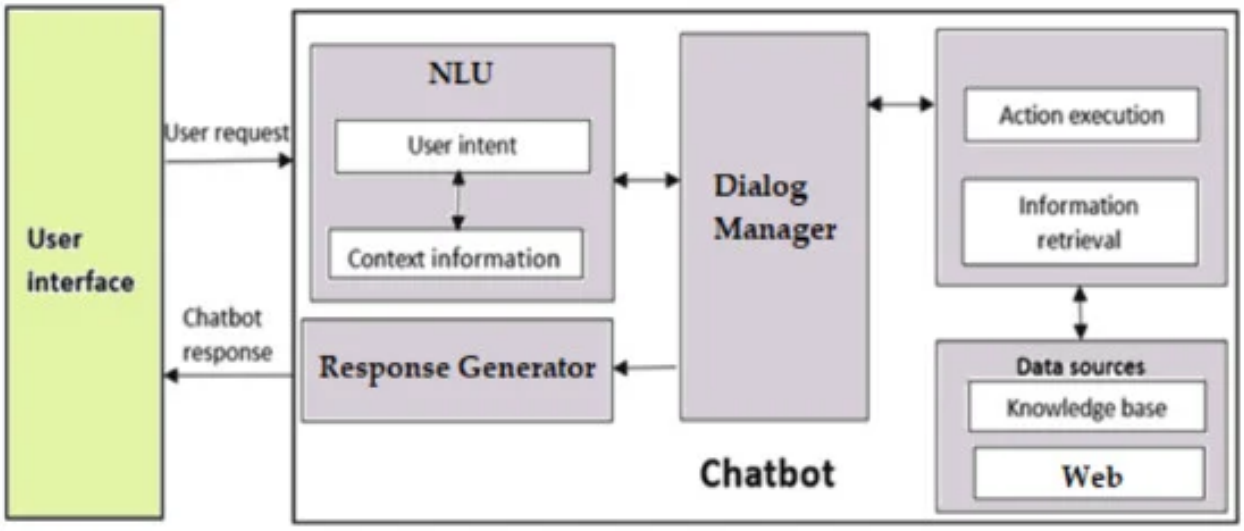

Figure 2: General architectural design of AsasaraBot.

Luke Fryer and Rollo Carpenter [3] discussed the potential of chatbots as language learning tools, emphasizing the challenges faced by foreign language learners (FLL) due to limited opportunities for practice outside the classroom. Their study involved 211 students using two popular chatbots, revealing that most felt more comfortable conversing with bots than with peers or teachers. They noted that while chatbots like Jabberwacky and ALICE offer conversational practice, their current design primarily caters to advanced learners and often lacks effective interaction for beginners. The paper highlighted six advantages of chatbots: increased comfort in conversation, unlimited practice opportunities, engagement through novelty, exposure to diverse language structures, and potential for instant feedback. Although chatbots have yet to be fully optimized for language learning, they represent a valuable resource, especially when integrated into classroom activities and utilized as homework tools. The authors concluded that future chatbot designs should focus on enhancing human-like interactions to better serve the needs of FLL students.

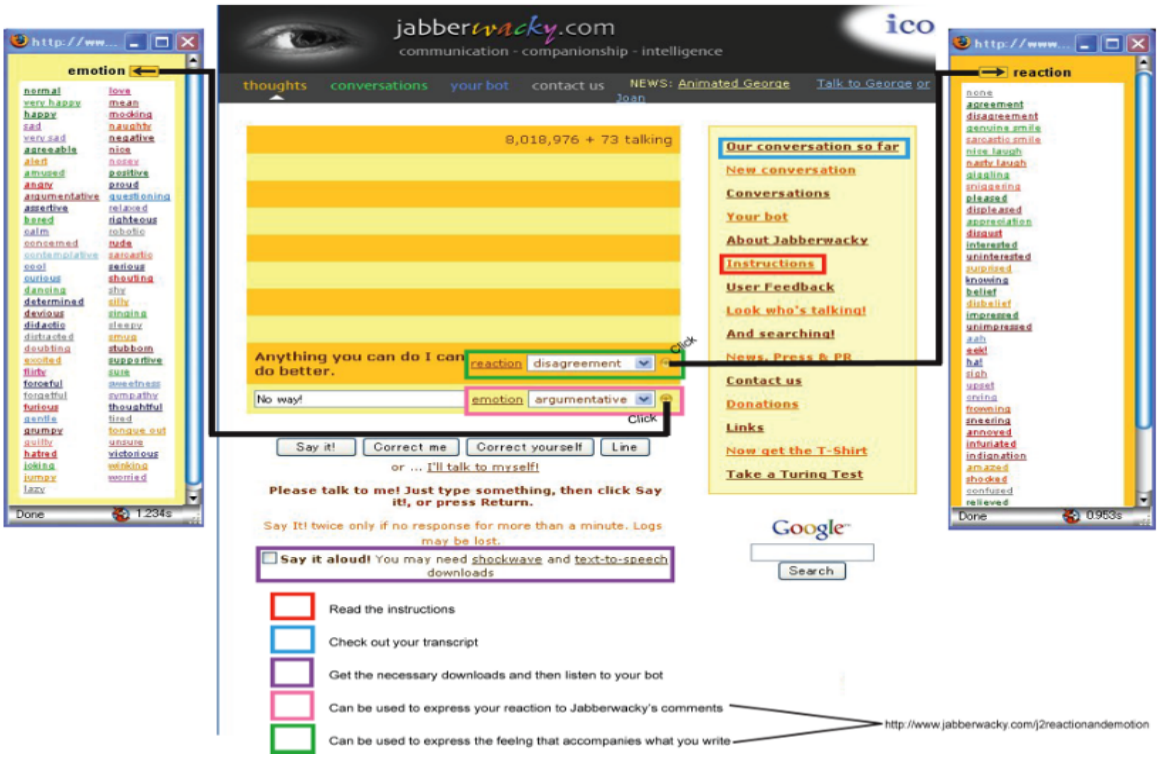

Figure 3: Jabberwacky.

Irina Dokukina and Julia Gumanova [4] discussed the role of chatbots in supporting foreign language learning by providing accessible, adaptive, and microlearning-based educational environments. The authors highlighted technological advances like deep learning and neural networks, which have made chatbots more effective as conversational agents. While traditional bots like ELIZA initiated automated dialogue, newer bots like XiaoIce continue to evolve through user interactions, supporting language learners through natural conversation.

The authors reviewed the educational benefits of chatbots, emphasizing their utility for multitasking learners who prefer flexible, self-paced study on mobile devices. Examples such as Duolingo and Vasya demonstrate chatbots' capacity to teach vocabulary, grammar, and pronunciation interactively, with rewards, gamification, and immediate feedback. The study concludes that while chatbots cannot fully replace human teachers, they provide a judgment-free space for practice, making language learning accessible, especially for beginners or learners in remote areas.

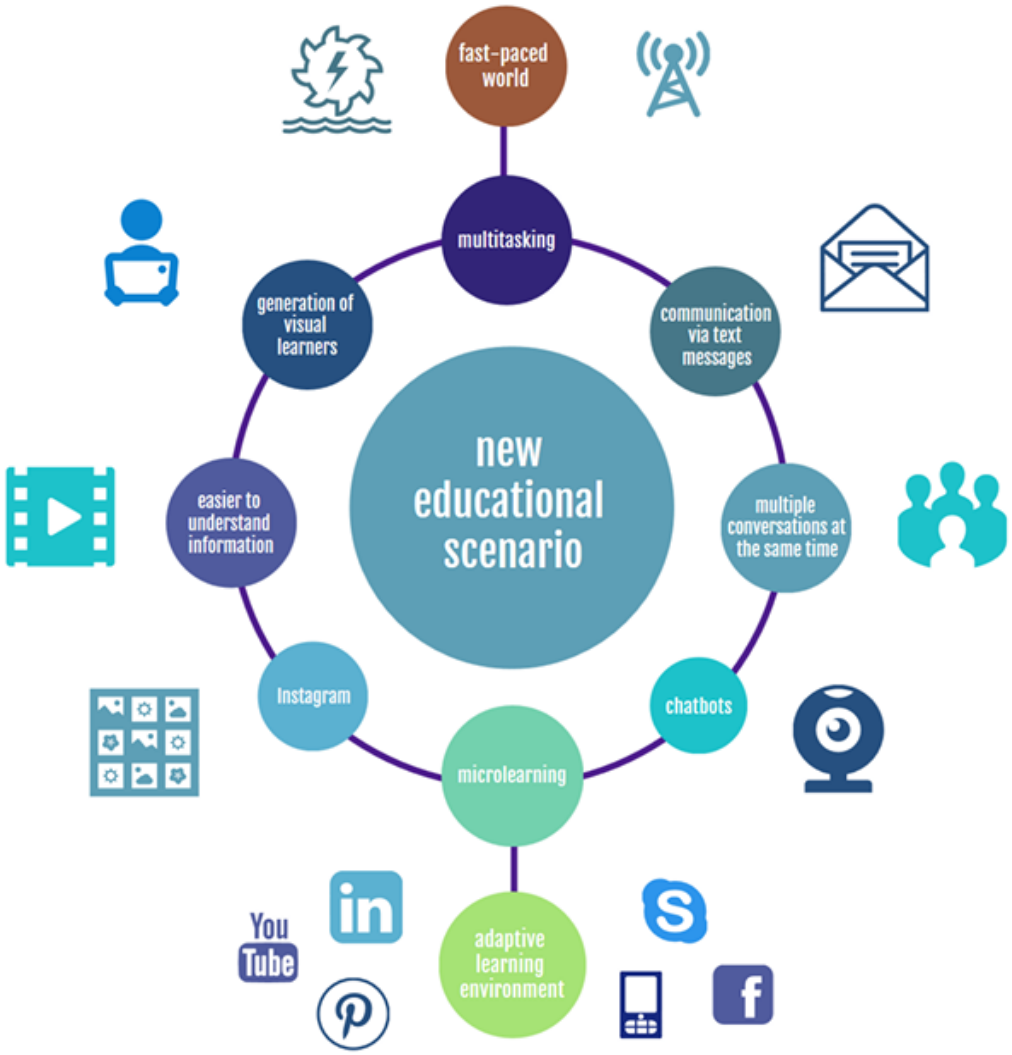

Figure 4: Chatbots are the important components of microlearning and help creating adaptive learning environments.

Jose Belda-Medina and José Ramón Calvo-Ferrer [5] examined pre-service teachers' knowledge, satisfaction, and perceptions of conversational AI for language learning. Using Replika, Kuki, and Wysa, 176 education students from Spain and Poland interacted with these chatbots over four weeks, evaluating linguistic and technological features through the Chatbot–Human Interaction Satisfaction Model (CHISM) and the Technology Acceptance Model (TAM2). While participants appreciated the ease of use and interface design, moderate scores in behavioral intention indicated a preference for human communication.

Results highlighted lexical richness and semantic coherence as satisfaction factors, though Replika's limited error correction posed challenges for language learning. Gender differences were notable, with female participants more responsive to chatbot customization options. Concerns about privacy, humor use, and pragmatic limitations emerged, emphasizing the need for adaptable, mul-

timodal chatbots with non-verbal communication and data security. The authors concluded that enhanced EFL curriculum training on AI and chatbots is needed, with future chatbots requiring improved contextual understanding, adaptive design, and privacy features to support their integration in education.

Roxana Rebolledo Font de la Vall and Fabián González Araya [6] examined the benefits and challenges of AI language learning tools, which utilize AI algorithms for translation, personalized tutoring, and language generation. Their study reviewed literature to highlight the tools' strengths, such as efficiency, personalized learning, and accessibility, but also noted issues, including limited human interaction, cultural limitations, and heavy data requirements. The authors proposed future improvements in AI, including VR integration, enhanced NLP algorithms, and personalized learning advancements to make AI tools more effective. These developments, they argue, could transform AI into a powerful asset in language education while addressing current limitations.

2.2 Business Applications

Duolingo stands out as a leading language learning app harnessing the power of AI. It provides courses in 36 languages, such as French, Spanish, German, Italian, and Japanese. By leveraging AI, Duolingo tailors the learning journey to your performance and progress. Additionally, it incorporates gamification to ensure the learning process remains enjoyable and captivating. Duolingo Max offers a premium experience with unlimited hearts, no ads, and personalized lessons, further enhancing the learning experience.

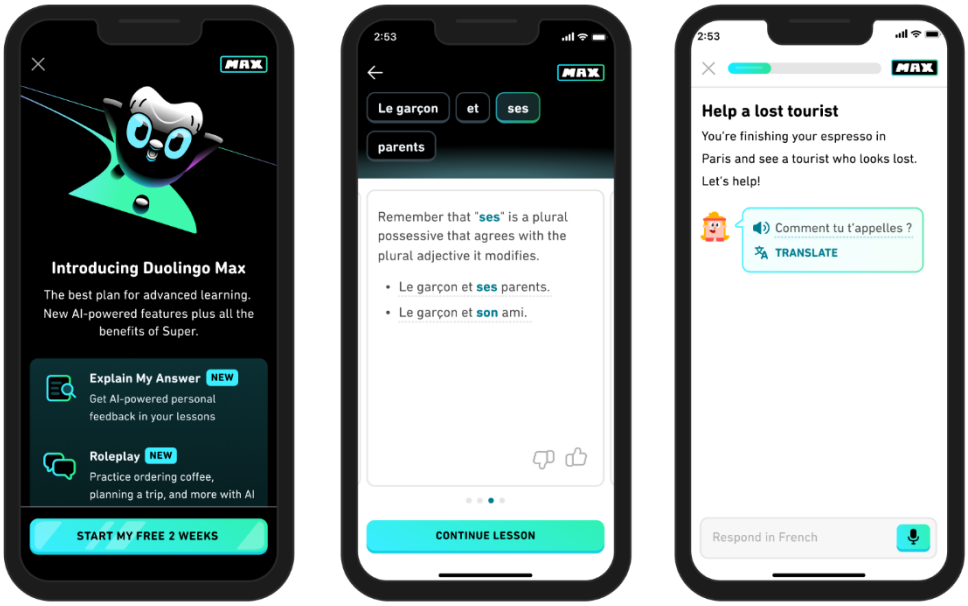

Figure 5: Duolingo.

Babbel is a widely-used language learning app fueled by AI. It provides courses in 14 lan-

guages such as Spanish, French, German, Italian, and Portuguese. Babbel leverages AI to customize the learning process and features a variety of interactive lessons and dialogues designed to enhance speaking, listening, and writing skills.

Figure 6: Babbel.

Talkpal is a GPT-powered AI language tutor that allows users to engage in limitless conversations on fascinating topics through writing or speaking, receiving responses with a lifelike voice. Its immersive features, including Chat, Roleplays, Characters, Debates, Call Mode, Sentence Mode, and Photo Mode, offer practice in over 57 languages.

Figure 7: Talkpal AI.

Busuu is a language learning app providing courses in 12 languages, such as Spanish, French, German, Italian, and Japanese. Utilizing AI, the app tailors the learning experience and includes a variety of interactive lessons and games to enhance speaking, listening, and writing skills.

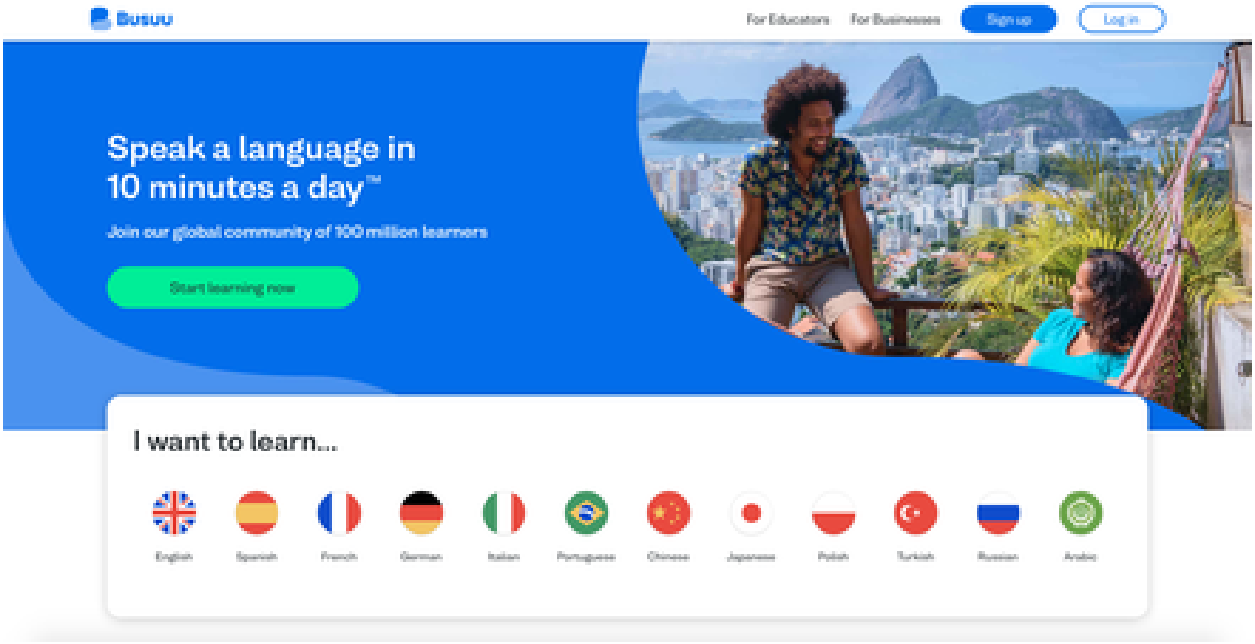

Figure 8: Busuu.

Memrise is a language learning app that leverages AI to customize the learning journey, featuring a variety of interactive lessons and games to enhance vocabulary and grammar skills. The app provides courses in 22 languages, such as Spanish, French, German, Italian, and Japanese.

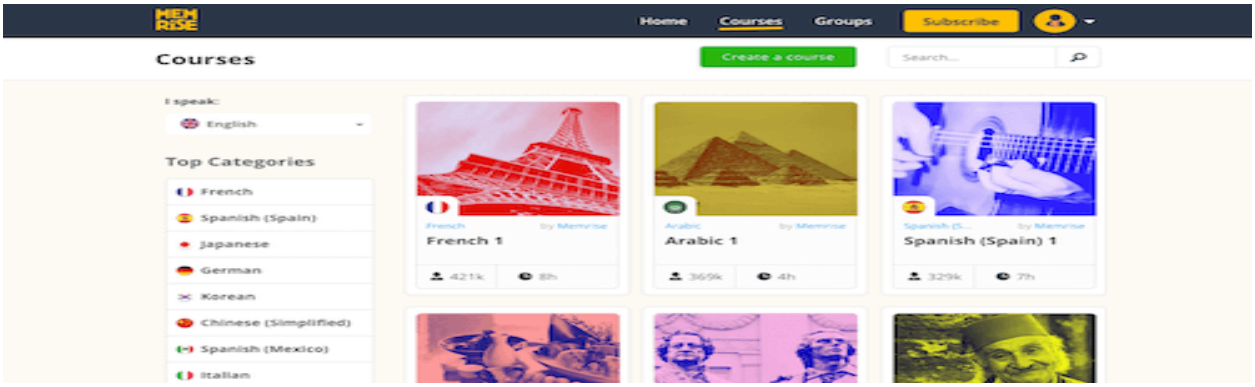

Figure 9: Memrise.

Ling is a language learning app crafted to make mastering new languages enjoyable and engaging. It provides lessons suited to different proficiency levels, featuring games, quizzes, and practical dialogues. Ling supports a variety of languages and emphasizes conversational skills, making it ideal for both beginners and advanced learners.

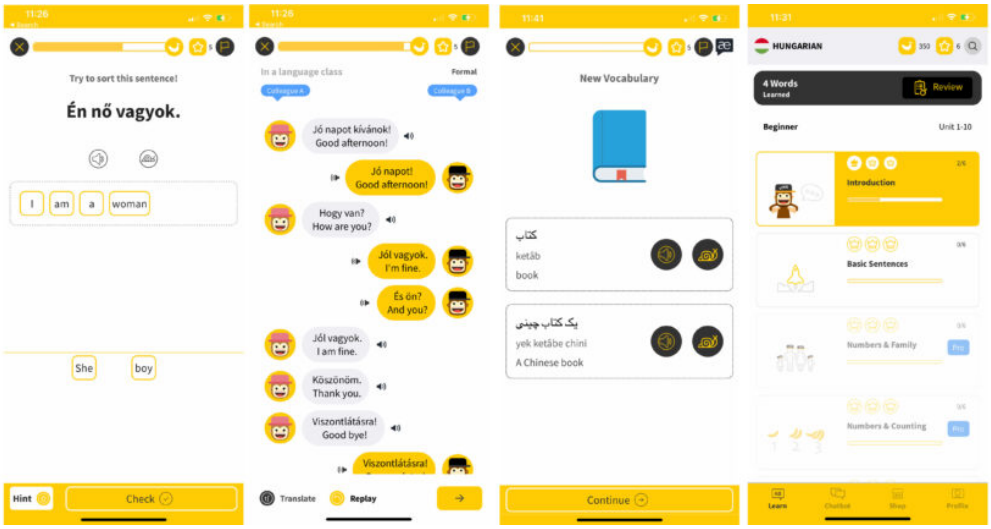

Figure 10: Ling.

3 System Description

3.1 Problem Statement

Learning a new language can be challenging, especially when students do not receive prompt feedback and personalized support. Traditional methods may lack the immediacy in correcting pronunciation, grammar, and vocabulary, which may hinder learners' progress. This project provides an interactive chatbot platform to address these challenges by offering personalized learning and real-time feedback, helping students enhance their language skills at their own pace.

3.2 System Overview

The platform is designed to guide users through six main processes, as illustrated in Figure 11:

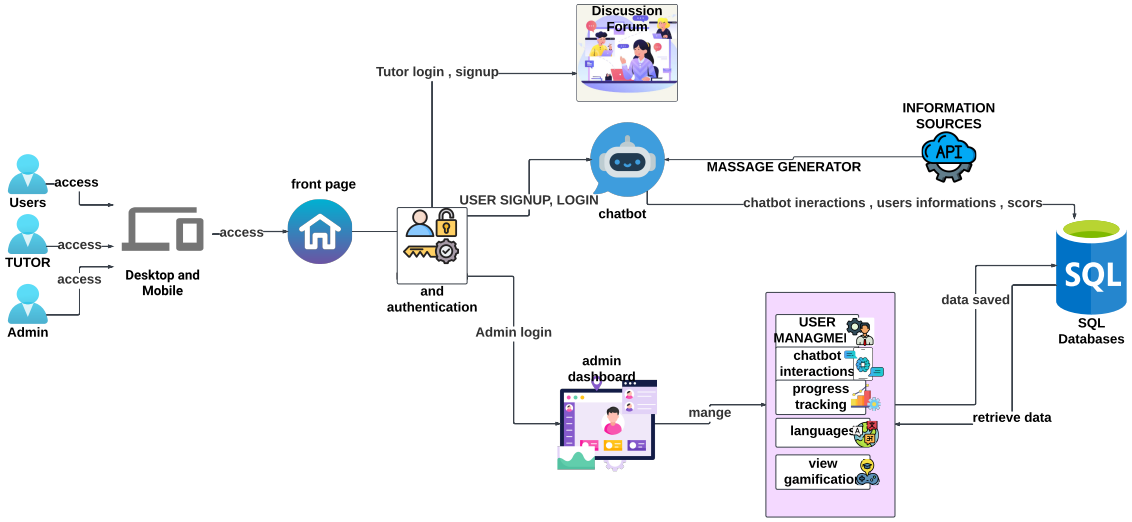

Figure 11: system overview.

3.2.1 User Interaction and Topic Selection

The chatbot will first ask users to choose language themes or situations they want to practice. This allows the platform to customize each lesson to meet the unique learning requirements of each student, facilitating relevant and practical discussions.

3.2.2 Language Comprehension Analysis

Once a conversation starts, the chatbot will process and analyze the student's responses in real-time. This involves parsing grammar, sentence structure, and vocabulary usage to ensure that the interaction remains contextually relevant.

3.2.3 Feedback Mechanism

The system will highlight grammatical errors, vocabulary mistakes, or pronunciation issues as they arise to provide prompt feedback. Students will receive guidance on improvements, allowing them to adjust immediately and develop their language abilities.

3.2.4 Language Proficiency Classification

The chatbot assesses the user's competence level by analyzing trends in their responses over time. This classification adjusts continuously based on the student's performance, helping the platform match conversation complexity and feedback to the student's skill development. Additionally, this

data provides administrators, tutors, and students with insights on areas that need attention and improvement.

3.2.5 Performance Tracking and Gamification

To encourage engagement and monitor progress, the platform includes performance tracking and gamification. Users can view their conversation history, received corrections, and track progress over time. Gamified elements such as quizzes, challenges, badges, and other rewards celebrate students' accomplishments and motivate them to continue their language learning journey.

3.3 System Scope

1. Provide real-time conversational practice for learners to improve their language skills in writing, listening, and reading.

2. Facilitate customizable learning paths that enable learners to choose topics, areas of focus (such as grammar, speaking), and difficulty levels according to their individual learning preferences.

3. Offer immediate feedback on vocabulary, pronunciation, and grammar to aid language proficiency.

4. Track and maintain student progress, including performance analysis, and conversation history, delivering analytics for both administrators and students to evaluate improvement and engagement.

5. Incorporate gamification elements, like challenges, rewards, and quizzes to encourage students, make the learning experience more engaging and interactive.

6. Create a discussion forum where students can interact, share learning strategies, ask questions, and explore cultural topics with peers and tutors providing additional guidance and resources.

3.4 System Context

Students, language tutors, and administrators are among the user categories that the Language Learning Chatbot Platform communicates with. As seen in Figure 7, it also connects with other systems to satisfy platform requirements. As explained in Section 7, Microsoft SQL Server is responsible for managing all platform data, including user data, conversation history, learning progress, and analytics data. The chatbot improves speaking and writing abilities by using Natural Language Processing (NLP) APIs for real-time language analysis, grammar correction, and feedback. For gamification, immersive language engagements, and real-time analytics for individualized learning paths, it makes use of a third-party TTS API.

3.5 Objectives

- Design a user-friendly chatbot platform available on both web and desktop devices, providing engaging conversations for language practice.
- Offer tailored learning experiences that allow students to personalize their learning paths based on specific skills and levels.
- Provide immediate feedback on vocabulary, pronunciation, and grammar to help students improve.
- Foster community interaction through a discussion forum for tutors and learners to share insights and cultural topics.
- Integrate gamification elements such as quizzes and rewards to motivate and enrich the language learning journey.

3.6 User Characteristics

The primary users are language learners at varying proficiency levels who seek interactive and personalized language learning support. Additional users include tutors and administrators who manage, track, and support students' progress.

4 Functional Requirements

4.1 System Functions

The following use case diagram illustrates the system's functional requirements for a language learning chatbot platform. The platform includes three user types: student, tutor, chatbot, and admin.

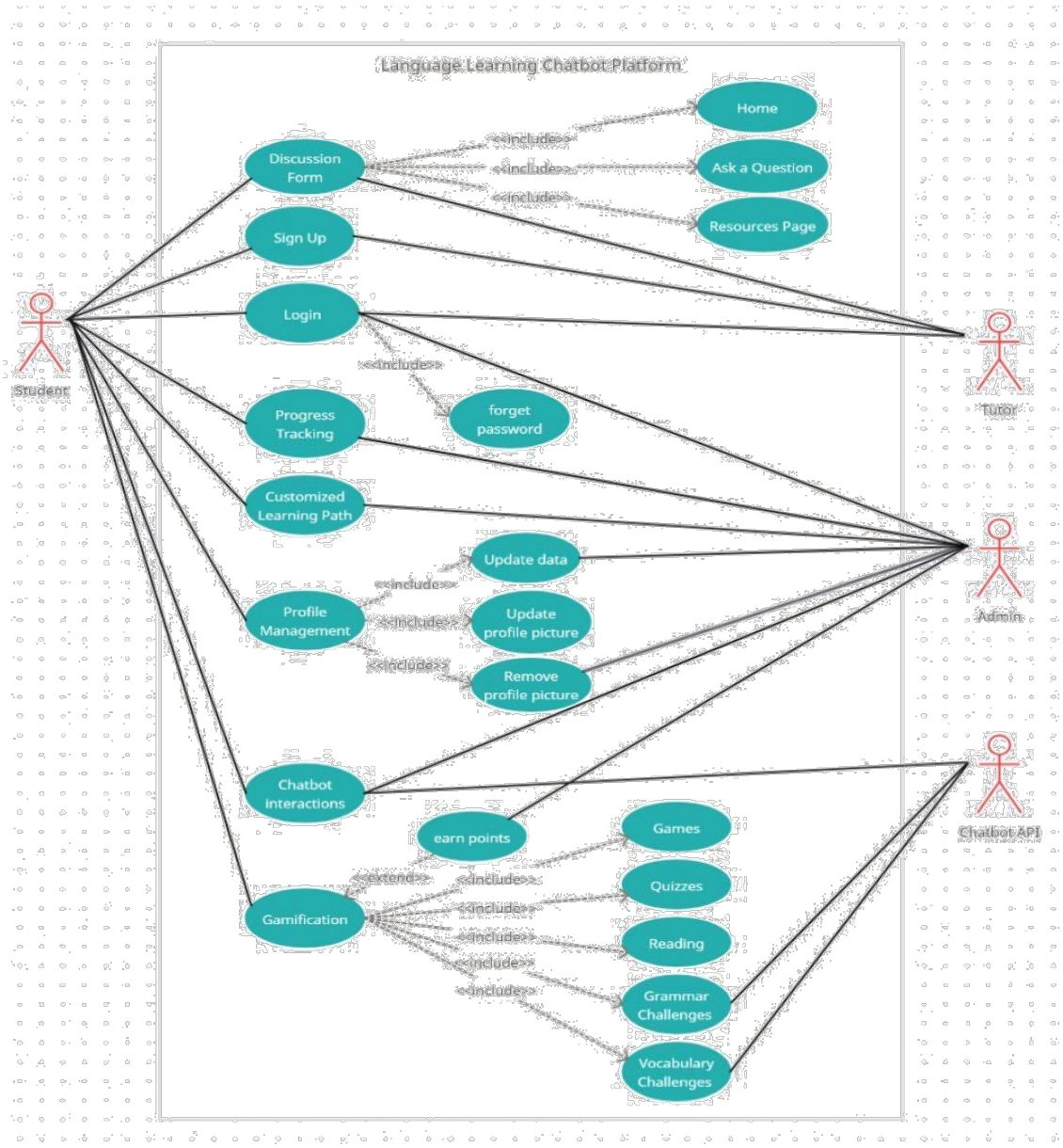

Figure 12: Use-case diagrams

4.1.1 Student Functional Requirements

- **Student Account Creation**: Students will be able to create an account with their personal information and preferred language. (S01)
- **View and Select Learning Topics**: Students will be able to choose particular language learning themes for practice after viewing descriptions of the various topics. (S02)
- **Engage in Interactive Conversations**: Students will be able to select conversation subjects or scenarios and start conversations with the chatbot to practice speaking and writing. (S03)
- **Receive Real-time Feedback**: Throughout conversations, the chatbot will provide immediate feedback on vocabulary, grammar, and pronunciation. (S04)
- **Update Student Profile Information**: Students will have the ability to add or modify their account details and language preferences within the platform. (S05)
- **View Conversation History and Feedback**: Students will have access to a history of their conversations, including detailed reports of the chatbot's feedback and adjustments. (S06)
- **Receive Vocabulary and Grammar Suggestions**: Based on student interactions, the chatbot will offer suggestions to improve vocabulary and grammar. (S07)
- **Customize Learning Path**: Students can select difficulty levels, focus areas (speaking, listening, writing), and specific interests for personalized learning experiences. (S08)
- **Check Connectivity of Learning Tools**: Before starting a learning session, the system will confirm connectivity to any necessary tools or resources. (S09)

4.1.2 Chatbot Functional Requirements

- **Chatbot Language Processing**: The system must analyze student inputs to deliver relevant feedback. (C01)
- **Data Preprocessing for Improved Responses**: The system will preprocess user data to enhance chatbot responses. (C02)
- **Language Feature Extraction**: The chatbot will extract key language elements (e.g., vocabulary and grammar structures) from conversations to tailor responses. (C03)
- **Provide Grammar and Vocabulary Classifications**: Using classification algorithms, the system will identify grammatical structures and vocabulary categories. (C04)
- **Generate Detailed Conversation Reports**: Each conversation session will result in a comprehensive report, including personalized feedback for the student. (C05)
- **Create Interactive Conversation Environment**: The platform will provide an engaging environment where students can practice language skills. (C06)

- **Provide Feedback on Pronunciation**: The system will assess spoken language and offer feedback on pronunciation, if applicable. (C07)
- **Adaptive Learning Model**: The chatbot will adjust its feedback based on the student's learning progress, especially if errors or misunderstandings are consistent. (C08)

4.1.3 Tutor Functional Requirements

- **Tutor Access to Student List**: Tutors will have access to a list of assigned students and can monitor their language learning progress. (T01)
- **Tutor Feedback on Student Progress**: Tutors will be able to add comments and feedback on student progress for specific sessions. (T02)

4.1.4 Admin Functional Requirements

- **Admin Management of User Accounts**: Admins will be able to add, update, and delete users in the system. (A01)
- **Admin Access to User Engagement Data**: Admins will have access to analytics on user engagement, conversation topics, language analysis, and learning progress. (A02)
- **Access to Detailed Student Reports**: Admins will have access to comprehensive reports on students' language learning progress. (AT01)

4.1.5 Gamification Functional Requirements

- **Gamification Elements**: The platform will include gamified features to encourage student engagement and improve learning outcomes. (G01)
- **Quizzes and Challenges**: The system will offer quizzes and language challenges to reinforce learning concepts and assess student progress. (G02)
- **Rewards**: Students will earn points for completing quizzes and challenges. (G03)
- **Gamification Management for Admin**: Admins will have tools to manage and monitor gamification features, including tracking user activity and managing scores. (A05)

4.2 Detailed Functional Specification

4.2.1 Start Conversation

Name	Start Conversation
Code	F01
Priority	Extreme
Description	Initiates a conversation between the student and the chatbot on a selected topic. Provides real-time feedback and corrections.
Inputs	Topic, Student's input (text or voice)
Outputs	Chatbot responses, corrections, vocabulary suggestions
Pre-Condition	User must be authenticated (logged in)
Post-Condition	Conversation history and feedback saved for future reference
Dependencies	User authentication
Risks	Low risk of failure due to no external dependencies

4.2.2 Review Grammar Suggestions

Name	Review Grammar Suggestions
Code	F02
Priority	Extreme
Description	Displays a list of grammar suggestions and corrections made by the chatbot, providing explanations to help the student learn.
Inputs	Student ID, Conversation ID
Outputs	List of grammar corrections with detailed explanations
Pre-Condition	Completed conversation session
Post-Condition	Grammar corrections saved in student's learning history
Dependencies	Completed conversation, stored conversation data
Risks	Users may find grammar suggestions unclear or unhelpful, limiting their learning effectiveness.

4.2.3 View Progress Report

Name	View Progress Report
Code	F03
Priority	Extreme
Description	Generates a detailed report showcasing the student's progress in various language skills. Displays conversation history, corrections, vocabulary learned, and proficiency improvements.
Inputs	Student ID
Outputs	Progress report, optionally shared with tutors
Pre-Condition	Prior conversation and correction sessions
Post-Condition	Report displayed for the student, stored for future reference
Dependencies	Stored student data, past conversation history
Risks	Students may perceive the progress report as lacking depth or relevance, reducing its motivational impact.

4.2.4 Customize Learning Path

Name	Customize Learning Path
Code	F04
Priority	High
Description	Allows students to personalize their learning path by selecting difficulty levels, focus areas (e.g., speaking, writing), and interests (e.g., culture, travel).
Inputs	Selected difficulty, focus areas, personal interests
Outputs	Tailored learning plan
Pre-Condition	Student must be logged in
Post-Condition	Personalized learning path saved for future sessions
Dependencies	None
Risks	Learners may struggle to engage with the customization options, leading to a less personalized learning experience.

4.2.5 Real-Time Feedback

Name	Real-Time Feedback
Code	F05
Priority	High
Description	Provides real-time corrections and suggestions based on user input during conversations. The chatbot gives immediate responses to mistakes in grammar or vocabulary.
Inputs	Student input during conversation
Outputs	Instant feedback, corrections, and suggestions
Pre-Condition	Ongoing conversation
Post-Condition	Feedback recorded for student review
Dependencies	Conversation session
Risks	Possible latency issues in feedback delivery

4.2.6 Gamification

Name	Gamification
Code	F06
Priority	Medium
Description	Students earn points and badges based on their performance, completion of conversation sessions, and progress milestones.
Inputs	Student activity, performance metrics
Outputs	Points
Pre-Condition	Active participation in learning activities
Post-Condition	Score displayed in the student profile
Dependencies	None
Risks	Users may feel dissatisfied if the gamification does not meet their learning expectations or provide insufficient value.

5 Design Constraints

5.1 Hardware Limitations

The platform will be optimized for web and desktop applications, with additional consideration for resource limitations on mobile devices.

5.2 Third-party API Integration

The chatbot may rely on third-party APIs (such as language processing or speech recognition services). These integrations should be robust, with error-handling mechanisms to manage potential downtime or service limitations.

5.3 Limited Offline Access

Since the platform relies on internet access, it will not be usable offline. This could limit users who do not have stable internet connections.

5.4 Language Processing Limitations

The NLP component should handle multiple languages and regional dialects. However, it may have limited capabilities in detecting nuanced language variations or slang, especially in languages with complex grammatical structures.

6 Non-functional Requirements

6.1 Reliability

The chatbot shall provide consistent and accurate responses, with minimal downtime or interruptions. Monitoring systems will alert administrators of performance issues.

6.2 Scalability

The platform shall support a growing user base and handle increasing user interactions through load balancing and cloud-based solutions.

6.3 Security

The system should have robust security features, such as encryption, and authentication mechanisms. And should define role-based access for students, tutors, and admins to protect restricted content and ensure only authorized access.

6.4 Usability

Ensure an intuitive interface for ease of navigation and use, even for users who are less tech-savvy, the system should have a user-friendly interface, clear instructions, and easy-to-understand responses.

6.5 Maintainability

Incorporate automated tests for critical features to support smooth deployment of updates and minimize the risk of bugs disrupting user experience.

6.6 Performance

The chatbot system should provide fast response times to user queries. This means that the system should be able to process user input quickly and provide a response within a reasonable time frame to maintain a natural conversation flow.

7 Data Design

Figure 13: Database schema

8 Preliminary Object-Oriented Domain Analysis

Initial Class Diagram is shown in figure 14.

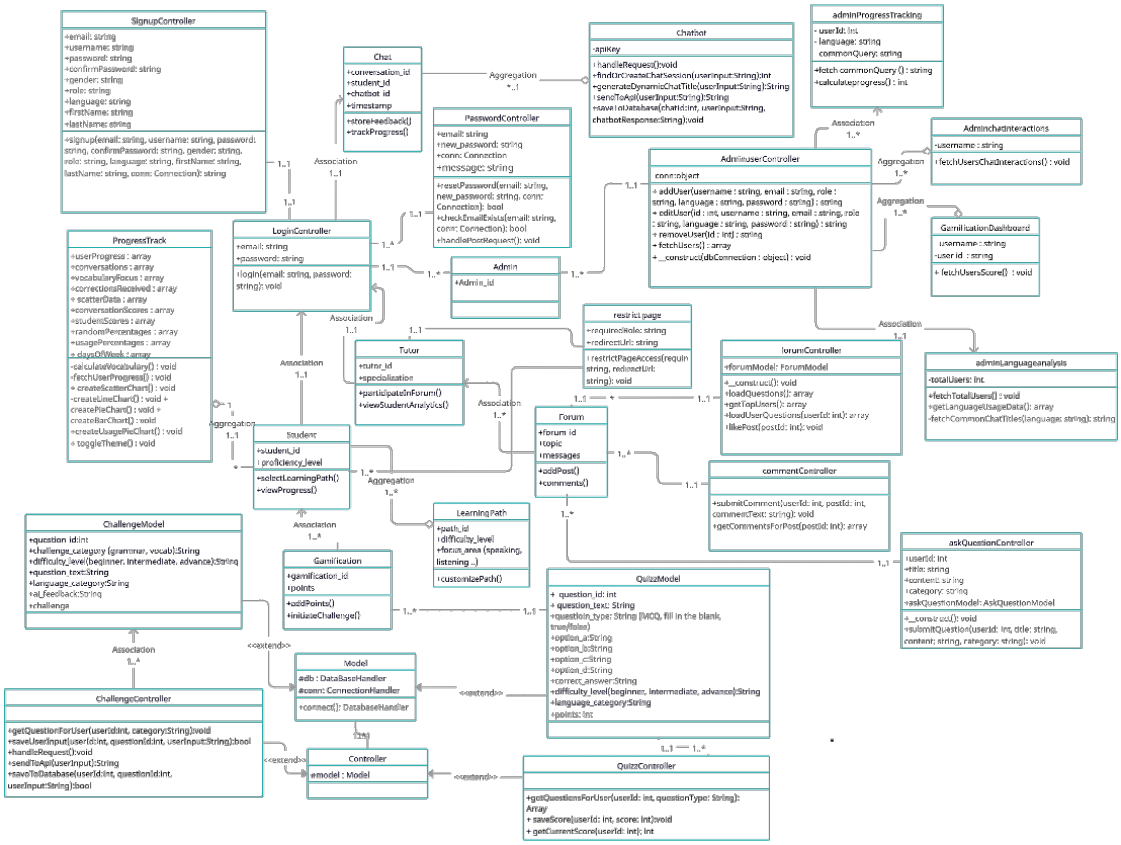

Figure 14: UML Class Diagram for Language Learning Chatbot Platform

9 Operational Scenarios

Description of user scenarios and use cases.

9.1 Scenario 1: Student Account Creation

1. **Initial Assumption:** The student has a stable internet connection and a device compatible with the platform.

2. **Normal Flow:** The student initiates the signup process, following prompts to enter necessary personal information and set up account preferences.

3. **What Can Go Wrong:** Connectivity issues may interrupt the signup process, requiring the student to restart.

9.2 Scenario 2: Chatbot Language Practice for Students

1. **Initial Assumption:** The student is logged in and has selected a specific topic for conversation practice.

2. **Normal Flow:** The chatbot initiates a conversation based on the chosen topic, providing space for the student to respond. The chatbot gives real-time feedback, offering grammar and vocabulary corrections as needed.

3. **What Can Go Wrong:** Slow or disrupted internet connection may delay response times, breaking the flow of conversation and feedback.

9.3 Scenario 3: Tutor Discussion Participation

1. **Initial Assumption:** The tutor is logged in and familiar with navigating the platform's discussion forum.

2. **Normal Flow:** The tutor accesses the forum, reads student questions and posts, and contributes by comments answers or resources to ongoing discussions. Tutors can post new discussions, sharing cultural insights or language tips.

3. **What Can Go Wrong:** If a tutor faces connectivity issues or server errors, they might experience delays in posting responses or posts.

9.4 Scenario 4: Admin Monitoring and Reporting

1. **Initial Assumption:** The admin has full permissions and access to the admin dashboard.

2. **Normal Flow:** The admin logs into the dashboard, reviews analytics of user, student progress, languages analytics, and chatbot interactions.

3. **What Can Go Wrong:** Technical issues may limit access to real-time analytics or lead to data loading delays, impacting the admin's ability to monitor activity efficiently.

9.5 Scenario 5: Admin User Management

1. **Initial Assumption:** The admin has successfully logged into the admin dashboard with full permissions.

2. **Normal Flow:** The admin navigates to the user management section, where they can view a list of students and tutors. The admin selects a user to either add, update, or delete:

    - **Add:** The admin enters the new user's details like username, email, and language, assigns a role (student, tutor, or admin), and saves the account.
    - **Update:** The admin edits user information or permissions, such as updating the email address or resetting the password, and saves changes.

- **Delete:** The admin selects a user account to remove permanently, with a confirmation step.

3. **What Can Go Wrong:** Internet issues might prevent the admin from saving changes or adding a new user, requiring re-entry. Also, if deletion fails, the user account may still be visible in the list.

9.6 Scenario 6: Student Progress Review

1. **Initial Assumption:** The student has completed several chatbot interactions and has progress data stored on the platform.

2. **Normal Flow:** The student accesses their profile, reviewing conversation history, feedback, and their progress tracking page that displays analytics of overall progress, conversation history, vocabulary focus, scores, chatbot usage by day, and corrections received.

3. **What Can Go Wrong:** If the progress data fails to load due to server or internet issues, the student may be unable to view their history or receive recommendations.

9.7 Scenario 7: Gamified Quiz Completion

1. **Initial Assumption:** The student is logged in and navigates to the "Games" page, which includes sections for quizzes, challenges, reading activities, and vocabulary games.

2. **Normal Flow:** The student selects a section (e.g., Quiz, Challenge, Reading, or Games) and clicks the "Start" button to begin. The quiz or game opens, and the student completes questions or tasks related to vocabulary, grammar, or cultural nuances. Upon completion, the student receives immediate feedback and earns points.

3. **What Can Go Wrong:** If the internet connection or server response is slow, the selected section might take time to load, or the score might fail to update, causing the student to restart.

9.8 Scenario 8: Tutor Participation in Discussion Forum

1. **Initial Assumption:** The tutor is logged into the platform and is participating in the discussion forum with students.

2. **Normal Flow:** The tutor reviews discussion posts in the forum and provides comments, offering insights, encouragement, or additional resources related to language learning topics. These comments are visible to all students in the forum.

3. **What Can Go Wrong:** Connectivity issues or system errors might prevent tutors from saving comments, requiring them to retype and resubmit.

9.9 Scenario 9: Student Viewing Tutor's Forum Comments

1. **Initial Assumption:** The student is participating in the forum and wishes to read feedback or insights provided by a tutor.

2. **Normal Flow:** The student navigates to the forum and views the tutor's comments, which provide useful language tips, cultural information, or encouragement in response to various discussion topics.

3. **What Can Go Wrong:** System or network errors may delay the loading of comments, making it harder for the student to access the tutor's contributions in real-time.

10 Project Plan

A Full view of the Project's Time plan.

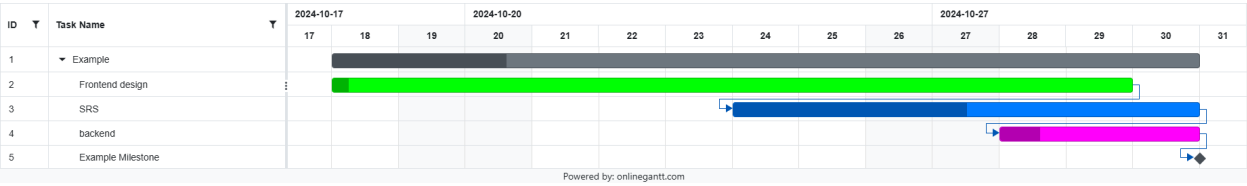

Figure 15: Time plan

11 Appendices

11.1 Definitions, Acronyms, Abbreviations

Abbreviation	Definition
NLP	Natural Language Processing - Interaction between computers and human languages.
TTS	Text-to-Speech - Converts text into spoken voice.

Table 2: Definitions, Acronyms, and Abbreviations

11.2 Supportive Documents

References

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