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LingoLizard

Functional Specification

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# Introduction

This specification provides all functionalities and requirements for this application. It offers detailed descriptions and illustrations to aid in directing the creation and validation of LingoLizard.

LingoLizard seeks to fulfil the growing need for effective language education by employing innovative real-time conversational learning techniques. The application focuses on fixing common issues with spelling and grammar and providing feedback that enhances the learning experience by integrating interactive practice, LingoLizard ensures that users not only learn the rules of language but also apply them in real-world scenarios.

LingoLizard aims to create an engaging and effective language learning experience that empowers users to improve their communication skills confidently and competently.

## Project Scope

### Project Objectives

The objective of this project is to carry out each of the requirements and functions mentioned in this document. To create a good user experience and encourage users to want to use this website and build a habit of practising their language of choice.

### Target Audience

This project's target audience is users trying to learn a language but do not know anyone who can speak that language they can practice.

Other language applications might focus more on learning languages by learning basic words without context, it can be hard to know where to use what you learn in certain situations.

This project will be useful for people who are not interested in being fluent and want to learn simple travelling phrases.

# Problem and Proposition

## Problem Statement

Acquiring proficiency in a foreign language is exceedingly challenging, and regrettably, there is no silver bullet for this problem. Being fluent in a Language involves an understating of grammar, vocabulary and pronunciation. Language learning can be accomplished in a variety of ways, including immersion and school-based approaches. For people wanting to learn through immersion, they need to be surrounded by the language therefore without travelling, they will need to listen to movies, songs or podcasts in their target language. This is helpful but they are unable to practice and develop conversational fluency effectively. Research says, “As your brain learns how to process a second language, it can even change and improve how it processes your first language.”[1] This shows it is beneficial to be bilingual.

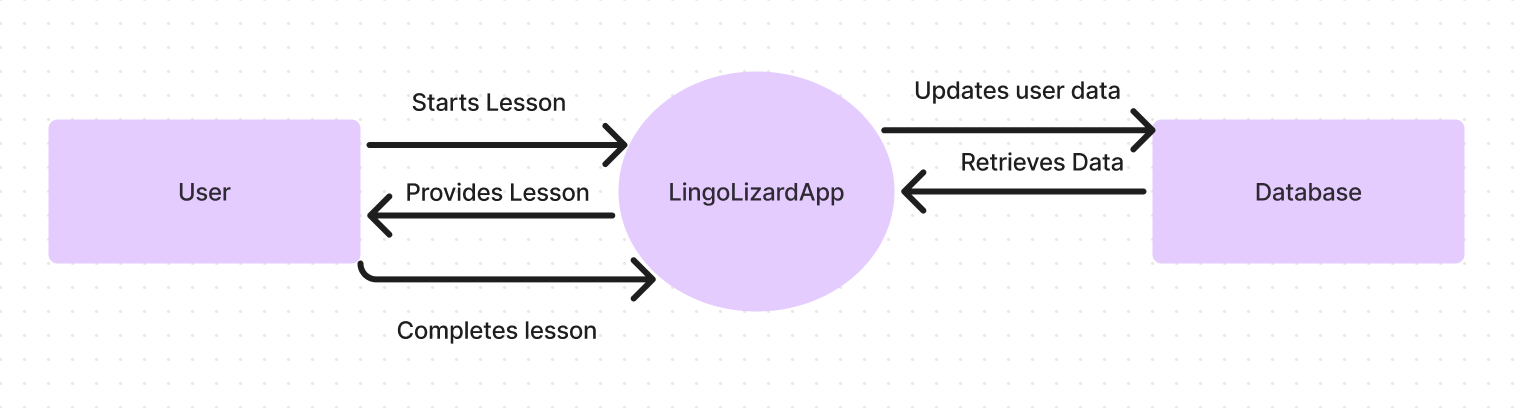
## Value Proposition

LingoLizard addresses this challenge by offering a solution that combines personalised lessons, real-time conversations and gamification elements to keep the user engaged. LingoLizard aims to help any user improve regardless of their skill level. Unlike other language apps that mainly focus on grammar drills and vocabulary memorization, LingoLizard aims to provide a unique learning experience for each user no matter what level of fluency they are. Whether a user is advanced, or a beginner LingoLizard’s versatile approach will help anyone looking to improve their language skills.

# System Overview

This section provides a high-level view of the LingoLizard system. It includes a diagram showing how the system will work, along with assumptions and dependencies.

## System Context Diagram



## Assumptions

* Users are comfortable with text-based communication.
* Users have reliable internet access.

## Dependencies

* **Web browsers:** Chrome, Firefox, Safari, and Edge for browser-based access.
* **Database management:** Hosted on PostgreSQL to store user data and progress.
* **Rasa Framework:** Used for building the conversational AI engine, providing intent recognition and real-time feedback.

# Requirements

This section covers the website's features that are necessary for it to operate as expected and deliver a good user experience.

## Functionality

### Core features

* **Provide real-time conversation lessons:**  
  Offer lessons across multiple languages with options for different skill levels.
* **Real-time feedback and corrections:**  
  Use AI to detect grammar, pronunciation, and vocabulary errors and offer instant suggestions for improvement.

### additional features

* **Track user progress:**  
  Maintain a user profile that visualizes achievements, completed lessons, and areas for improvement.
* **Include gamification:**  
  Introduce streaks, leaderboards, and points.
* **Provide role-play scenarios:**  
  Provide everyday scenarios for practice.

## Usability

* **User-friendly interface**  
  Keep navigation simple for users to access lessons.
* **Multi-language support:**  
  Ensure the website can be used by a global audience.
* **Supports mobile and desktop use:**  
  Make the platform available across all devices.
* **Provide reminders and notifications:**  
  Use notifications and reminders to remind or alert users.

## Reliability

* **Ensure the bot is available 99% of the time:**  
  Minimize downtime to maintain a seamless user experience.
* **Back up data and log errors:**  
  Implement regular backups and logging of errors.

## Performance

* **Keep responses fast:**  
  Chatbot responds in seconds to ensure a smooth user experience.

## Security

* **Ensure user data is private and protected:**  
  Comply with GDPR to keep users' data safe.

## Supportability

* **Available on multiple devices:**  
  Users can learn on their mobile devices or desktop
* **Available on multiple browsers:**Users can access the website on many browsers like Chrome, Firefox, Safari, etc.

# Use case Diagram

A diagram of a person's diagram

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# Detailed use case

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Name: | Start Lesson | UniqueID: | UC001 |
| Description: | The user selects a lesson from the available course options, and the system loads the lesson, using the user's progress to customize the lesson content. The chatbot provides real-time interaction, offering feedback and tracking the user's performance throughout the lesson. | | |
| Actor: | User | | |
| Pre-conditions: | * User must be registered and logged in * Chatbot must be operational * User must have an internet connection | | |
| Trigger: | The user clicks the start lesson button in the main menu. | | |
| Main Path: | User | | |
| Post Conditions: | The user will get access to the lesson. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Name: |  | UniqueID: | UC002 |
| Description: |  | | |
| Actor: |  | | |
| Pre-conditions: |  | | |
| Trigger: |  | | |
| Main Path: |  | | |
| Post Conditions: |  | | |

# Brief Use Cases

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Name: | Login | UniqueID: | UC002 |
| Description: | The user is asked for their username and password to log in. The entered credentials are then compared to the user data that has been stored by the system. The user is given access to their account if the login credentials are accurate. The system offers options like password recovery and feedback, like an error message, if the credentials are incorrect. | | |
| Actor: | User, Database | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Name: | Register | UniqueID: | UC002 |
| Description: | The user is given a registration form to fill out, on which they must enter their name, email address, and password. The system verifies the data entered after the form is submitted. The system generates a new user account and saves the user's information in a database if all requirements are satisfied. The user can access all of the app's features after registering. | | |
| Actor: | User, Database | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Name: | Update Streak | UniqueID: | UC002 |
| Description: | The system tracks the user's consecutive days of reading and updates  their current streak count. The streak update is visually represented  in the user interface, accompanied by notifications. | | |
| Actor: | User, System | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Name: | Complete Lesson | UniqueID: | UC002 |
| Description: | The user selects "complete lesson," which updates relevant metrics such as lesson progress, skill improvement, and time spent learning. This action also contributes to the user’s overall language learning streak and progression through their chosen course. | | |
| Actor: | User | | |

# References

1. Emma, 2023. *The importance of immersion: Why you should learn a language the same way you’ll use it*. EF Blog. Available at: <https://www.ef.com/wwen/blog/language/the-importance-of-immersion/> [Accessed 23 October 2024].