



# Languru App

## Radiant Team



Fall 23 - CS692 - Capstone Project  
Pace University



# Our team



**Kate Pham**

Developer,  
Scrum Master



**Indeevara  
Tadikonda**

Developer

# Our team



**Hari harammurthy  
Krishnamoorthy**  
Quality Analyst and  
Tester



**Musa Nishat**  
Developer



**Noel Sam Routhu**  
Front-end Developer



# Agenda

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# Agenda

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# Project Description





## Project Description

Project Name:	Languru
Team:	Radiant
Project Description:	<p>Recording voice and breaking down the sound of a word with real-time feedback on users pronunciation accuracy.</p> <p><b>For</b> customers <b>who</b> want to improve their English pronunciation. <b>the</b> Languru <b>is a</b> mobile app <b>that</b> checks users' single words and provides accurate feedback. <b>unlike</b> the traditional way English learners get feedback from their teachers. <b>our application</b> brings together the best of language and guru to help English learners improve their pronunciation and fluency.</p>
Benefit Outcomes:	<ul style="list-style-type: none"><li>- Users can improve their speaking skill anywhere and anytime.</li><li>- Users can record their voice and receive feedback from Languru to improve.</li><li>- Users will have a number of topics to choose to master their speaking skill.</li></ul>
Github Link:	<a href="https://github.com/htmw/Languru/wiki">https://github.com/htmw/Languru/wiki</a>



02

# Team Working Agreement

1:23



2:36





## Team Working Agreement

### Purpose of the agreement:

- To complete Computer Science Project 1(CS 691) as smoothly as possible.

### Name of the Project:

- Languru

### Terms of Agreement:

- All the team members are expected to attend the weekly meetings(Wednesday 8:00 PM) without fail
- If in any case you are not able to join the call, you are expected to update the other team members of your absence.
- In the case of absence for a weekly meeting, you are expected to make it up before the next team meeting.
- The weekly meetings are held on zoom and any updates can be communicated through Whatsapp messenger.
- Google workspace, GitHub and Agile can be used to track and divide all of our work.
- You are expected to be active on the WhatsApp messenger group chat for any updates.
- Work should be divided equally amongst the peers.
- Each team member should complete the work before the deadline. In case you are not able to do so, inform your peers so that they can divide the work accordingly. Failing to do so might lead to the decrease of the Team's grade.
- The Scrum Master is responsible for organizing the weekly meets, and everybody should be open to meet virtually more than once weekly if the situation demands it.
- Every team member is expected to be active in the weekly meetings, be productive and open to discussions and give a timely update of their part of the work.

### Team Members:

Indeevara Tadikonda	it49412n
Thanh Pham	tp89638n
Musa Nishat	mn64635n
Noel Sam Routhu	nr66642n
Hariharammurthy Krishnamoorthy	hk97281n





# Personas

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# Persona 1



*"With languru, I can easily practice my English pronunciation for IELTS without having to go through a long sign up process or paying a premium fee."*

**Name:** Areeba  
**Age:** 21  
**Occupation:** University Student  
**Location:** Lahore, Pakistan  
**Level:** Senior

## Goals

- Finish her undergrad
- Study for IELTS and GRE
- Apply to MBA programs in the United States

## Loves

- School
- Maths
- Spending time with her family

**User Description**  
Areeba is in the final year of her Business Management degree from LUMS University. When she graduates, she wants to get an MBA in the UK

## Interests

- Entrepreneurship
- Reading
- Community Organizing

## Frustrations

- Struggling to find an affordable and proficient English tutor
- Apps like Duolingo not focusing on speaking and pronunciation enough

## Motivations:

- Convenience
- High Quality
- Price



# Persona 2



*"When I first came to America, I could barely speak a word of English. Every night, I would open up [languru](#) and practiced and practiced until I mastered the language, which greatly helped my business"*

**Name:** Gao  
**Age:** 37  
**Occupation:** Taxi Driver  
**Location:** New York City

## Goals

- Save for children's education and retirement
- Open his own taxi company
- Become a chess master

## Loves

- His children
- Playing guitar
- Old Kung Fu movies

## User Description

Gao moved to the United States four years ago from Beijing. After a year, he brought his family along too. They live happily in Queens.

## Interests

- Acquiring a green card
- Entrepreneurship
- Joining City Council

## Frustrations

- Culture shocks, language barriers, racism
- Fundraising and organizing for his taxi business

## Motivations:

- Convenience
- High Quality
- Price



# Persona 3



*"In a perfect world, I would spend hours every day with every one of the kids I work with, but that's unfortunately not possible. With languru I can rest easy knowing that some of my kids have a resource they can use anytime which helps them with their speech."*

**Name:** Daniella

**Age:** 31

**Occupation:** Speech Pathologist

**Location:** San Juan, Puerto Rico

## Goals

- Raise awareness and money for children's healthcare in PR
- Write a book on speech therapy

## Frustrations

- Giving each patient enough attention
- Lack of medical resources and infrastructure
- Prejudice to those who are differently abled

## Loves

- Kids
- Hiking
- Collecting records

## User Description

Daniella has loved kids since she was a kid and always knew she wanted to be some kind of children's doctor when she grew up. Today, she helps children with learning and speaking disabilities

## Interests

- Child healthcare
- Medical research
- Development of Puerto Rico

## Motivations:

- Convenience
- High Quality
- Price





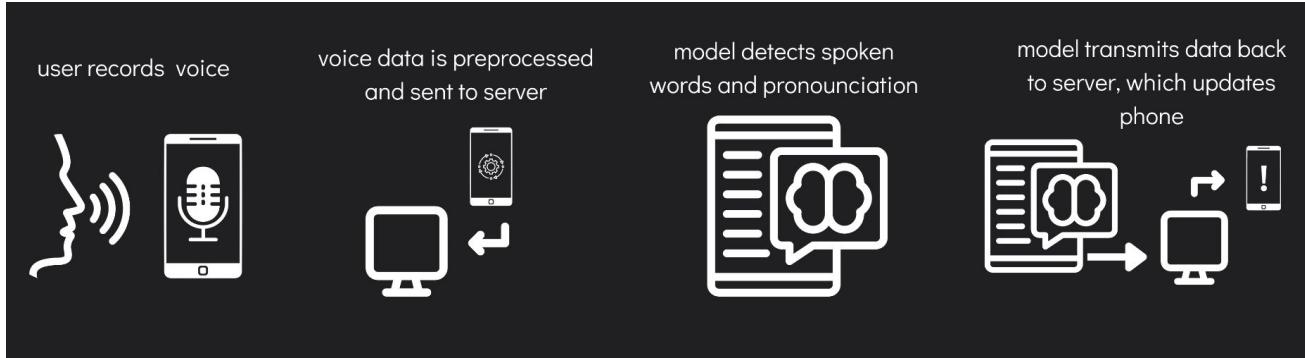
# Minimal Viable Product (MVP)



# Minimal Viable Product (MVP)

- Mobile application with speech recording capability
- Machine learning algorithm/API to break down individual spoken words, detect, and note incorrect pronunciations
- Server with functionality to receive voice data and send back analyzed data
- Server to host machine learning model

## Steps:

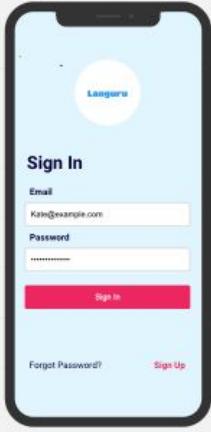
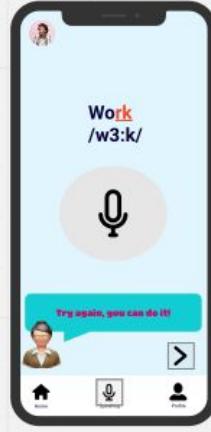
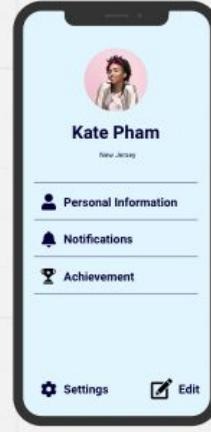




## Our LOGO

The app's name : “Languru” cleverly merges “language” and “guru” to signify its purpose. The dominant theme for the application will be a soothing shade of blue, reflecting a tranquil and user-friendly.

# Mock up design

Login	Home Page	Speaking	Speaking	Speaking	Profile
					



# Technologies And Diagrams

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# Technologies



# Coding Language

# Javascript Python



## Database

# Amazon Web Services (Amplify, S3)



# Tools

Amazon Web Services,  
React Native, Git,  
Github, Xcode,  
Visual Studio Code,  
Expo, Jira.





## AWS Amplify was used to manage authenticated users, authentication flow

Amplify Studio

languru-app > staging ▾

Local setup instructions

Home

Manage

Content

User management

File browser

Design

UI Library NEW

Set up

Data

Authentication

Storage

Functions

GraphQL API

REST API

Analytics

Documentation

Support

Feedback

User management

Create, view, and manage users and groups for your application.

Users Groups

Users

Actions Create user

Search Username Find users by Username

<input type="checkbox"/>	Login	Created Date	Status
<input type="checkbox"/>	Phuongthanhpham0501@gmail.com	April 17, 2023 4:44 PM	CONFIRMED
<input type="checkbox"/>	Musanshi@gmail.com	April 17, 2023 5:10 PM	UNCONFIRMED
<input type="checkbox"/>	Musansht@gmail.com	April 17, 2023 5:08 PM	UNCONFIRMED

aws AWS Amplify Studio is supported by Amazon Web Services © 2023, Amazon Web Services, Inc. and its affiliates. All rights reserved. View the site terms and privacy policy.





## AWS Amplify was used to manage user's data

Amplify Studio

languru-app > staging ▾ Local setup instructions ⓘ AW

Home Manage Content User management File browser Design UI Library NEW Set up Data Authentication Storage Functions GraphQL API REST API Analytics Documentation Support Feedback <

User profile

Back to User Management Actions ▾

Unique identifier (username) Phuongthanpham0501@gmail.com	Account status <span style="color: green;">CONFIRMED</span>
Sub ID AWS   katepham05	MFA status <span style="color: red;">Off</span>

User info Group membership History

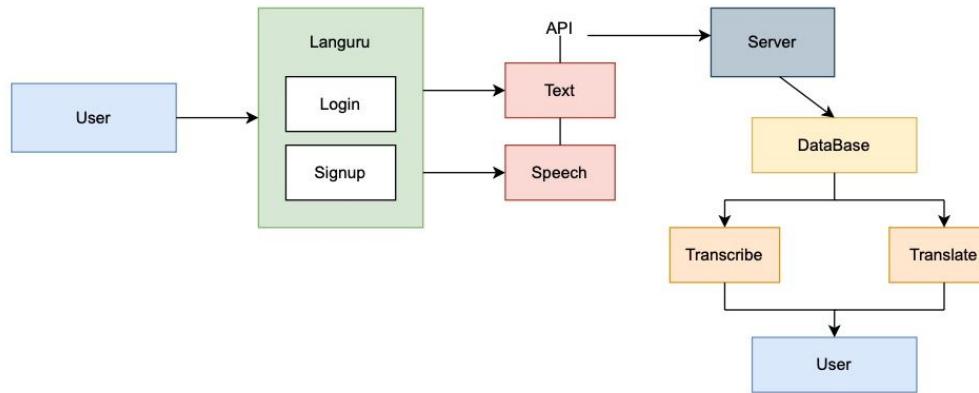
User info Edit

Email Phuongthanpham0501@gmail.com <input checked="" type="checkbox"/> Verified	Name Kate
--	--------------

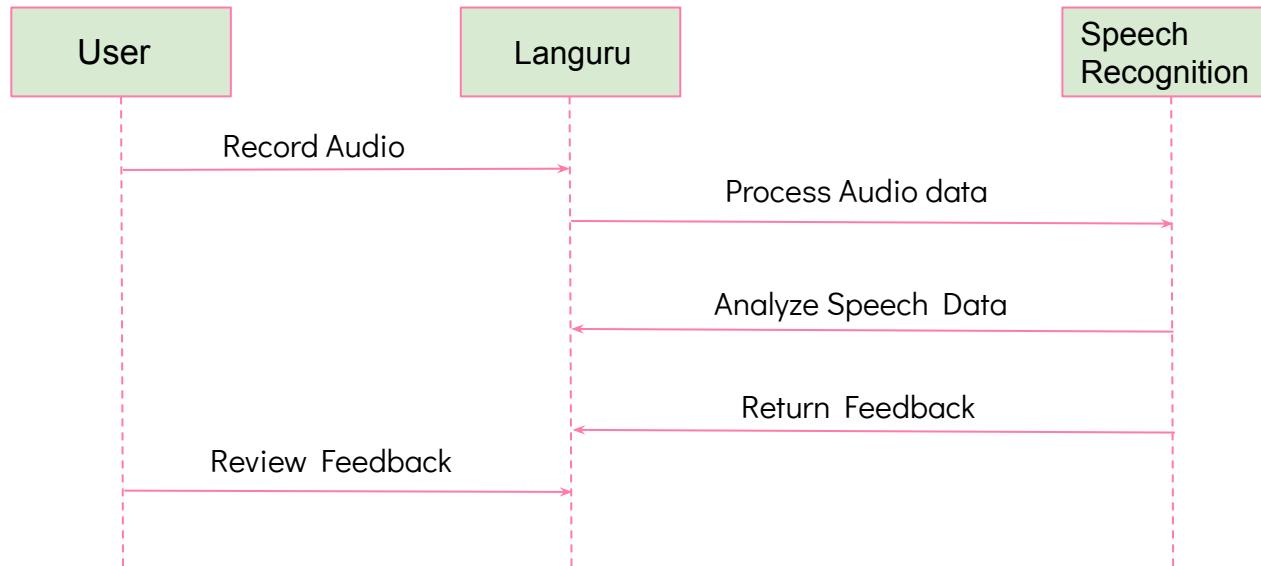
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# System Diagram



# Sequence Diagram





# Sprint 5 Recap

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# Sprint 5 vs Sprint 6



## Sprint 5

- Made Recording Screen more friendly and easier to use for users.
- Redesign UI for the app



## Sprint 6

- Implemented Quiz Screen with multiple choices for user enhance their knowledge about pronunciation.
- Improve user interface by creating icons for each topic



07

# Improvement

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# Improvement made from Professor's feedback



Matched the key of sprint backlog versus stories completed



Added Team Velocity chart



# Product Backlog And Sprint 6 backlog

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# Product Backlog



Issue Type	Key	Name
Story	LNG-102	As a user, I want to keep track of my progress in pronunciation and fluency So that I can see my improvement over time.
Story	LNG-103	As a user, I want large database choice of words and phrases to practice my speaking
Story	LNG-104	As a user, I need access to variety of english accents to practice with
Story	LNG-105	As a user, i want a feedback to analyze my stress and intonation patterns
Story	LNG-106	As a user, I want to access and manage my personal settings So that I can customize my learning experience according to my preferences.
Story	LNG-108	As a user, i want contextual practice scenarios to practice my pronunciation in different settings





# Sprint 6 Backlog

Issue type	Key	Name	Story Point Estimate
Story	LNG-110	As an app user, I want to improve my pronunciation knowledge through a quiz with many questions.	3
Story	LNG-111	As an app user, I would like to have icon buttons for each related function or topic	3
Story	LNG-112	As an app user, I would like to have logo in the homepage	1
Task	ST-11	Update Technical Paper	3



## STORIES COMPLETED AND STORIES NOT COMPLETED



Key	Name	Status	Date
LNG-110	As an app user, I want to improve my pronunciation knowledge through a quiz with many questions.	Done	11/07/2023
LNG-111	As an app user, I would like to have icon buttons for each related function or topic	Done	11/07/2023
LNG-112	As an app user, I would like to have logo in the homepage	Done	11/07/2023
ST-11	Update Technical Paper	In progress	



## Stories and Acceptance Criteria



Stories	Summary	Status
LNG -89	<p><b>As</b> a customer, <b>I want</b> to be able to receive feedback about my pronunciation <b>So that</b> I can check if I'm pronounced correct or incorrect and improve <b>Scenario</b> customer want to check their pronunciation <b>Given</b> I'm in a role of logged in user <b>When</b> I open the Training page <b>Then</b> the app shows a record button and a sample words <b>And</b> when I recorded my voice, the feed back and scored will show up on screen.</p>	Done
LNG - 90	<p><b>As</b> a customer, <b>I want</b> to be able to practice on different topics <b>So that</b> I can improve my pronunciation <b>Scenario</b> customer want to improve their pronunciation <b>Given</b> I'm in a role of logged in user <b>When</b> I open the Training page <b>Then</b> the app shows a number of popular topics: life, food, education,.. <b>And</b> when I clicked on a topic, it will show many words based on that topic.</p>	Done



## Stories and Acceptance Criteria



Stories	Summary	Status
LNG -91	<p><b>As</b> a customer, <b>I want</b> to be able to update my personal information <b>So that</b> I can manage it <b>Scenario</b> customer want to update their phone <b>Given</b> I'm in a role of logged in user <b>When</b> I open the profile page <b>Then</b> the app shows a list of user information <b>And</b> when I click on update button, my profile information will change as expected.</p>	Done
LNG - 92	<p><b>As</b> a customer, <b>I want</b> to have a navigation bar <b>So that</b> I can go between screen easier <b>Scenario</b> customer want to navigate from homepage to training page <b>Given</b> I'm in a role of logged in user <b>When</b> I in the home page <b>Then</b> I clicked on Training icon at the bottom of the screen <b>And</b> I was navigated to the desired page.</p>	Done



# Test Cases



TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	ACTUAL RESULT	STATUS (PASS/FAIL)			
TC_LOGIN_1	Verify the login of email	Enter valid User Name and valid Password	1. Need a valid email Account to do login	1. Enter User Name 2. Enter Password 3. Click "Login" button	<Valid User Name> <Valid Password>	Login Successful	Login Successful	PASS			
TC_LOGIN_1	Verify the login of email	Enter valid User Name and invalid Password	1. Need a valid email Account to do login	1. Enter User Name 2. Enter Password 3. Click "Login" button	<Valid User Name> <Invalid Password>				A message "The email or password you entered don't match" is shown	A message "The email or password you entered don't match" is shown	PASS
TC_LOGIN_1	Verify the login of email	Enter invalid User Name and valid Password	1. Need a valid email Account to do login	1. Enter User Name 2. Enter Password 3. Click "Login" button	<Invalid User Name> <Valid Password>						
TC_LOGIN_1	Verify the login of email	Enter invalid User Name and invalid Password	1. Need a valid email Account to do login	1. Enter User Name 2. Enter Password 3. Click "Login" button	<Invalid User Name> <Invalid Password>	A message "The email or password you entered don't match" is shown	A message "The email or password you entered don't match" is shown	PASS			



TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_SIGNUP_2	Verify sign up	Enter valid User Name and valid Password	1. Need a valid user name and password (characters and number from1 to 9) to sign up	1. Enter User Name 2. Enter Password 3. Click "signup" button	<Valid User Name> <Valid Password>	Sign up Successful	Sign up Successful	PASS
TC_SIGNUP_2	Verify sign up	Enter used User Name	1. Need a valid user name and password (characters and number from1 to 9) to sign up	1. Enter User Name 2. Enter Password 3. Click "signup" button	<used Username >	A message "The user name is already used" is shown	A message "The user name is already used" is shown	PASS
TC_SIGNUP_2	Verify sign up	Enter invalid User Name and invalid Password	1. Need a valid user name and password (characters and number from1 to 9) to sign up	1. Enter User Name 2. Enter Password 3. Click "signup" button	<Invalid Password>	A message "password don't match our requires" is shown	A message "password don't match our requires" is shown	PASS

TEST CASE ID	TEST SCENARIO	TEST CASE	TEST STEPS	TEST DATA	EXPECTED RESULT	ACTUAL RESULT	STATUS (PASS/FAIL)
TC_HOMEPAGE_3	Verify the HOME PAGE	A welcome message should show up on screen			Check if a welcome message appear on the home screen		PASS
TC_HOMEPAGE_3	Verify the HOME PAGE						
		User should be able to search from homepage			Homepage can show expected results.		
TC_HOMEPAGE_3	Verify the HOME PAGE	User should be able to open the home page			Homepage should appear when user click on it.		PASS

<b>TEST CASE ID</b>	<b>TEST SCENARIO</b>	<b>TEST CASE</b>	<b>PRE-CONDITION</b>	<b>TEST STEPS</b>	<b>TEST DATA</b>	<b>EXPECTED RESULT</b>	<b>ACTUAL RESULT</b>	<b>STATUS (PASS/FAIL)</b>
TC_FGPASS_6	Check on Forgot Password	Should direct to the email in order to change password.				Password resetted and send back to login page.		PASS

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	ACTUAL RESULT	STATUS (PASS / FAIL)
TC_PROFILE_4	Check on Profile editable					Users can existing profile information successfully.		PASS
TC_PROFILE_4	Check on features in Profile page					On the Profile page, users should be able to see list of features		PASS

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	ACTUAL RESULT	STATUS (PAS S/ FAIL)
TC_SPEAKING_5	Verify the speaking page	User should be able to record their voice				Record voice successfully		PASS
TC_SPEAKING_5	Verify the speaking page	User should be able to see their feedback after they recorded their voice.				The score will show up after voice was recorded.		PASS
TC_SPEAKING_5	Verify the speaking page	User should be able to see the topics that they want to practice and open it				The topics category will show up as expected.		PASS
TC_SPEAKING_5	Verify the speaking page	User should be able to see where was pronounce incorrectly.				User can see the part was pronounce incorrect which is underlined.		PASS
TC_SPEAKING_5	Verify the speaking page	User should be able to access the Speaking page				User can see the part was pronounce incorrect which is underlined.		PASS

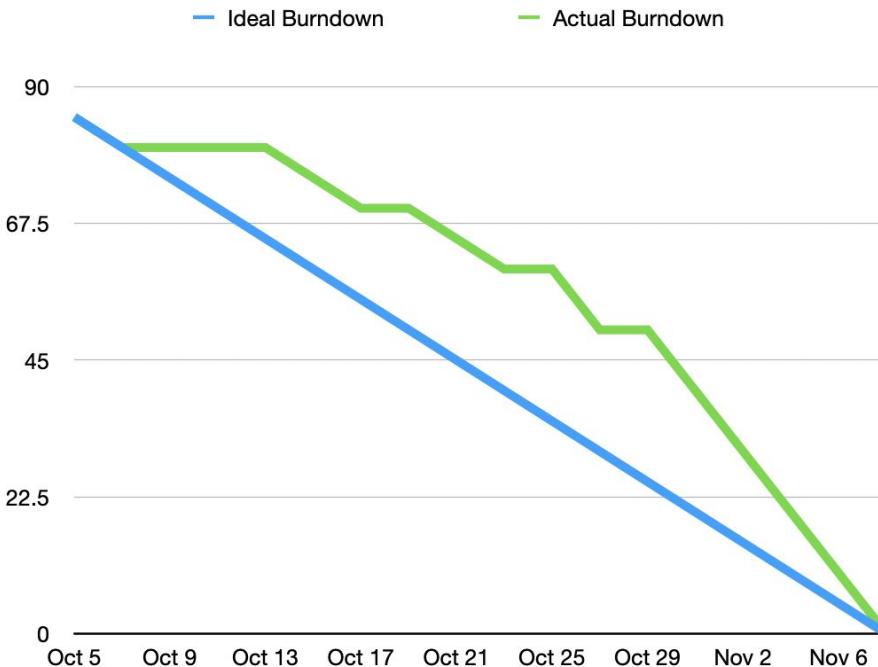


# Metrics



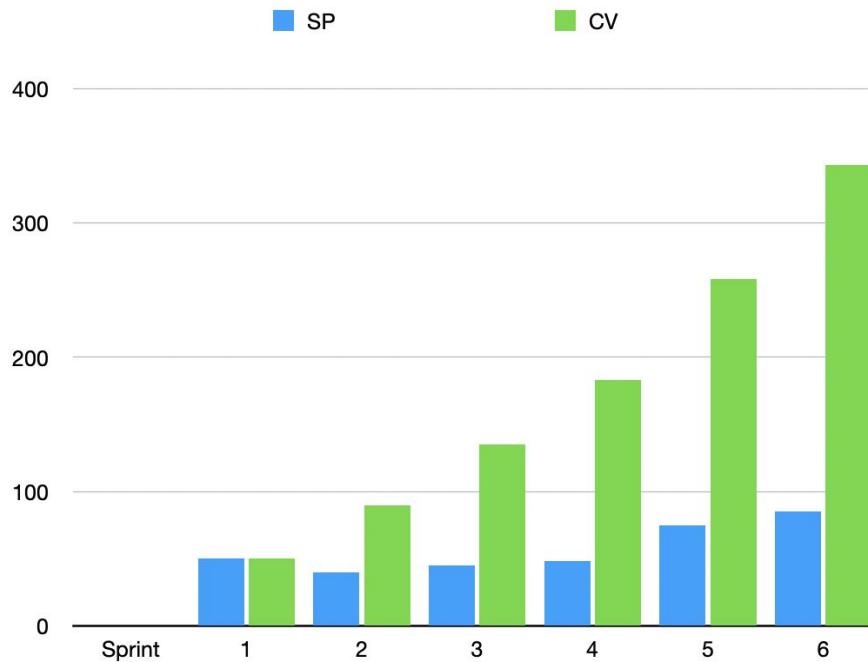


# Burndown chart





# Velocity chart





# Retrospective

1:23



2:36





# Retrospective



## What holds us back?

Communication Breakdown within the team made difficult to track the process thus resulted delays and inefficiencies

O1

O2

O3

## What went well

- We tried really hard to finish the presentation on time.
- We Improved our user interface and implemented Quiz screen

## Next Steps

- we should focus on enhancing team communication through regular updates and better collaboration.
- We'll also allocate more time for technical exploration and problem-solving



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# Sprint 7

1:23



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## Stories planned and committed for Sprint 7

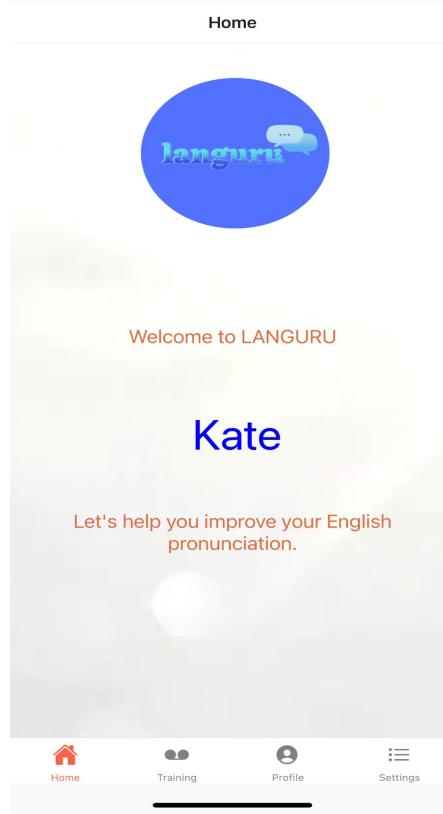
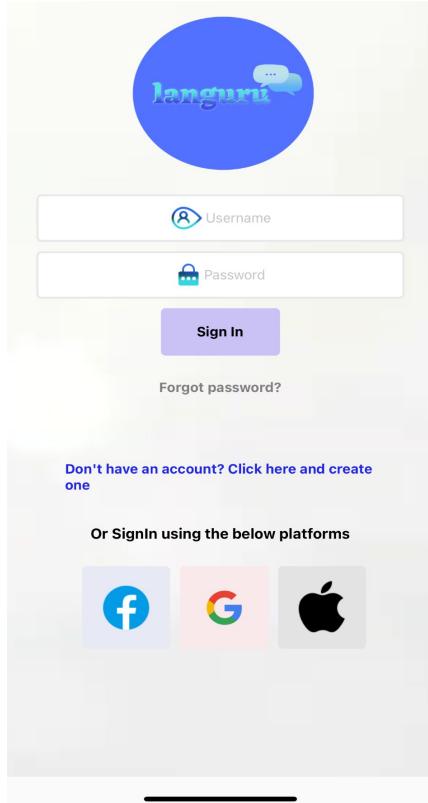


Issue Type	Key	Name	Status	Story Point Estimate
Story	LNG-113	As an application user, I want to see the result in a progress bar for better understanding	To do	3
Story	LNG-114	As an application user, I want to experience the screens with better fonts	To do	3
Story	LNG-115	As an application user, I want to set themes, change passwords using the settings screen.	To do	3
Task	LNG-70	Update Technical Paper	To do	5

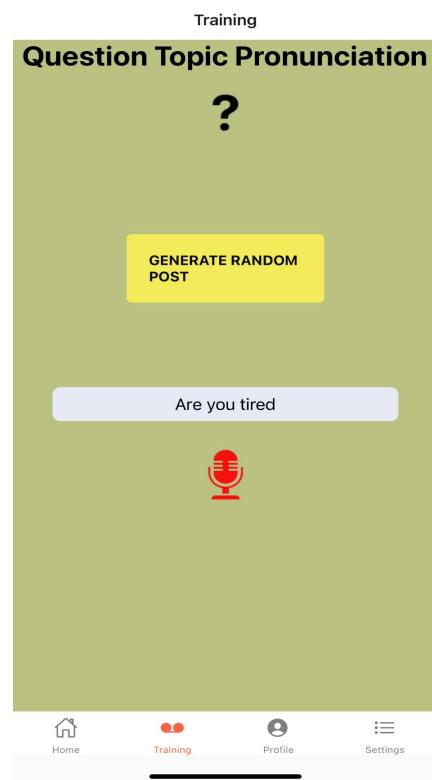
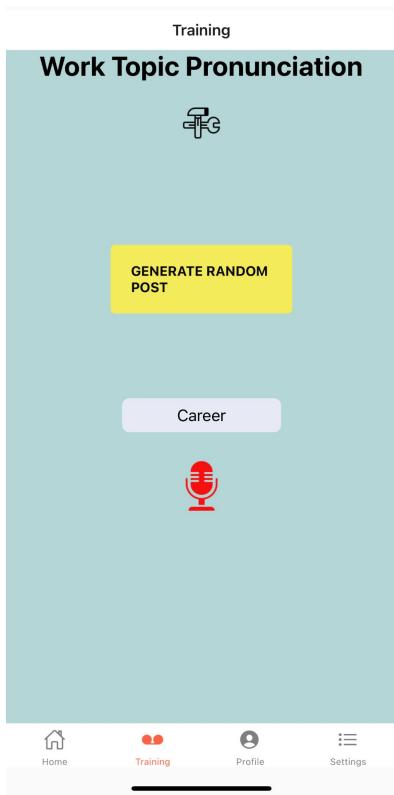




# App Screenshots



# App Screenshots





# App Screenshots



Training

Question 1/10

1. What is the correct IPA for the word "Leisure"?

A. /li:.ʒər/  
B. /lər.ʒər/  
C. /lər.zjər/  
D. /lɔr.ʒər/

The screenshot shows a light yellow background with a white header bar. The title 'Training' is at the top left. Below it is a question: 'Question 1/10'. The question asks for the correct IPA for the word 'Leisure'. Four options are listed: A. /li:.ʒər/, B. /lər.ʒər/, C. /lər.zjər/, and D. /lɔr.ʒər/. At the bottom is a navigation bar with four icons: Home (house), Training (two people), Profile (person), and Settings (three horizontal lines). The 'Training' icon is highlighted with a black underline.

Training

You scored : 3 / 10

The screenshot shows a light yellow background with a white header bar. The title 'Training' is at the top left. In the center, there is a red circular icon with a white exclamation mark and the text 'You scored : 3 / 10'. At the bottom is a navigation bar with four icons: Home (house), Training (two people), Profile (person), and Settings (three horizontal lines). The 'Training' icon is highlighted with a black underline.

Profile

Welcome to my profile!

Name: Noel Sam Routhu

Email: nrouthuus@gmail.com

Username: noel.sam.routhu

Contact Number: +12012341948

Gender: Male

Update Profile

Sign Out

The screenshot shows a pink header with a blue profile icon and the text 'Welcome to my profile!'. Below is a light blue section with various profile details in boxes: 'Name: Noel Sam Routhu', 'Email: nrouthuus@gmail.com', 'Username: noel.sam.routhu', 'Contact Number: +12012341948', and 'Gender: Male'. At the bottom are two buttons: 'Update Profile' (purple) and 'Sign Out' (red). At the very bottom is a navigation bar with four icons: Home (house), Training (two people), Profile (person), and Settings (three horizontal lines). The 'Profile' icon is highlighted with a black underline.

# API Overview



We use a Rapid API for our mobile application. This API allows us to generate a pronunciation assessment after the user records their voice in English.

API key

```
X-RapidAPI-Key': '5623000057msh  
d4b67eaccabf3f7p1b2ec9jsn33578c2e2c  
23'
```



# API Sample Request

```
data: {  
  {  
    "audio_base64":  
"Uk1GRmBLAgBXQVZFZm10IBAAAAABAAEAgD4AAAB9AACABAAZGF0YTxLAgABAP7/AgD+/wIA//8BAP7/Ag  
D+/wIA//8AAAAE/v8CAP7/AgD+/wMA/P8FAPr/BgD7/wQA/f8CAP7/AgD+/wEAAQD+/wEAAAAAAAAAQD9/  
wQA/f8CAP7/AgD+/wMA/f8CAP//AAABAP//AgD8/wUA/P8DAP7/AQD+/wIA/v8BAP//AAD//wIA//8CAAAA  
AQACAAAAAwD//wMA/v8DAPz/AgD9//7///8///v/9///+/wMA/v8NABYAEQASAA8ACgAJAAoACwA  
JAA4ABwAMAACABQAIAAIACAACAAUAAgAAAP7/BwAcABIAEgAMAACAAwACAAUAAwAGAAYAAwAGAAEAAgADAA  
AAAwABAP7/AAD4//7/9f//x/9f/1//D/8//u//H/7v/t/+7/7f/u//D/7f/*/+z/8f/s//L/7P/w/+3/8  
f/u//P/8f/3//D/+v/y//r/9f/3//v/+f/8//v/+//7//7//P/////////8AAP7/AgD//wQA/v8EAAwD9/wU  
AAQABAAQAAAAGAAAABQADAAQABQADAAUABQAEAAcABAAGAAQABwAEAAgAAwAIAAUABwAHAAQACAACAAgAAw  
AIAAQABwABAACAAAAHAAEABQAEAAQAAwAEAAEABAAAAAAQAAAABAA==",  
    "audio_format": "wav",  
    "text": "apples"  
  }  
}
```





# API Sample Response



```
{  
    "status": "success",  
    "text_score": {  
        "text": "apple",  
        "word_score_list": [  
            {  
                "word": "apple",  
                "quality_score": 100,  
                "phone_score_list": [  
                    {  
                        "phone": "ae",  
                        "stress_level": 1,  
                        "extent": [  
                            12,  
                            27  
                        ],  
                        "quality_score": 100,  
                        "stress_score": 100,  
                        "predicted_stress_level": 2,  
                        "word_extent": [  
                            0,  
                            1  
                        ],  
                        "sound_most_like": "ae"  
                    },  
                ]  
            }  
        ]  
    }  
}
```





# Live Application Demo





# Demo App

[Click here to watch!](#)



# Thank you!

[Wiki page link](#)

[Updated Technical Paper](#)

[User Manual Link](#)

[Deployment Manual Link](#)

[API Documentation](#)

**Radiant Team**