

# HANDY LINGUA



PRESENT BY: GROUP 6

Group6:

ZARIFF BIN MOHAMMAD AZAM A24CSO217

FATIN SYAKIRAH BIN MOHAMMAD HARDON A24CSO073

SARVESWARI A/P VASUTHEVAN A24CSO185

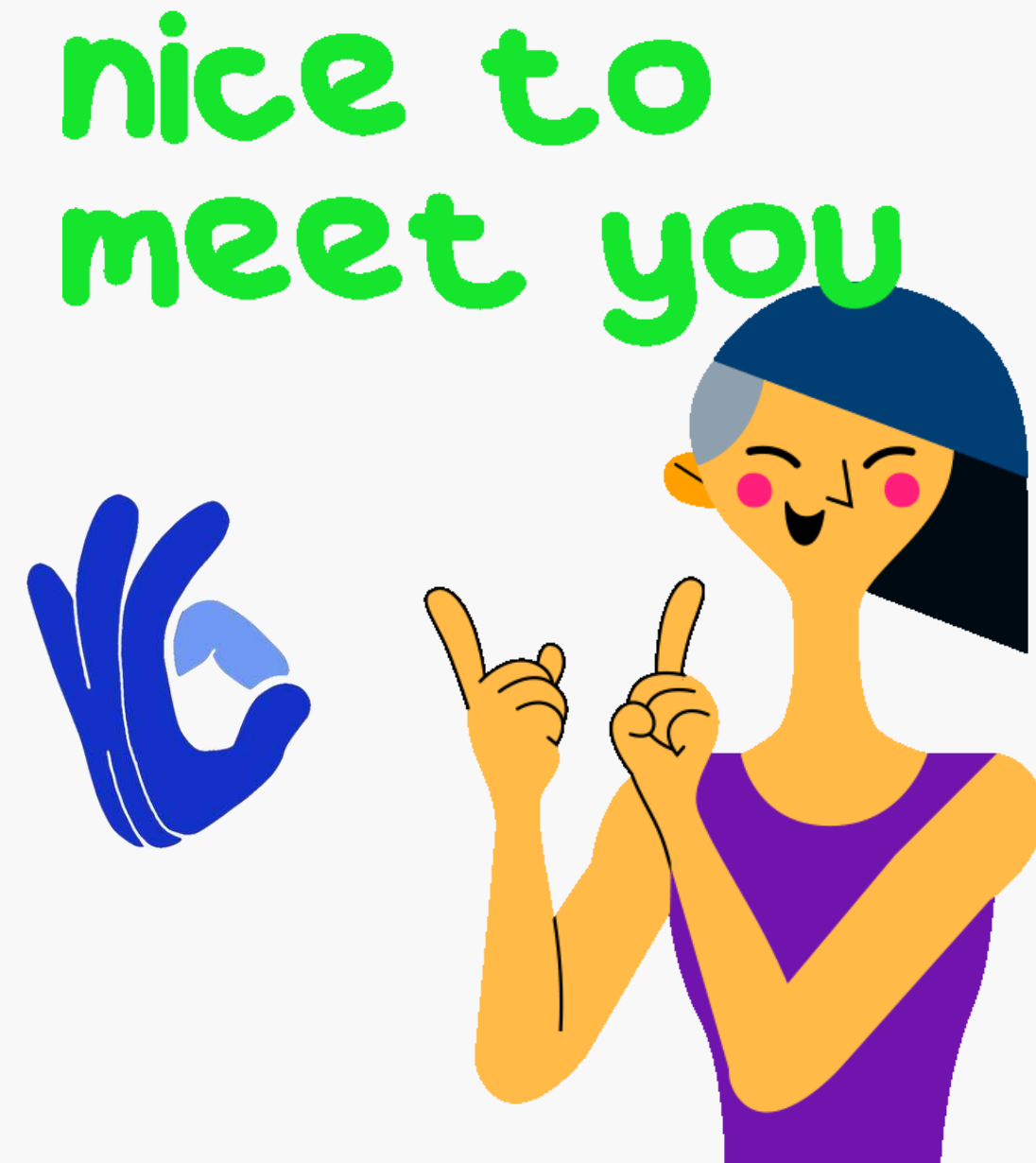
WONG ZI NING A24CSO313

NUREEN FATINI BINTI ZULKEFLI A24CSO169

# Introduction

People with **hearing and speech disabilities** often face stereotypes and communication barriers, leading to isolation and missed opportunities. Many of us lack the time or resources to learn sign language effectively, which limits our ability to engage with them meaningfully.

**Handy Lingua** aims to bridge this gap with technology by offering an accessible platform for real-time communication and learning, empowering both disabled and non-disabled individuals to connect seamlessly.



# Problem Statement

## Communication Barriers:

- Many individuals with hearing and speech disabilities struggle to communicate due to a lack of understanding from others.
- Non-disabled individuals rarely take the time to learn sign language, leading to feelings of isolation and frustration among disabled individuals.

## Statistics:

- 42,652 Malaysians have hearing disabilities, and 3,397 have speaking disabilities (as of January 2023).
- 4 in 1000 newborns are diagnosed with hearing impairments

## Challenges Identified:

- Non-disabled individuals face difficulty learning sign language due to time constraints or perceived complexity.
- Limited real-time tools exist to bridge communication gaps effectively.



# Empathize: Understanding the User

## Observation

- Many individuals do not understand sign language, leading to communication barriers.
- Example: A person with a hearing impairment struggles to get help because others do not know sign language.

## Engage (Interview & Google Form)

- Most interviewees were unaware of sign language but expressed interest in Handy Lingua.
- Concerns raised about the validity and effectiveness of app-based sign language.

## Immerse

- Our team attempted to learn sign language but found it challenging to retain without consistent use.
- Highlighted the need for a solution that integrates sign language practice into daily life.

no

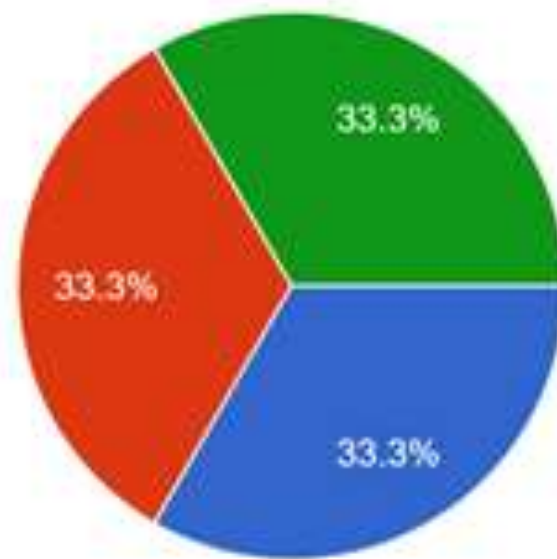




# Case Study

What are the main challenges you face when communicating with non-sign language users?

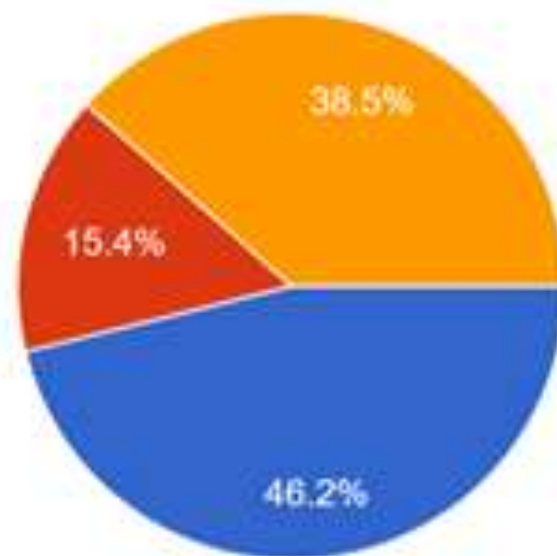
2 responses



- Lack of understanding from others
- Difficulty expressing myself clearly
- Limited tools to aid real-time communication
- Misinterpretation of signs

What are the main challenges when communicating with someone who uses sign language?

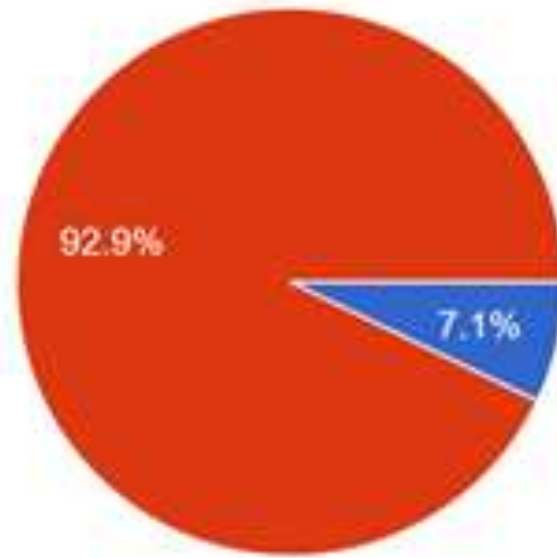
13 responses



- Not understanding the signs
- Being unsure how to respond
- Difficulty learning or remembering signs
- No difficulties encountered



Are you  
14 responses



- A person with a hearing or speech disability
- Someone using this app to communicate with someone who is Deaf or mute

Which feature would be most helpful in a sign language app?  
13 responses





"Both surveys and interviews highlight a common problem: the lack of easy-to-access solutions that enable seamless communication without requiring advanced sign language skills."

# DEFINE

UNDERSTAND THE NEEDS

ANALYZE OBSERVATION

DISCUSSION

ESTABLISH PROBLEM  
STATEMENT





# PROBLEMS

HELP!



## Disabled Individuals

- Isolation and frustration due to communication barriers.
- Difficulty expressing themselves in conversations.
- Limited real-time tools for seamless communication.
- Frequent misinterpretation of signs leads to breakdowns.

## Non-Disabled Individuals

- Lack of exposure to or training in sign language.
- Hesitation or discomfort during interactions with signers.
- Difficulty recalling or learning signs, hindering engagement.
- Limited resources for real-time, interactive communication.



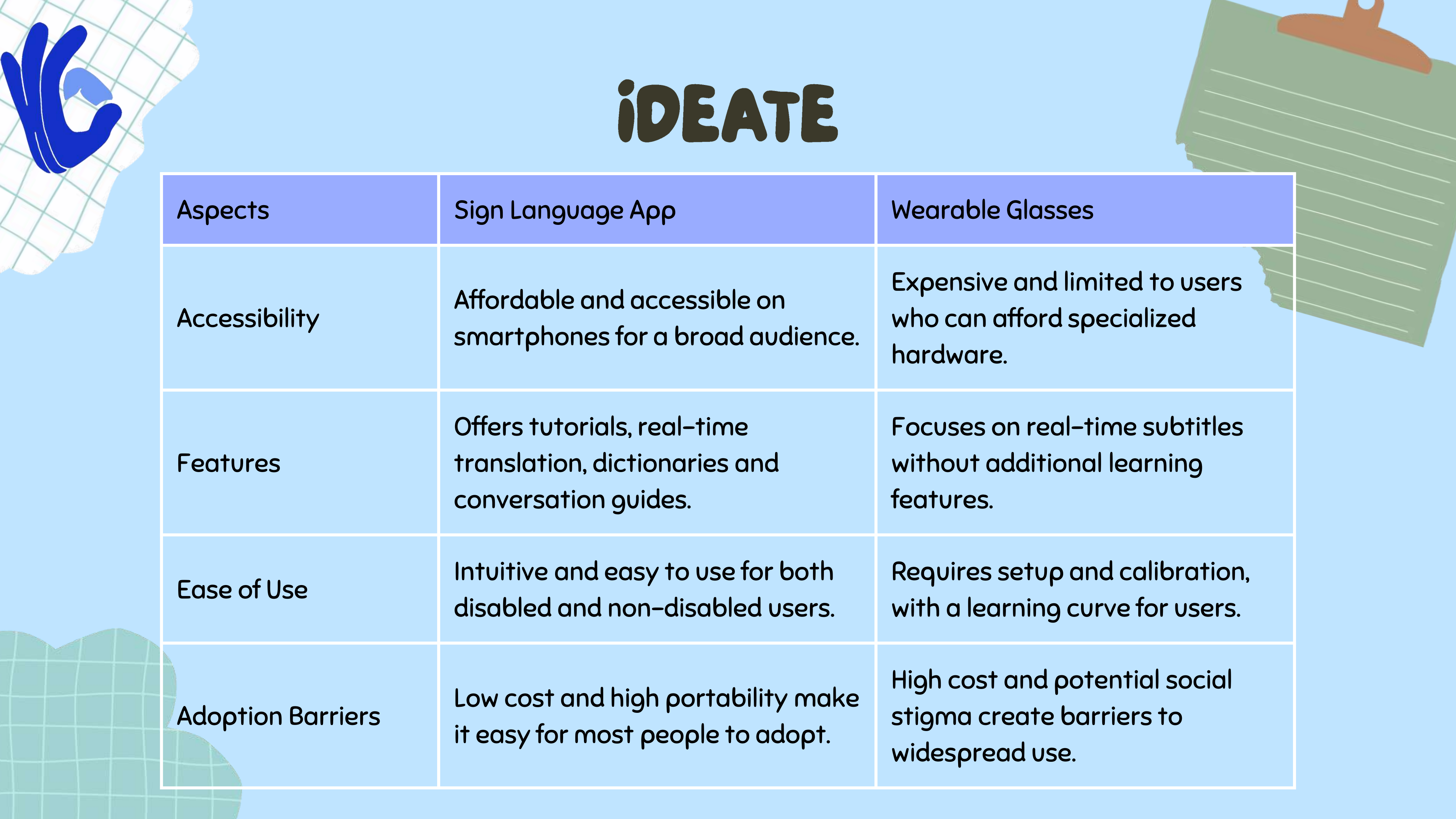
# iDEATE



Wearable Technology

Sign Language App





# iDEATE

Aspects	Sign Language App	Wearable Glasses
Accessibility	Affordable and accessible on smartphones for a broad audience.	Expensive and limited to users who can afford specialized hardware.
Features	Offers tutorials, real-time translation, dictionaries and conversation guides.	Focuses on real-time subtitles without additional learning features.
Ease of Use	Intuitive and easy to use for both disabled and non-disabled users.	Requires setup and calibration, with a learning curve for users.
Adoption Barriers	Low cost and high portability make it easy for most people to adopt.	High cost and potential social stigma create barriers to widespread use.



# SOLUTIONS

## For Disabled Individuals:

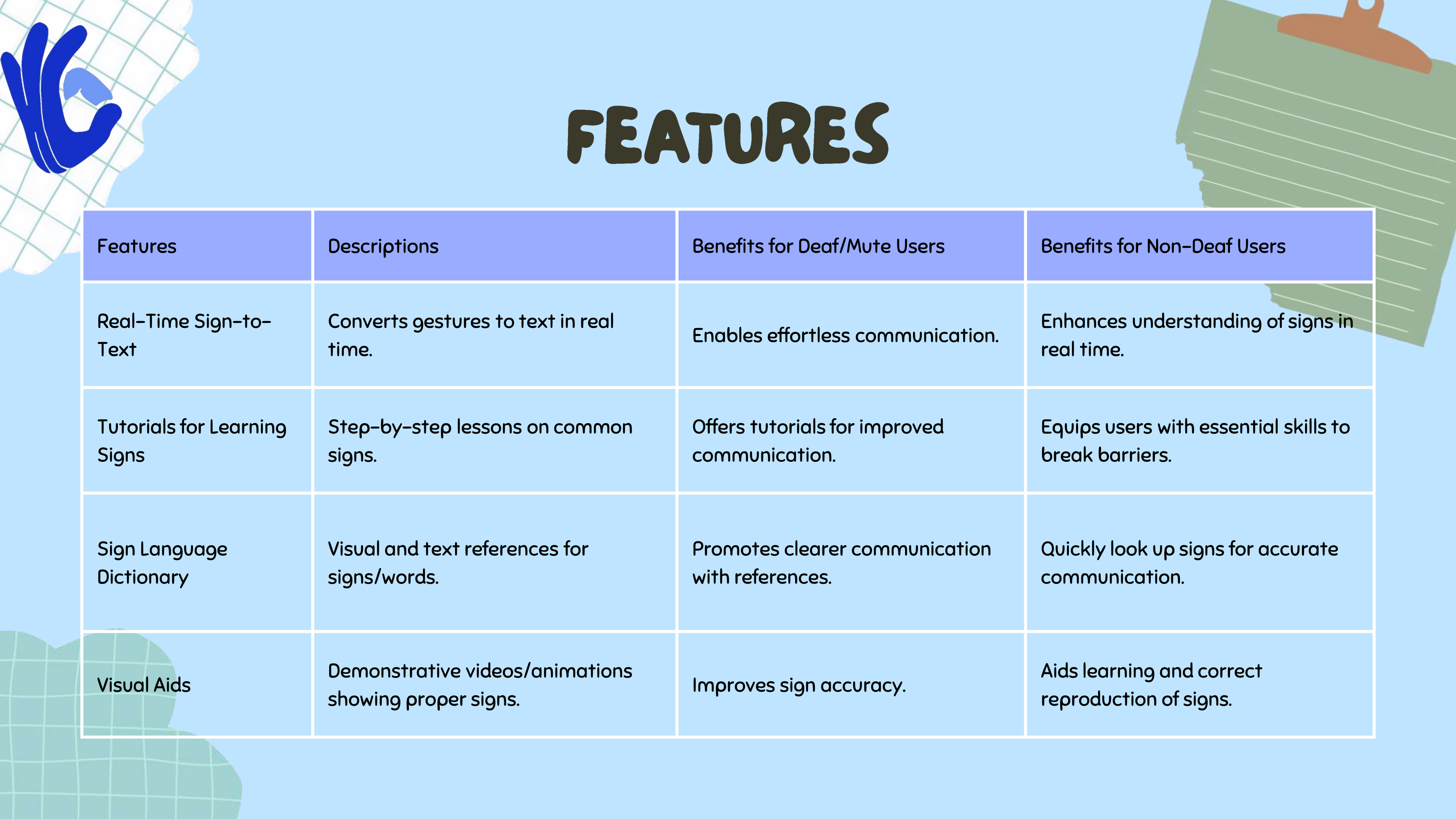
- Real-time gesture-to-text translation for precise communication.
  - Quick-access sign dictionary to support conversations.
  - Tutorials for enhancing and retaining sign language skills.
    - Conversation guides to reduce miscommunication.

## For Non-Disabled Individuals:

- Beginner-friendly tutorials to learn basic signs.
- Real-time translation of signs for effortless understanding.
  - Sign dictionary to recall or learn new signs in real time.
  - Conversation prompts for context-based responses.



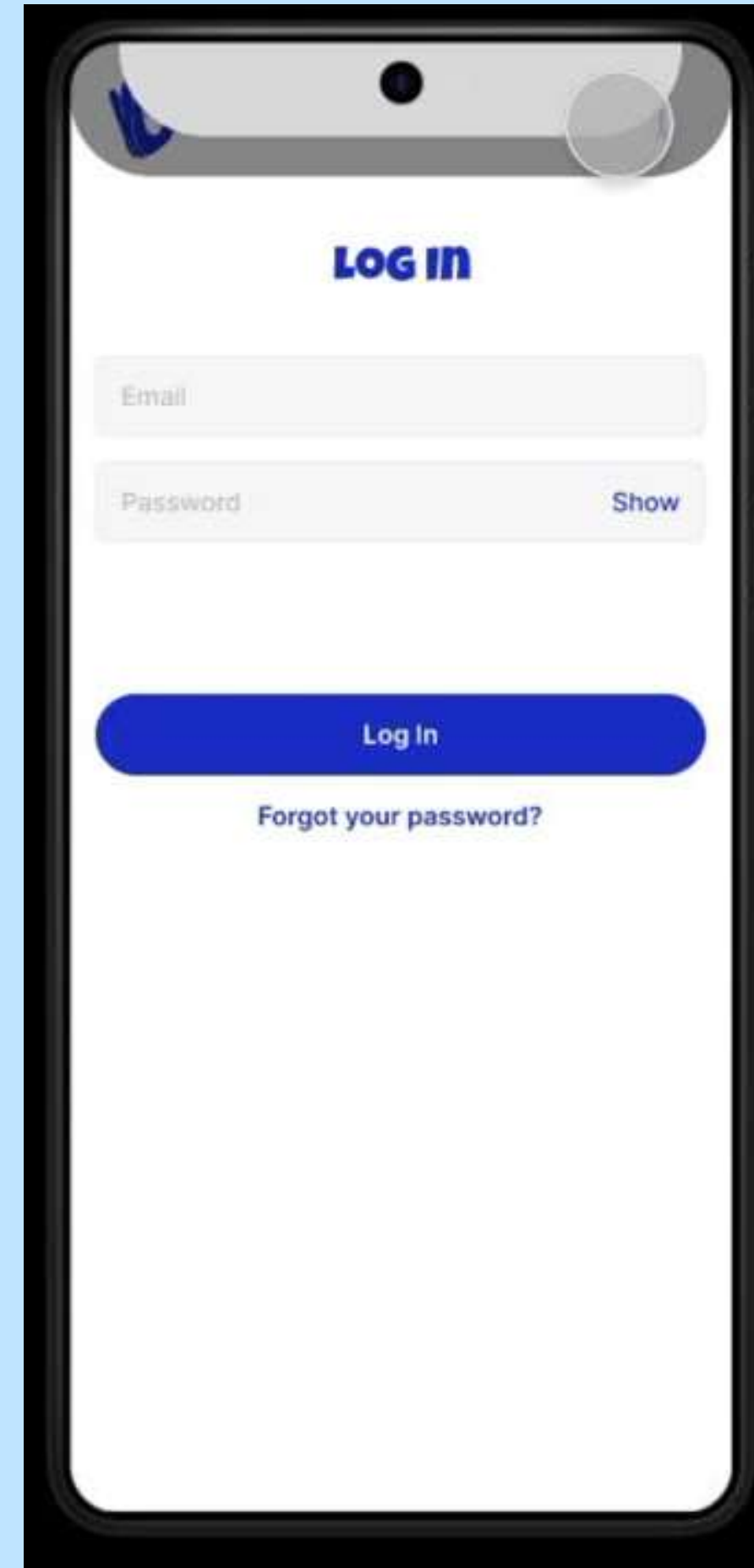




# FEATURES

Features	Descriptions	Benefits for Deaf/Mute Users	Benefits for Non-Deaf Users
Real-Time Sign-to-Text	Converts gestures to text in real time.	Enables effortless communication.	Enhances understanding of signs in real time.
Tutorials for Learning Signs	Step-by-step lessons on common signs.	Offers tutorials for improved communication.	Equips users with essential skills to break barriers.
Sign Language Dictionary	Visual and text references for signs/words.	Promotes clearer communication with references.	Quickly look up signs for accurate communication.
Visual Aids	Demonstrative videos/animations showing proper signs.	Improves sign accuracy.	Aids learning and correct reproduction of signs.

# Prototype Demonstration



delighted





# Testing...

## User Feedback:

- Collected insights via interviews and Google Form surveys.
- Feedback revealed usability issues, guiding refinements to the prototypes.









# Feedback

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**“The app was easy to use, and the tutorials for learning sign language helped me understand basic signs quickly. It’s great for breaking the ice when interacting with deaf classmates.**

**Muhammad Nasyat,**  
Year 1 CS student

**“I found the conversation guides very useful—they helped me respond appropriately and made me feel more confident talking with deaf peers.”**

**Asyik Illahi,**  
Data Engineering Enthusiast

**“The app is a fantastic tool for inclusivity. It helped me learn basic signs, but it also encouraged me to appreciate the effort it takes to communicate through sign language.”**

**Abdul Rasyid,**  
Year 1 CS student

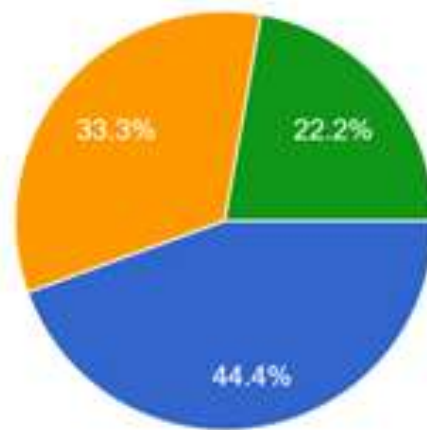


# Google Form Survey



What would encourage you to use the app more?

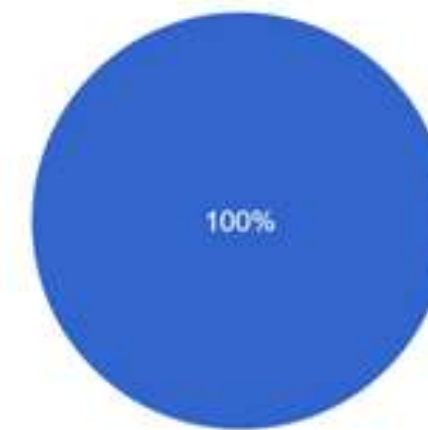
8 responses



- Interactive and engaging lessons
- Improved user interface for easy navigation
- More comprehensive tutorials covering different contexts
- Personal progress tracking features

Do you think this app could help you learn or use sign language?

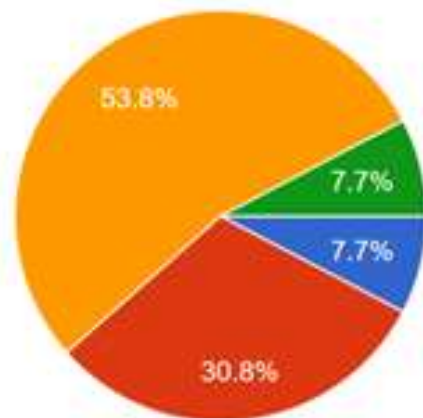
24 responses



- YES
- NO

What challenges do you think you might face in using this app?

13 responses



- Difficulty learning sign language
- Understanding the app's features or navigation
- Limited knowledge of how to apply sign language in real conversations
- Access to the app on different devices or locations

Would you recommend this app to others?

24 responses



- YES
- No

# Conclusion

## ***"Breaking Communication Barriers"***

1. Handy Lingua empowers individuals with hearing and speech disabilities.
2. Combines real-time translation and tutorials for learning sign language.
3. Promotes inclusivity and social equality through innovative technology.

thank you

