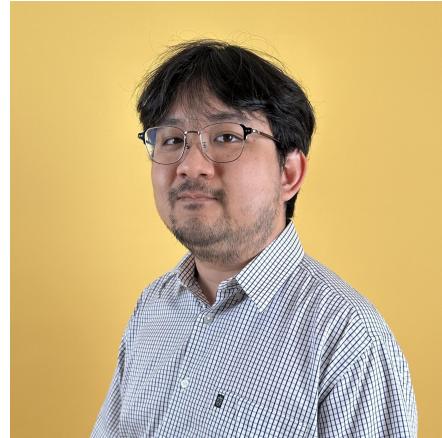




# Exploration of Ling App Development

[ling-app.com](http://ling-app.com)





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## Ling App Overview

How we get started

Technologies & Tools

Development Process

Typical Day as a ...

NLP Roles in Ling App

Hands-On

# Agenda



# Ling App Overview



# What is LING App

Ling app is a fun and interactive language learning application. There are over 60 languages such as Thai, Chinese, Korean, Serbian, Spanish, and so on.

# Key Features

60+ Languages  
to Select



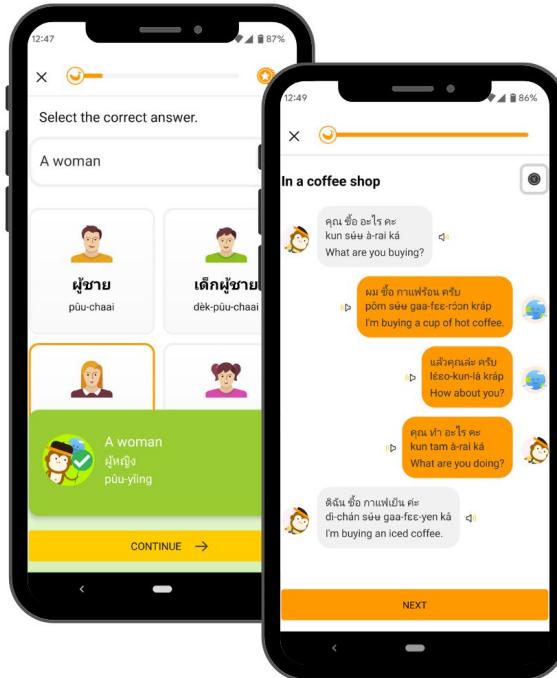
High Audio Quality with  
Native Speaker Voice



Mini Language  
Quiz Games



Chatbot to Practice  
Conversation



Competition Game



Intuitive Statistics



Speaking Game

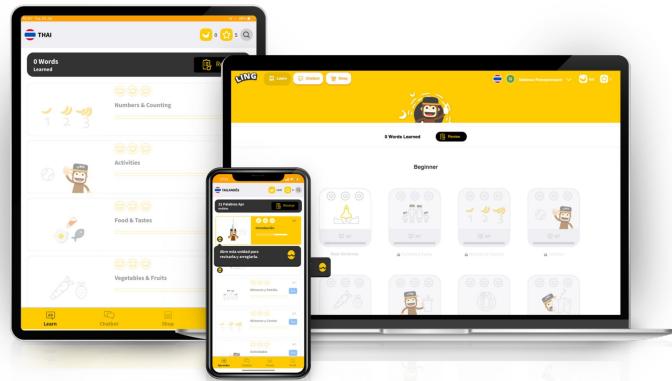


Writing Practice  
by using finger





# Available on Various Platforms



**Desktop Web Browser, Mobile  
(iOS and Android) and Tablets**

Available on the App Store, Google Play,  
Amazon Appstore, and Huawei AppGallery



Learn offline on Ling mobile apps when you  
are disconnected from the internet

# Trusted by 5+ million language learners

12:07 ↗

4G

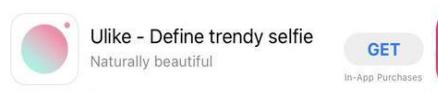
## Apps

### FEATURED

Learn Languages with Ling App  
Improve your language skills



### Everyone's Favourites

[See All](#)

5M+ downloads



50K+ ratings



4.7/5 on stores

VOGUE

ARAB NEWS



Forbes

yahoo!



# How we get started with Ling App?

# Founder's Story

## Ling started as a love story

German-born Simon Bacher wanted to communicate with the Thai friends and family of his wife, Kanyarat. They couldn't find good resources for learning the Thai language, so they decided to build these resources themselves.



## We teach languages others don't

At Ling, we dug deep into understanding how Asian languages work. Teaching (and learning!) a language with a completely different alphabet is challenging, so we developed a robust learning app to celebrate these languages and make the lessons fun, interactive, and authentic.

Similarly, many Eastern European languages don't get much love in learning apps. They are often difficult to learn and need special attention paid to writing and grammar, so we decided to apply the Ling learning system to those languages. And it seems to be working - we've increased our daily active users from 1500 to 4000 in the last 8 months alone!

# Ling Story



## 2017 - Development

Decided to use React Native to build Android & iOS simultaneously

## 2018 Scaling

We scaled to 62 languages and have over 30 locales available



## 2016 - Conception

Learning Thai with Drilling method with university teachers

## 12.2017 - Launching & Testing

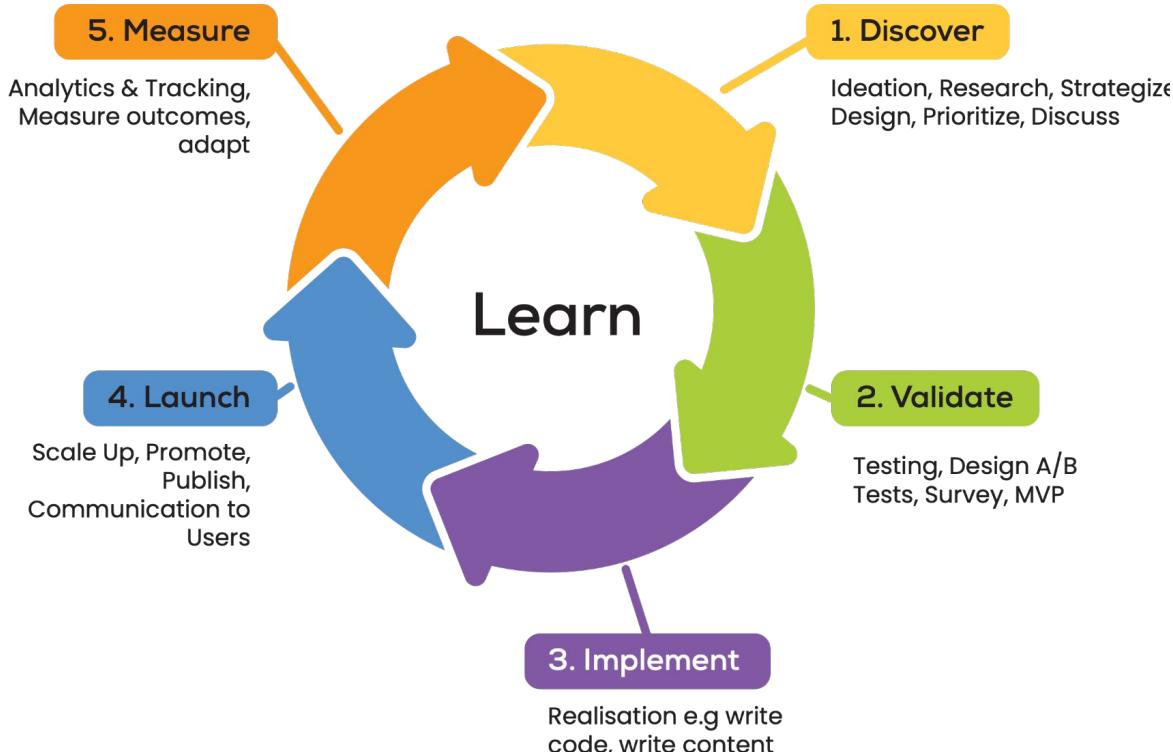
First launched in 12.2017 with great responses on Play Store & App Store



2021 started to build the Marketing team and the effort pays off!



# Ling Way



# Technologies & Tools

Our core platform is ...



Built with  
**Firebase**

**Authentication:**

- Firebase Authentication

**Database Services:**

- Realtime Database
- Firestore Database

**File Storage:**

- Cloud Storage

**App Distribution:**

- Firebase App Distribution

**Configuration and Monitoring:**

- Remote Config
- Crashlytics Analytics

**Dashboard Testing:**

- Test Labs
- A/B Testing

**Linking and Functionality:**

- Dynamic Links
- Cloud Functions

## Our other technologies & tools ...



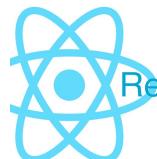
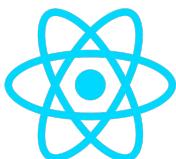
Git Hosting & CI/CD Pipelines:  
**Gitlab**



Google Play & App Store  
Automation: **Fastlane**



Trace and monitor bugs:  
**Bugsnag**



React Native

Core Frontend Framework: **React Native & React**



Localization: **Kokulu**



IDEs: **VsCode, Android Studio, Xcode**

# Development Process

## **Sprint Review every 2 weeks**

- Review
- Retrospective
- Plan
- Estimation
- Release

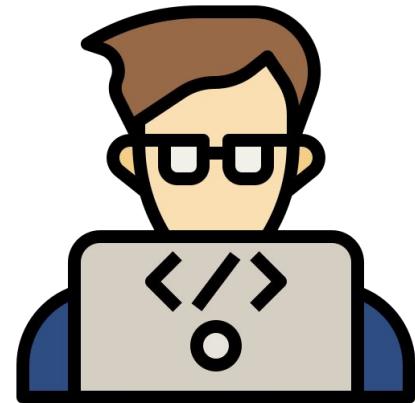
## Core steps:

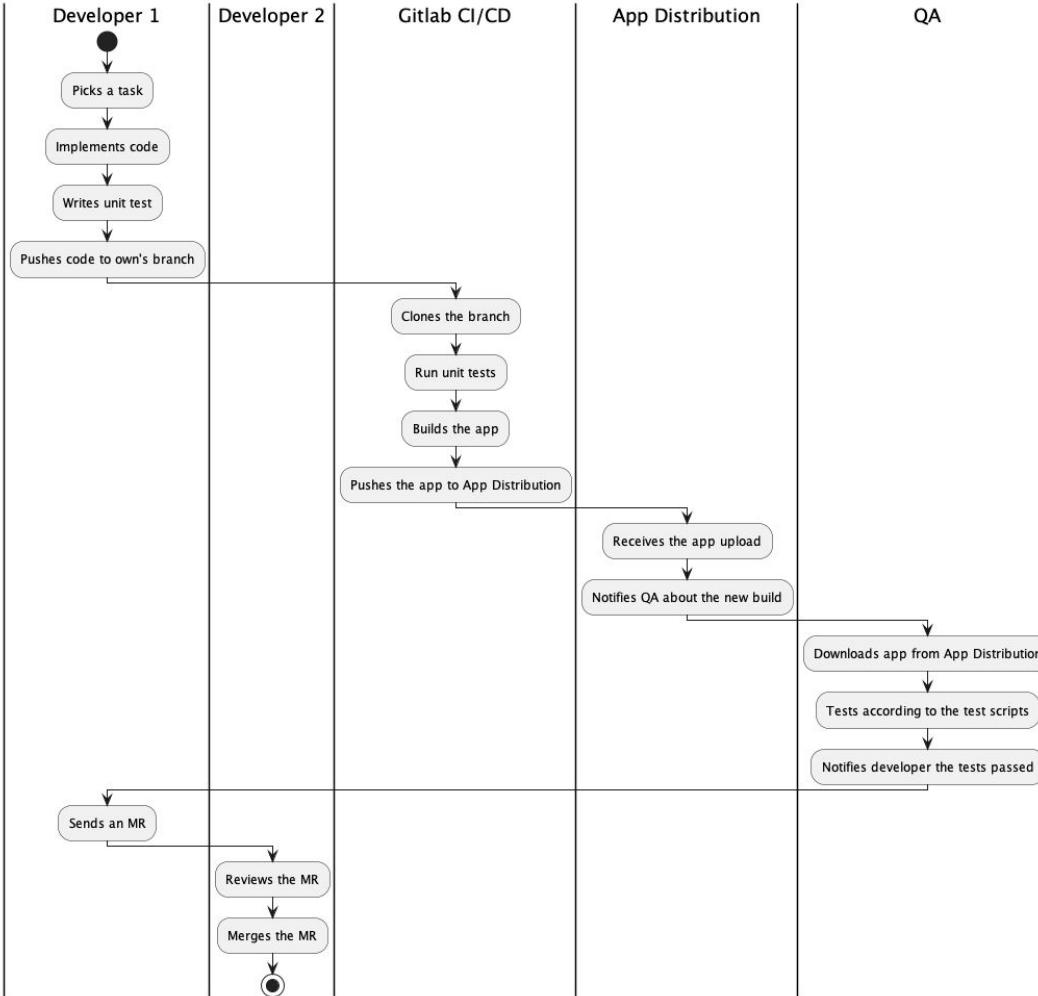
- Gather requirements
- Plan
- Estimate
- Implement
- Test
- Deploy
- Monitor

Typical day as a ...

## Typical day as **a developer**:

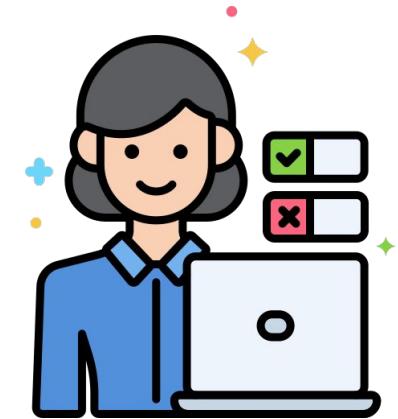
- Daily standup
- Pick your task
- Implement code, write tests
- Send to QA for extra tests
- Send merge requests
- Review merge requests
- Merge merge requests





## Typical day as a **quality assurance**:

- Daily standup
- Monitor crash rates and bugs
- Write test scripts
- Test the artifacts from developers



## Typical day as a **product owner**:

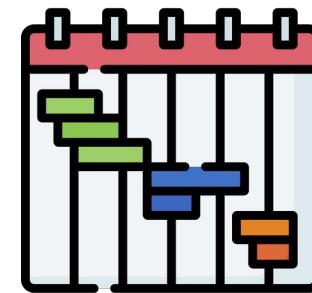
- Daily standup
- Market research
- Test assumption before planning
- Interview users for feedback and insights
- Improve existing features
- Plan new features

Platform: Ballpark



## Typical day as a **project manager**:

- Daily standup
- Define project plan: timelines, milestones
- Make sure things are on plan
- Change and risk management
- Inter-team communication



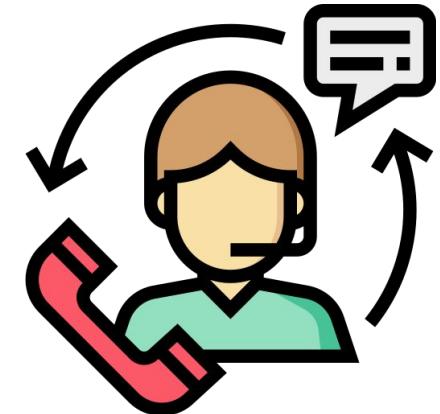
## Typical day as a **data analyst**:

- Daily standup
- Gather, monitor, analyze information from dashboard
- Help team make better decisions

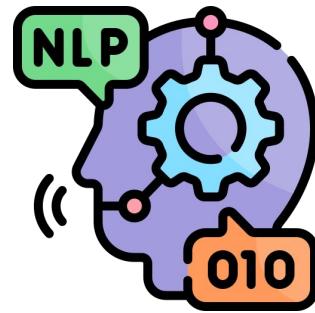


## Typical day as a **customer support**:

- Daily standup
- Check and response to customers via emails, and social media
- Escalate to development team when there are issues

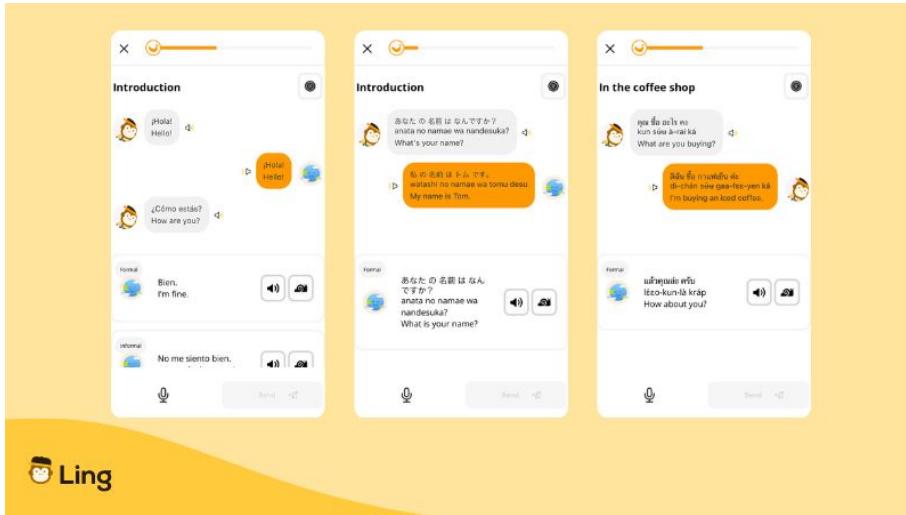


# NLP Roles in Ling App



## Speaking Game & Chatbot

- Transcribe what the users say into text



## Localization

- AI Translations
- Proofread translations for over 60 languages localization with **Lokalise**



## Positive & Negative Comment Detection

- We analyze and highlight the comments from the store to improve our products



# Hands-On

## Scenario:

You are tasked to categorize the comments from users on the App Store into “positive” or “negative”.

You are free to use your preferred programming language.

The comments are provide in a single JSON file [here](#) or <https://shorturl.at/gtOP5>.

What's your techniques or steps?

(Write your own algorithm to determine "Positive" or "Negative")

**Prize:** Ling Tote Bags!



C

# Techniques

## Tokenization:

- breaking text into smaller units, usually words or subwords
- facilitates analysis and processing of text

"The quick brown fox jumps over the lazy dog"

Turns into

["The", "quick", "brown", "fox", "jumps", "over", "the",  
"lazy", "dog"]

## Stopwords Removal:

- common words that are often considered irrelevant in the context
- Common ones in English are "a", "an", "the", "is", etc.

"The quick brown fox jumps over the lazy dog"

Turns into

"~~The~~ quick brown fox jumps over ~~the~~ lazy dog"

## Stemming:

- removing prefixes or suffixes
- aiding in analysis and understanding

The runners are running in the race, and the fastest runner will win.

Turns into

The **runner** are **run** in the race, and the fastest runner will win.

## Lemmatization:

- reducing words to their base or root form
- aiding in analysis and understanding

"Is" -> "be"

"Better" -> "good"

"She is happy". -> "She be happy".

"They are happy." -> "They be happy."

Or use pre-built solutions?

With the programming language of your choice, feed the sentences to Google Cloud API!

With this API, can you separate “negative” and “positive” comments?

**Prize:** Ling T-Shirts!

**Request:**

```
curl --location  
'https://language.googleapis.com/v2/documents:analyzeSentiment?key=AIzaSyBlxJg42ZoloOnju6cJav  
UTWsAjIIQN2FY' \  
--header 'Content-Type: application/json' \  
--data '{  
  "document": {  
    "type": "PLAIN_TEXT",  
    "content": "This app is incredible!"  
  }  
}'
```

Key will expire on January  
1st, 2024

**Response:**

```
{  
  "documentSentiment": { "magnitude": 0.978, "score": 0.924 },  
  "languageCode": "en",  
  "sentences": [  
    { "text": { "content": "This app is incredible!", "beginOffset": -1 },  
      "sentiment": { "magnitude": 0.979, "score": 0.924 }  
    },  
    { "languageSupported": true  
  }
```



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## Interesting reads:

- [Do large language models understand us?](#)
- [Understanding Next Token Prediction: Concept To Code: 1st part!](#)
- [Unleashing the ChatGPT tokenizer](#)
- [PAL: Program-Aided Large Language Models](#)

## Python Libraries for NLP:

- [NLTK](#)
- [TextBlob](#)

## Free Models and Datasets:

- <https://huggingface.co/>

Thank you!