



## **CAPSTONE PROJECT 1**

### **PROPOSAL DOCUMENT**

# **LinguaSnap for Travelers**

**CODE:** PROPOSAL\_v1.3

**Date :** 16 March 2023

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**INTERNATIONAL SCHOOL OF DUY TAN UNIVERSITY**

## PROJECT INFORMATION

<b>Project acronym</b>	LiS		
<b>Project title</b>	LinguaSnap for Travelers		
<b>Start date</b>	25 – February – 2023	<b>End Date</b>	31 – May – 2023
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Document History			
Version	Author	Date	Comments
V1.1	All members	5 March 2023	Draft for comment
V1.2	Trưởng	15 March 2023	Draft for comment
V1.3	Trưởng	16 March 2023	Official

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# **1. Introduction**

## **1.1 Purpose**

The purpose of the proposal is to:

- Define the business need and problem in detail.
- Provide solutions for business needs and show the overview of system architecture.
- Provide overview about resources, schedule, solution and budget for the project.

## **1.2 Scope**

This document provides an overview of project will be developed. It includes the description of business need, the proposed solution, financial forecast and some constraints that involved in the project.

The document provides a comprehensive master plan for each phase of software development based on the processes that have been selected.

This document is made for senior management to put forward a proposal.

# **1. Project Overview**

## **2.1 Project definition**

To build an application with full features for users to translate and search after translation. Users can translate from image scan to search by image or search for content after detecting the language from the image. Users can review their usage history content.

## **2.2 Business needs/ User needs**

Trying to grasp and understand the universal nuances of many languages is a whole different game. Until now, the only way to translate was for 'interpreters' to study multiple languages and try to translate and bridge language boundaries for different purposes.

When traveling or studying, people needs an application that can translate and search in the most accurate way, helping people to quickly solve the necessary problem.

Learning is the nature of each of us. The current trend of users needs technologies that make it easy to use and optimize in translation, search as well as being able to store the necessary things during use.

To resolve the above objectives, based on the knowledge of students about to graduate and enthusiastic guidance of instructors, the team will create an application that can translate from other languages and search based on the results after translation. The application allows scanning from images to text to find information, or search right from images to help us select text, search for favorite content in a smart way....

No need for users to finish copying and searching on other websites, this will cause time and errors in the process of copying and uploading to other websites for search

### **2.3 Prior Art:**

Up until now, there have been a few common apps that provide some of those features, but they are not all together, which means users have to download several apps to use those features.

Example:

- Google Translate
- Google Lens
- Microsoft Lens

	<b>Google Lens</b>	<b>Microsoft Lens</b>	<b>Google Translate</b>
Main Function	Image recognition and providing related information	Document scanning and converting to editable PDF or text	Text translation and providing related information
Language Support	Multiple languages	Multiple languages	Multiple languages
Integration	Integrated within Google Photos and Google Assistant	Integrated within Microsoft Office and OneDrive	Integrated within Google Translate and other Google apps
Performance	Good at recognizing objects, locations, products	Good at document scanning and text recognition	Good at text translation and providing related information
Accuracy	High accuracy in image recognition	Good accuracy in document scanning and text recognition	Good accuracy in text translation
Special Features	Product search, plant and animal recognition, location information	Converting documents to editable text	Text translation via image or text input

## 2.4 Proposed Solution

Our team decided to build a “LinguaSnap” app with convenient and fully functioning features by integrating Google Translation API, Machine Translated Kit . With these features, the users will have an easier time traveling or learning. Our project is built based on the requirements and our team come up with solutions and project implementation:

- Application is a mobile application, running on android platform.
- This software is design for users whoa are tourists, students ...and other people who want an app that can help them translate.

### **2.4.1 Project goal**

The goal of project is to build the “LinguaSnap” app with more functions that meet customer needs within budget and schedule successfully:

- Translate the texts that the user wish to know with different approaches with different languages.
- Help the user find the location of a picture on the internet.
- Synchronize user accounts for persistent data.
- User guide.

### **2.4.2 Introduction ML (Machine Translated) Kit**

ML Kit is a mobile SDK that brings Google's machine learning expertise to Android and iOS apps in a powerful yet easy-to-use package. ML Kit comes with a set of ready-to-use APIs for common mobile use cases: recognizing text, detecting faces, identifying landmarks, scanning barcodes, labeling images, and identifying the language of text. ML Kit's selection of APIs run on-device or in the cloud. Our on-device APIs can process your data quickly and work even when there's no network connection. Our cloud-based APIs, on the other hand, leverage the power of Google Cloud's machine learning technology to give you an even higher level of accuracy.

### **2.4.3 Introduction Google Translation API**

The Google Translation API is a cloud-based service provided by Google that allows developers to integrate machine translation functionality into their applications. The API provides a simple, programmatic interface for translating text from one language to another using Google's machine learning algorithms.

Developers can use the Google Translation API to build applications that can automatically translate text on the fly, such as chatbots or mobile apps. The API supports over 100 languages and can handle both text and speech input.

### **2.4.4 Introduction Firebase Realtime Database**

The Firebase Realtime Database lets you build rich, collaborative applications by allowing secure access to the database directly from client-side code. Data is persisted locally, and even while offline, realtime events continue to fire, giving the

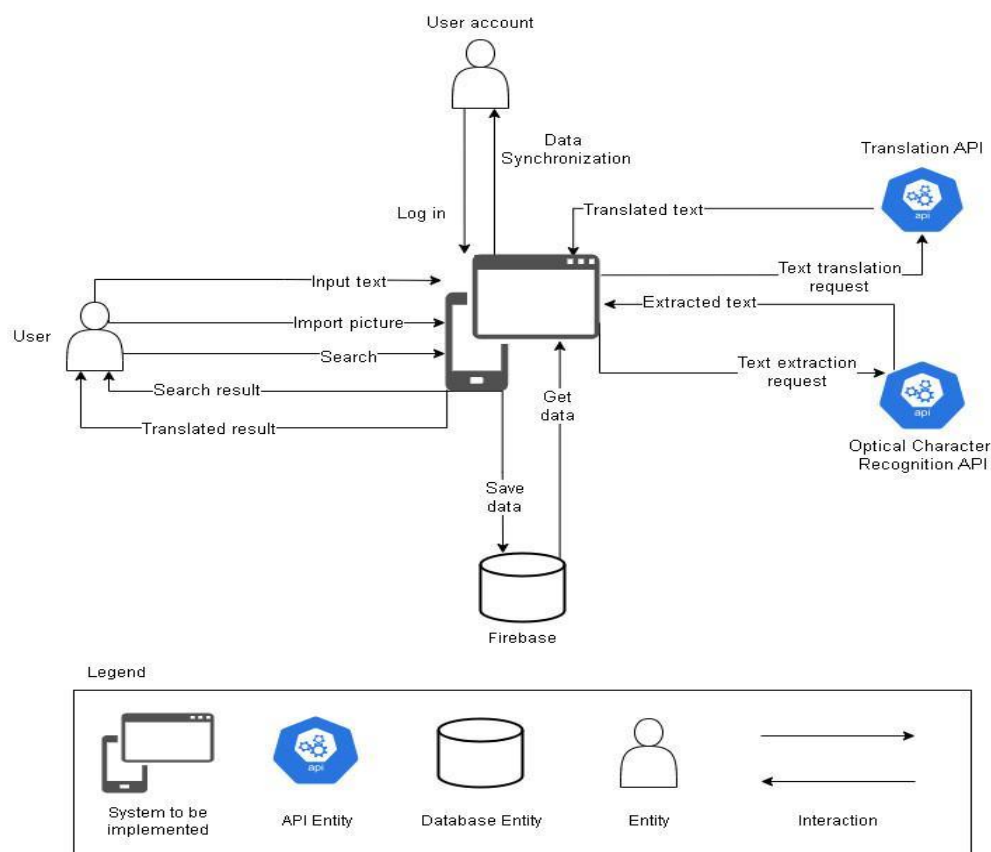
end user a responsive experience. When the device regains connection, the Realtime Database synchronizes the local data changes with the remote updates that occurred while the client was offline, merging any conflicts automatically.

The Realtime Database provides a flexible, expression-based rules language, called Firebase Realtime Database Security Rules, to define how your data should be structured and when data can be read from or written to. When integrated with Firebase Authentication, developers can define who has access to what data, and how they can access it.

The Realtime Database is a NoSQL database and as such has different optimizations and functionality compared to a relational database. The Realtime Database API is designed to only allow operations that can be executed quickly. This enables you to build a great realtime experience that can serve millions of users without compromising on responsiveness.

## 2.4.5 System overview

### 2.4.5.1 System context





**Figure 1: System context overview****2.4.5.2 System context description**

The application will provide 3 main features:

- Translate the texts users wish to know by different forms of approaches such as writing, speaking, pictures.
- Find the location of the pictures they import on the Internet.
- Store the data of the user for synchronization and other functions.

**2.4.6 Technical Constrains****Technicals for Buiding Project**

- Language: Java
- Operating system: Microsoft Windows
- Develop tool: Android Studio
- Database Management System: Firebase

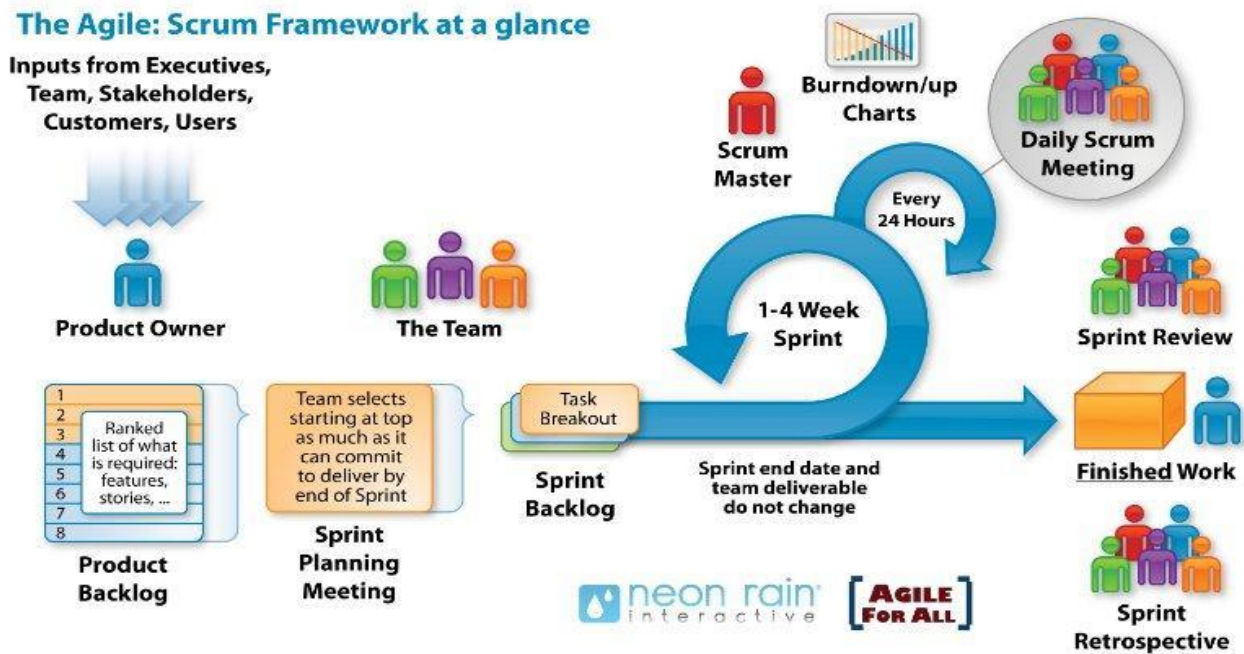
**Environment**

- Tool: Android Studio
- Operation systems: Microsoft Windows

**Bussiness Constraints**

- Resource: 4 people.
- Budget: 3000\$.
- Time: The project must be completed within 3 months.

**3 Master Plan****3.1 Scrum Process**



**Figure 2: General SCRUM Process**

- Scrum is an iterative and incremental agile software development framework for managing software projects and product or application development.
- Scrum focuses on project management institutions where it is difficult to plan ahead.
- Mechanisms of empirical process control, where feedback loops that constitute the core management technique are used as opposed to traditional command-and-control management.
- Its approach to planning and managing projects is by bringing decision-making authority to the level of operation properties and certainties.

## 4 Organization Management

### 4.1 Human Resource

#### ➤ Team's Information

Full Name	Phone	Email	Position
Msc. Nguyen Duc Man		mannd@dtu.duytan.edu	Mentor

Nguyen Thanh Dat	0972530969	ntdat1232001@gmail.com	Team Leader
Nguyen Ngoc Kha	0945721427	winkha14567@gmail.com	Team Member
Pham Ba Hoang Long	0793310221	longphambahoang@gmail.com	Team Member
Vu Dinh Truong	0905223611	jonnyvu2210@gmail.com	Team Member

#### 4.2 Master plan

NO	Task Name	Duration	Start	Finish
1	Initial	4	25/02/2023	03/03/2023
	Gathering Requirement	3	27/02/2023	02/03/2023
	Create Proposal Document	1	03/03/2023	03/03/2023
2	Start Up	3	06/03/2023	08/03/2023
	Create documents for project	3	06/03/2023	08/03/2023
3	Development	56	09/03/2023	26/05/2023
	Sprint 1	21	09/03/2023	07/04/2023
	Sprint 2	21	08/04/2023	09/05/2023
	Sprint 3	14	10/05/2023	30/05/2023
4	Project's Retrospective Meeting and final release	1	31/05/2023	31/05/2023

## 5 Cost Estimation

The following outlines the cost to complete all the identified components for the project.

No.	Phase	Milestone	Cost( 2 hours/day) USD
1.	Start-up	STU	\$100
2.	Development	SPR1	\$600
		SPR2	\$600
		SPR3	\$600
3.	Other costs	OTH	\$300
4.	Project's Meeting	PM	\$20
5.	Final Release	FR	\$28
6.	<b>Total</b>		<b>\$2.248</b>

## 6 Project Constraints

Constraint	Constraints Description	Guidelines for Acceptance
<b>Information sharing</b>	N/a	N/a
<b>Ethical</b>	<p>Translate apps can sometimes produce inaccurate translations, which can result in misunderstandings or miscommunications. It is essential to ensure that the translations provided by the app are reliable and accurate, especially when it comes to critical or sensitive information.</p> <p>Translate apps can pose a risk to confidentiality if they are used to translate sensitive or confidential information. It is essential to ensure that the app's privacy policy and terms of use protect the</p>	<p>+ Absolute security for the user's personal data in the application, not using with unauthorized purposes, disrespecting user data.</p> <p>+ Build clean applications with safe content, do not contain offensive, cultural and unethical images</p> <p>+ Pay special attention to gender, religion, ethnicity, and age issues.</p>

	confidentiality and security of the data being translated.	
<b>Intellectual property rights issues</b>	N/a	N/a
<b>Economic and E-Commerce</b>	This project is under monitoring by the college campus environment, so, this is a non-profit project	+ Information security, preventing fake information and untrustworthy information. Provide sufficient information and support state management agencies in investigating business acts in violation of the law using their application.
<b>Trade promotion activities</b>	N/a	N/a
<b>Advertising activities</b>	N/a	N/a
<b>Google Play Store Policies</b>	N/a	N/a
<b>Sustainability</b>	A quality software product must cover issues from future development to maintenance and expansion. To achieve sustainability and long-term survival in the market it must achieve sustainability from the investment of resources, infrastructure, material, equipment, maintenance, ... This attribute determines the viability of a product and the possibility of its future development.	<ul style="list-style-type: none"> <li>+ The system operates 24/7 with 99.99% uptime</li> <li>+ Reuse existing services with low risk and high reliability.</li> <li>+ Periodically back up data to ensure data safety, avoid data loss cases</li> <li>+ Test achieves a minimum error coverage rate of 80%.</li> <li>+ Update new technology trends to keep up with the age and increase competitiveness</li> </ul>

## 7 Conclusion

Traveling to a new country can be an exciting and enriching experience, but it can also be challenging if you don't speak the local language. Ordering food, asking for directions, or even reading street signs can be difficult when you don't understand the language. With the help of this app, you can navigate language barriers with ease and enjoy all that your destination has to offer. From snapping a picture of a menu to translating a conversation in real-time, this app provides the convenience and accessibility that travelers need.

Our system will integrate with Translation API for translating text, Image Search API for searching similar result and OCR API for extracting text from image. The project team will develop this system within 12 weeks with a budget of 3000 dollars for 4 members. We ensure compliance with schedule, budget and on-time product delivery. We are determined to together with consensus, solidarity, research solutions to overcome challenges and manage progress to bring the project to success.

## 8 References

No.	References	Document Information
1	Scrum Model	<a href="https://en.wikipedia.org/wiki/Scrum_(software_development)">https://en.wikipedia.org/wiki/Scrum (software development)</a>
		<a href="https://www.atlassian.com/agile/scrum">https://www.atlassian.com/agile/scrum</a>
		<a href="https://www.digite.com/agile/scrum-methodology/">https://www.digite.com/agile/scrum-methodology/</a>
		<a href="https://docs.microsoft.com/en-us/azure/devops/boards/sprints/best-practices-scrum?view=azure-devops">https://docs.microsoft.com/en-us/azure/devops/boards/sprints/best-practices-scrum?view=azure-devops</a>
		<a href="https://www.scrum.org/resources/scrum-guide">https://www.scrum.org/resources/scrum-guide</a>
2	Technical	<a href="https://api-ninjas.com/api/imagetotext">https://api-ninjas.com/api/imagetotext</a>
		<a href="https://ocr.space/ocrapi">https://ocr.space/ocrapi</a>
		<a href="https://cloud.google.com/translate">https://cloud.google.com/translate</a>
		<a href="https://github.com/matheuss/google-translate-api">https://github.com/matheuss/google-translate-api</a>
3.	Software Engineering Standards	<a href="https://www.nws.noaa.gov/oh/hrl/developers_docs/General_Software_Standards.pdf">https://www.nws.noaa.gov/oh/hrl/developers_docs/General_Software_Standards.pdf</a>
		<a href="https://standards.ieee.org/standard/12208-2017.html">https://standards.ieee.org/standard/12208-2017.html</a>

		<a href="https://sw-eng.larc.nasa.gov/">https://sw-eng.larc.nasa.gov/</a>
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## 9 Attachment: DESCRIPTION OF PRODUCT REQUIREMENTS FORM

### DESCRIPTION OF PRODUCT REQUIREMENTS

Group: C1SE.05

Project: Traveling Companion

Date: 06 Mar 2023

#### 9.1 Short description of product ideas (less than 7 statements)

Today's modern life, the quality of human life has improved in every aspect. As a result, the need for entertainment, such as travel, has grown stronger than ever. However, traveling to another country is not that simple. Language barriers and lack of knowledge have proved to be significant problems that can ruin your vacation. Nowadays, everyone owns a smartphone, so we came up with an idea that can help you search an entire picture, translate and extract the words from the image, and much more.

Translation can be done manually by a human translator, or through the use of machine translation software, which employs algorithms and artificial intelligence to automatically translate text. Translation is an important tool for communication, enabling people from different linguistic and cultural backgrounds to understand and interact with each other.

#### 9.2 Requirements

High-level Functional Requirements	1. Input: The system should be able to receive input in the form of text, speech or other data format from the user.
	2. Source Language Identification: The system should be able to automatically identify the language of the input text.
	3. Translation: The system should be able to translate the input language.
	4. Output: The system should be able to output the translated text in the desired format, such as text, speech or other data format.
	5. Quality Assessment: The system should be able to assess the quality of the translation based on various parameters, such as accuracy, fluency, and naturalness.

	6. Customization: The system should allow for customization based on user needs, such as specialized vocabularies or industry-specific terminology.
	7. Integration: The system should be able to integrate with other software or systems, such as chatbots or content management systems.
	8. Security: The system should ensure the security of the input and output data, and protect user privacy.
	9. Performance: The system should be able to provide accurate and efficient translations within a reasonable amount of time.
	10. User Interface: The system should have a user-friendly interface that is easy to use and understand, and should provide feedback to the user throughout the translation process.

<b>Quality Attributes Requirements</b> (example related to issues: Ease Use, Easy to Like, Easy to Learn, Easy to Understand, Easy to Buy / Yes, ...)	1. Ease Use
	2. Easy to Understand
	3.
	4.
	5.

<b>Operation Requirements</b> (related to issues: Speed, Accuracy, Performance, Stability, Load Resistance, Scalability, Safety, ...)	1. Accuracy
	2. Stability
	3. Scalability
	4.
	5.

<b>Environment &amp; Operation Requirements</b> (related to issues: physical impacts on the environment, interact with relevant or existing systems, conditions for product commercialization, ...)	1. Environmental factors do not affect the system
	2.
	3.
	4.
	5.

	1. Periodical maintenance once every 3 months
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Requirements for Maintenance & Support	2.
	3.
	4.
	5.

Security/ Safety Requirements (related to issues: conditions of use / access to products, personal freedom, inspection, ...)	1. User's personal information is kept confidential.
	2.
	3.
	4.
	5.

Culture Requirements	1. Slang and Colloquialisms: The system should be able to accurately translate slang and colloquialisms in a way that reflects their cultural context.
	2. Political Correctness: The system should be designed to avoid language that may be considered offensive or inappropriate in certain cultural contexts.
	3. User Feedback: The system should allow users to provide feedback on translations to help improve the accuracy and appropriateness of future translations.
	4.
	5.

Evaluate the complexity of engineering problems		1. Involving wide-ranging or conflicting technical issues
		2. Having no obvious solution
		3. Addressing problems not encompassed by current standards and codes
		4. Involving diverse groups of stakeholders
	✓	5. Including many component parts or sub-problems
		6. Involving multiple disciplines
		7. Having significant consequences in a range of contexts

Standard requirements	✓	1. Code standard. (GNU, Oracle standard for Java, ...)
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		2. Design standard. (design patterns, object-oriented analysis and design,...).
		3. IEEE (1058, 1540, 830, 1016, 829, 1012, 1008)
		4. ISO/IEC/IEEE 12207:2017 (TCVN 10539:2014); ISO/IEC 25051:2006(TCVN 10540:2014);
		5. Other standards. (related to specific topics)



# Capstone Project 1

CMU-SE 450

## Project Plan

Version 1.3

Date: 28/04/2023

# LinguaSnap for Travelers

Submitted by

**Dat, Nguyen Thanh**

**Truong, Vu Dinh**

**Long, Pham Ba Hoang**

**Kha, Nguyen Ngoc**

Approved by **Nguyen Duc Man**

**Capstone Project 1- Mentor:**

Name

Signature

Date

**INTERNATIONAL SCHOOL OF DUY TAN UNIVERSITY**

**PROJECT INFORMATION**

<b>Project acronym</b>	LiS		
<b>Project title</b>	LinguaSnap for Travelers		
<b>Start date</b>	25 – February – 2023	<b>End Date</b>	31 – May – 2023
<b>Lead institution</b>	International School, Duy Tan University		
<b>Project mentor</b>	Nguyen Duc Man Email: mannd@duytan.edu.vn Phone: +84 904 235 945		
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<b>Team members</b>	Kha, Nguyen Ngoc	winkha14567@gmail.com	0945721427
	Long, Pham Ba Hoang	longphambahoang@gmail.com	0793310221

**REVISION HISTORY**

<b>Version</b>	<b>Date</b>	<b>Comments</b>	<b>Author</b>	<b>Approval</b>
1.0	12/04/2023	Initial Release	All members	
1.2	09/04/2023	Update Project plan	Kha	
1.3	28/04/2023	Update project plan	Kha,Trưởng	

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# 1. PROJECT OVERVIEW

## 1.1. Purpose and Scope

### 1.1.1. Purpose

- The purpose of the LinguaSnap app is to facilitate communication and understanding between speakers of different languages. It allows users to enter text or speech in one language and get an accurate translation in another, helping to overcome language barriers and enabling communication in diverse linguistic contexts.
- Can be used in a variety of situations, such as when traveling abroad, communicating with people who speak another language, translating written documents, conducting business with international partners , study or research in a foreign language,

....

### 1.1.2. Scope

- The scope of the LinguaSnap application can support a specific group of languages for translation, which can include common languages, less common languages or specialized languages depending on the target audience and use case. expected use.
- The translation application can provide different translation modes, such as text translation, speech translation or image translation.
- Text translation may involve entering text for translation, while voice translation may involve using speech recognition to translate spoken language.
- Image translation can involve translating text from images, such as signs or menus.

## 1.2. Assumptions and Constraints

No	Description	Note
<b>Assumptions</b>		
1	Only SDK 24 or above versions supported. Java version 8 or above	Scope
2	Customer reviewers will get seven days to approve a milestone document. If no comments are received within this time period, it will be considered as approved.	External Interfaces
<b>Constraints</b>		
1	The project is developed within 12 weeks and quarterly deployed on the market.	Schedule
2	The project shall conform to security requirements specified by the customer in the NDA	Security

3	The product operates at a high level of performance and has a page load of no more than 5 seconds.	Quality
4	The application operates on android 7.0 or aboves	Scope
5	The project will be implemented by a team consisting of 4 members	Resources
6	The financial estimation for the project is at a budget limit of \$2248	Budget

### 1.3. Project Objectives

#### 1.3.1 Standard Objectives

Metrics	Unit	Committed	Note
Start Date	dd-mmm-yy	25-2-2023	
End Date	dd-mmm-yy	31-5-2023	
Duration	elapsed days	99 days	
Maximum Team Size	Person	4 Person	
Billable Effort	Person-day	64 days	
Number of work hours per day for one engineer	Person-hour	8 hours	

Metrics	Unit	Target			Basic for setting Goals
		LS L	Averag e	US L	
Quality					
Customer Satisfaction	Point	8.5	9	9.5	Refer to Gx Target in the year 2020,  5% higher than previous project (A project)
Leakage	Wdef/ UCP				



Process Compliance	NC/O b				
Cost					
Effort Efficiency	%	70	80	90	
Correction Cost	%	60	65	70	
Delivery					
Timeliness	%	85	90	95	
Requirement Completeness	%	80	85	90	

### 1.3.2 Specific Objectives

- Based on the needs of people when traveling or learning, we will build an app that can help users easily use according to their purposes.
- Integrate translation technology: Build and integrate an efficient translation technology to enable users to translate texts from one language to another, with high accuracy.
- Develop a search feature: Build a powerful search feature that allows users search for the related translated results on the Internet.
- User-friendly interface: Simple, easy-to-use and user-friendly user interface design, with clearly displayed search and translation features, makes it easy for users to interact with the application.
- Multi-Language Support: Supports many popular languages in the world, including English, French, Spanish, Chinese, Japanese and more, meeting the needs of multi-language translation of the user.
- Translation results storage and management: Provides translation results storage and management, allowing users to save previously used services and manage them easily.
- Confidentiality and privacy: Ensure the security and privacy of user data, and comply with legal regulations related to user data protection and personal information management.

## 1.4. Critical Dependencies

No	Dependency	Expected delivery date	Note
1	API of Google Cloud	15-3-2023	External system
2	Firebase	15-3-2023	External System
3	Google ML Kit	15-3-2023	External System

## 1.5. Project Risk

Risk	Description	Probability	Impact	Mitigation Strategy
Incorrect requirements	Developing the product which does not accord with the requirements	3	5	Discuss and communicate frequently with Stakeholders
Estimate working time	Actual working time is not enough to finish a task compared to the estimated previous time	2	4	Review old tasks and evaluations to estimate for the new task. Replan for each sprint.
People	Team member who is ill, has health problems, or busy	4	3	Notify the scrum master (or ask a colleague to help you)  Complete the assigned tasks when possible
Lack of technical experiences	Detect harmful content in the images is a difficult technique that all members need to	4	4	Spend a lot of time for learning and training

	research and develop.			
Team Communication	Team members can conflict with each other while discussing something related to the project	4	2	Conduct a meeting to share knowledge, experience and learning methods
External problems	It has power problems, laptop, personal computer, network system	3	3	Find another workplace (library, coffee shop, ...)  Notify the scrum master to assign appropriate tasks
Market	Other products are deployed at the same time and compete with the project team's product	2	3	Develop newer features and organize promotional activities

## 2. PROJECT DEVELOPMENT APPROACH

### 2.1 Technical Process

#### 2.1.1. Reasons for selecting

To keep up with today's increasingly changing technology trends, we want a truly flexible and easy project development model to adapt to that change. Our project will develop more new features in the future. We will continuously update and apply new technologies that increase the attractiveness and intelligence of the application.

Currently, our team is a small team with little experience in project development. Therefore, we cannot avoid problems that arise in the software development stages and requirements can be changed to be more suitable. For the traditional model that requires managerial skills and high accuracy, it will not suit our team. Applying Agile Scrum model will help us to solve these problems, bring a lot of experience and best performance for project development.

#### 2.1.2. Agile Methodology

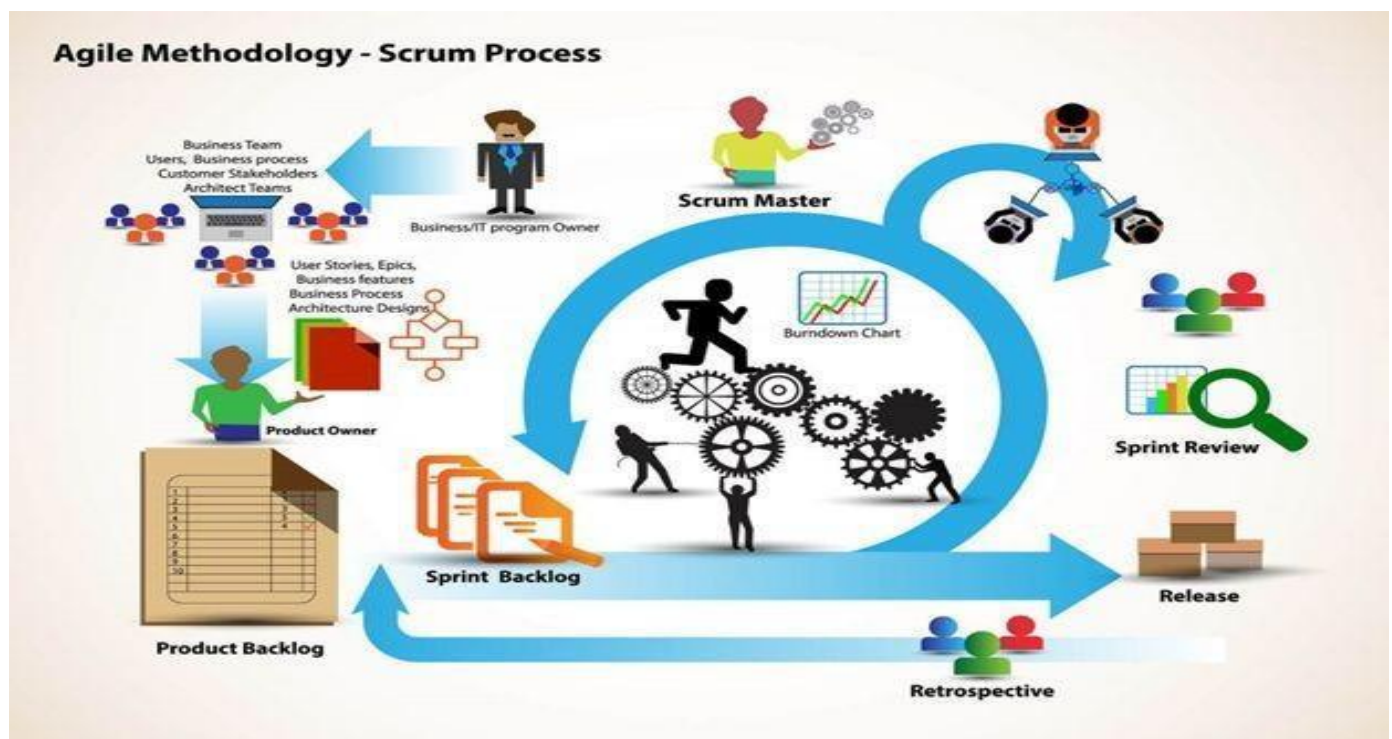
Agile software development refers to a group of software development methodologies based on iterative development, where requirements and solutions evolve through collaboration between self-organizing cross-functional teams.

Agile software development is more than frameworks such as Scrum, Extreme Programming, or Feature-Driven Development (FDD).

Agile software development is more than practices such as pair programming, test-driven development, stand-ups, planning sessions, and sprints.

Agile software development is an umbrella term for a set of frameworks and practices based on the values and principles expressed in the Manifesto for Agile Software Development and the 12 Principles behind it. When you approach software development in a particular manner, it's generally good to live by these values and principles and use them to help figure out the right things to do given your particular context.

## Scrum Process



## About Scrum:

Scrum is a subset of Agile. It is a lightweight process framework for agile development, and the most widely-used one.

Scrum is most often used to manage complex software and product development, using iterative and incremental practices. Scrum significantly increases productivity and reduces time to benefits relative to classic “waterfall” processes. Scrum processes enable

organizations to adjust smoothly to rapidly-changing requirements and produce a product that meets evolving business goals.

An agile Scrum process benefits the organization by helping it to

- + Increase the quality of the deliverables
- + Cope better with change (and expect the changes)
- + Provide better estimates while spending less time creating them
- + Be more in control of the project schedule and state

## 2.2. Quality Management

### 2.2.1. Estimates of Defects to be detected

#### Pre-release review defects

Process	Planned found by review	Actual found by review
<b>Requirement</b>	50	20
<Work product>		
<b>Design</b>	30	25
<Work product>		
<b>Coding</b>	180	150
<Work product>		
<b>Other</b>	50	30
<Work product>		
<b>Total</b>	<b>310</b>	<b>225</b>

#### Pre-release test defects

Process	Planned found by review	Actual found by review
<b>Requirement</b>	35	25

<Work product>		
<b>Design</b>	30	10
<Work product>		
<b>Coding</b>	160	120
<Work product>		
<b>Other</b>	40	25
<Work product>		
<b>Total</b>	<b>265</b>	<b>180</b>

### 2.2.2. Strategy for Meeting Quality Objectives

Strategy	Expected Benefits
Do defect prevention using the standard defect prevention guidelines and process; use standards developed in Java for coding.	15–25% reduction in defect injection rate and about 5% improvement in productivity
Group review of program specs for first few/logically complex use cases.  Group review of design docs/first time-generated code by project leader, developer, and one consultant.	Improvement in quality as overall defect removal efficiency will improve; some benefits in productivity as defects will be detected early
Introduction of RUP methodology and implementing the project in iterations. Milestone analysis and defect prevention exercise will be done after each Iteration.	Approximately 5% reduction in defect injection rate and 1% improvement in overall productivity

### 2.2.3. Quality Control

Review Item	Type of Review	Reviewer	When
Proposal	Group review	Man Nguyen, Long Pham, Truong Vu, Dat Nguyen, Kha Nguyen	Initial
Project plan Project schedule Test Plan	Group review Group review One-person review	Long Pham, Truong Vu, Dat Nguyen, Kha Nguyen	End of Initiation stage
Business analysis and requirements specification document, Use Case catalog	Group review	Long Pham, Truong Vu, Dat Nguyen, Kha Nguyen	End of 90% of requirements
Design document, object model	Group review	Long Pham, Truong Vu, Dat Nguyen, Kha Nguyen	End of 90% design
Stage plans	One-person review	Man Nguyen	Beginning of each stage
Complex/first specs incl. Diagrams, Time test, Generated cases, Program interactive	Group review	Man Nguyen, Long Pham, Truong Vu, Dat Nguyen, Kha Nguyen	End of detailed design
Code	Group review	Long Pham, Truong Vu, Dat	After coding for first few programs

		Nguyen, Kha Nguyen	
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#### 2.2.4. Measurements Program

Data to be collected	Purpose	Responsible	When
Size: No. of KLOC/ FP	Early estimate project cost	PM/SM	At the end of stages
Effort: No. person-day	Calculate project effort for scheduling	Team members	Daily
Quality: No. defects detected	Early evaluate product quality and the feasibility of the project	Reviewer , Tester	Right after the review/test
Schedule	Divide work and allocate resources properly, ensure the project is completed on time and on budget	PM/SM	Weekly and at the end of stages

#### 2.3. Unit Testing Strategy

- Grey Box:
  - It is a combination of a Black Box and White Box testing. It is the type of testing in which tester aware with internal functionality of a method or unit but not in a more deep level like white box testing. In this, the user partially aware of the internal functionality of a system.
  - Write test cases before fixing the defect and independent of each other.
  - Write cases to verify behavior, also write test cases to ensure the performance of the code
  - Execute test cases continuously and frequently.
  - Using tool: Install and run Jest for writing unit test in NodeJS
- Isolation of a code – Isolate function to test it more rigorously. Isolate code to do Automated Unit Testing in a better way. Isolating functions/code helps to do testing in a good way. It helps to reveal dependencies between functions of code.



## 2.4. Integration Testing Strategy

- Bigbang Strategy:
  - All components are put together at the same time, there is no order, except all are integrated at the same time.
  - Towards the end of the project, we started to apply this tactic to test the entire application.

## 3. ESTIMATION

### 3.1. Size

+ Total number of FP: 68

Software Scale Drivers	
Precedent	Nominal
Development Flexibility	Nominal
Architecture / Risk Resolution	Nominal
Team Cohesion	Very High
Process Maturity	Nominal

Software Cost Drivers			
Product		Personnel	
Required Software Reliability	Nominal	Analyst Capability	High
Data Base Size	Nominal	Programmer Capability	High
Product Complexity	Nominal	Personnel Continuity	Nominal

Developed for Reusability	High	Application Experience	High
Documentation Match to Lifecycle Needs	Nominal	Platform Experience	High
		Language and Toolset Experience	High
<b>Project</b>		<b>Platform</b>	
Use of Software Tools	High	Time Constraint	Nominal
Development	Nominal	Storage Constraint	Nominal
Required Development Schedule	Nominal	Platform Volatility	Nominal

### Software Development (Elaboration and Construction)

Cost per Person-Month (Dollars) = 60,789 \$

Resource = 4 person.

Effort = 7.6 Person-months.

Schedule = 64 Day = 2.13 Months.

Other cost = 400 USD.

Cost = Effort \* Schedule + Other cost = \$2248

Total Equivalent Size = 3604 SLOC

Effort Adjustment Factor (EAF) = 0.65

### Acquisition Phase Distribution

Phase	Effort (Person-months)	Schedule (Months)	Average Staff	Cost (Dollars)
Inception	0.6	1.0	0.6	\$120
Elaboration	2.3	2.9	0.8	\$350
Construction	7.3	4.8	1.5	\$1558
Transition	1.1	1.0	1.2	\$220

### Software Effort Distribution for RUP/MBASE (Person-Months)

Phase/Activity	Inception	Elaboration	Construction	Transition
Management	0.1	0.3	0.7	0.2
Environment/CM	0.1	0.2	0.4	0.1
Requirements	0.2	0.4	0.6	0.0
Design	0.1	0.8	1.2	0.0
Implementation	0.0	0.3	2.5	0.2
Assessment	0.0	0.2	1.7	0.3
Deployment	0.0	0.1	0.2	0.3

### 3.2. Effort

The Effort estimation

Activity /Process	Total budgeted Effort Usage (USD)	Total % budgeted Effort Usage (%)	Sprint 1		Sprint 2		Sprint 3	
			USD	%	USD	%	USD	%
Requirement	100	5,96	50	11,41	50	5,32	0	0,00
Design	200	14,9	100	15,21	50	15,21	50	14,14
Coding & Unit Testing	1298	34,44	500	26,62	400	35,71	398	42,98
Testing	250	13,41	123	9,89	50	15,31	77	16,02
Deployment	100	2,98	25	1,90	25	2,55	50	4,71
Support for Acceptance Test	50	4,47	20	3,80	15	5,10	15	4,71
Project Planning	50	2,98	20	3,80	15	2,55	15	2,36
Project Review	100	5,96	60	4,56	35	8,16	5	5,66
Training	100	14,9	50	22,81	30	10,20	20	9,43
<b>Total</b>	2248	100	948	100.00	670	100.00	630	100.00

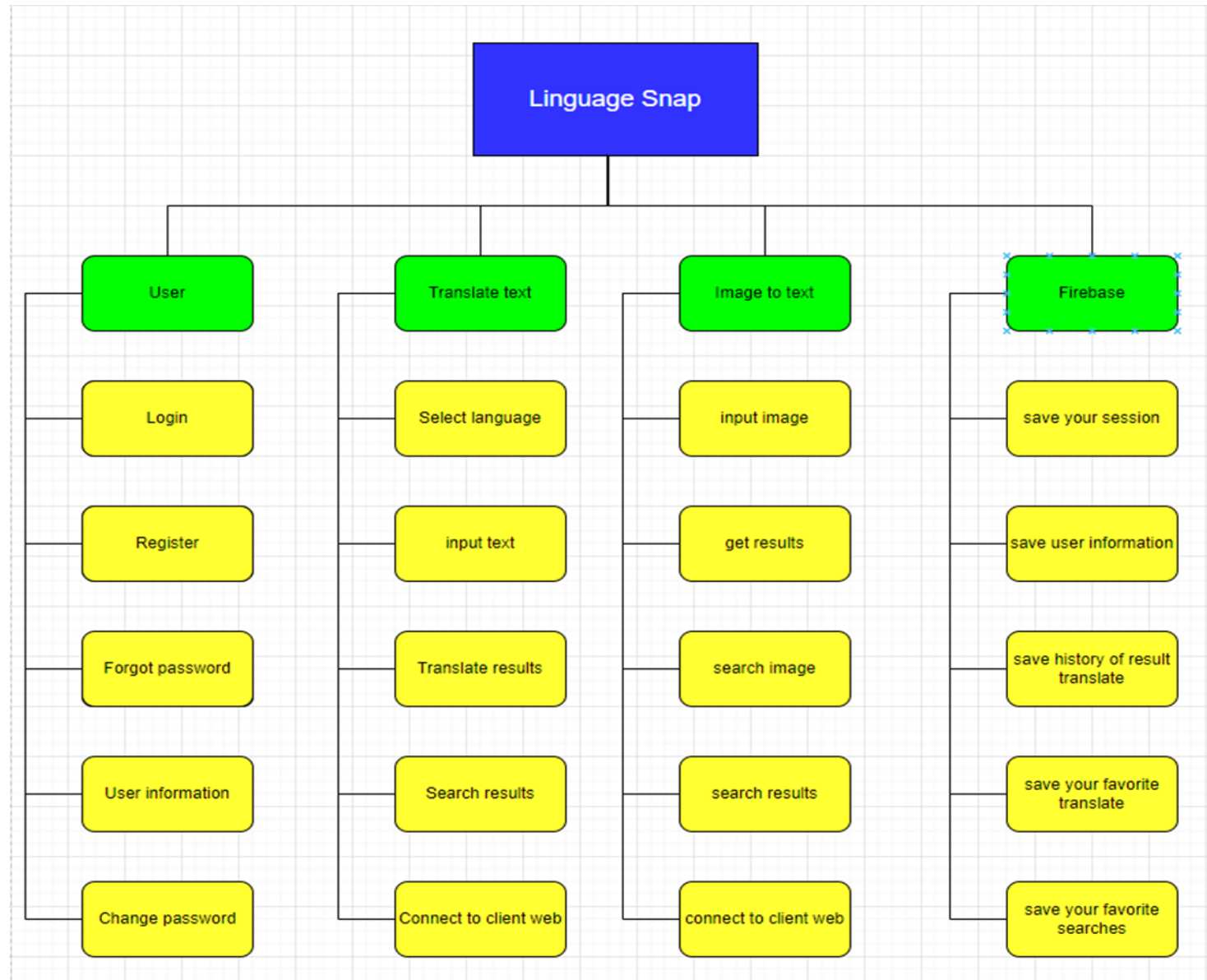
### 3.3. Schedule

#### 3.3.1. Project Milestone & Deliverables

NO	Task Name	Duration	Start	Finish
<b>1</b>	Initial	4	25/02/2023	03/03/2023
	Gathering Requirement	3	27/02/2023	02/03/2023
	Create Proposal Document	1	03/03/2023	03/03/2023
<b>2</b>	Start Up	3	06/03/2023	08/03/2023
	Create documents for project	3	06/03/2023	08/03/2023

<b>3</b>	Development	56	09/03/2023	26/05/2023
	Sprint 1	21	09/03/2023	07/04/2023
	Sprint 2	21	08/04/2023	09/05/2023
	Sprint 3	14	10/05/2023	30/05/2023
<b>4</b>	Project's Retrospective Meeting and final release	1	31/05/2023	31/05/2023
<b>5</b>	Total	64		

### 3.3.2. Work Breakdown Structure



**3.3.3. Detailed Schedule**

<b>No.</b>	<b>Task Name</b>	<b>Durati on (Days)</b>	<b>Start</b>	<b>Finish</b>	<b>Assign to</b>
<b>1.</b>	<b>Initial</b>	7	25/02/2023	08/03/2023	Team, Mentor
1.1	Project's Kick-off Meeting	1	27/02/2023	27/02/2023	Team, Mentor
1.2	Collect and analyze requirements	1	28/02/2023	01/03/2023	Team
1.3	Setup Development Environment	1	02/03/2023	02/03/2023	Team
1.4	Research Technical	1	03/03/2023	03/03/2023	Team
1.5	Create documents	3	06/03/2023	08/03/2023	Team
<b>2</b>	<b>Development</b>	56	09/03/2023	26/05/2023	Team
2.1	Sprint 1	21	09/03/2023	07/04/2023	Team
2.1.1	Design App Theme				Team
2.1.2	Code OCR API				Team
2.1.3	Crop Image				Team
2.1.4	Take full-scale Image				Team
2.1.5	Code Firebase Authentications				Team
2.1.6	Basic Login				Team
2.1.7	User Register				Team
2.1.8	Login Sessions				Team
2.1.9	Forgot password				Team

2.1.10	Code Translate API				Team
2.1.11	Spinner List selection				Team
2.1.12	Auto Detect Language				Team
2.1.13	Code App UI				Team
2.1.14	Integrate into basic app				Team
2.1.15	Update Project Plan				Team
2.1.16	Update Product Backlog				Team
2.1.17	Create Sprint Backlog				Team
2.1.18	Sprint meeting				Team
2.1.19	Sprint Retrospective				
2.2	Sprint 2	21	08/04/2023	09/05/2023	Team
2.2.1	Search Image				Team
2.2.2	Data Collection				Team
2.2.3	Auto-Translate				Team
2.2.4	Update Integrated App				Team
2.2.6	Update Architecture Document				Team
2.2.7	Update Database Design				Team
2.2.8	Update User Interface Design				Team



2.2.9	Update Sprint Backlog				Team
2.2.10	Text to Speech API				Team
2.2.11	Speech to Text API				Team
2.2.12	Setup character limit				Team
2.2.13	Dictionary API				Team
2.2.14	Save used languages				Team
2.2.15	Spell checker API				Team
2.2.16	Update Main page design				Team
2.2.17	Search text result				Team
2.2.18	Design “Image to text” page				Team
2.2.19	Translation History				Team
2.2.20	Change password				Team
2.2.21	Design Login/Forgot password/Register page				Team
2.2.22	Design menu in main page				Team
2.2.23	Sprint meeting				Team
2.2.24	Sprint Retrospective				Team
2.3	Sprint 3	14	10/05/2023	30/05/2023	Team

2.3.1	Bookmark				Team
2.3.2	View/Edit user information				Team
2.3.3	Swap languages				Team
2.3.4	Copy translated text				Team
2.3.5	Fix bug/Error				Team
2.3.6	Update Test Case				Team
2.3.7	Update User Story				Team
2.3.8	Update Integrated App				Team
2.3.9	Sprint meeting				Team
2.3.10	Sprint Retrospective				Team
2.3.11	Wrapping up app project				Team
2.3.12	Update and Finalize Sprint Backlog				Team
<b>3</b>	<b>Delivery and close project</b>	<b>1</b>	31/05/2023	31/05/2023	Team, mentor

### 3.3.4. Project Schedule

The detail project schedule is available in The Sprint Backlog.

### 3.4. Resource

Position	Member	Effort
Back-end Developer	All Member	
Front-end Developer	All Member	
Designer	All Member	

Data Engineer	All Member	
Tester	All Member	

### 3.5. Infrastructure

Work/Product	Purpose	Expected Availability by	Note
<b>Development Environment</b>			
Windows 11	Operating System	Initiation stage	
Google Cloud	Platform	Initiation stage	
Android Studio	IDE	Initiation stage	
Firebase	DBMS	Initiation stage	
Java	Development language for native Android develop	Initiation stage	
<b>Hardware &amp; Software</b>			
4 Personal Laptop	Design, Develop and emulation	Initiation stage	
2 Android phone	Testing	Initiation stage	
<b>Other Tools</b>			
Git	Source version control	Definition stage	
Trello	Task tracking	Initiation stage	

### 3.6. Training Plan

Training Area	Participants	When, Duration	Waiver Criteria
Technical			
Java Language	All members	7 days	If already trained
Detect harmful contents	All members	10 hrs	If already trained
Firebase	All members	5 hrs	Mandatory
Process			
Quality system	All members	3 hrs	If already trained
Configuration management(Git and bitbucket tool)	All members	2 hrs	If already trained for CC. For others, on-the- job training
Group review	All members	4 hrs	If already trained
Defect prevention	All members	4.5 hrs	Mandatory
UI Automator	All members	4.5 hrs	If already trained
Agile Scrum	All members	2 hrs	Mandatory

## 4. PROJECT ORGANIZATION

### 4.1. Organization Structure

Role	Responsibility	Name
<b>Scrum Master</b>	<ul style="list-style-type: none"> <li>- Communicate the value of Scrum</li> <li>- Teach the organization on Scrum to maximize business value</li> <li>- Preserve the integrity and spirit of the Scrum framework</li> <li>- Serve as a coach and mentor to members of the Team</li> </ul>	

	<ul style="list-style-type: none"> <li>- Respectfully hold the Team, Product Owner and Stakeholders accountable for their commitments</li> <li>- Continually work with the Team and business to find and implement improvements</li> <li>- As a timekeeper</li> <li>- Helping the team agree on what they can achieve during each development sprint (or other period of time).</li> <li>- Facilitating the daily standup (sometimes called the daily scrum) and helping the team reach consensus on each of the three questions.</li> <li>- Helping the team continuously make progress on the project by making sure each person is working on the right tasks, helping to remove any obstacles to the team members' progress, and protecting the team from distractions.</li> </ul>	
<b>Product Owner</b>	<ul style="list-style-type: none"> <li>- A spokesperson for the customer and needs to represent them</li> <li>- Gathers, manages, and prioritizes the product backlog.</li> <li>- Has technical product knowledge or specific domain expertise.</li> <li>- Tracks progress towards the release of a product.</li> </ul>	
<b>Developer</b>	<ul style="list-style-type: none"> <li>- Responsible for quality</li> <li>- Responsible for delivering the potentially shippable product of the Application each sprint</li> <li>- Report progress based on the remaining time</li> <li>- Self-organized</li> </ul>	All members

	- Owns the Sprint backlog	
<b>Mentor</b>	<ul style="list-style-type: none"> <li>- Guide on the process.</li> <li>- Monitoring all activities of the Team.</li> <li>- Help with anything.</li> <li>- Reviews project documents</li> <li>- Reviews product</li> </ul>	Man, Nguyen Duc

## 4.2. Project Team

Full Name	Position
Man, Nguyen Duc	Mentor
Dat. Nguyen Thanh	Scrum Master, Dev-team
Truong, Vu Dinh	Product Owner, Dev-team
Long, Pham Ba Hoang	Dev-team
Kha, Nguyen Ngoc	Dev-team

## 5. COMMUNICATION & REPORTING

Audience / Attendees	Topic / Deliverable	Frequency	Method
Scrum Master, Members	Daily meeting	Daily	Face to Face / Zoom Meeting / Slack Chat
Scrum Master, Members	Sprint Planning Meeting	When starting a sprint	Zoom Meeting

Scrum Master, Members, Mentor	Sprint Review Meeting	When finishing a sprint	Face to face, Zoom Meeting
Scrum Master, Members	Sprint Retrospective	When the sprint review finish	Face to Face
Scrum Master, Members	Individual Meeting	When need	Face to Face, Zoom Meeting, Message
Scrum Master, Members, Mentor	Working report, review problems	Once a week	Face to face

## 6. CONFIGURATION MANAGEMENT

Github link: <https://github.com/ismekakawin9/LinguaSnap/branches>

## 7. SECURITY ASPECTS

- The credential data is carefully secured by multi-layer encryption and data integrity is ensured. Regularly back up system data.
- Research on network attack prevention solutions to ensure data security, avoid being exploited and stolen data by hackers.
- Deploy project architecture with a high priority in security. Optimized architectural solutions enable the deployment of data security with 99% reliability.
- Social media, sharing and use of data must be approved by the end user and verified by the organization's management.

## REFERENCES

No	Reference item	Issued Date	Source	Note
1	Agile Scrum	04-Apr-21	<a href="https://www.atlassian.com/agile">https://www.atlassian.com/agile</a>	
			<a href="https://www.cprime.com/resources/what-is-agile-what-is-scrum/">https://www.cprime.com/resources/what-is-agile-what-is-scrum/</a>	
			<a href="https://www.agilealliance.org/agile101/">https://www.agilealliance.org/agile101/</a>	
			The Scrum Framework by International Scrum Institute	

2	COCOMO II	04-Apr-21	<a href="https://www.rose-hulman.edu/class/csse/csse372/201410/SlidePDFs/session12.pdf">https://www.rose-hulman.edu/class/csse/csse372/201410/SlidePDFs/session12.pdf</a>	
3	Software Standards	05-Apr-21	<a href="https://www.nws.noaa.gov/oh/trl/developers_docs/General_Software_Standards.pdf">https://www.nws.noaa.gov/oh/trl/developers_docs/General_Software_Standards.pdf</a>	
			<a href="https://standards.ieee.org/standard/12208-2017.html">https://standards.ieee.org/standard/12208-2017.html</a>	
			<a href="https://sw-eng.larc.nasa.gov/">https://sw-eng.larc.nasa.gov/</a>	

### DEFINITIONS AND ACRONYMS

Acronym	Definition	Note
PM	Project Manager	
PTL	Project Technical Leader	
QA	Quality Assurance Officer	
CC	Infrastructure Configuration Controller	
DV	Developer	
URD	User Requirement Document`	
ADD	Architecture Design Document	
TP	Test Plan	
TC	Test Case	
SC	Source Code	
CM	Configuration Management	
CI	Configuration Item	





# Capstone Project 1

CMU-SE 450

## Product Backlog

Version 1.1

Date: 28 April 2023

# LinguaSnap for Travelers

Submitted by

**Dat, Nguyen Thanh**  
**Truong, Vu Dinh**  
**Long, Pham Ba Hoang**  
**Kha, Nguyen Ngoc**

Approved by Nguyen Duc Man

Capstone Project 1- Mentor:

---

Name

Signature

Date

**INTERNATIONAL SCHOOL OF DUY TAN UNIVERSITY**

**PROJECT INFORMATION**

<b>Project acronym</b>	LiS		
<b>Project title</b>	LinguaSnap for Travelers		
<b>Start date</b>	25 – February – 2023	<b>End Date</b>	31 – May – 2023
<b>Lead institution</b>	International School, Duy Tan University		
<b>Project mentor</b>	Nguyen Duc Man Email: mannd@duytan.edu.vn Phone: +84 904 235 945		
<b>Partner organization</b>	Duy Tan University		
<b>Scrum Master</b>	Dat, Nguyen Thanh	ntdat1232001@gmail.com	0972530969
<b>Product owner</b>	Truong ,Vu Dinh	jonnyvu2210@gmail.com	0905223611
<b>Team members</b>	Kha, Nguyen Ngoc	winkha14567@gmail.com	0945721427
	Long, Pham Ba Hoang	longphambahoang@gmail.com	0793310221

**REVISION HISTORY**

<b>Version</b>	<b>Date</b>	<b>Comments</b>	<b>Author</b>	<b>Approval</b>
1.0	10 March 2023	Initial Release	C1SE.05 Team	x
1.1	28 April 2023	Update Project plan	C1SE.05 Team	

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# 1. Introduction

## 1.1.Purpose

- The purpose of the LinguaSnap app is to facilitate communication and understanding between speakers of different languages. It allows users to enter text or speech in one language and get an accurate translation in another, helping to overcome language barriers and enabling communication in diverse linguistic contexts.
- Can be used in a variety of situations, such as when traveling abroad, communicating with people who speak another language, translating written documents, conducting business with international partners , study or research in a foreign language, ....

## 1.2.Scope

- The scope of the LinguaSnap application can support a specific group of languages for translation, which can include common languages, less common languages or specialized languages depending on the target audience and use case. expected use.
- The translation application can provide different translation modes, such as text translation, speech translation or image translation.
- Text translation may involve entering text for translation, while voice translation may involve using speech recognition to translate spoken language.
- Image translation can involve translating text from images, such as signs or menus.

# 2. Product Backlog

## 2.1.1.Product Backlog Specification

ID	Theme	As a	I want to	So That	Priority
PB01	Login	Customer	Access to the website by my account.	I can use the system with my role	M
PB02	Sign out	Customer	Logout of the website.	I can stop using the website.	L
PB03	Sign up	Customer	Register a new account	I can access the system	L

PB04	Forget a password	Customer	forget a password for my account.	I can find my password whenever I want.	H
PB05	Change a password	Customer	Change password for my account.	I can change my password whenever I want.	L
PB06	Update user information	Customer	Update information for my account	I can update information for my account	L
PB07	Translate text	Customer	Enter text to translate.	I can input text to translate into another language.	M
PB08	Show the suggested text	Customer	Show the suggested when user enter wrong word	I can see and choose the suggested word when i enter wrong word	M
PB09	Select languages	Customer	Choose from one language to another language for translation.	I can choose from one language to another language for translation.	H
PB10	Search image result	Customer	Result of translated content.	I can get the desired language.	M
PB11	Search text results	Customer	Find translated results.	I can find translated results	M
PB12	Image to text	Customer	Get text from image.	I can get text from images.	H
PB13	Search image	Customer	Translation from pictures.	I can translate language from pictures.	H

PB14	History list	Customer	Save data for each translation	I can see and use the recent translations that I did	H
PB15	Bookmark list	Customer	Search history marked as favorite.	I can see bookmarked translations	M
PB16	Take image from camera	Customer	Translation pictures from camera.	I can take an image from my phone camera for the app to use	M
PB17	Take image from gallery	Customer	Translation pictures from gallery.	I can import an image from my phone gallery for the app to use	H
PB18	Crop image	Customer	Crop the image to translate.	I can crop the image for better text recognition.	H

### 2.1.2.Priority and Estimate time Sprint Backlog

Level	Priority
1	Low
2	Medium
3	High

### 3.Constraints

Constraint	Condition
Time	Project completion time limit in 12 weeks so time to complete project be restricted
Project	4 people working together to finish the project

The integrated system	Must be connected to Internet network to operate
Requirements	According to Product Owner's Requirements

#### 4.Stakeholders and User Description Summary

Name	Description	Role
Product Owner	The Person who give the Requirement	Provide information to develop the system. Make the decision to accept and implement the project, do the unit test
Scrum Master	This is the stakeholder who leading, manage the system development Team	Controlling, managing, monitoring, make sure the project complete on time, within budget, according to plan and according to requirements
Team Developer	This is a stakeholder that programs the software	Implement the project



# Capstone Project 1

CMU-SE 450

## User Story

Version 1.1

Date: 28/03/2023

### LinguaSnap for Travelers

Submitted by

Dat, Nguyen Thanh

Truong, Vu Dinh

Long, Pham Ba Hoang

Kha, Nguyen Ngoc

Approved by Nguyen Duc Man

Capstone Project 1- Mentor:

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Name

Signature

Date

**INTERNATIONAL SCHOOL OF DUY TAN UNIVERSITY**



## PROJECT INFORMATION

<b>Project acronym</b>	LiS		
<b>Project Title</b>	LinguaSnap for Travelers		
<b>Start Date</b>	25 Feb 2023	<b>End Date</b>	31 May 2023
<b>Lead Institution</b>	International School, Duy Tan University		
<b>Project Mentor</b>	Man, Nguyen Duc, Ph.D.		
<b>Scrum master / Project Leader &amp; contact details</b>	Nguyen Thanh Dat Email: ntdat1232001@gmail.com Tel: 0972.530.969 Student ID: 25211217197		
<b>Partner Organization</b>			
<b>Project Web URL</b>			
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## REVISION HISTORY

Version	Date	Comments	Author	Approval
1.0	15/03/2023	Initial Release	All members	
1.1	28/03/2023	Function priorities updated	Dat, Nguyen Thanh	

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# 1. Introduction

In software development, a User Story is one or more sentences that describe the natural language (not the technical language) or the business language of the end user or system user to record. what users need to do or not do their job or duty. User stories are used in methods such as Agile software development as the basis for defining system functions such as business development and to facilitate management of requirements. Help yourself know "who", "what" and "why" in a short, simple request, often limited only by details that can be written on a piece of sticky note or scrap paper. small.

User stories written by business users are the primary way of users because they understand most of the system's processes, workflows and functions so it is working right now. User stories can also be written by Dev to make non-functional requirements (like security, performance, quality, etc.).

## 1.1 Purpose

- Provide a prioritized features list, containing a short description of all functionality desired in the product.
- Lists everything that the product owner and Scrum team feels should be included in the software they are developing.

## 1.2 Scope

- Write all the user's requirements.
- Lists some main functions of the system and acceptance criteria of each function.
- Short description of all the functionality desired in the product.
- Given the priority of each feature and function of the product.

## 1.3 References

No	Source	Note
1	<a href="https://www.visual-paradigm.com/guide/agile-software-development/what-is-user-story/">https://www.visual-paradigm.com/guide/agile-software-development/what-is-user-story/</a>	What is User Story?
2	<a href="https://www.atlassian.com/agile/project-management/user-stories">https://www.atlassian.com/agile/project-management/user-stories</a>	User Stories with Examples and Template

## 2. User Stories

### *Priority and Estimates*

Priorities are set from high (H), medium (M) and low (L):

- Priorities of some user stories can be the same with others.
- If a user story has dependencies, it must have lower priority than its dependencies

## VERSION 1: LinguaSnap

### 2.1 Sprint 1

#### 2.1.1 Login

<p>As a user</p> <p>I want the ability to log in to my account and access the app's features and personalized content. This feature will ensure a secure and personalized experience for returning users.</p>		
<b>Login</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : Medium
<b>Actor:</b> User	<b>Acceptance criteria</b> <ul style="list-style-type: none"><li>- Given that I'm in the app, the app should present a login interface or form where I can enter my registered email address or username and associated password.</li><li>- Given that I provide the required login credentials, the app should validate the entered information, ensuring that the email address or username exists and that the password is correct for the corresponding account.</li><li>- Given that the entered login credentials are valid, the app should grant access to the user account and navigate me to the</li></ul>	
Story: The User wants to log in to the system with their account.		

	<p>app's main interface or the last accessed screen.</p> <ul style="list-style-type: none"> <li>- Given that I have forgotten my password, there should be a visible and easily accessible option, such as "Forgot password," on the login screen that allows me to initiate the password recovery process.</li> <li>- Given that I encounter any errors or issues during the login process, such as incorrect credentials or connectivity problems, the app should provide clear error messages or prompts indicating the necessary corrections or troubleshooting steps to be taken.</li> </ul>
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### 2.1.2 Register

<p>As a new user</p> <p>I want the ability to create a new account and register myself to access the app's features. This feature will allow me to personalize my experience, save preferences, and access additional functionality.</p>		
<b>Register</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : Low
<b>Actor:</b> User	<p><b>Acceptance criteria</b></p> <ul style="list-style-type: none"> <li>- Given that I am a new user, there should be a visible and easily accessible option on the login screen or within the app to initiate the account registration process.</li> <li>- Given that I tap on the "Register" option, the app should present a registration interface or form where I</li> </ul>	
Story: The User wants to register for an account to log into the system		

can enter my personal details, such as name, email address, and desired password.

- Given that I provide the required information, the app should validate the entered data, ensuring that all mandatory fields are completed and that the email address is in a valid format.
- Given that the provided email address is not already associated with an existing account, the app should proceed with the registration process.
- Given that the registration process is initiated, the app should store the provided information securely and create a unique user account associated with the provided email address and password.
- Given that the account registration is successful, the app should display a confirmation message or notification indicating that the registration process is complete.
- Given that I have registered an account, the app should automatically log me in and provide access to the app's features and functionalities associated with my account.
- Given that I encounter any errors or issues during the registration process, such as invalid email format or password requirements not met, the app should provide clear error messages or prompts indicating the necessary corrections to be made.

### 2.1.3 Forgot password

<p>As a user</p> <p>As a user of the translation app, I want the ability to recover or reset my password in case I forget it. This feature will ensure that I can regain access to my account and continue using the app without losing any personal data or settings.</p>		
<b>Forgot password</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : Low
<b>Actor:</b> User	<b>Acceptance criteria</b>	
Story: The User wants to reset their password when they forgot it	<ul style="list-style-type: none"><li>- Given that I have forgotten my password, there should be a visible and easily accessible option on the login screen or within the app settings to initiate the password recovery process.</li><li>- Given that I tap on the "Forgot password" option, the app should present a password recovery interface or prompt me to enter my registered email address or username associated with my account.</li><li>- Given that I provide my email address or username, the app should validate the entered information and check if it matches any existing user accounts in the system.</li><li>- Given that the provided email address or username is valid, the app should send a password reset link or a temporary password to the associated email address.</li></ul>	



	<ul style="list-style-type: none"><li>- Given that I receive the password reset link or temporary password, the app should provide clear instructions on how to proceed with the password recovery process, including any necessary steps or security measures.</li><li>- Given that I click on the password reset link or enter the temporary password, the app should navigate me to a secure password reset interface where I can set a new password for my account.</li><li>- Given that I set a new password, the app should enforce any specified password requirements, such as minimum length, inclusion of uppercase and lowercase letters, numbers, and special characters, to ensure password security.</li><li>- Given that the new password is successfully set, the app should confirm the password reset operation and provide a notification or confirmation message indicating that I can now log in using the new password.</li></ul>
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### 2.1.4 Logout

As a user  I want when I press the logout button I will exit the system		
<b>Logout</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : Low
<b>Actor:</b> User	<b>Acceptance criteria</b> <ul style="list-style-type: none"><li>- Given that I have pressed the logout button, I will exit the system and return to the Login interface.</li><li>- Given that I have successfully logged out, the system will delete the user login session</li><li>- Given that I couldn't log out, the app displays a message when you cannot log out</li></ul>	
Story: The User want when they press the logout button, they will exit the system		

### 2.1.5 Translate text

As a user  I want to translate a text from one language to another, and it will be automatic, or when I need to do it manually.		
<b>Translate Text</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : High
<b>Actor:</b> User	<b>Acceptance criteria</b>	

<p>Story: The User want to translate a text from one language to another manually and automatically.</p>	<ul style="list-style-type: none"> <li>- Given that I have opened the app, I will choose the 'From' language, the 'To' language and then type in the text I want to translate.</li> <li>- Given that the text is typed in and the languages are selected, the app will translate the text automatically or manually by me by pressing a button.</li> </ul>
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### 2.1.6 Text recognition with images

<p>As a user</p> <p>I want to import or take a picture, and I want the app to recognize the texts in the image for me to use for multiple reasons.</p>		
<p><b>Image to Text</b></p>	<p><b>Project</b> : <b>Priority</b> : High</p> <p>LinguaSnap</p>	
<p><b>Actor:</b> User</p>	<p><b>Acceptance criteria</b></p> <ul style="list-style-type: none"><li>- Given that I have opened the application, I press the camera button, and the app will open another UI with the 'Import' icon and 'Camera' icon.</li><li>- Given that I have pressed the 'Import' or the 'Camera' button, I will choose between importing the images from my gallery or taking the image with my phone camera.</li><li>- Given that the image is chosen and cropped ,the app will execute the Text Recognition function and display the text.</li></ul>	
<p>Story: The User wants to import or take an image from their phone, and then have the app get the texts from the image</p>		

### 2.1.7 Crop image

<p>As a user</p> <p>I want to crop the image I took or imported from the gallery, in order to choose the part I want the app to translate.</p>		
<b>Crop Image</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : High
<b>Actor:</b> User	<b>Acceptance criteria</b> <ul style="list-style-type: none"><li>- Given that I have chosen to import an image, when I select an image from my device's gallery with the crop interface.</li><li>- Given that I have chosen to capture an image using the camera, when I tap on the camera button, the app should open the device's camera interface. And after I took the image, the app will open up the crop interface with the image I took.</li><li>- Given that I have imported or captured an image, when I tap on the search button, the app should initiate the image search process.</li></ul>	
Story: The User wants to crop an Image to choose the text part they want the app to recognize.		

## 2.2 Sprint 2

### 2.2.1 Search image

<p>As a user</p> <p>I want to take an image or import an image to the app, and when I press a button, the app will search the images on Google Images that resemble the image I need the most.</p>		
<b>Search image</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : Medium
<b>Actor:</b> User	<p><b>Acceptance criteria</b></p> <ul style="list-style-type: none"> <li>- Given that I have opened the translation app, when I navigate to the image feature, I should see an option to import or capture an image.</li> <li>- Given that I have chosen to import an image, when I select an image from my device's gallery, the app should display a preview of the selected image.</li> <li>- Given that I have chosen to capture an image using the camera, when I tap on the camera button, the app should open the device's camera interface.</li> <li>- Given that I have imported or captured an image, when I tap on the search button, the app should initiate the image search process.</li> <li>- Given that the image search process is completed, the app will open up a browser chosen by me, and the browser will open Google Images with the images that resemble the image I uploaded.</li> </ul>	
<p>Story: The user wants to search for images on Google Images that resemble the image they took or imported the most.</p>		

### 2.2.2 Show definition

<p>As a user</p> <p>As a user of the translation app, after translating a word or phrase, I want to be able to access its definition. This will enable me to understand the meaning of the translated text in more detail and enhance my comprehension.</p>		
<b>Show definition</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : Medium
<b>Actor:</b> User	<b>Acceptance criteria</b> <ul style="list-style-type: none"><li>- Given that I have completed a translation, if there is a definition for the translated text, the app should fetch the corresponding definition for the translated word or phrase.</li><li>- Given that the app has successfully retrieved the definition, it should display the definition in a clear and easily readable format.</li></ul>	
Story: The User wants to see the definition of the translated text.		

### 2.2.3 Search translated text

<p>As a user</p> <p>As a user of the translation app, I want to be able to search the translated text on Google. This feature will allow me to explore additional information, find related content, or verify the accuracy of the translation.</p>		
<b>Search translated text</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : Low
<b>Actor:</b> User	<b>Acceptance criteria</b> <ul style="list-style-type: none"><li>- Given that I have finished translating a text, when I view the translated text on the screen, there should be an option to search it on Google.</li><li>- Given that I have selected the search option, when I tap on it, the app should initiate a Google search using the translated text as the query.</li><li>- Given that the Google search is initiated, the app should open a web browser, displaying the search results page with relevant search results.</li></ul>	
Story: The User wants to search the translated text on Google.		

## 2.2.4 Translation History

<p>As a user</p> <p>I want to be able to access a dedicated interface that displays my recent translations. This will allow me to quickly refer back to previous translations, review the translated content, and easily reuse or share them as needed.</p>		
<b>Translation History</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : Medium
<b>Actor:</b> User	<p><b>Acceptance criteria</b></p> <ul style="list-style-type: none"> <li>- Given that I have used the translation app, when I navigate to the translation history section, there should be a clear and easily accessible option to access it from the toolbar.</li> <li>- Given that I have accessed the translation history interface, it should display a list or grid layout of my recent translations, organized in reverse chronological order (from most recent to oldest).</li> <li>- Given that the translation history interface is displayed, each translation entry should include relevant information such as the original text, translated text, source language, target language.</li> <li>- Given that the translation history contains a large number of entries, the app should provide a search or filtering functionality to allow me to find specific translations based on</li> </ul>	
<p>Story: The user wants to have an interface dedicated to the recent translations they did with and multiple functions for better selecting.</p>		



	<p>keywords, dates, or other relevant criteria.</p> <ul style="list-style-type: none"> <li>- Given that I have found the desired translation in the history, I should be able to select it to view the full details of the translation, including any additional context or notes that I may have added during the translation process.</li> </ul>
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### 2.2.5 Spell check

As a user		
I want the app to assist me in correcting grammatically incorrect text by providing alternative suggestions. This feature will help improve the accuracy and readability of my translations.		
Spell check	Project : LinguaSnap	Priority : High
Actor: User	<div>Acceptance criteria</div> <ul style="list-style-type: none"><li>- Given that I have entered text in the translation input field, when the text contains potential grammatical errors, the app should automatically detect them.</li><li>- Given that the app has detected potential grammatical errors, it should provide a better text for me to choose</li></ul>	
Story: The User wants to be provided with a better text if their input text is grammatically incorrect.		

## 2.2.6 Save Used Languages

<p>As a user</p> <p>I want the app to remember and save the From and To languages that I recently used for translations. This will save me time and effort by automatically preselecting the previously chosen languages when I open the app again.</p>		
<b>Save Used Languages</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : Low
<b>Actor:</b> User	<b>Acceptance criteria</b>	
Story: The User wants the app to preselect the languages that they previously used instead of choosing them again.	<ul style="list-style-type: none"><li>- Given that I have chosen a specific From language and To language for translation, when I successfully complete a translation, the app should save these language selections.</li><li>- Given that the language selections are saved, the app should persistently store them so that they are retained even when I close the app or restart my device.</li><li>- Given that I reopen the app after a previous session, the app should retrieve and preselect the previously used From language and To language for translation.</li></ul>	

### 2.2.7 Menu

<p>As a user</p> <p>I want to access a menu that provides multiple options for various app functionalities. This menu will serve as a centralized hub for accessing features such as Translation History, Settings, Security, Bookmarks, and User Information, allowing me to conveniently navigate and manage different aspects of the app.</p>		
<b>Save Used Languages</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : Low
<b>Actor:</b> User	<p style="text-align: center;"><b>Acceptance criteria</b></p> <ul style="list-style-type: none"><li>- Given that I am using the translation app and logged into my account, there should be a visible and easily accessible button or icon that represents the menu.</li><li>- Given that I tap on the menu button, the app should open a side screen or overlay that displays the available menu options.</li><li>- Given that the menu is open, it should provide clear labels or icons for each option, such as Translation History, Settings, Security, Bookmarks, and User Information.</li></ul>	
Story: The User wants a menu that can access all the features of the app.		

### 2.3 Sprint 3

### 2.3.1 Swap languages

<p>As a user</p> <p>I want to be able to quickly swap the From and To languages during the translation process. This feature will allow me to easily switch the source and target languages without manually reselecting them, saving time and effort.</p>		
<b>Swap languages</b>	Project : LinguaSnap	Priority : Medium
Actor : User	<p style="text-align: center;"><b>Acceptance criteria</b></p> <ul style="list-style-type: none"><li>- Given that I am in the translation interface, there should be a visible and easily accessible button or icon that represents the language swap functionality.</li><li>- Given that I tap on the language swap button, the app should interchange the From and To languages, updating the translation input and output accordingly.</li><li>- Given that the language swap occurs, the app should visually indicate the swapped languages to provide clear feedback to the user.</li><li>- Given that I have made previous modifications to the translation text, the app should retain the translated text while swapping the languages, preserving any edits or changes made by the user.</li></ul>	
Story: the user wants to swap the languages they are using for better convenience.		

### 2.3.2 Copy Translation

<p>As a user</p> <p>I want the ability to easily copy the translated text to the clipboard of my phone. This feature will enable me to quickly paste the translated text into other applications or documents without the need for manual typing.</p>		
<b>Copy Translation</b>	Project : LinguaSnap	Priority : Low
Actor : User	<b>Acceptance criteria</b> <ul style="list-style-type: none"><li>- Given that I have completed a translation, there should be a clearly visible and easily accessible option to copy the translated text.</li><li>- Given that I select the copy option, the app should retrieve the translated text and store it in the clipboard of my phone.</li><li>- Given that the translation is successfully copied to the clipboard, the app should provide a visual confirmation or a brief notification to indicate the success of the operation.</li><li>- Given that the translated text contains special characters, formatting, or language-specific characters, the app should handle the encoding or formatting appropriately to ensure accurate copying and pasting.</li></ul>	
Story: The user wants to copy the translated text to the clipboard of their phone.		

### 2.3.3 Bookmark

<p>As a user</p> <p>I want the ability to bookmark specific translations that are important or frequently accessed. This feature will allow me to save and organize translations for later reference, ensuring quick and easy access to valuable information.</p>		
<b>Bookmark</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : Medium
<b>Actor</b> : User	<b>Acceptance criteria</b> <ul style="list-style-type: none"><li>- Given that I am viewing a translated text, there should be a visible and easily accessible option to bookmark the translation.</li><li>- Given that I select the bookmark option, the app should save the translation to the bookmarked items, associating it with relevant metadata such as the original text, translated text, source language, target language, and timestamp.</li><li>- Given that I have bookmarked a translation, the app should provide a visual confirmation or a brief notification to indicate that the bookmark operation was successful.</li><li>- Given that I want to view my bookmarked translations, there should be a dedicated interface or section within the app that displays all the bookmarked items.</li></ul>	
<b>Story:</b> The user wants to bookmark specific translations that they see as important.		

### 2.3.4 View bookmarks

<p>As a user</p> <p>I want a dedicated interface that allows me to view and manage all my bookmarked translations. This interface will provide a comprehensive overview of my bookmarked items, enabling me to easily access, organize, and interact with them.</p>		
<b>View bookmarks</b>	Project: LinguaSnap	Priority : Medium
<b>Actor:</b> User	<b>Acceptance criteria</b> <ul style="list-style-type: none"><li>- Given that I want to access my bookmarked translations, there should be a visible and easily accessible option to navigate to the View Bookmarks interface from the main menu or toolbar.</li><li>- Given that I open the View Bookmarks interface, it should display a list or grid layout of all my bookmarked translations, organized in a user-friendly manner.</li><li>- Given that the View Bookmarks interface is displayed, each bookmarked item should include relevant information such as the original text, translated text, source language, target language.</li><li>- Given that the bookmarked translations list contains a large number of entries, the app should provide a search or filtering functionality to allow me to find specific bookmarks based on keywords, dates, or other relevant criteria.</li><li>- Given that I want to view the details of a bookmarked translation, the app should allow me to select a bookmarked item to</li></ul>	
<b>Story:</b> The user wants to see all the translations they bookmarked with features for better accessing.		

	navigate to the translation screen with the all the bookmarked translation details.
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### 2.3.5 Speech to Text

<p>As a user</p> <p>I want the ability to use speech input to quickly and conveniently generate text in the selected From language. This feature will allow me to speak a phrase or sentence, which will then be converted to text in real-time for translation.</p>		
<b>Speech to Text</b>	<b>Project</b> : LinguaSnap	<b>Priority</b> : Medium
<b>Actor:</b> User	<p style="text-align: center;"><b>Acceptance criteria</b></p> <ul style="list-style-type: none"> <li>- Given that I want to use the Speech to Text feature, there should be a visible and easily accessible option to initiate speech input in the selected From language.</li> <li>- Given that I tap on the speech input button, the app should prompt me to grant permission to access the device's microphone for recording speech.</li> <li>- Given that I grant permission, the app should activate the microphone and display a visual indicator, such as a microphone icon, to indicate that it's ready to receive speech input.</li> <li>- Given that I start speaking in the selected From language, the app should continuously process the speech input and</li> </ul>	
<b>Story:</b> Users wants to record a speech and let the app generate the text.		



	<p>convert it to text in real-time, displaying the transcribed text on the screen.</p> <ul style="list-style-type: none"> <li>- Given that the speech input is being transcribed, the app should provide feedback to indicate the progress of the transcription, such as a spinning icon or a progress bar.</li> <li>- Given that I finish speaking, the app should automatically stop the transcription process and display the final transcribed text.</li> </ul>
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### 2.3.6 Text to Speech

<p>As a user</p> <p>I want the ability to convert translated text into spoken words using the Text to Speech feature. This functionality will enable me to listen to the translated text in the selected target language, enhancing the overall user experience and facilitating comprehension.</p>		
<b>Text to Speech</b>	<b>Project</b> LinguaSnap	<b>Priority</b> : Medium
Actor : User	<p><b>Acceptance criteria</b></p> <ul style="list-style-type: none"> <li>- Given that I want to use the Text to Speech feature, there should be a visible and easily accessible option to initiate the text-to-speech conversion.</li> <li>- Given that I tap on the text-to-speech button, the app should retrieve the translated text and prepare it for audio playback.</li> <li>- Given that the text-to-speech conversion is initiated, the app should provide feedback to</li> </ul>	
Story: The user wants to have the text of their chosen language converted in to spoken words.		

	<p>indicate that the audio generation process has started, such as a loading animation or a play button.</p> <ul style="list-style-type: none"><li>- Given that the audio playback is ready, the app should play the translated text as spoken words in the selected target language using a clear and natural-sounding voice.</li></ul>
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# Capstone Project 1

CMU-SE 450

## Architecture Design

Version 1.0

Date: 27/03/2023

# LinguaSnap for Travelers

Submitted by

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**INTERNATIONAL SCHOOL OF DUY TAN UNIVERSITY**

### Project Information

<b>Project acronym</b>	LiS		
<b>Project Title</b>	LinguaSnap for Travelers		
<b>Start Date</b>	25 Feb 2023	<b>End Date</b>	31 May 2023
<b>Lead Institution</b>	International School, Duy Tan University		
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### Architecture Document

<b>Document Title</b>	Architecture Design Document		
<b>Reporting Period</b>			
<b>Author(s)</b>	Truong, Vu Dinh		
<b>Team Information</b>	<b>Name</b>	<b>Role</b>	
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<b>Date</b>	27-03-2023	<b>Filename</b>	C1SE.05_LiS_Architecture Design_V1.0.docx
<b>Access</b>	Project and CMU Program		

Document History		
Version	Date	Comments
V1.0	27/03/2023	Create Architecture Document

## Document Approvals

The following signatures are required for approval of this document.

Document Approval		
Man, Nguyen Duc(Ph.D) Mentor		Date
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# 1. Introduction

## 1.1 Project overview

To build an application with full features for users to translate and search after translation (LinguaSnap for Travelers). Users can translate from image scan to search by image or search for content after detecting the language from the image. Users can review their usage history content.

## 1.2 Purpose

This specification covers following:

- Brief specification of the project, high level requirement.
- Detail quality attribution.
- System context, sequence diagrams.
- Architecture presented by various view types: Component and Connect, Module view and Allocation view.

## 1.3 Business driver

Business Problems:

- Until now, the only way to translate was for 'interpreters' to study multiple languages and try to translate and bridge language boundaries for different purposes.
- When traveling or studying, people need an application that can translate and search in the most accurate way, helping people to quickly solve the necessary problem.

Business Need:

- A application that can translate from other languages and search based on the results after translation
- The application allows scanning from images to text to find information, or search right from images to help us select text, search for favorite content in a smart way....
- No need for users to finish copying and searching on other websites, this will cause time and errors in the process of copying and uploading to other websites.

## 2. Architecture drivers

### 2.1 Business constraints

- Sources: 4 people.
- Project was started on: 25/02/2023.
- Project will be ended on: 31/05/2023.
- Project will be finished in 64 days (512 hours).
- Cost: \$2248.

### 2.2 Technical constraints

Technical to develop:

- Programming Language: Java.
- Frameworks / Libraries: API of Google Cloud, Google ML Kit.
- Database Management System: Firebase

Environment:

- App environment: Android

### 2.3 Functional requirement

References to Product Backlog specification of ProductBacklogV1.1.docx

### 2.4 Quality attributes

#### 2.4.1 Security

Scenario: when the users forgot their password, when will enter their email correctly to recover the code to update your password again.	
Type	Security
Stimulus	Forgot password
Source of stimulus	User
Environment	In runtime

Artifact stimulated	Application
Response	Confirmation code sent to your email
Response measure	If they do not enter the correct code, they won't get permission to set a new password.

Scenario: When a user registers, their password will be encrypted via firebase authentication before being saved to firebase	
Type	Security
Stimulus	Register
Source of stimulus	User
Environment	In runtime
Artifact stimulated	System
Response	Encrypt password
Response measure	encrypted via firebase authentication

#### 2.4.2 Performance

Scenario: Users after entering input text and pressing translate, the results will be returned in less than 3s	
Type	Performance
Stimulus	Translate text

Source of stimulus	User
Environment	In runtime
Artifact stimulated	Application
Response	Translation and response time after translation
Response measure	less than 3 seconds

Scenario: When the users click on the history to search for information about what they have translated, the system will respond in less than 5 seconds.

Type	Performance
Stimulus	Respond list history of user
Source of stimulus	User
Environment	In runtime
Artifact stimulated	Application
Response	Verify user and response their list history
Response measure	less than 5 seconds

Scenario: When the user enters the incorrect grammar of that language, the system will suggest the correct format of that language for the user to check.

Type	Performance
Stimulus	Respond format result from enter text of users
Source of stimulus	User
Environment	In runtime and stable network connection
Artifact stimulated	Application
Response	A suggested text
Response measure	within 5 seconds

### 2.4.3 Usability

Scenario: Users can login on multiple devices at the same time. The data is still updated continuously and accurately thanks to the real-time database.	
Type	Usability
Stimulus	Allows users to use multiple devices at the same time with 1 account
Source of stimulus	User
Environment	In runtime
Artifact stimulated	Application
Response	Allows access with multiple devices
Response measure	both ways

Scenario: After the translation is complete, users do not need to copy the translation to search. Users can search directly at the app by pressing the search button.	
Type	Usability
Stimulus	Search for translated in app
Source of stimulus	user
Environment	The system
Artifact stimulated	Application
Response	Can search the translated in app
Response measure	Instantly

Scenario: The system will check if the user has logged in before, if the user is logged in, the system will redirect the user to the transaction page.	
Type	Usability
Stimulus	Check session
Source of stimulus	User
Environment	In runtime
Artifact stimulated	The system

Response	Redirect the user to the transaction page
Response measure	Redirect the user to the transaction page if use logged in

#### 2.4.4 Modifiability

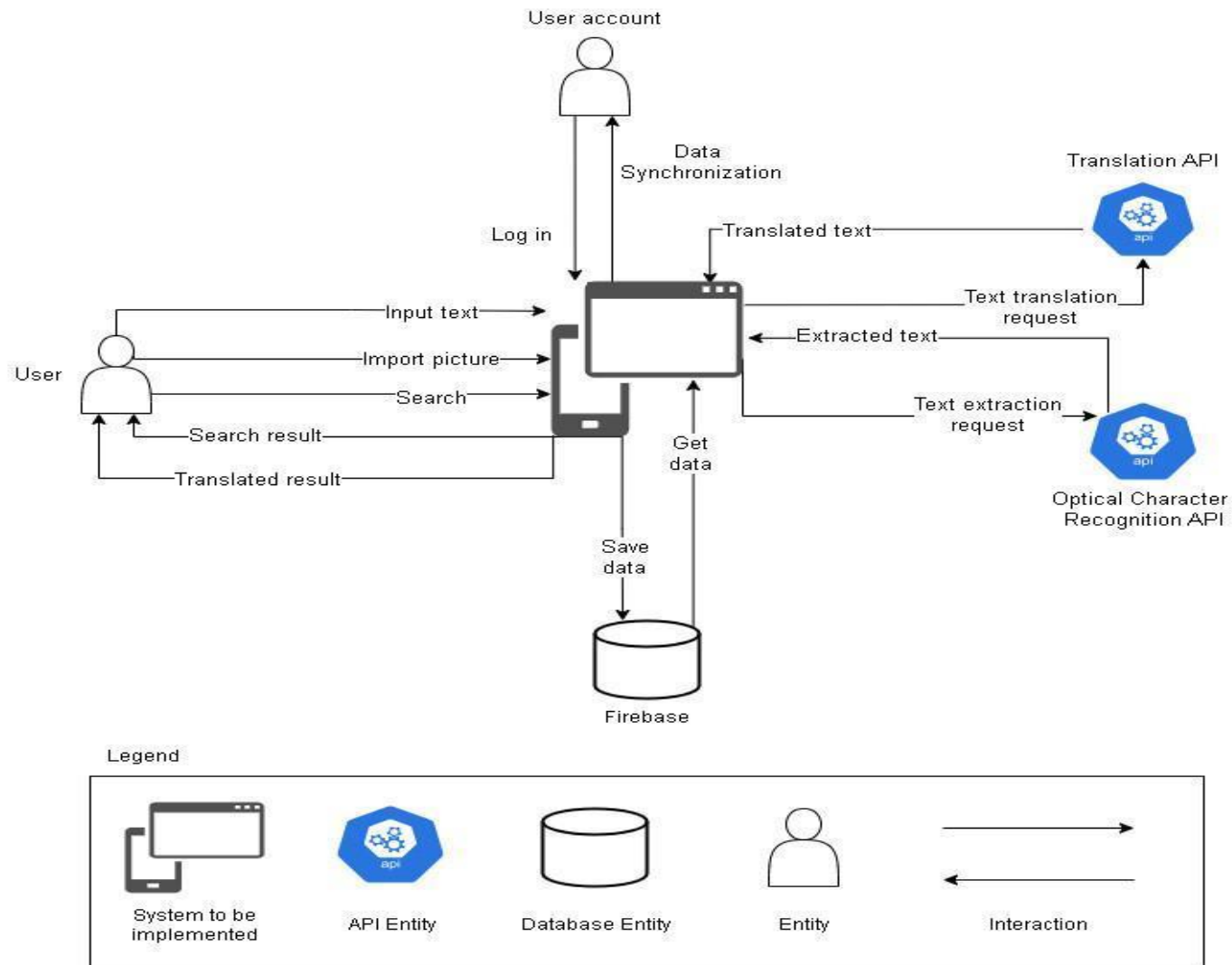
Scenario: A product manager who wants to develop additional features can search for images, search for information after translating on the app, and then save these data on this app's own search history.	
Type	Modifiability
Stimulus	Develop more features to search images, search text in the app and save search history on the app
Source of stimulus	A product manager
Environment	The next version
Artifact stimulated	The system
Response	Allows for an expansion
Response measure	4 person months of effort without affecting existing functions

### 3. Architecture overview

This section shows the diagrams which bounds our target system and describes the architecture and interaction between components



### 3.1 System context



**Figure 1: System Context Overview**

**User:**

- Request Login/Logout to the system, System check information and response
- Request to register a new account, system check and save account if it isn't in the database.
- Request to change password, if account has logged in.
- Request to view list history, the system will respond to the list of history.
- Request to view list bookmark, the system will respond to the list of bookmarks.
- Request to search text, the system will respond to translation results.

**Firestore System:**

- Request Login/Logout to the system, System check information and response
- Enter register new account, System saves account.
- Request change password, System check information and response if it is successful.
- Request to view list history, System response view tour.
- Request to view list bookmark, system response tour detail.

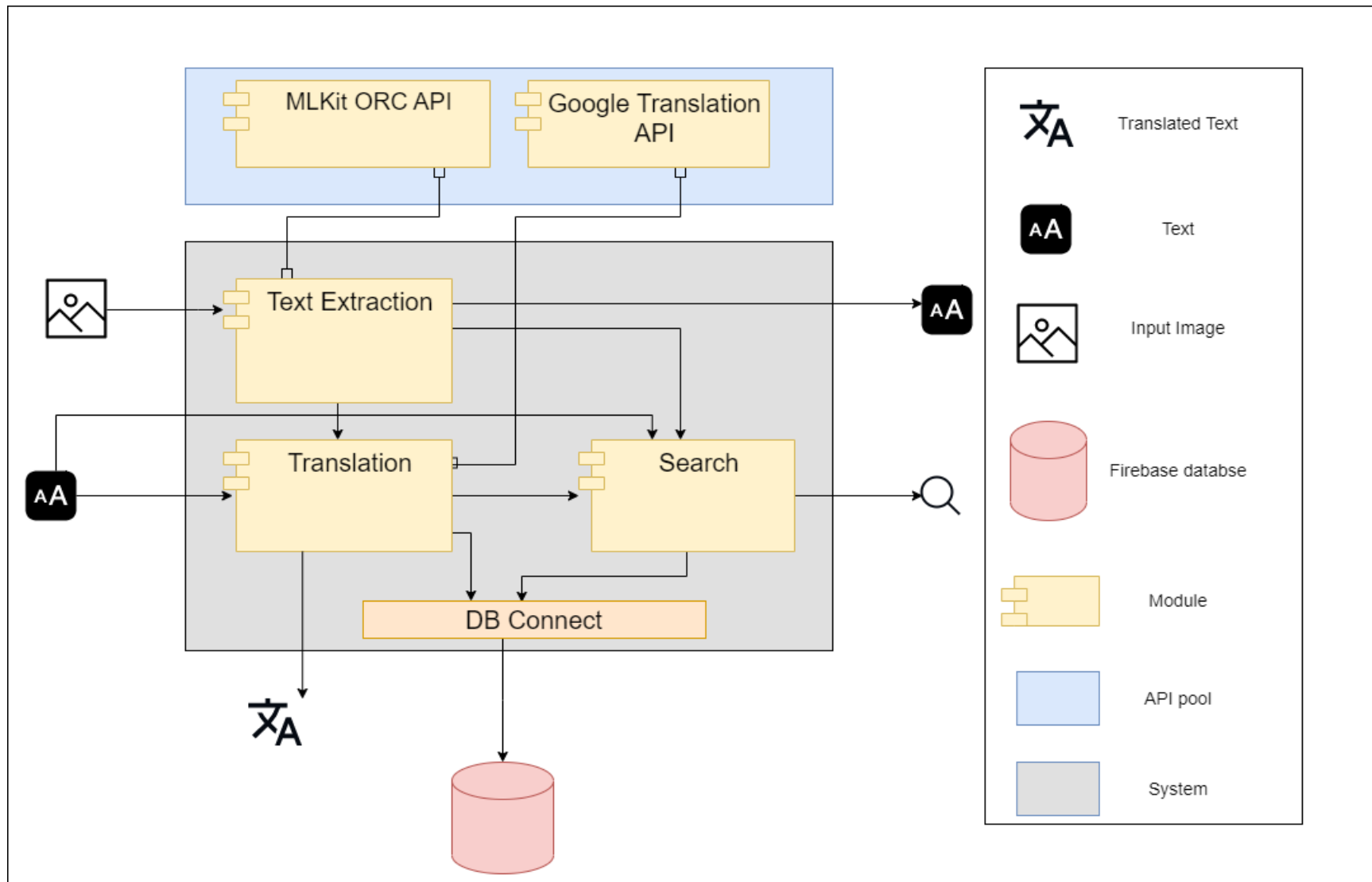
**API System:**

- Request to translate text, system check information and response translation results.
- Request to text extraction, system check information and response extracted text.
- Request to crop image, system check the image and response by text.

**3.2 Component and connector**

We mainly used a C&C view to argue and reason about architectural properties, quality attribute requirements, and functional requirements that the system must add here.

This view type partitions the system into components that have some runtime presence such as processes, objects, data stores, and connectors or that represent pathways of communication such as data flows and access to shared storage.

**Figure 2: C&C View (User)**

## Prose

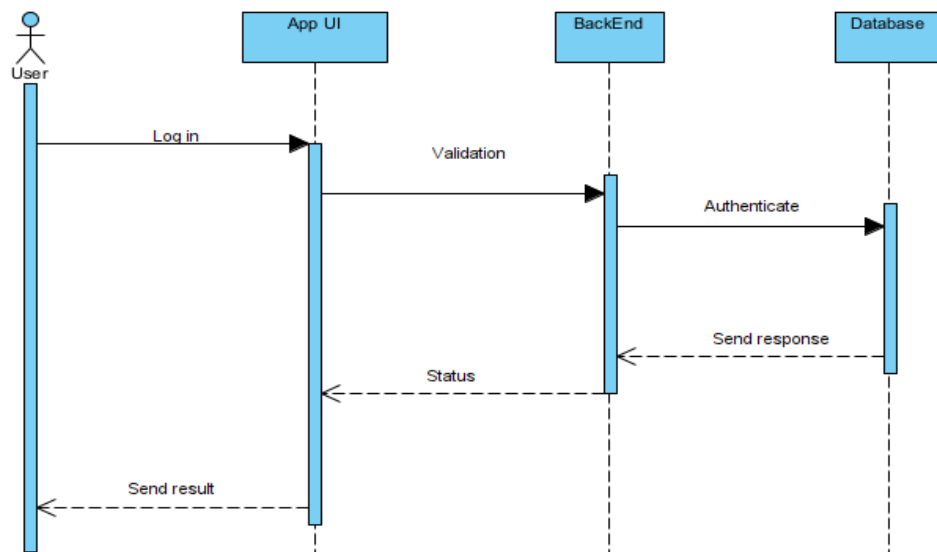
Users will access the system by logging in to the application. After approval, the Home page will be displayed. The users will be able to see all the features the system provides on the interface and use them correctly.

Element	Responsibilities
Text Extraction	Users can provide images by importing or taking pictures for the app to recognize. They will then display the texts extracted from the images.
Translation	Users can either type the text manually or use the Text Extraction function to capture the text directly. The application swiftly presents a translated version in a language of their choice.
Search	Users can search the texts extracted or translated on Google, with the browser of their choice. Users can also search for images on the internet that resemble the ones they took or imported.
Google translation API	Provides essential functionalities for seamless language translation. Its responsibilities include leveraging Google's powerful translation engine, handling input text, and delivering accurate translations in a variety of languages.
MLKit OCR API	Leverages machine learning capabilities to perform accurate Optical Character Recognition (OCR) on captured images or text input.

### 3.3 Sequence diagram

Sequence diagram is used to display the sequence of activities. Sequence diagrams show the workflow from a start point to the finish point detailing the many decision paths that exist in the progression of events contained in the activity.

### 3.3.1 Login

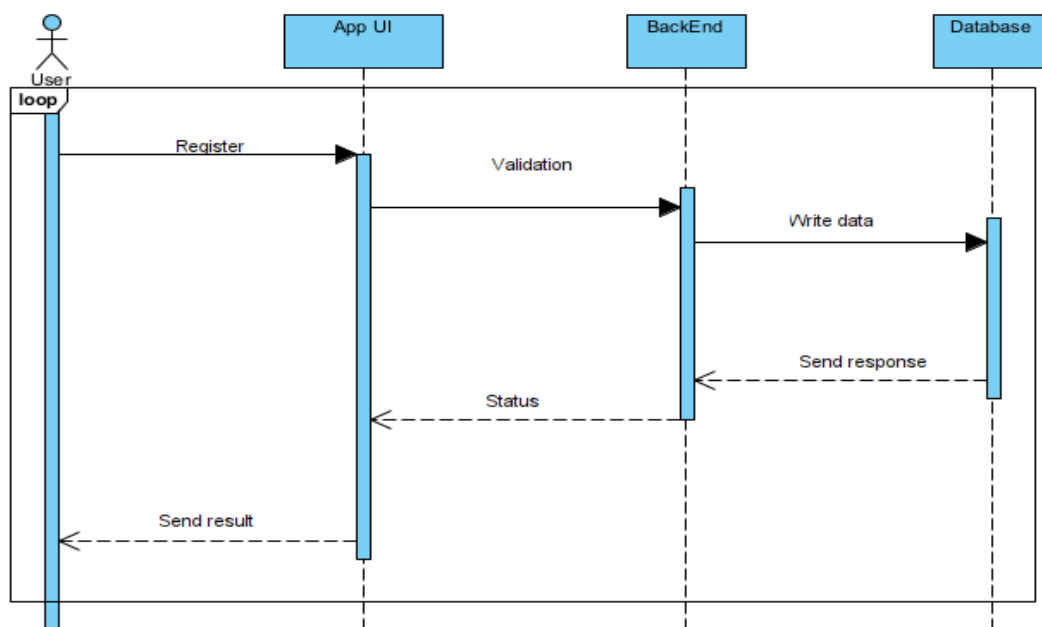


#### Description:

To use the LinguaSnap application, the user must first log in with a username and password. Our system receives the request, authenticates and returns the login status.

If login successfully, users can use all functions of the system in their permission. Otherwise, their access will be denied.

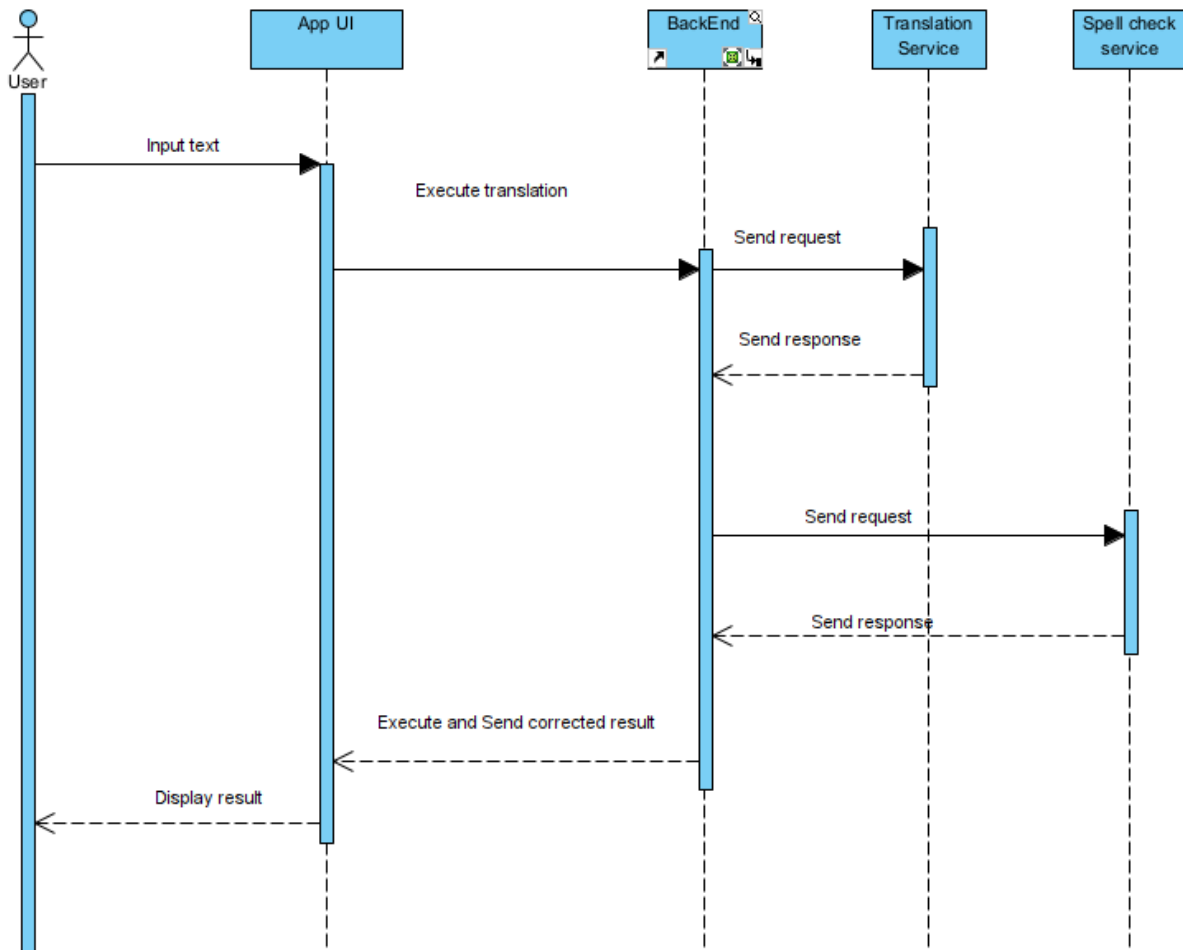
### 3.3.2 Sign up



**Description:**

To login to the system, users have to register first.

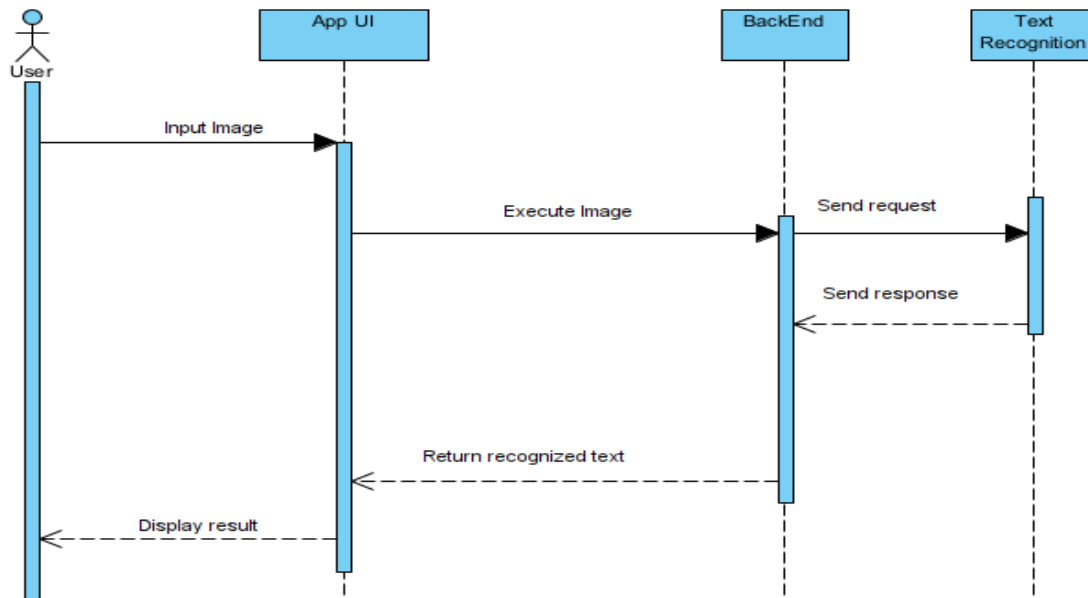
Users are allowed to register a new account, to do that they create a new account with email and password.

**3.3.3 Spell check****Description:**

To check your grammar when you input some text incorrectly.

The system will send text to the translation service to get a spelling mistake, then we will send it to the spell check service to fix the mistake and get it. After that we will choose the best correct check and suggest that text into screen.

### 3.3.4 Text Recognition

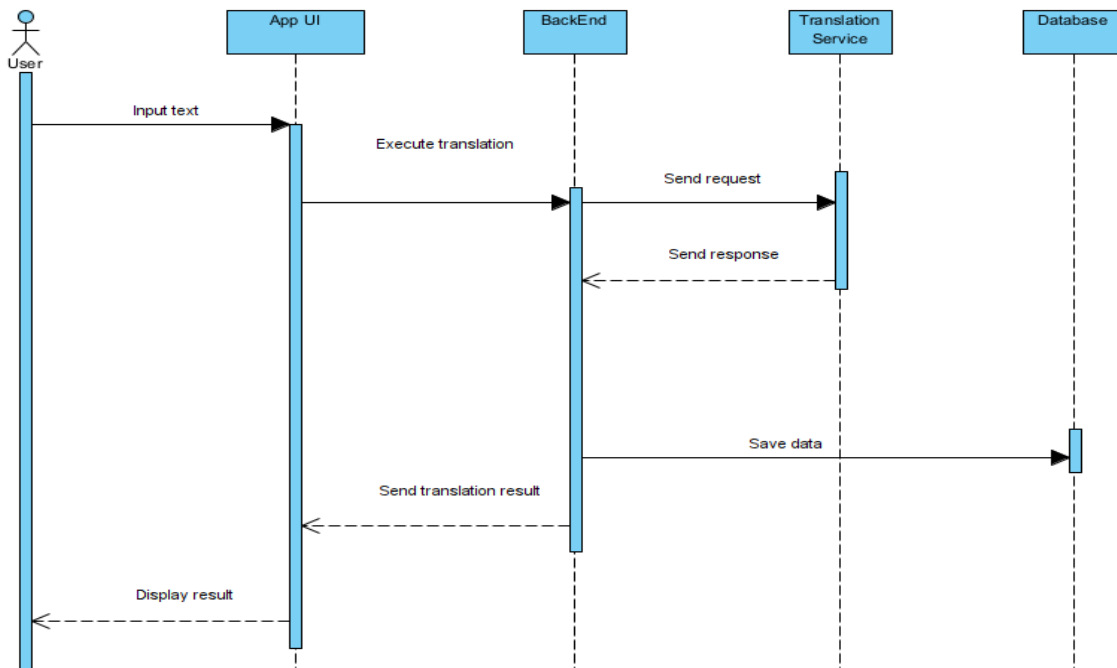


#### Description:

To be able to recognize text, the user inputs an image.

The System will execute the image and send the text results to the screen.

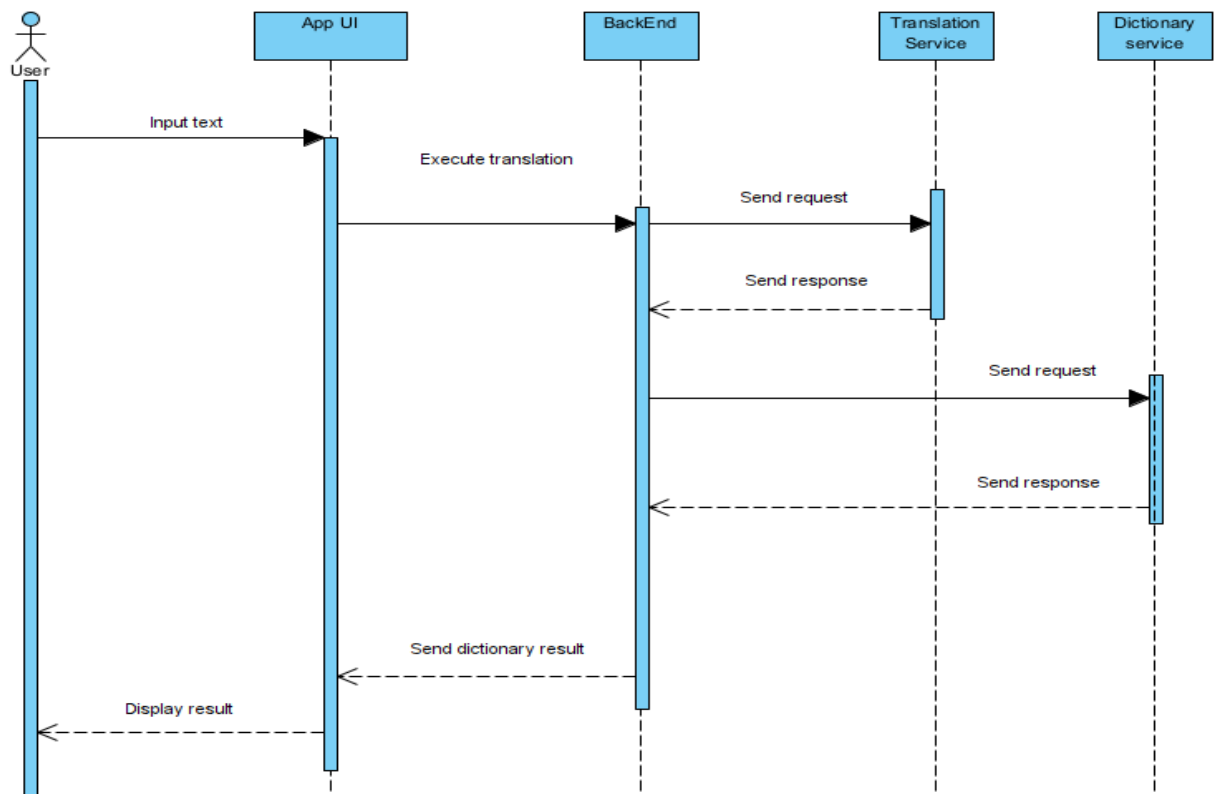
### 3.3.5 Translate



**Description:**

When the users input text, the system uses translation service to analyze the text and provide a translation in the selected language.

The translation can be displayed directly on the page and will be saved in history.

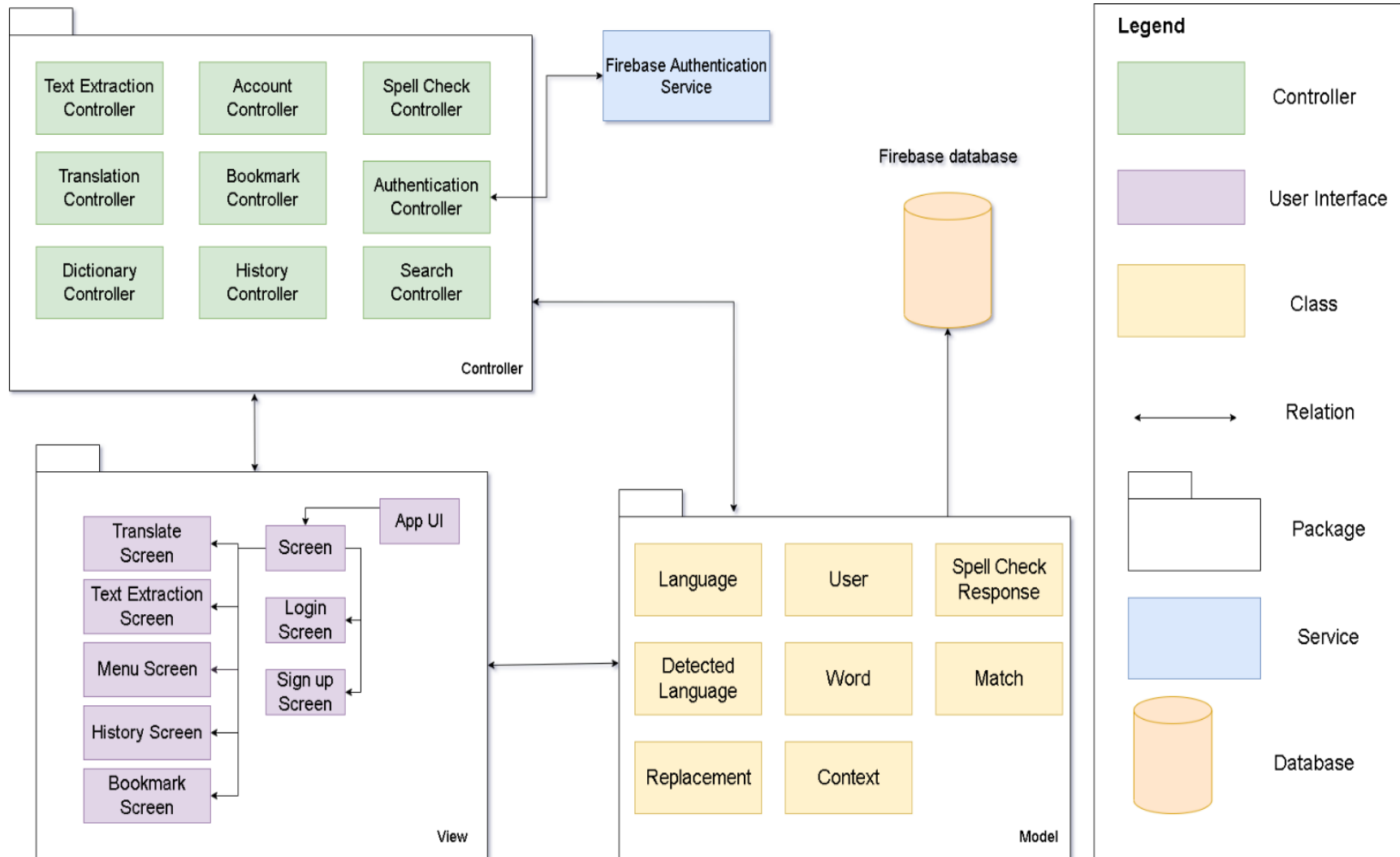
**3.3.6 Dictionary****Description:**

When the user input text, the system uses translation service to get a spelling mistake, then we will send it to the dictionary to get the meaning of the text. Then we will get results and show them on screen.

The translation can be displayed directly on the page.



### 3.4 Module view



**Figure 3: Module view**

**Prose**

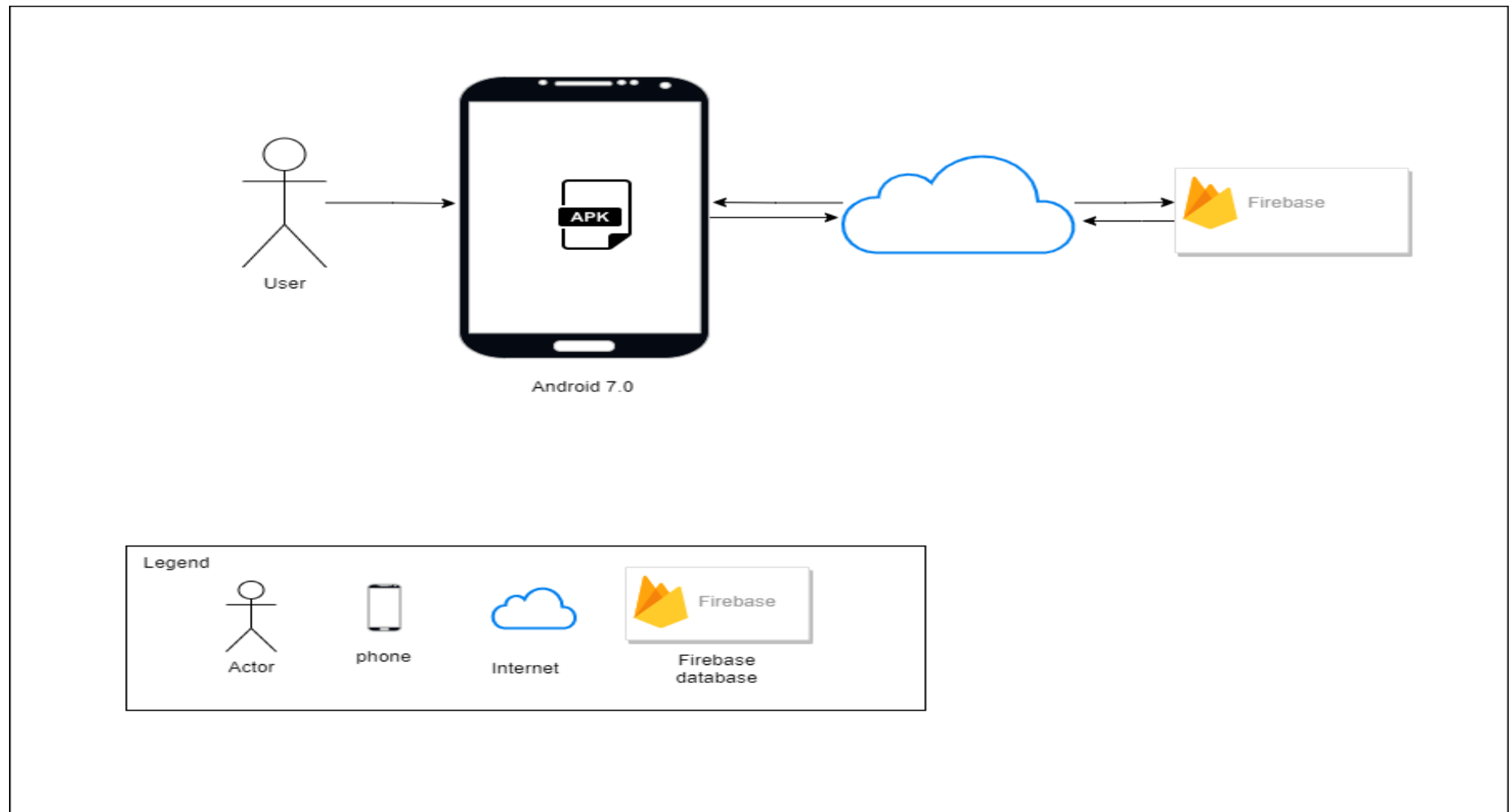
<b>Element</b>	<b>Responsibilities</b>
App View	The application package contains interface modules for the users to use the functionality of the app
Firebase Authentication	The users must login to the app through firebase authentication. Only then the user can use the functions provided by the system
<b>Controller</b>	Accepts input and converts it to commands for the model or view
<b>Model</b>	Object data modules connected to the database or API for transmission to the system interface
<b>Firebase Database</b>	Contains all data about the user

**Description:**

The system includes app view, services and models. After users interact with the UI. Data will be requested from the corresponding service, then will be directed to the model. Data to be responded to will be displayed on UI.

**3.5 Allocation view**

The allocation view models the run-time architecture of a system. It shows the configuration of the hardware elements when the system is deployed.

**Figure 4: Allocation View**

## Prose

Element	Responsibilities
Phone	The users use this device to install and use the app.
Internet	Stop or mitigate unauthorized access to private networks connected to the Internet, especially intranets
Firebase Authentication	The app uses it to authentication users.
APK File	Allows users to install the system

## Description

The system is deployed on mobile environment. They interact with the server through API to read and write data from Firebase. In addition, the system interacts with Firebase Authentication to authenticate users.

## 4. ATAM

### 4.1 Present the ATAM

- Overall evaluation of system architecture documents, system designs on 3 views: static view, dynamic view, and physical view based on ATAM 9 Steps method.
- Expect to achieve an accurate and objective evaluation of the architectural document. From there, the project team assesses the ability to complete the project and achieve the Architecture Drivers.

### 4.2 Present the business Drivers

- The content on the document presented about the following:  
Who are the business drivers.
  - Business problems and goals for the system are presented by the Project decision makers.
  - System's features.
  - System's requirements.
  - Project constraints.

- Project scope.

### **4.3 Present the Architecture**

- + Current Architecture state: The design is systematically overviewed on all 3 views: allocation view, module view and component and connector view.
- + Expected Architecture state: The architecture is easy to understand, easy to read, full of content, clear and responsive to the constraints and Quality Attributes of the system.
- + Impact of following project constraints in the architecture:
  - Time / Deadline: Project will be finished in 64 days (512 hours)
  - Cost / Available resources: 4 people with cost \$2248
  - Complexity of the problem: high
  - Quality expectations: Meet the constraints and 5 Quality Attributes described above include: Security, Performance, Usability and Modifiability.

### **4.4 Identify the Architecture approaches**

- + Architecture pattern: Service-oriented architecture (SOA)
- + In SOA, services use protocols that describe how they pass and parse messages using description metadata. This metadata describes both the functional characteristics of the service and quality-of-service characteristics. Service-oriented architecture aims to allow users to combine large chunks of functionality to form applications which are built purely from existing services and combining them in an ad hoc manner. A service presents a simple interface to the requester that abstracts away the underlying complexity acting as a black box. Further users can also access these independent services without any knowledge of their internal implementation
- + The architectural blueprints are broken down into sections and interact with the services.

### **1.1Analyze the Architectural approaches**

	Evaluate
Tradeoffs	<ul style="list-style-type: none"> <li>+ With a service bus system, the performance level is enhanced and the trade-off in system security decreases</li> <li>+ Ease of use pays off with system performance. Meeting good performance reduces ease of use and vice versa</li> </ul>
Sensitivity points	<ul style="list-style-type: none"> <li>+ Dependence on the services of external systems</li> <li>+ Depends quite a lot on the network system and the data transmission speed of the services.</li> <li>+ No data backup solution yet</li> </ul>
Risk and non-risk scenarios	<ul style="list-style-type: none"> <li>+ When security is threatened, hackers attack services, security can be affected.</li> <li>+ Network problem occurred.</li> <li>+ A service is dead.</li> </ul>

#### **4.7 Brainstorm and prioritize scenarios**

- + Rank priority based on the constraints and attributes(descending):
  - o Performance
  - o Security
  - o Usability
  - o Modifiability

#### **4.8 Re-analyze the architectural approaches**

- + Validate with the system architect to discover and achieve with the system design.

#### **4.9 Present the results**

- + Based on the above reviews:
  - o The system can accommodate a number of Quality Attributes and constraints given.
  - o However, some systemic risks will appear affecting the system and the Quality Attributes will be in order of priority.

References:

No.	References	Document Information
1	Design standards,  Document standards	<a href="https://www.softwarearchitecturebook.com/svn/main/slides/ppt/26_Standards.ppt">https://www.softwarearchitecturebook.com/svn/main/slides/ppt/26_Standards.ppt</a>
		<a href="https://standards.ieee.org/standard/1471-2000.html">https://standards.ieee.org/standard/1471-2000.html</a>
		<a href="https://ieeexplore.ieee.org/document/917550">https://ieeexplore.ieee.org/document/917550</a>
2	Patterns	<a href="https://en.wikipedia.org/wiki/Architectural_pattern">https://en.wikipedia.org/wiki/Architectural_pattern</a>
3.	Evaluation standards	<a href="https://www.iso.org/obp/ui/#iso:std:iso-iec-ieee:42030:ed-1:v1:en">https://www.iso.org/obp/ui/#iso:std:iso-iec-ieee:42030:ed-1:v1:en</a>
		<a href="https://gabrielfs7.github.io/software-architecture/2019/10/18/atam-analyze-evaluate-architecture/">https://gabrielfs7.github.io/software-architecture/2019/10/18/atam-analyze-evaluate-architecture/</a>



# Capstone Project 1

CMU-SE 450

## Database Design

Version 1.1

Date: 25/03/2023

### LinguaSnap for Travelers

Submitted by

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**INTERNATIONAL SCHOOL OF DUY TAN UNIVERSITY**



## PROJECT INFORMATION

<b>Project acronym</b>	LiS		
<b>Project title</b>	LinguaSnap for Travelers		
<b>Start date</b>	25 – February – 2023	<b>End Date</b>	31 – May – 2023
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## DATABASE DESIGN DOCUMENT

<b>Document Title</b>	Database Design Document		
<b>Reporting Period</b>			
<b>Author(s)</b>	Truong, Vu Dinh		
<b>Team Information</b>	<b>Name</b>	<b>Role</b>	
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	Truong ,Vu Dinh	Member	
	Kha, Nguyen Ngoc	Member	
	Long, Pham Ba Hoang	Member	
<b>Date</b>	25/03/2023	<b>Filename</b>	C1SE.05_LiS_Databas e_Design_V1.1.docx
<b>Access</b>	Project and CMU Program		

## REVISION HISTORY

Version	Date	Comments	Author	Approval
1.0	15/03/2023	Initial Release	All members	x
1.1	25/03/2023	Update document	Truong	offical

## Document Approvals

The following signatures are required for approval of this document:

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Truong, Vu Dinh Product Owner, DevTeam		Date
Long, Pham Ba Hoang DevTeam		Date
Kha, Nguyen Ngoc DevTeam		Date

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## **1. Introduction**

### **1.1. Purpose**

- Setting up an overview of the database system's interview preparation app.
- Provides database tables needed by the system and the relationship between common for programmers.
- Description designing a database (DB), a collection of data related to storage on a computer through a database management system as a basis for data query related software.
- Provide the entire needed database for the Interview Preparation Application.

### **1.2. Goal**

- This Database Design Document describes the design of a database, that is, a collection of related data stored in one or more computerized files that can be accessed by users or developers via Firebase.
- It describes both logical and physical definition, non-functional, database interfaces, tables, code create tables.
- It includes the tables and performance considerations and requirements. The following topics are covered in this document:
  - Assumptions and decisions on database design
  - Entity – mapping
  - Table, column definitions
  - Constraint: primary key, unique, foreign key.
  - Column and row level validation rules (check constraints)
  - Interfaces and dependencies with other components.
- This Database Design Document of Interview Preparation Application is composed of definitions for database objects derived by mapping entities to tables, attributes to columns, unique identifiers to unique keys and relationship to foreign keys.
- During design, these initial definitions are enhanced to support the functionality described in the functional specification / user stories and defined in the primary and supporting modules of the application high level design

**Hardware and Software Requirement**

The technology component	
Attribute	Description
Database	Firebase
Hardware	Android Mobile

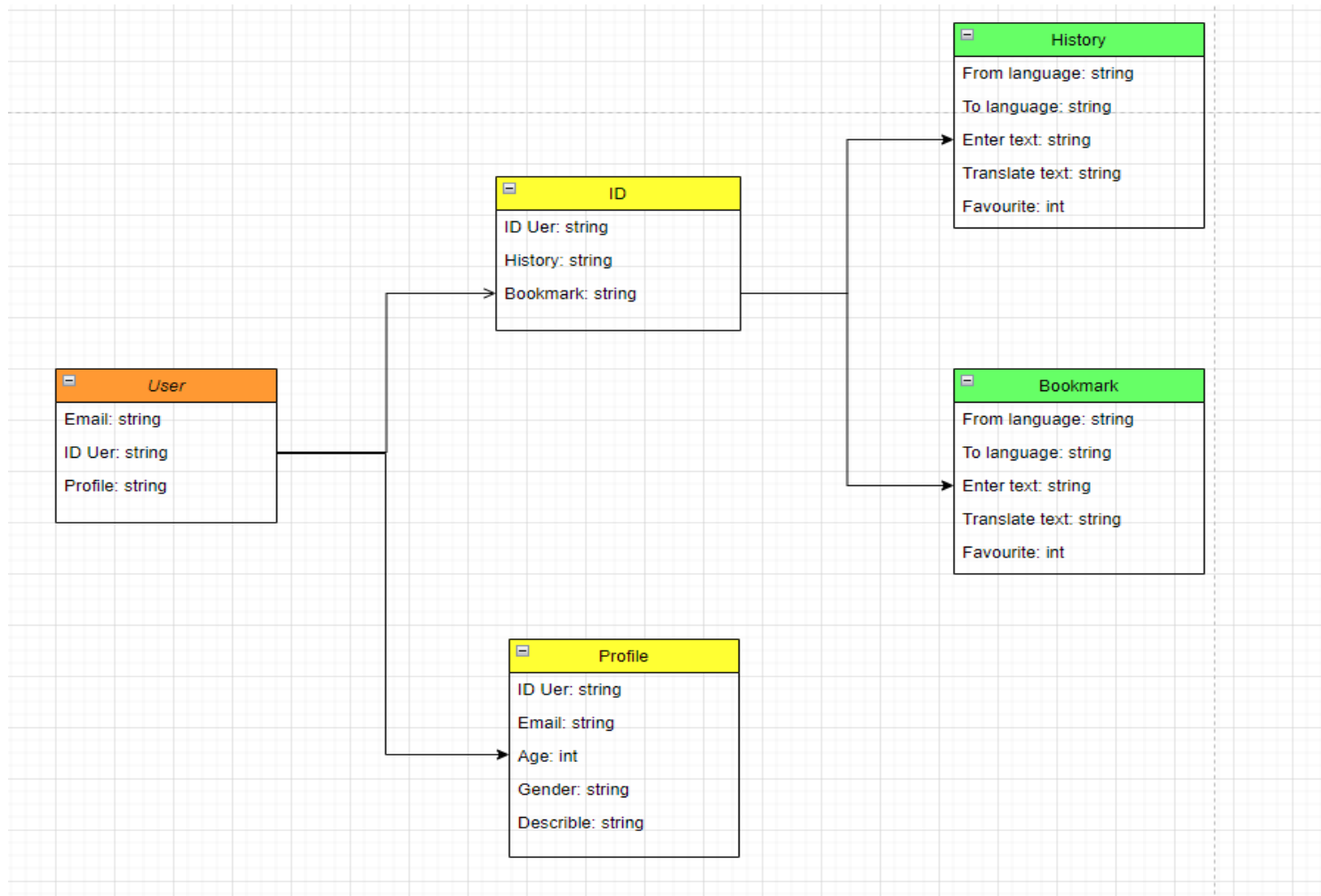
**2. Database Design Decision**

This section contains the decisions that were made when designing the database for the project. Problems, alternative solutions, and motivated choices are listed below. The section also lists any design assumptions that had to be made. In case the assumptions are results of ambiguities or lack of details, they will need verifying by the analyst team.

**2.1. Mapping Rules**

- The additional data will be stored as a free JSON structured format or "document", where the data can be in any form from integers to data strings to custom formatted text.
- Entities are mapped into tables in a one to one manner.
- Real-time database
- Real-time sync
- Non-relational

## 2.2. Tables relationship diagram



Picture 1: Tables relationship diagram

### 3. Table

#### 3.1. Overview

No	Table name	Short description
1	User	Email and ID user
2	ID	History and Bookmark
3	Profile	Information of user
4	History	Data of translation
5	Bookmark	Data of bookmark

#### 3.2. Table detail

##### 3.2.1. User

This included the following information: **ID, Email, Profile**

ID	Field	Data Type/ size	Constraints
1	<b><u>ID</u></b>	Text string	NOT NULL
2	<b>Email</b>	Text string	NOT NULL
3	<b>Profile</b>	Text string	

##### 3.2.2. ID

This included the following information: **ID User, History, Bookmark**

ID	Field	Data Type/ size	Constraints
1	<b>ID User</b>	TEXT STRING	NOT NULL
2	<b>History</b>	TEXT STRING	
3	<b>Bookmark</b>	TEXT STRING	

##### 3.2.3. Profile

This included the following information: **ID User, Email, Age, Gender, Describle**



ID	Field	Data Type/ size	Constraints
1	<b>ID User</b>	TEXT STRING	NOT NULL
2	<b>Email</b>	TEXT STRING	NOT NULL
3	<b>Age</b>	INT	
4	<b>Gender</b>	TEXT STRING	
5	<b>Describe</b>	TEXT STRING	

#### 3.2.4. History

This included the following information: **From language, To language, Enter text, Translate text, Favourite**

ID	Field	Data Type/ size	Constraints
1	<b>From language</b>	TEXT STRING	
2	<b>To language</b>	TEXT STRING	
3	<b>Enter text</b>	TEXT STRING	
4	<b>Translate text</b>	TEXT STRING	
5	<b>Favourite</b>	INT	NOT NULL

#### 3.2.5. Bookmark

This included the following information: **From language, To language, Enter text, Translate text, Favourite**

ID	Field	Data Type/ size	Constraints
1	<b>From language</b>	TEXT STRING	
2	<b>To language</b>	TEXT STRING	

3	<b>Enter text</b>	TEXT STRING	
4	<b>Translate text</b>	TEXT STRING	
5	<b>Favourite</b>	INT	NOT NULL



# Capstone Project 1

CMU-SE 450

## Interface Design Document

Date: 15/03/2023

# LinguaSnap for Travelers

Submitted by

Dat, Nguyen Thanh  
Truong, Vu Dinh  
Long, Pham Ba Hoang  
Kha, Nguyen Ngoc

Approved by Nguyen Duc Man

**Proposal Review Panel Representative:**

Name

Signature

Date

**Capstone Project 1- Mentor:**

Name

Signature

Date

**PROJECT INFORMATION**

<b>Project acronym</b>	LiS		
<b>Project title</b>	LinguaSnap for Travelers		
<b>Start date</b>	25 – February – 2023	<b>End Date</b>	31 – May – 2023
<b>Lead institution</b>	International School, Duy Tan University		
<b>Project mentor</b>	Nguyen Duc Man Email: mannd@duytan.edu.vn Phone: +84 904 235 945		
<b>Partner organization</b>	Duy Tan University		
<b>Scrum Master</b>	Dat, Nguyen Thanh	ntdat1232001@gmail.com	0972530969
<b>Product owner</b>	Truong ,Vu Dinh	longphambahoang@gmail.com	0793310221
<b>Team members</b>	Kha, Nguyen Ngoc	winkha14567@gmail.com	0945721427
	Long, Pham Ba Hoang	jonnyvu2210@gmail.com	0905223611

**REVISION HISTORY**

<b>Version</b>	<b>Date</b>	<b>Comments</b>	<b>Author</b>	<b>Approval</b>
1.0	15/03/2023	Initial Release	Long, Pham Ba Hoang	

# 1. Introduction

## 1.1 Purpose

- This document serves the purpose of specifying application's UI design

## 1.2 Scope

- Create complete interfaces, and describe them clearly.
- Overview of the stages and modules of the system

# 2. Describe User Interface Application in Detail

## 2.1.1 UI-01:Login

ID	Condition	Control Type	Target	Notes
1	Nothing	Text	Logo of app	
2	Click	Button	Login Page	
3	Click	Button	Sigup Page	

4	Click	Text box	Enter email	
5	Click	Text box	Enter password	
6	Click	Button	Login	
7	Click	Button	Forgot password	

### 2.1.2 UI-02:Signup

The image shows a mobile app interface for the 'LinguaSnap' app. At the top is a dark grey header with the app name 'LinguaSnap' (callout 1). Below the header are two buttons: 'LOGIN' (callout 2) and 'SIGNUP' (callout 3). The main content area is white and contains three text input fields: 'Email' (callout 4), 'Password' (callout 5), and 'Confirm Password' (callout 6). At the bottom of the form is a dark grey button labeled 'SIGNUP' (callout 7).

ID	Condition	Control Type	Target	Notes
1	Nothing	Text	Logo of app	
2	Click	Button	Login Page	

3	Click	Button	Sigup Page	
4	Click	Text box	Enter email	
5	Click	Text box	Enter password	
6	Click	Text box	Enter confirm password	
7	Click	Button	Signup	

### 2.1.3 UI-03:Forgot Password

**LinguaSnap**

[Forgot password?](#)

Please enter your email and you will receive an email to reset your password

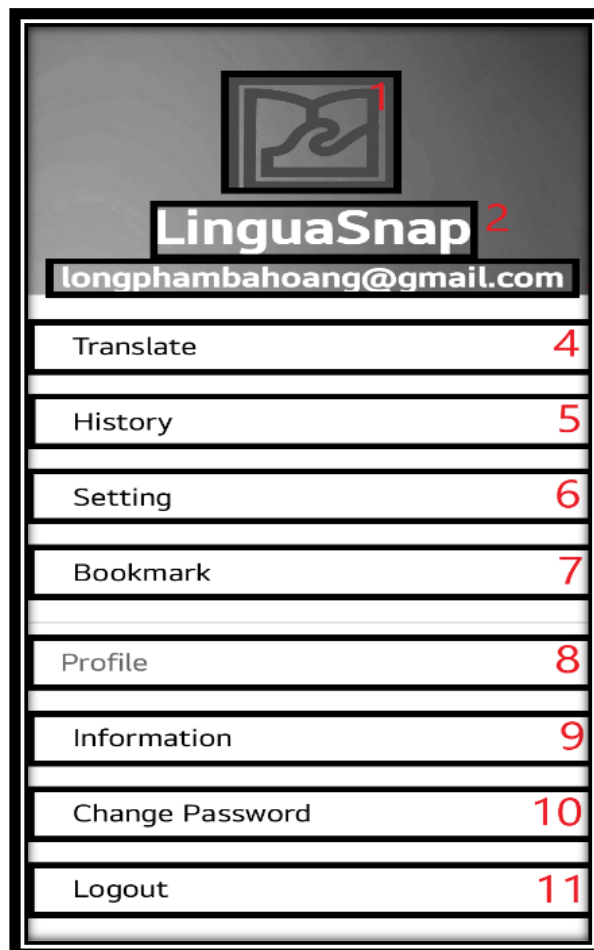
Email

**RESET PASSWORD**

**BACK**

ID	Condition	Control Type	Target	Notes
1	Nothing	Text	Logo of app	
2	Nothing	Text	Forgot Password	
3	Nothing	Text	Guide forgot password	
4	Click	Text box	Enter email	
5	Click	Button	Forgot password	
6	Click	Button	Back to login page	

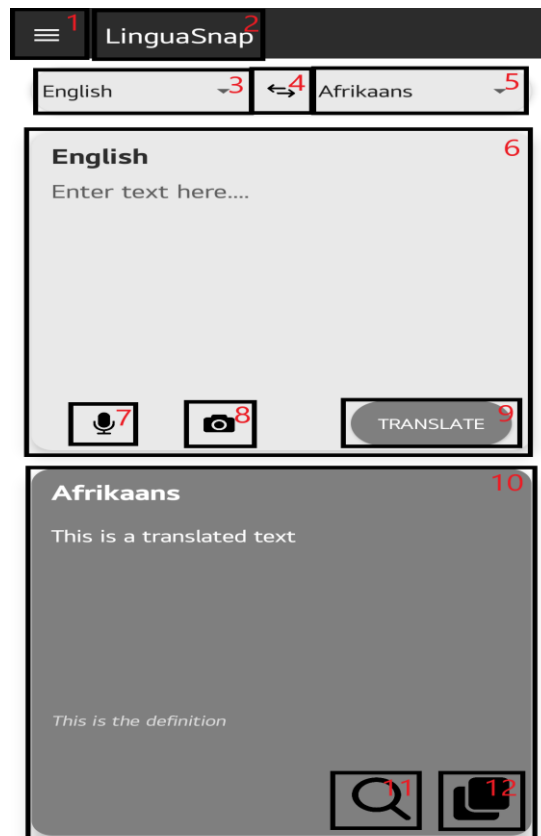
#### 2.1.4 UI-04: Menu





ID	Condition	Control Type	Target	Notes
1	Nothing	Picture	Logo of app	
2	Noting	Text	Logo of app	
3	Nothing	Text	Email of user	
4	Click	Button	Translate page	
5	Click	Button	History page	
6	Click	Button	Setting page	
7	Click	Button	Bookmark page	
8	Nothing	Text	Profile	
9	Click	Button	Information page	
10	Click	Button	Change password page	
11	Click	Button	Logout	

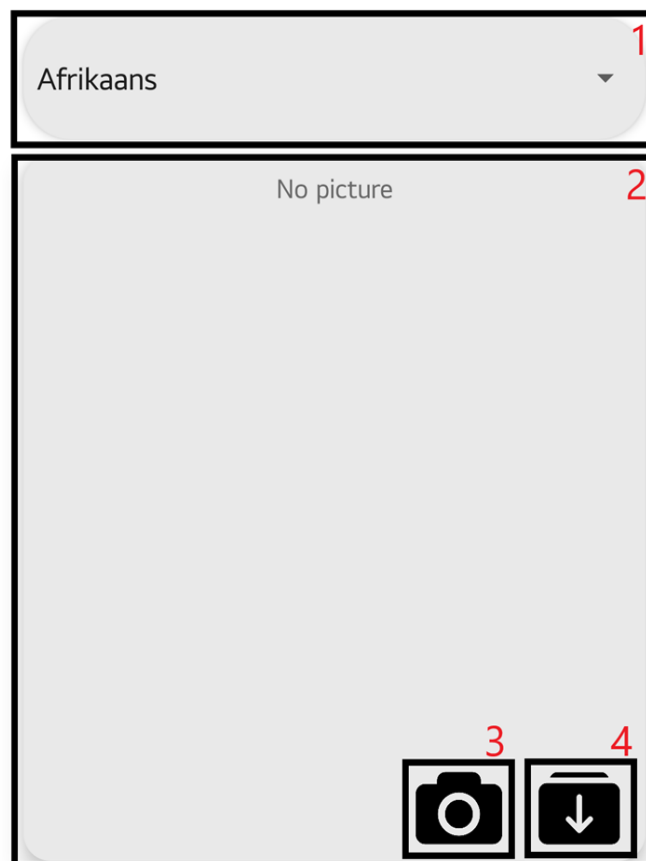
## 2.1.5 UI-05: Translate



ID	Condition	Control Type	Target	Notes
1	Click	Menu	Menu of app	
2	Nothing	Picture	Logo of app	
3	Click	Spinner	'From' Language selection	
4	Click	Button	'Reverse' Language	
5	Click	Spinner	'To' Language selection	
6	Click	Text box	Enter the language you want to translate	
7	Click	Button	Voice input language	

8	Click	Button	Enter language from pictures	
9	Click	Button	Translate Language	
10	Nothing	Text box	Translated language	
11	Click	Button	Search for translations on the internet	
12	Click	Button	Copy translation	

### 2.1.6 UI-06: Camera



ID	Condition	Control Type	Target	Notes
1	Click	Spinner	'From' Language selection	
2	Nothing	Picture	No picturex	
3	Click	Button	From the Camera	
4	Click	Button	From the gallery	



**International School**

# **Capstone Project 1**

CMU-SE 450

## **Test Plan Document**

**Date: 14/04/2023**

### **LinguaSnap for Travelers**

**Submitted by**

**Dat, Nguyen Thanh**

**Truong, Vu Dinh**

**Long, Pham Ba Hoang**

**Kha, Nguyen Ngoc**

**Approved by Nguyen Duc Man**

**Proposal Review Panel Representative:**

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Name	Signature	Date
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**Capstone Project 1- Mentor:**

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Name	Signature	Date
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## Project Information

<b>Project acronym</b>	LiS		
<b>Project title</b>	LinguaSnap for Travelers		
<b>Start date</b>	25 – February – 2023	<b>End Date</b>	31 – May – 2023
<b>Lead institution</b>	International School, Duy Tan University		
<b>Project mentor</b>	Nguyen Duc Man Email: mannd@duytan.edu.vn Phone: +84 904 235 945		
<b>Partner organization</b>	Duy Tan University		
<b>Scrum Master</b>	Dat, Nguyen Thanh	ntdat1232001@gmail.com	0972530969
<b>Product owner</b>	Truong ,Vu Dinh	longphambahoang@gmail.com	0793310221
<b>Team members</b>	Kha, Nguyen Ngoc	winkha14567@gmail.com	0945721427
	Long, Pham Ba Hoang	jonnyvu2210@gmail.com	0905223611

### Test Plan Document

<b>Document Title</b>	Test Plan Document		
<b>Reporting Period</b>			
<b>Author(s) &amp; Project</b>	Nguyen Thanh Dat		
<b>Team Information</b>	<b>Name</b>	<b>Role</b>	
	Nguyen Thanh Dat	Leader	
	Vu Dinh Truong	Member	
	Pham Ba Hoang Long	Member	
	Nguyen Ngoc Kha	Member	
<b>Date</b>	14/04/2023	<b>Filename</b>	TestPlan_V1.0.docx
<b>Access</b>	Project and CMU Program		

Document History			
Version	Date	Comments	Author
V1.0	14/04/2023	Create Test Plan Document	Long, Pham Ba Hoang

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## 1. Introduction

A test plan is a detailed software verification document that provides specifics on how the validate will test all aspects of software design. Test plans are test specifications used as guides for writing test case suites for design validation in both the software engineering fields. This test plan document contains a description of product functionality, a description of test cases to be written for each function, and a description of the testing platform to be used.

### 1.1. Purpose

The purpose of the Test Plan is to define, schedule and monitor the test execution. It supports the following objectives:

- Provide a high-level list of the major target test functions
- List the Requirements for Test
- Describe the testing strategies to be employed on each target test functions
- Identify the required resources and schedule the Test execution

### 1.2. Scope

This Test Plan is for release test plan for LinguaSnap system.

The Test Plan defines the unit, integration and system testing approach. The test scope includes the following:

- Identify the components and features within the App Translate application that will be included in the testing phase.
- Specify the languages and translation pairs that will be covered in the testing.
- Determine any excluded functionalities or components that are out of scope for this test plan.

### 1.3. Out of scope

The following is considered out of scope for LiguaSnap Test Plan and testing scope: Performance testing for LinguaSnap system

### 1.4. Reference

**Table 1: Document references**

No	Document references
01	Proposal document
02	Product Backlog document
03	Project Plan Document

**1.5. Risk list****Table 2: Risks list**

Risk	Mitigation Strategy	Responsibility	Contingency (Risk is realized)
External Risks	Get fewer projects but will definitely succeed or have a high success rate	Not under control of the Project Team or Project Steering Group	Do your part, recognize and eliminate risks as soon as possible
Project Management	Agree on all the standards before starting the project	Leader	It is mandatory to revise the whole project to the original standard if it is not correct
Tester	Sick , busy or crash cannot do it	Team tester	self-supplementing undo their assigned work, the way other members are supposed to support

Technology	Technology analysis before starting each project	Tester	Exchange learning in groups
Tester Skill	Train, or recruit experienced people	Tester, Team leader	Train technology professionals or invite professors to help with the project
Estimate Plan	Calculate carefully and accurately when taking requests and analyzing, apply good models and methods for estimation	Request Collectors, Request Analyst	Enlist the product delivery time or overtime for timely delivery
Automation Tool Risks	Choose the right tools and quality, check the tools before starting the project	Tester, Team leader	Exchange in groups, Change new tools and remove inconsistent tools
Out of system scope	Analyze and find solutions to test all testable areas	Tester	

## 2. Target Test Areas

- Black box Testing

### 3. Test Specification

#### 3.1. Features

##### Mobile

- ❖ FE01 – Authentication user's account
  - Login with email
  - Register with email
  - Forgot password
  - Change password
  - Add, edit, delete Profile
- ❖ FE02 – Translate
  - Translate with many languages
  - Automatic translation
- ❖ FE03 – Image to Text
  - From the gallery
  - From the camera
- ❖ FE04 – Speech to Text
  - Speech with many languages
- ❖ FE05 – Search Result
  - Search results on Google
- ❖ FE06 – Spell Check
  - Provide grammatically correct text
- ❖ FE07 – History
  - History translated
  - Export history to Translate Page
- ❖ FE08 – Bookmark
  - Add, delete bookmark

#### 3.2. Test deliverables

- Test Plan Document
- Test Case Document
- Test Summary Report

### 3.3. Requirements for test Test items

The following list describes the features that will be tested:

ID Function	Function	A part of	Priority	Type test case	Constraints
FE01 – 01	Login with email	Authentication	3	User interface  Function test	The user can log in with their email and password with OTP authentication to use other features
FE01 - 02	Register with email or google account		3	User interface  Function test	The users can register by email or with google account
FE01 - 03	Forgot password		2	User interface  Function test	The users can retrieve their forgotten password and install a new one
FE01 – 04	Change password		2	User interface  Function	The users can change password

				test	
FE02 – 01	Translate with many languages	Translate	3	User interface Function test	The users can multiple languages to translate
FE02 – 02	Automatic translation		3	User interface Function test	The users can translate automatically
FE03 – 01	From the gallery	Image to text	1	User interface Function test	The users can taken photo from the gallery
FE03 – 03	From the camera		1	User interface Function test	The users can taken photo and use picture
FE04 – 01	Speech with many languages	Speech to text	1	User interface Function test	The users can speech many languages

FE05 – 01	Search results on Google	Search result	1	User interface Function test	The users can search results on in the browser
FE06 – 01	Provide grammatically correct text	Spell Check	1	User interface Function test	When users want to spell check, they will send a grammar issues
FE07 – 01	History translated	History	1	User interface Function test	The users can looking for translations
FE07 – 02	Export history to Translate Page		1		When users want to edit translation, they will click on the translation.
FE08 – 01	Add, edit, delete bookmark	Bookmark	1	User interface Function test	The users can add, edit, delete bookmark

### Test strategy

- Describe the overall approach to testing. For each major group of features or feature combinations, specify the approach which will ensure that these feature groups are adequately tested. Specify the major activities, techniques, and tools

which are used to test the designated groups of features

- The approach should be described with sufficient details to permit identification of the major testing tasks and estimation of the time required to do each one.

### **Hardware environment**

- Computer: Acer Nitro5, MSI GF63
- Mobile: Galaxy Z Flip, Xiaomi Redmi Note 9, LG V60

### **3.4. Test schedule**

#### **Human resources**

<b>Name</b>	<b>Role</b>
	Tester

#### **Test Schedule**

Sprint 1	Authentication in app		09/03/2023 – 08/04/2023
	Develop backend for register		
	Design frontend for register		
	Develop backend for login		
	Design frontend for login		
	Integrate login with firebase		
	Design frontend for forgot password		
	Design backend for forgot password		
	Design app interface		
	View tour detail for app		



	Backend api for tour detail		
	Front-end for tour detail		
	Back-end translate		
	Back-end spinner list selection		
	Back-end auto detect language		
Sprint 2	Backend Search Image		08/04/2023 – 09/05/2023
	Backend Auto-Translate		
	Backend API for Text to Speech		
	Backend API for Speech to Text		
	Backend character limit		
	Backend API for Dictionary		
	Backend Save used languages		
	Backend API for Spell checker		
	Update frontend Main page design		
	Backend Search text result		
	Update frontend “Image to text” page design		
	Translation History		

	Change password		
	Update frontend Login/Forgot password/Register		
	Update frontend Menu		
Sprint 3	Backend Bookmark		09/05/2023 – 31/05/2023
	Backend user information		
	Backend Swap languages		
	Backend Copy translated text		

#### 4. Test Cycle and Exit Criteria

##### 4.1. Entry criteria

- All test hardware platforms must have been successfully installed, configured, and functioning properly.
- All the necessary documentation, design, and requirements information should be available that will allow testers to operate the system and judge the correct behavior.
- Proper test case is available.
- The test environment such as, lab, hardware, software, and system administration support should be ready.

##### 4.2. Exit criteria

- All test cases have been run.
- A certain level of requirements coverage has been achieved.
- No high priority or severe bugs are left outstanding.
- All high-risk areas have been fully tested, with only minor residual risks left outstanding.
- The schedule has been achieved.
- Not over the allowed project budget.

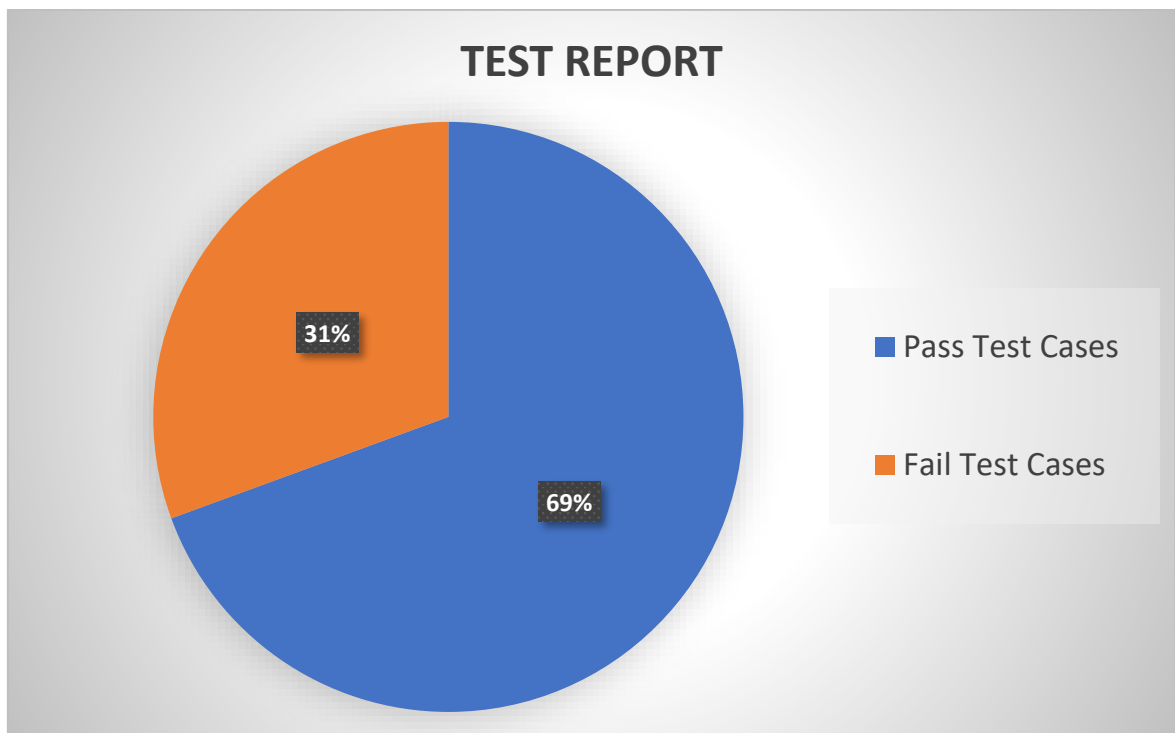
# TEST REPORT

<b>Project Name</b>	LinguaSnap for Travelers
<b>Project Code</b>	C1SE.05
<b>Environment Setup</b>	

<b>Tester</b>	Nguyen Thanh Dat
	Vu Dinh Truong

<b>Test Result</b>	Pass
	Fail

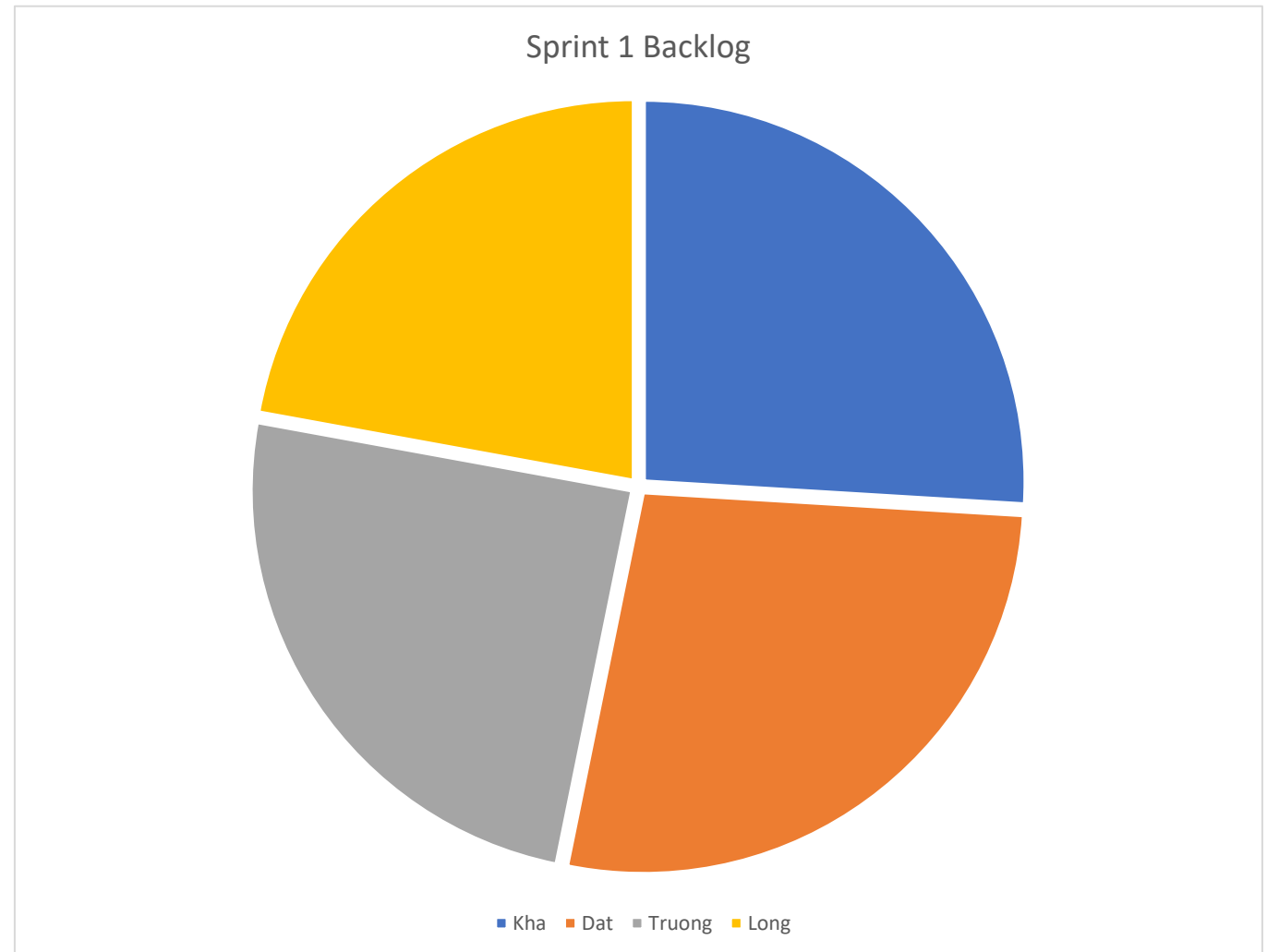
No	Function Name	Sheet Name	Create Date	Test Case	Test Case Pass	Test Case Fail
1	Login	Login	04/07/2023	19	15	4
2	Register	Register	04/08/2023	23	19	4
3	Change Password	Change Password	04/10/2023	6	5	1
4	Forgot password	Forgot password	04/08/2023	3	3	0
5	Translate	Translate	17/5/2023	8	4	4
6	Text Recognition	Text Recognition	18/8/2023	12	5	7
7	Dictionary	Dictionary	18/5/2023	4	4	0
8	Spell Check	Spell Check	18/5/2023	10	4	6
<b>Total</b>				85	59	26



## Sprint 1 Backlog

No.	Task	Responsible person	Status	Estimate (hours)	Start date	End date
1	Design App Theme	Dat	Done	3	09-Thg3	09-Thg3
2	Code OCR API	Dat	Done	36	15-Thg3	24-Thg3
3	Crop Image	Dat	Done	4	24-Thg3	27-Thg3
4	Take full-scale Image	Dat	Done	4	27-Thg3	30-Thg3
5	Code Firebase Authentications	Truong	Done	10	09-Thg3	14-Thg3
6	Basic Login	Truong	Done	5	15-Thg3	16-Thg3
7	User Register	Truong	Done	5	17-Thg3	18-Thg3
8	Login Sessions	Truong	Done	18	19-Thg3	27-Thg3
9	Forgot password	Truong	Done	5	28-Thg3	04-Thg4
10	Code Translate API	Kha	Done	30	14-Thg3	23-Thg3
11	Spinner List selection	Kha	Done	5	24-Thg3	25-Thg3
12	Auto Detect Language	Kha	Done	15	26-Thg3	31-Thg3
13	Design Main page	Dat	Not done	10	03-Thg4	05-Thg4
14	Integrate into basic app	All member	Done	5	05-Thg4	06-Thg4
15	Update Project Plan	All member	Done	2	09-Thg3	09-Thg3
16	Update Product Backlog	Long	Done	45	14-Thg3	04-Thg4
17	Update Sprint Backlog	Kha	Done	4	01-Thg4	06-Thg4
18	Create Database Design	Truong	Done	8	10-Thg3	13-Thg3

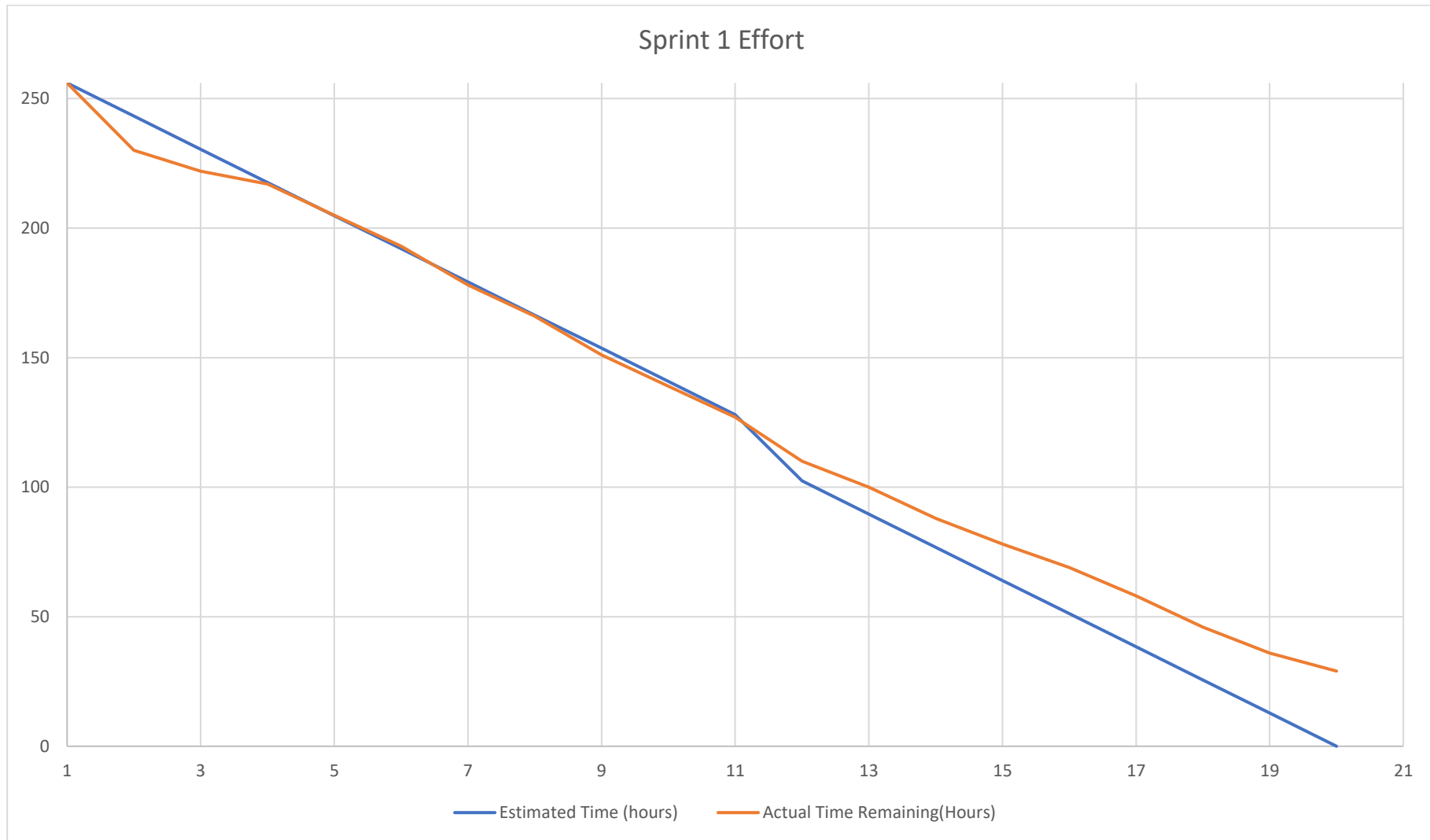
Kha	Dat	Truong	Long
61	64	58	52



## Sprint 1 Effort

Milestone	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12
Estimated Time (hours)	256	243,2	230,4	217,6	204,8	192	179,2	166,4	153,6	140,8	128	115,2
Actual Time Remaining(Hours)	256	230	222	217	205	193	178	166	151	139	127	120
Actual Time(Hours)		26	8	5	12	12	15	12	15	12	12	7

Milestone	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21
Estimated Time (hours)	102,4	89,6	76,8	64	51,2	38,4	25,6	12,8	0
Actual Time Remaining(Hours)	110	100	88	78	69	58	46	36	29
Actual Time(Hours)	10	10	12	10	9	11	12	10	7



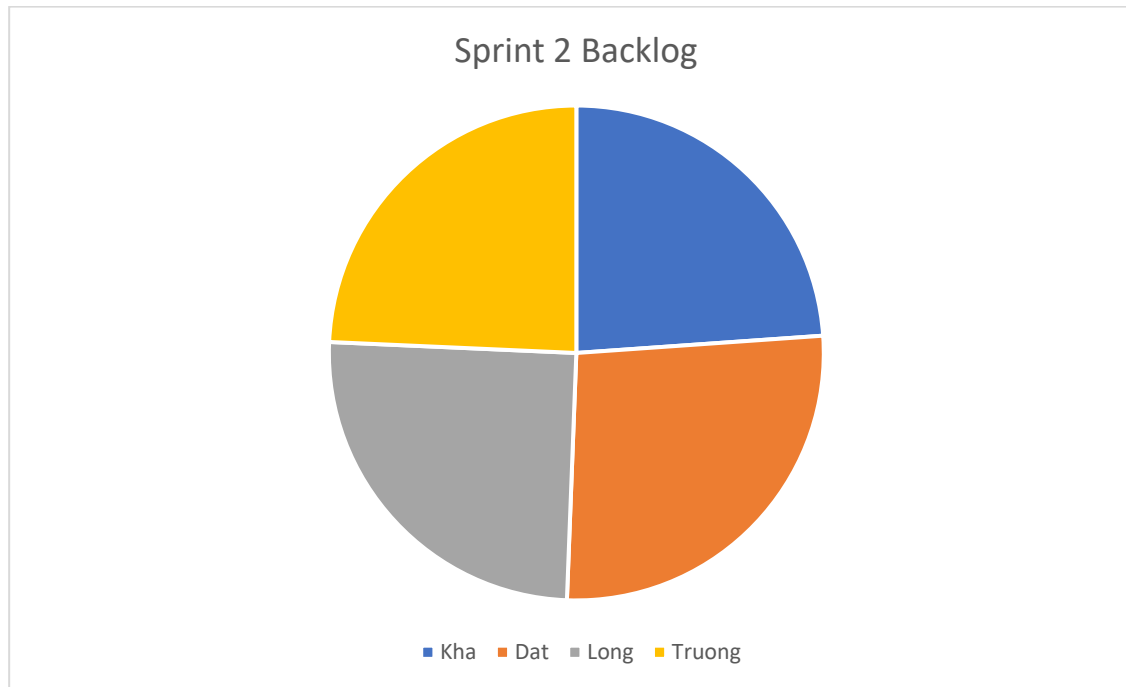
**Sprint 2 Backlog**

No.	Task	Responsible person	Status	Estimate (hours)	Start date	End date
1	Search Image	Dat	Not done	16	07-Thg4	13-Thg4
2	Data Collection	Truong	Done	8	07-Thg4	11-Thg4
3	Auto-Translate	Kha	Not done	14	07-Thg4	13-Thg4
4	Update Integrated App	All member	Done	5	07-Thg4	08-Thg4
5	Update Architecture Document	Long	Done	5	07-Thg4	09-Thg4
6	Update Database Design	Truong	Done	2	12-Thg4	13-Thg4
7	Update User Interface Design	Long	Done	15	08-Thg4	12-Thg4
8	Update Sprint Backlog	Kha	Done	5	12-Thg4	14-Thg4
9	Text to Speech API	Kha	Done	13	15-Thg4	21-Thg4
10	Speech to Text API	Long	Not done	5	12-Thg4	13-Thg4
11	Setup character limit	Kha	Done	5	20-Thg4	22-Thg4
12	Dictionary API	Kha	Done	17	23-Thg4	04-Thg5



13	Save used languages	Dat	Done	3	14-Thg4	17-Thg4
14	Spell checker API	Dat	Done	20	18-Thg4	26-Thg4
15	Update Main page design	Dat	Done	12	27-Thg4	01-Thg4
16	Search text result	Dat	Done	2	01-Thg5	02-Thg5
17	Design “Image to text” page	Dat	Done	8	02-Thg4	05-Thg4
18	Translation History	Truong	Done	40	13-Thg4	02-Thg5
19	Change password	Truong	Done	5	03-Thg4	04-Thg5
20	Design Login/Forgot password/Register page	Long	Done	13	13-Thg4	18-Thg4
21	Design menu in main page	Long	Done	22	19-Thg4	27-Thg4
22	Design change password	Long	Done	2	28-Thg4	04-Thg5

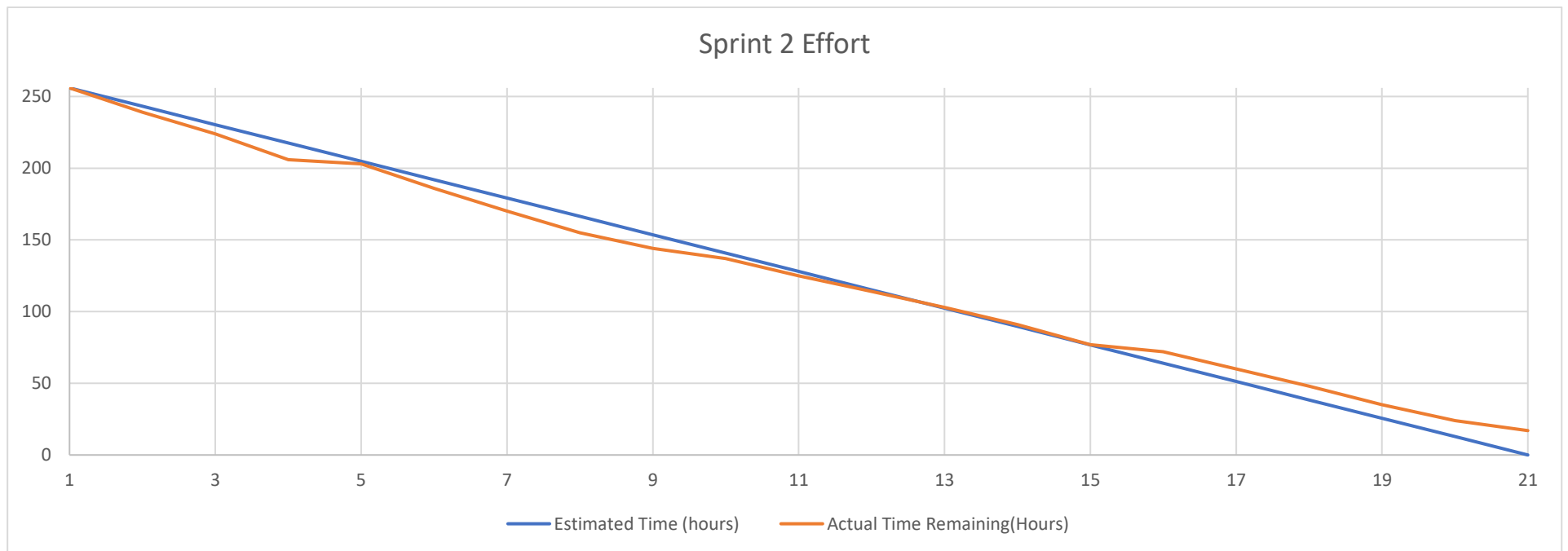
Kha	Dat	Long	Truong
59	66	62	60



## Sprint 2 Effort

Milestone	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13
Estimated Time (hours)	256	243,2	230,4	217,6	204,8	192	179,2	166,4	153,6	140,8	128	115,2	102,4
Actual Time Remaining(Hours)	256	239	224	206	203	186	170	155	144	137	125	114	103
Actual Time(Hours)		17	15	18	3	17	16	15	11	7	12	11	11

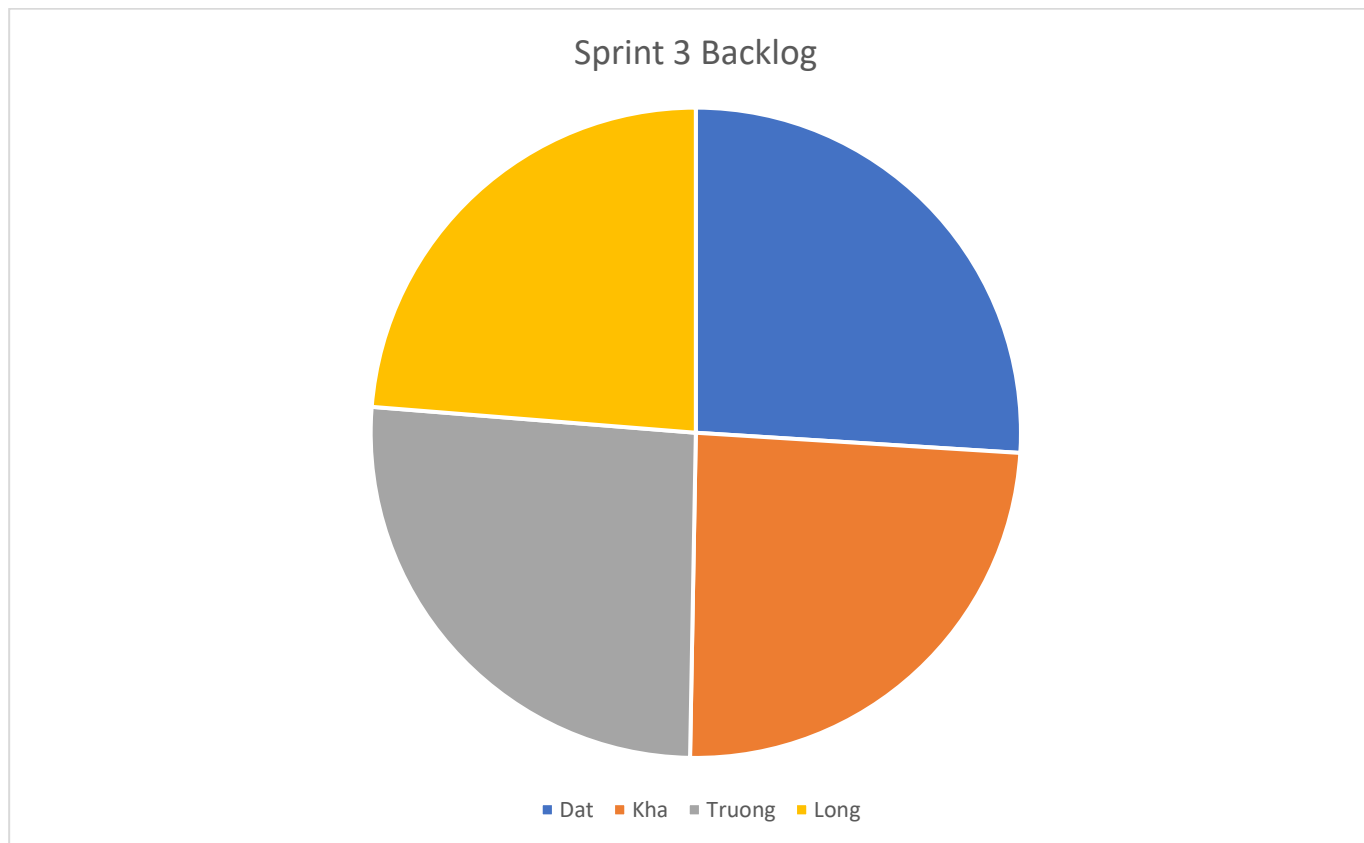
Milestone	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21
Estimated Time (hours)	64	51,2	38,4	25,6	12,8	0
Actual Time Remaining(Hours)	72	60	48	35	24	17
Actual Time(Hours)	5	12	12	13	11	7



### Sprint 3 Backlog

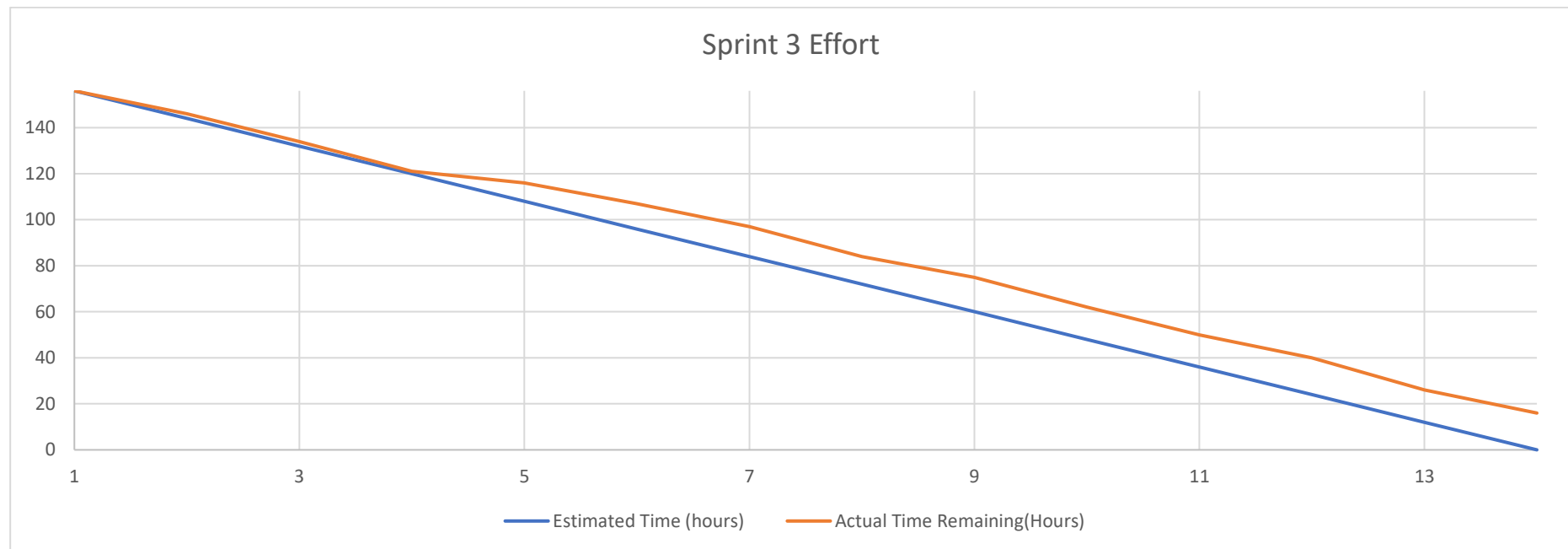
No.	Task	Responsible person	Status	Estimate (hours)	Actual(Hours)	Start date	End date
1	Bookmark	Truong	Done	10	3,125	10-Thg5	12-Thg5
2	View/Edit user information	Truong	Done	1	0,3125	12-Thg5	15-Thg5
3	Swap languages	Dat	Done	3	0,9375	10-Thg5	11-Thg5
4	Copy translated text	Dat	Done	1	0,3125	11-Thg5	11-Thg5
5	Search Image	Dat	Not done	7	2,1875	12-Thg5	13-Thg5
6	Text Change Activity	Kha	Not done	4	1,25	10-Thg5	11-Thg5
7	Speech to Text API	Long	Not done	7	2,1875	10-Thg5	12-Thg5
8	Fix Bugs/Error	All member	Done	15	4,6875	13-Thg5	19-Thg5
9	Update Test Case	All member	Done	5	1,5625	19-Thg5	22-Thg5
10	Update User Story	All member	Done	7	2,1875	22-Thg5	23-Thg5
11	Update Integrated App	All member	Done	5	1,5625	23-Thg5	25-Thg5
12	Sprint meeting	All member	Done	1	0,3125	25-Thg5	25-Thg5
13	Sprint Retrospective	All member	Done	1	0,3125	25-Thg5	26-Thg5
14	Wrapping up app project	All member	Done	1	0,3125	27-Thg5	28-Thg5
15	Update and Finalize Sprint Backlog	Kha	Done	4	1,25	29-Thg5	30-Thg5

Dat	Kha	Truong	Long
46	43	46	42



### Sprint 3 Effort

Milestone	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
Estimated Time (hours)	156	144	132	120	108	96	84	72	60	48	36	24	12	0
Actual Time Remaining(Hours)	156	146	134	121	116	107	97	84	75	62	50	40	26	16
Actual Time(Hours)		10	12	13	5	9	10	13	9	13	12	10	14	10



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C1SE.05



# Capstone Project 1

CMU-SE 450

## Code Standard

Version 1.0

Date: 13/03/2023

### LinguaSnap for Travelers

Submitted by

Dat, Nguyen Thanh  
Truong, Vu Dinh  
Long, Pham Ba Hoang  
Kha, Nguyen Ngoc

Approved by Nguyen Duc Man

**Proposal Review Panel Representative:**

Name

Signature

Date

**Capstone Project 1- Mentor:**

Name

Signature

Date



## PROJECT INFORMATION

<b>Project acronym</b>	LiS		
<b>Project Title</b>	LinguaSnap for Travelers		
<b>Start Date</b>	25 Feb 2023	<b>End Date</b>	31 May 2023
<b>Lead Institution</b>	International School, Duy Tan University		
<b>Project Mentor</b>	Man, Nguyen Duc, Ph.D		
<b>Scrum master / Project Leader &amp; contact details</b>	Nguyen Thanh Dat Email: ntdata1232001@gmail.com Tel: 0972.530.969 Student ID: 25211217197		
<b>Partner Organization</b>			
<b>Project Web URL</b>			
<b>Team members</b>	<b>Name</b>	<b>Email</b>	<b>Tel</b>
25211217197	Nguyen Thanh Dat	ntdata1232001@gmail.com	0972530969
25211201774	Long, Pham Ba Hoang	longphambahoang@gmail.com	0793310221
25211217275	Truong ,Vu Dinh	jonnyvu2210@gmail.com	0905223611
25211210026	Kha, Nguyen Ngoc	winkha14567@gmail.com	0945721427

## REVISION HISTORY

Version	Date	Comments	Author	Approval
1.0	13/03/2023	Initial Release	All members	

## 1. Introduction

### 1.1 Purpose

- This Coding Standard requires certain practices for developing programs in the Java language. The objective of this coding standard is to have a positive effect on
  - Avoidance of errors/bugs, especially the hard-to-find ones.
  - Maintainability, by promoting some proven design principles

### 1.2 Scope

- This standard pertains to the use of the Java language.

## 2. Code Standards

### 2.1 Variables

- Using **camelCase** for identifier names (variables and functions).
- All names start with a **letter**.
- Constants (like PI) written in **UPPERCASE**
- No unused variables.
- Avoid modifying variables of class declarations.
- No re-declaring variables.
- Avoid assigning a variable to itself.
- Avoid comparing a variable to itself.
- Restricted names should not be shadowed.

### 2.2 Spaces Around Operators

- Always put spaces around operators ( = + - \* / ), and after commas.

### 2.3 Statement Rules

- Put the opening bracket at the end of the first line.
- Use one space before the opening bracket
- Put the closing bracket on a new line, without leading spaces.
- Keep else statements on the next line after their curly braces.

### 2.4 Object Rules

- Place the opening bracket on the same line as the object name.
- Use colon plus one space between each property and its value
- Do not add a comma after the last property-value pair.
- Place the closing bracket on a new line, without leading spaces.
- Maintain consistency of newlines between object properties.
- Always end an object definition with a semicolon.

### 2.5 Line Length

- For readability, avoid lines longer than 80 characters

## **2.6 Spaces**

- Use 2 spaces for indentation.
- Add a space after keywords.
- Add a space before a function declaration's parentheses
- Commas should have a space after them.
- Add spaces inside single line blocks.
- No space between function identifiers and their invocations.
- Add space between colon and value in key value pairs.

## **2.6 Quotes**

- Use single quotes for strings except to avoid escaping.

## **2.7 Dot location**

- Dot should be on the same line as property.

## **2.8 Array**

- Use array literals instead of array constructors

## **2.9 Class**

- Use a single import statement per Class.
- Renaming import, export, and destructuring assignments to the same name are not allowed.

## **2.10 Functions**

- Avoid unnecessary function binding.
- No unnecessary parentheses around function expressions.
- No function declarations in nested blocks.

## **2.11 String**

- Regular strings must not contain template literal placeholders.
- No octal escape sequences in string literals.
- No multiline strings.
- No spacing in template strings.

## **2.12 Error catching**

- Only throw an Error object.

## **2.13 Files**

- Files must end with a newline.

## **2.15 Others**

- Semicolons must have a space after and no space before.
- Never start a line with (, [, `, or a handful of other unlikely possibilities.



## **CAPSTONE PROJECT 1**

**CMU-SE 450**

### **MENTOR MEETING DOCUMENT**

**Date : 21/05/2023**

# **LinguaSnap for Traveler**

**Submitted by**

**Dat, Nguyen Thanh**

**Truong, Vu Dinh**

**Long, Pham Ba Hoang**

**Kha, Nguyen Ngoc**

**Approved by Nguyen Duc Man**

**Capstone Project 1 - Mentor:**

Name

Signature

Date

**INTERNATIONAL SCHOOL OF DUY TAN UNIVERSITY**

**PROJECT INFORMATION**

<b>Project acronym</b>	LiS		
<b>Project title</b>	LinguaSnap for Travelers		
<b>Start date</b>	25 – February – 2023	<b>End Date</b>	31 – May – 2023
<b>Lead institution</b>	International School, Duy Tan University		
<b>Project mentor</b>	Nguyen Duc Man Email: mannd@duytan.edu.vn Phone: +84 904 235 945		
<b>Partner organization</b>	Duy Tan University		
<b>Scrum Master</b>	Dat, Nguyen Thanh	ntdat1232001@gmail.com	0972530969
<b>Product owner</b>	Truong, Vu Dinh	Jonnyvu2210@gmail.com	0905223611
<b>Team members</b>	Kha, Nguyen Ngoc	winkha14567@gmail.com	0945721427
	Long, Pham Ba Hoang	longphambahoang@gmail.com	0793310221

**REVISION HISTORY**

<b>Version</b>	<b>Date</b>	<b>Comments</b>	<b>Author</b>	<b>Approval</b>
1.0	21 May 2023	Initial Release	C1SE.05 Team	

28 – February – 2023

## LINGUASNAP FOR TRAVELERS

### MENTOR MEETING

Meeting date: 28 – February – 2023

Meeting location: Offline meeting

#### 1. Attendance

Name	Title	Acronym	Present
Dat, Nguyen Thanh	Leader	TD	YES
Kha, Nguyen Ngoc	Member	NK	YES
Long, Pham Ba Hoang	Member	HL	YES
Truong, Vu Dinh	Member	DT	YES

#### 2. Meeting Location

Offline meeting: Room 601, International School, 254 Nguyen Van Linh,  
Thanh Khe District, Da Nang City

#### 3. Meeting Start:

- Meeting Schedule start: 14:00
- Meeting Actual start : 14:00
- Meeting note taker : Long, Pham Ba Hoang

#### 4. Agenda

- Introduce, list personal information of team members
- Suggest ideas for mentors
- Discuss the topic with a mentor
- Discussion on the given topics

#### 5. Post Meeting Action Items

<b>Action</b>	<b>Assigned to</b>	<b>Deadline</b>
Finalize the topic the group has chosen, and state why the group chose this topic	All Member	28 – February – 2023
List the main functions that must be included in the project	All Member	28 – February – 2023
Discussing project management tools	All Member	28 – February – 2023
Finalize the topic the group has chosen, and state why the group chose this topic	All Member	28 – February – 2023

## **6. Meeting End**

- Meeting Schedule end: 17:00
- Meeting Actual end: 17:00

**Secretary**

Long  
Pham Ba Hoang



10 – April – 2023

## LINGUASNAP FOR TRAVELERS

### MENTOR MEETING

Meeting date: 10 – April – 2023

Meeting location: Offline meeting

#### 1. Attendance

Name	Title	Acronym	Present
Dat, Nguyen Thanh	Leader	TD	YES
Kha, Nguyen Ngoc	Member	NK	YES
Long, Pham Ba Hoang	Member	HL	YES
Truong, Vu Dinh	Member	DT	YES

#### 2. Meeting Location

3. Offline meeting: Room 601, International School, 254 Nguyen Van Linh, Thanh Khe District, Da Nang City

#### 4. Meeting Start:

- Meeting Schedule start: 14:00
- Meeting Actual start : 14:00
- Meeting note taker : Long, Pham Ba Hoang

#### 5. Agenda

- Demo app
- Edit the product backlog before making the project plan
- Date in sprint must match plan
- Draw CnC
- Do Architecture Design Document, Sprint Backlog Document

#### 6. Post Meeting Action Items

<b>Action</b>	<b>Assigned to</b>	<b>Deadline</b>
Edit produc backlog	All Member	10 – April – 2023
Draw CnC	All Member	10 – April – 2023
Edit architecture design document	All Member	10 – April – 2023
Edit Sprint backlog document	All Member	10 – April – 2023

## **7. Meeting End**

- Meeting Schedule end: 17:00
- Meeting Actual end: 17:00

**Secretary**

Long  
Pham Ba Hoang

6 – May – 2023

## LINGUASNAP FOR TRAVERLERS

### MENTOR MEETING

Meeting date: 6 – May – 2023

Meeting location: Offline meeting

#### 1. Attendance

Name	Title	Acronym	Present
Dat, Nguyen Thanh	Leader	TD	YES
Kha, Nguyen Ngoc	Member	NK	YES
Long, Pham Ba Hoang	Member	HL	YES
Truong, Vu Dinh	Member	DT	YES

#### 2. Meeting Location

Offline meeting: Room 601, International School, 254 Nguyen Van Linh,  
Thanh Khe District, Da Nang City

#### 3. Meeting Start:

- Meeting Schedule start: 15:00
- Meeting Actual start : 15:00
- Meeting note taker : Long, Pham Ba Hoang

#### 4. Agenda

- Demo app
- Extend the functions of the app ( search, bookmark, scan image to search)
- Edit Database design document
- Edit module view of Database Design

#### 5. Post Meeting Action Items

<b>Action</b>	<b>Assigned to</b>	<b>Deadline</b>
Edit Database design document	Truong	6 – May – 2023
Edit module view of Database Design	Dat,Kha	6 – May – 2023
Do and add more functions	All Member	6 – May – 2023

## **6. Meeting End**

- Meeting Schedule end: 17:00
- Meeting Actual end: 17:00

**Secretary**

Long  
Pham Ba Hoang

20 – May – 2023

## LINGUASNAP FOR TRAVERLERS

### MENTOR MEETING

Meeting date: 20 – May – 2023

Meeting location: Offline meeting

#### 1. Attendance

Name	Title	Acronym	Present
Dat, Nguyen Thanh	Leader	TD	YES
Kha, Nguyen Ngoc	Member	NK	YES
Long, Pham Ba Hoang	Member	HL	YES
Truong, Vu Dinh	Member	DT	YES

#### 2. Meeting Location

Offline meeting: Room 601, International School, 254 Nguyen Van Linh,  
Thanh Khe District, Da Nang City

#### 3. Meeting Start:

- Meeting Schedule start: 15:00
- Meeting Actual start : 15:00
- Meeting note taker : Long, Pham Ba Hoang

#### 4. Agenda

- Demo function
- Edit Document
- Project progress report
- Report the duties of each member

#### 5. Post Meeting Action Items

<b>Action</b>	<b>Assigned to</b>	<b>Deadline</b>
Edit Document	All Member	20 – May – 2023
Report for mentor	All Member	20 – May – 2023

## **6. Meeting End**

- Meeting Schedule end: 17:00
- Meeting Actual end: 17:00

**Secretary**

Long  
Pham Ba Hoang



# Capstone Project 1

CMU-SE 450

## Team Meeting Document

Version 1.0

Date: 21 May 2023

# LinguaSnap for Travelers

Submitted by

**Dat, Nguyen Thanh**  
**Truong, Vu Dinh**  
**Long, Pham Ba Hoang**  
**Kha, Nguyen Ngoc**

Approved by Nguyen Duc Man

**Capstone Project 1- Mentor:**

---

Name

Signature

Date

**INTERNATIONAL SCHOOL OF DUY TAN UNIVERSITY**

## PROJECT INFORMATION

<b>Project acronym</b>	LiS		
<b>Project title</b>	LinguaSnap for Travelers		
<b>Start date</b>	25 – February – 2023	<b>End Date</b>	31 – May – 2023
<b>Lead institution</b>	International School, Duy Tan University		
<b>Project mentor</b>	Nguyen Duc Man Email: mannd@duytan.edu.vn Phone: +84 904 235 945		
<b>Partner organization</b>	Duy Tan University		
<b>Scrum Master</b>	Dat, Nguyen Thanh	ntdat1232001@gmail.com	0972530969
<b>Product owner</b>	Truong ,Vu Dinh	jonnyvu2210@gmail.com	0905223611
<b>Team members</b>	Kha, Nguyen Ngoc	winkha14567@gmail.com	0945721427
	Long, Pham Ba Hoang	longphambahoang@gmail.com	0793310221

## REVISION HISTORY

Version	Date	Comments	Author	Approval
1.0	21 May 2023	Initial Release	C1SE.05 Team	



9 – April – 2023

# LINGUASNAP FOR TRAVELERS

## TEAM MEETING

Meeting date: 9 – April – 2023

Meeting location: Offline meeting

### 1. Attendance

Name	Title	Acronym	Present
Dat, Nguyen Thanh	Leader	TD	YES
Kha, Nguyen Ngoc	Member	NK	YES
Long, Pham Ba Hoang	Member	HL	YES
Truong, Vu Dinh	Member	DT	YES

### 2. Meeting Location

- Offline meeting: 559 Điện Biên Phủ, Thanh Khê Đông, Thanh Khê, Đà Nẵng

### 3. Meeting Start:

- Meeting Schedule start: 09:00
- Meeting Actual start : 09:30
- Meeting note taker : Long, Pham Ba Hoang

### 4. Agenda

- Create Git Repository
- Create Merge 1.0
- Create App Home UI
- Create Text Extraction UI
- Merge Text Extraction API to Main App
- Merge Translation API to Main APP

### 5. Post Meeting Action Items

Action	Assigned to	Deadline
Login/Register UI	Long, Truong	16 – April – 2023
Login/Register function	Long, Truong	16 – April – 2023
Project Plan	All Member	16 – April – 2023
Spell Check API	Dat	16 – April – 2023
Dictionary API	Kha	16 – April – 2023

## 6. Meeting End

- Meeting Schedule end: 17:00
- Meeting Actual end: 17:00

**Secretary**

Long  
Pham Ba Hoang

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13 – April – 2023

# LINGUASNAP FOR TRAVELERS

## TEAM MEETING

Meeting date: 13 – April – 2023

Meeting location: Online meeting

### 1. Attendance

Name	Title	Acronym	Present
Dat, Nguyen Thanh	Leader	TD	YES
Kha, Nguyen Ngoc	Member	NK	YES
Long, Pham Ba Hoang	Member	HL	YES
Truong, Vu Dinh	Member	DT	YES

### 2. Meeting Location

- Online meeting: Zoom

### 3. Meeting Start:

- Meeting Schedule start: 13:00
- Meeting Actual start : 13:30
- Meeting note taker : Long, Pham Ba Hoang

### 4. Agenda

- Fix UI error
- Fix Translate bugs
- Update User Story
- Add SpinnerList to App
- Commit Merged 1.1

### 5. Post Meeting Action Items

<b>Action</b>	<b>Assigned to</b>	<b>Deadline</b>
Speech To Text	Long, Truong	23 – April – 2023
Text to Speech	Kha	23 – April – 2023
Architecture Document	Long	27 – April – 2023
Database Document	Long, Truong	

## 6. Meeting End

- Meeting Schedule end: 17:00
- Meeting Actual end: 17:00

**Secretary**

Long  
Pham Ba Hoang

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16 – April – 2023

# LINGUASNAP FOR TRAVELERS

## TEAM MEETING

Meeting date: 16 – April – 2023

Meeting location: Offline meeting

### 1. Attendance

Name	Title	Acronym	Present
Dat, Nguyen Thanh	Leader	TD	YES
Kha, Nguyen Ngoc	Member	NK	YES
Long, Pham Ba Hoang	Member	HL	YES
Truong, Vu Dinh	Member	DT	YES

### 2. Meeting Location

- Offline meeting: 559 Điện Biên Phủ, Thanh Khê Đông, Thanh Khê, Đà Nẵng

### 3. Meeting Start:

- Meeting Schedule start: 13:00
- Meeting Actual start : 13:30
- Meeting note taker : Long, Pham Ba Hoang

### 4. Agenda

- Add Login/Register UI
- Add Dictionary API
- Add Spell Checker API
- Create Merged 1.2

### 5. Post Meeting Action Items

Action	Assigned to	Deadline
Speech To Text	Long, Truong	05 – May – 2023
Search Text Result	Dat	
Translation History	Truong	

**6. Meeting End**

- Meeting Schedule end: 17:00
- Meeting Actual end: 17:00

**Secretary**

Long  
Pham Ba Hoang

21 – April – 2023

**LINGUASNAP FOR TRAVELERS****TEAM MEETING**

Meeting date: 21 – April – 2023

Meeting location: Offline meeting

**1. Attendance**

<b>Name</b>	<b>Title</b>	<b>Acronym</b>	<b>Present</b>
Dat, Nguyen Thanh	Leader	TD	YES
Kha, Nguyen Ngoc	Member	NK	YES
Long, Pham Ba Hoang	Member	HL	YES
Truong, Vu Dinh	Member	DT	YES

**2. Meeting Location**

- Offline meeting: 19 Đ. Phạm Như Xương, Hoà Khánh Nam, Liên Chiểu, Đà Nẵng

**3. Meeting Start:**

- Meeting Schedule start: 09:00
- Meeting Actual start : 09:30
- Meeting note taker : Long, Pham Ba Hoang

**4. Agenda**

- Add History UI
- Update Main App UI
- Create Test Case Document
- Create Code Standard
- Create Merged 1.3

-

## 5. Post Meeting Action Items

Action	Assigned to	Deadline
Update User Interface Document	All Member	05 – May – 2023
Search Picture	Dat, Truong	05 – May – 2023
Bookmark	Truong	05 – May – 2023
Set up character limit	Kha	05 – May – 2023

## 6. Meeting End

- Meeting Schedule end: 18:00
- Meeting Actual end: 18:00

**Secretary**

Long  
Pham Ba Hoang



10 – May – 2023

# LINGUASNAP FOR TRAVELERS

## TEAM MEETING

Meeting date: 10 – May – 2023

Meeting location: Offline meeting

### 1. Attendance

Name	Title	Acronym	Present
Dat, Nguyen Thanh	Leader	TD	YES
Kha, Nguyen Ngoc	Member	NK	YES
Long, Pham Ba Hoang	Member	HL	YES
Truong, Vu Dinh	Member	DT	YES

### 2. Meeting Location

- Offline meeting: 559 Điện Biên Phủ, Thanh Khê Đông, Thanh Khê, Đà Nẵng

### 3. Meeting Start:

- Meeting Schedule start: 09:00
- Meeting Actual start : 09:30
- Meeting note taker : Long, Pham Ba Hoang

### 4. Agenda

- Update UI
- Auto Detect Language
- Change password
- Swap Language function
- Create Merged 1.4

-

## 5. Post Meeting Action Items

Action	Assigned to	Deadline
Copy Extracted Text	All Member	17 – May – 2023
Save Language upon exit	Dat	17 – May – 2023
Update Test case	All Member	17 – May – 2023
Update Sprint Backlog	Kha	17 – May – 2023

## 6. Meeting End

- Meeting Schedule end: 18:00
- Meeting Actual end: 18:00

**Secretary**

Long  
Pham Ba Hoang

17 – May – 2023

# LINGUASNAP FOR TRAVELERS

## TEAM MEETING

Meeting date: 17 – May – 2023

Meeting location: Offline meeting

### 7. Attendance

Name	Title	Acronym	Present
Dat, Nguyen Thanh	Leader	TD	YES
Kha, Nguyen Ngoc	Member	NK	YES
Long, Pham Ba Hoang	Member	HL	YES
Truong, Vu Dinh	Member	DT	YES

### 8. Meeting Location

- Offline meeting: 559 Điện Biên Phủ, Thanh Khê Đông, Thanh Khê, Đà Nẵng

### 9. Meeting Start:

- Meeting Schedule start: 09:00
- Meeting Actual start : 09:30
- Meeting note taker : Long, Pham Ba Hoang

### 10. Agenda

- Update UI
- Update Sprint backlog
- Fix Bugs/Error
- Create Merged 1.5

### 11. Post Meeting Action Items

Action	Assigned to	Deadline
Finalize Documents	All Member	22 – May – 2023
Finalize Merged App	All Member	22 – May – 2023
Finish Speech to Text if possible	Long	30 – May – 2023
Finish Text to Speech if possible	Dat	30 – May – 2023

**12.Meeting End**

- Meeting Schedule end: 18:00
- Meeting Actual end: 18:00

**Secretary**

Long  
Pham Ba Hoang

<b>Team Number/ Team Name</b>	C1SE.05
<b>Project title</b>	LinguaSnap for Travelers
<b>How many students are on your team? List the team member's name</b>	4 Dat, Nguyen Thanh Kha, Nguyen Ngoc Truong, Vu Dinh Long, Pham Ba Hoang

### Reflection (Required)

#### What challenges did you face while completing this project?

- New technology: This project required us to learn about new technologies such as Firebase authentication or Google's Text Recognition services, although it does not affect much, this is also a common difficulty of the group in completing the project.
- Lack of communication: At first, we didn't know how to communicate with each other and our productivity wasn't good enough. But overtime, we got to know each other more and we started to improve.
- Lack of practical experience: Estimating workload depends heavily on the feelings and experiences of each individual
- Understanding of system integration: Due to each person having different coding styles, we had a difficult time trying to integrate the system.

#### What were the highlights for you/your team during this project?

- New technologies:
  - Firebase Authentication is a technology that provides real-time database and authentication services.
  - Google's Translation API provides translation services with the support of many languages.
  - Google's MLKit OCR API provides text extraction from images with 5 supported scripts: Latin, Devanagari, Korean, Chinese, Japanese
  - Grammar Bot API provides text correction services for grammar issues.
- After working for more than 3 months, we started to have positive changes of opinion, thinking, action. We start to think of other people and we are responsible for our work more.

- We have successfully used different technologies to create a fully working system that can help users with learning or traveling.

### **What is the most important thing you learned in this project?**

- Teamwork and communication: This has always been an important thing when working with others. This project requires extensive teamwork, communication and commitment, that's why we had to adapt to this new experience.
- Task estimation: After going through this project, we have a better understanding and more accurate estimation of the time to complete the task, function scores,... Which can help us make project plans easier
- Problem solving and accountability: In order to keep up with project progress, each team member has the responsibility for their assigned work and instead of dealing with a big problem, we know how to divide small problems to handle them effectively.

### **What part of the project did you do your best work on?**

Each team member will have strengths and they will do well in the following parts:

- Dat: Interface design for both Text Extraction and Translation pages, developed UI to be compatible on every device, worked on Text Extraction using Google's MLKit OCR API, researched and developed spell check algorithm along with Grammar Bot API to provide a grammatically correct text.
- Kha: Language translation with auto-detection using Google Cloud service, implementing REST API with HTTP request/GET on the Dictionary.
- Truong: Authentication of user accounts, data connection with realtime database, ensuring user security. read, write and output user data according to the user's session on the system.
- Long: Interface design for Login, Signup, Menu, Forgot Password, Change Password, Header

### **What was the most enjoyable part of this project?**

- Planning activities: This is an activity that happens every Sprint starts. After the Product owner read each backlog, the team members asked to analyze and clarify this backlog. This is when the members give their opinions, evaluate the complexity of the backlog, give the score of the backlogs (corresponding to the execution time) and agree on their views.
- Offline working with members: This is the time when everyone in the team exchange knowledge, communicate, consolidate the solidarity in the team.
- Sprint Retrospective: This is the activity that takes place at the end of a Sprint. Team members reviewed what was good and bad and what needed to be improved during the sprint. From there, the members are clear about each other and comfortably communicate and implement projects.

**What is the least interesting part of this project?**

- Constant change of software requirements or change of architecture and interface
- Making a professional and detailed document takes a lot of time and we had to do researches on many aspects.
- Detailed planning for each task requires experience in project work and accurate time measurement for that task

**What needs to be improved to make the project team work best?**

- The schedule should be more accurate and relevant
- Participate more actively in working together, especially face-to-face meetings and daily meetings
- There is a clear purpose
- Set and follow the rules in the group
- Accept differences
- Should enhance more team building activities

**How could you/your mentor(s) change this project to make it better next time?**

- Another way to make our project become better is that we should keep in touch with our mentors and report the difficulties that we are facing.
- Continue learning about new technologies to improve our skills.
- More focus and discussion on the project.
- Understand the problems faced by market applications and from that, we try to apply and improve our application.