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CODE

API Developer for Line OA for
Bang Khun Thian Senior Academy System Mapping

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Abstract

This project focuses on the development of a LINE Official Account (OA) for Bang Khun Thian Senior School as part of the Co-op internship at Dao De Xin Xi Club. The project involved creating an API to collect and store user data (USER_ID, full name, profile picture) using Google App Script and Google Sheets, enabling seamless user engagement tracking.

Additionally, a research study on gamification was conducted using the Quizizz platform to enhance vocabulary retention and exercise techniques among senior learners. The results demonstrated improved engagement and memory retention, highlighting the effectiveness of gamification in promoting cognitive health and social interaction for seniors.

Introduction

The project requirements involved developing a LINE Official Account (OA) for Bang Khun Thian Senior School as part of my Co-op internship at Dao De Xin Xi Club. The aim was to integrate technology to enhance accessibility and engagement for senior users. I implemented a system with features such as automated chat responses based on specific keywords and an API for collecting user data, improving interaction and personalization.

Additionally, I organized weekly digital law education sessions, held every Saturday, to provide seniors with knowledge on relevant legal issues in the digital world. This project allowed me to apply technical skills and communication strategies to create valuable solutions for the senior community.

Methodology

1. **Planning and Design of the LINE Official Account (OA) System:**
The development of the LINE OA for Bang Khun Thian Senior School began with the creation of a detailed flowchart to map out the system's functionalities. The flowchart outlined key user interactions and the automated processes involved, ensuring that the system was user-friendly for senior learners. Each step was planned to cater to the specific needs of senior users, such as simplified access to learning resources and school information through a rich menu interface.

2. **Development of Rich Menu and API Integration:**
After finalizing the system design, the next step was to implement a 6-button rich menu, providing users with quick access to key features, including:
   ○ **Check-in for class**
   ○ **View schedule**
   ○ **Access Moodle for learning materials**
   ○ **Play games**
   ○ **Access the school's social media**
   ○ **View the school's location**
   The rich menu was designed to enhance usability for seniors, with clear and concise options that simplified navigation.

Additionally, an API was developed to collect user data, including USER_ID, full name, and profile picture, whenever a user added the school's LINE OA as a friend. This API was implemented using Google App Script and connected to Google Sheets to store the data in real time. The collected data provided insights into user engagement and allowed the school to track and personalize interactions with the seniors.

3. **Chatbot Development and Automated Responses:**
The chatbot was designed to automatically respond to user inputs based on pre-defined keywords. Upon adding the school's LINE OA, users would receive an automated greeting, followed by instructions to press "0" to view the main menu. Once "0" was pressed, the chatbot responded with:
   ○ "Please enter a number to use the services:
   1: View schedule
   2: View all lessons
   3: View the school's website
   4: Play games
   5: View the school's location"

Each input from the user triggered different automated responses, such as sending the schedule, linking to the Moodle platform, or providing rich messages with additional visual information. The chatbot helped streamline user interactions, reducing the need for manual support while providing a personalized user experience.

4. **User Engagement and Data Collection:**
The system automatically collected data from each user who interacted with the OA, capturing valuable information that was stored securely in Google Sheets. This data collection process allowed for monitoring user engagement and improving service delivery based on user activity.

5. **Digital Law Education Sessions:**
In addition to the technical development, weekly digital law education sessions were organized for senior participants every Saturday. These sessions aimed to increase awareness and understanding of relevant legal topics in the digital world, such as privacy, online security, and intellectual property rights.
Data Collection During Sessions:
To measure the effectiveness of these sessions, participants were asked to complete pre-activity and post-activity tests, assessing their knowledge before and after each session. User data was also collected during these activities to track attendance and engagement levels. The results from the tests were analyzed to determine the improvement in knowledge and to adjust the content of future sessions accordingly. This feedback loop ensured that the sessions were impactful and catered to the learning needs of the seniors.

6. **Evaluation of System and Research Outcomes:**
Throughout the project, both the LINE OA system and the digital law education sessions were continuously evaluated based on user feedback and interaction data. The LINE OA system's functionality, especially the chatbot and rich menu, was monitored to ensure ease of use and efficiency for senior users. Data from the education sessions provided insights into how well the participants were retaining information and engaging with the material. The overall effectiveness of the gamification approach, implemented through Quizizz, was also assessed, with results indicating improved cognitive engagement and memory retention.
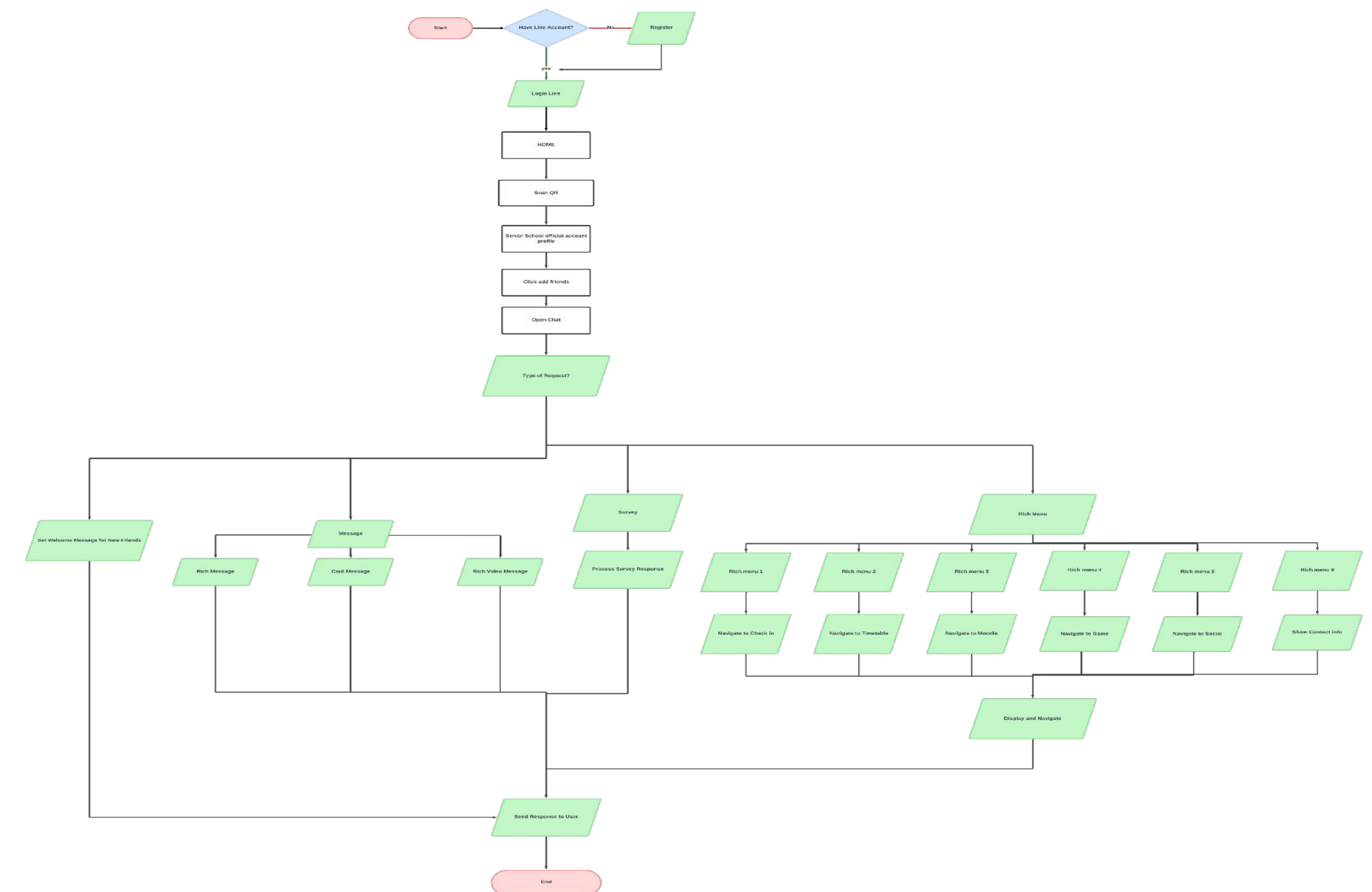

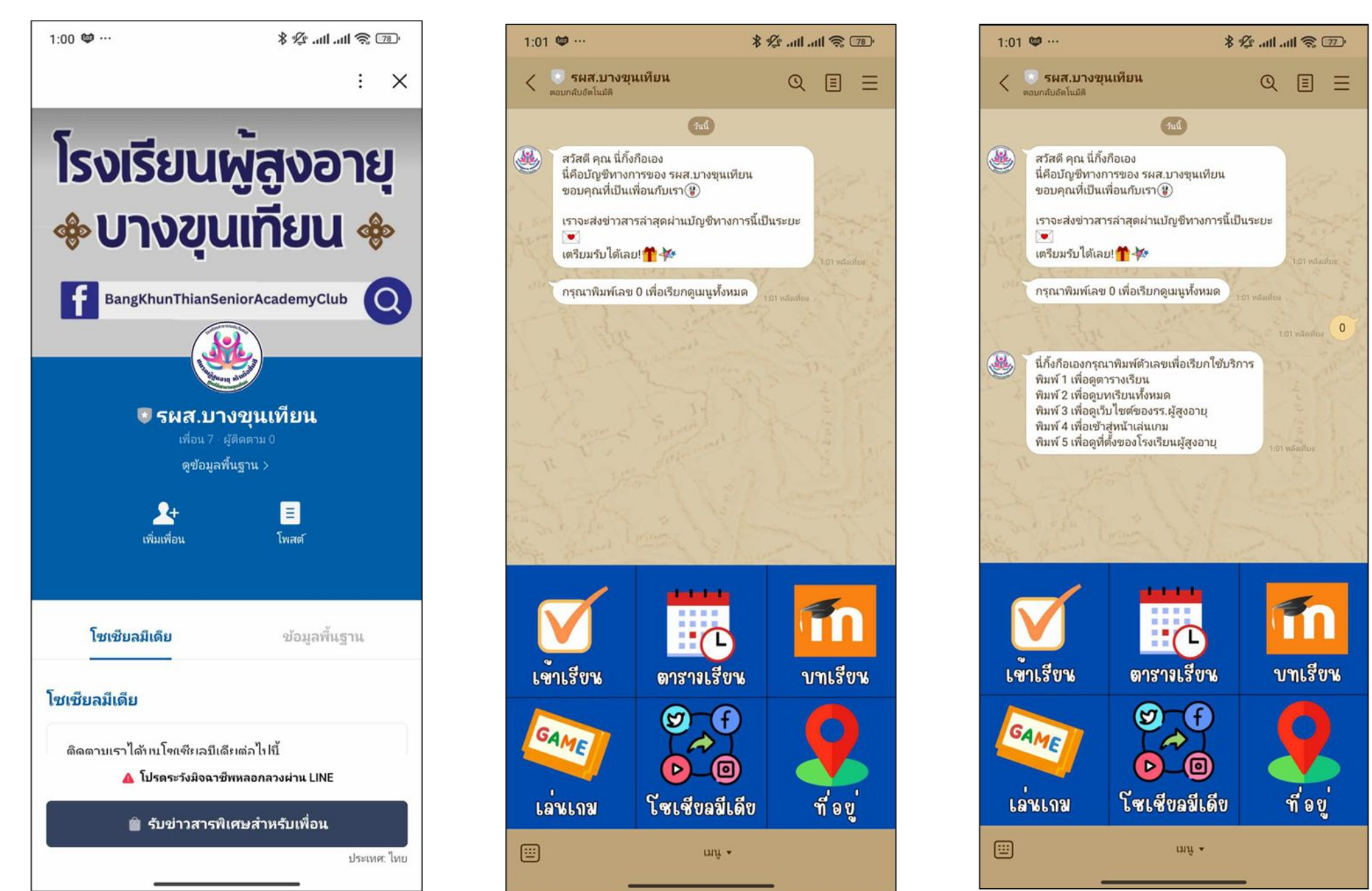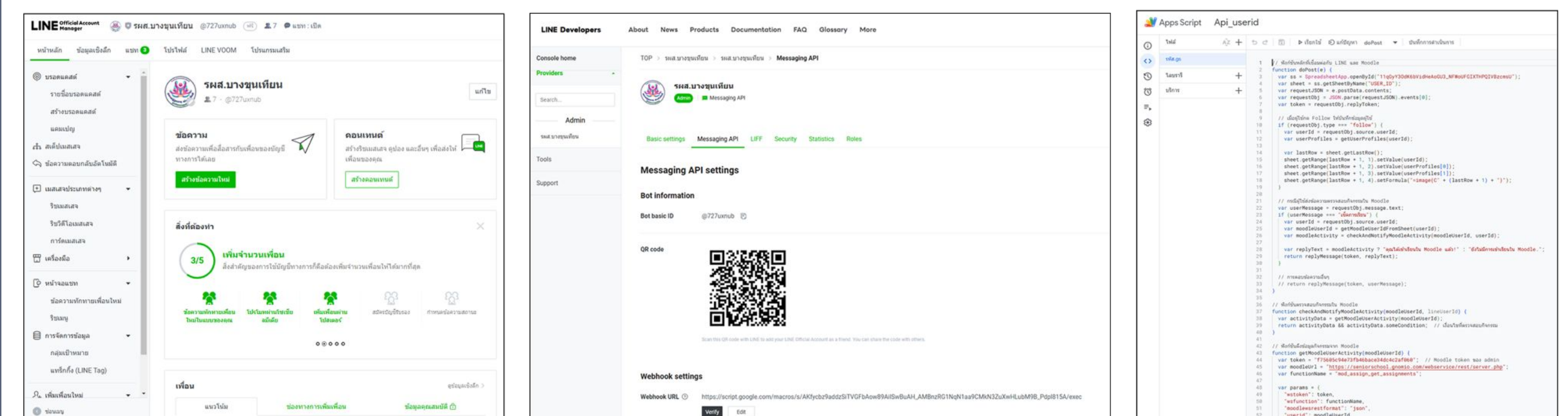Figure 1: Flowchart showing the operation of LINE OA system

Figure 2 : Line OA last design for Bang Khun Thian Senior School

Conclusion

The project demonstrated the successful integration of technology to support senior learners at Bang Khun Thian Senior School. The LINE Official Account (OA) system, combined with a responsive chatbot and gamification elements, significantly improved user engagement and learning outcomes. The digital law education sessions also enhanced participants' understanding of key topics. Overall, the project provided valuable insights into how digital tools can promote lifelong learning and social interaction for seniors, offering a promising approach for future implementations.

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