A Management Information System of Administration for Scouts: Project Proposal

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PROJECT BACKGROUND

Motivation

I have been a scout for more than a decade. From being a youth member to an adult volunteer leader, I have been involved in administrating groups of scout members in different situations. A scout member's badge assessment progress relies greatly on keeping track of different records and sophisticated manual tracking process has been a mundane and error-prone experience for both adult leaders and youth members, and could hinder, or even cause one to stop pursuing badges, resulting in a deprivation for personal growth chances for youths. A solution shall be worked out to address the administration problem.

Current Situation

The administration for a group of scouts mainly involves activities management (group/individual), individual progress management, and assets/financial management (which will not be addressed in the scope for this project).

Activities management plays a huge role in the administration progress as participation of the activities done each member contributes to their badge assessment. Activities shall be designed according to such progress, meanwhile, the originality of activities would be important for retaining youths' interest. For this purpose, currently the content of activities are recorded in an unorganised manner. Also, some outdoor activities shall be reported to parents, a lot of circulars has to be handed out throughout an academic year, adding time into administrating time.

In terms of individual progress management, each member's progress record is recorded on a physical membership record book, while the record book is small and easily portable, updating the record books for multiple members at a time has been a repetitive process.

Also, adult leaders might not be able to keep track on each member's record, which relies on youth members' active reporting, which adult leaders might not be able to give timely suggestions on one's progress.

PROJECT OBJECTIVE

Upon completion of the project, the following objectives are expected to be fulfilled:

1. A management information systems consisting of 3 sub-portals, a. Adult Leaders' Portal, b. Youth Members' Portal, and c. Parents' Portal is delivered.

2. The platform supports: a. Activities logging, b. Progress tracking and c. Effective communication between parties via different features.

3. Showcase my technical abilities and improve my knowledge on software development.

Features

The following features are expected to be included:

1. Portals: 3 Portals are expected to be delivered.

    1.1. Adult Leaders' Portal: To manage the daily operation of a scout troop, monitoring youth members' progress and communicating with both youth members and parents.

    1.2. Youth Members' Portal: To report one's individual achievement, tracking personal progress, and recording one's activities.

    1.3. Parents' Portal: To keep track of their children's progress, accessing to circulars.

2. Activities Tracking: group activities and individual activities could be recorded and tracked.

    2.1. For group activities, the content for each scout meeting could be recorded and archived.

    2.2. For individual activities, e.g. hiking and camping assessment, besides the activities details being recorded, the application should also support checking in to certain checkpoints set beforehand for safety.

3. Progress Tracking: Adult leaders should be able to track and visualise the progress of the youth members, while youth members and their respective parents can track their own progress record.

3.1. Upon qualified completion, the activities would be checked against the training scheme for the scouts and update their progress automatically.

3.2. Work submission system: Individual youth members should be also allowed to submit their own work if they wish to pursue some badges.

3.3. A dashboard shall be shown to users to visualise one's progress.

4. Circular communication channel: the system should be able to facilitate a. Circular creation, and b. Circular forwarding.

4.1. A circular generator should be implemented.

4.2. Circular from headquarters should be scarped biweekly.

4.3. Email notification could be sent to parents' and youth members' email.

PROJECT METHODOLOGY

To deliver the project, a web-based deliverable would be done. The application shall be hosted on Google Cloud Platform as various tools are provided, and quick and simple containerised deployment could be done.

Tech Stack

- Flutter

- Nest.js

- Firebase Cloud Messaging

- PostgreSQL

- Google Cloud Platform

Area of interest

- Web application

- Database Management System

- AI Integration

- Cloud Platform

- Web Scraping

PROJECT MILESTONES

The project is expected to be delivered after a brief design, followed by agile development cycles, which gives flexibility in adjustments. The project would be conducted in the format of 2-week sprint, and aiming to complete 1 whole feature per 3 sprints.

Sprint	Date	Item
0	Oct 1 - Oct 12, 2024	0. Consolidate Database Design and other preliminary design items.
1	Oct 13 - Oct 26, 2024	1.1. Adult Leaders' Portal
2	Oct 27 - Nov 9, 2024	1.2. Youth Members' Portal
3	Nov 10 - Nov 23, 2024	1.3. Parents' Portal
4	Nov 24 - Dec 7, 2024	2. Activities Tracking
5	Dec 8 - Dec 21, 2024	
6	Dec 22, 2024 - Jan 4, 2025	3.1. Automatic Progress Update
7	Jan 5 - Jan 18, 2025	First Deployment, first presentation
8	Jan 19 - Feb 1, 2025	Jan 26, 2025: Interim Report
9	Feb 2 - Feb 15, 2025	3.2. Work Submission System
10	Feb 16 - Mar 1, 2025	3.3. Progress Dashboard
11	Mar 2 - Mar 15, 2025	4.1. Circular Generator
12	Mar 16 - Mar 29, 2025	4.2. Circular Web Scraper
13	Mar 30 - Apr 12, 2025	4.3. Email Push Notification Second Deployment
14	Apr 13 - Apr 26, 2025	Apr 21, 2025: Final Report Final Presentation
15	Apr 27 - Apr 30, 2025	Project Exhibition