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The Development of eLaporan a Web-Based School Reporting System

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Abstract

eLaporan is a web-based system designed to streamline reporting and provide analytical data for non-academic reporting submission in educational institutions. The system addresses inefficiencies in the conventional method, which lead to delays, issues, duplicated files, missing data, and disorganization. This system provide three different users contains Teachers, Administrator, and Principle. By developing an online form and a centralized database, the platform ensures seamless report generation on different device models and provides data management. This system employs a prototyping model, enabling iterative development and refinement based on user feedback. The system's primary functionalities include an online form for report submission, with main categories consisting of Co-curricular, student affairs, school program, and curriculum. Online form submission generates PDF files for easy viewing of the report, with school formatting for the Administrator's records. This system was developed using the Laravel framework with a MySQL database as its data store. The system is anticipated to reduce manual errors by humans, enhance administrative workflow, and provide a cohesive repository of data by offering an easy-to-use system to support better decision making and communication among educators. In conclusion, the eLaporan system effectively addresses key inefficiencies present in traditional reporting methods within educational institutions, particularly for documenting non-academic events.

1. Introduction

System eLaporan is a comprehensive solution designed to simplify the process of submitting reports for all events, student contribution competitions, and school events. In the modern technology era, the education sector needs to possess timely and accurate reports regarding activities that foster students' holistic development across specific periods [1]. This system provides efficient and effective methods for submitting, managing, and analyzing reports. This web-based solution is designed to provide a user-friendly platform that enables users to submit reports at any time and from anywhere. This system is designed to be user-friendly and accessible to anyone with varied levels of device literacy [2].

Due to late submissions, incorrect formats, and manual paperwork that is not efficient in a modern environment, this system provides a solution with an online form that must be completed to submit and obtain approval from the administrator. There are five main categories, including Curriculum, Co-Curriculum, Student Affairs, School Program, and Curriculum. Each category contains different subcategories, with varying digital

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submission requirements. This system provides report management modules for teachers to submit reports and analytics data for administrator use.

The project aims to develop a web-based platform that enables teachers to submit reports through online forms for administrator approval. The objectives of the project include:

1. To design a web-based platform that integrates a reporting system based on an online form to generate reports and create a robust database structure to be efficiently managed by administrators.
2. To develop a user-friendly, real-time entry, easily accessible platform, and secure profile to protect user privacy and to ensure the system is usable across various devices.
3. To evaluate the performance and functionalities of the system, which meet the school and teachers' requirements.

2. Related Work

This section will present about the existing system related to report submission and documentation of non-educational report by the school management. There are three different technologies had been used to fulfils the needs of report submission and existing system related to documentation. This study acts as an indicator for identifying characteristics fulfilled by the proposed system and improvements can be made on the system.

2.1 Technology Used

The technology and approaches used in developing the web-based system are using Laravel framework as the backend framework [3]. The system focuses on developing a web-based system that can be accessed via all types of devices with internet connection [4]. The programming language used to develop this system including PHP, JavaScript, and MySQL for database store.

2.2 Study of Existing Systems

Three existing systems which is *Penilaian Bersepadu Pengawai Perkhidmatan* (PBPPP) 2024, SK Bandar Pusat Linktree, and Bukku that highlight current challenges in school reporting. PBPPP 2024 is limited to PLC reports using Linktree and Google Drive, raising data security concerns due to open link access. Reports are scattered across multiple Linktrees, causing disorganization and delays as teachers must manually prepare Word documents before submission.

Similarly, SK Bandar Pusat Linktree uses a Linktree dashboard for submitting reports like Co-Curriculum and School Programs. This method leads to confusion among administrators regarding approval status, as submissions are not tracked effectively.

Bukku, a business tool, features PDF invoice generation based on user input. While not educational, its automated reporting inspired eLaporan's approach.

eLaporan addresses these issues by offering a secure, centralized platform with role-based access. It streamlines submission, ensures confidentiality, and provides monthly analytics for teachers, administrators, and principals to monitor reporting performance.

Table 1 *System Comparison*

	Features/System	*PBPPP 2024*	*SK BP Linktree*	*Zoho Form*[5]	*eLaporan*
1.	*Login/Register*	No	No	Yes	Yes
2.	*Dashboard interface*	No	No	Yes	Yes
3.	*Real-time notification*	No	No	No	Yes
4.	*Report management*	No	No	No	Yes
5.	*Online form submission*	No	No	Yes	Yes
6.	*PDF generation*	No	No	Yes	Yes
7.	*Digital approval*	No	No	No	Yes
8.	*Reporting analytic*	No	No	Yes	Yes
9.	*Search, sort, & filter*	No	No	Yes	Yes
10	*Announcement update*	No	No	No	Yes
11	*Multi-user authentication*	No	No	No	Yes

3. Methodology

The development of the eLaporan system employs a prototyping model to utilize the web-based project [6]. Prototyping is a creative methodology frequently used in product creation [7]. This approach facilitates collaboration between developers and stakeholders, enabling the system to meet users' requirements. Users'

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feedback on the prototype is beneficial to the improvement process, as it helps identify features that are lacking. Furthermore, during the development process, users gain a deeper understanding of the system than they had before. The prototyping model consists of six phases, including requirements, quick design, building a prototype, user evaluation, refining the prototype, and implementation and maintenance [8]. The prototyping model begins with collecting information on stakeholders' requirements. After meeting the requirements, the process will continue with a quick design and building a prototype. The process involved in this methodology includes developing, evaluating, and refining the prototype based on user feedback.

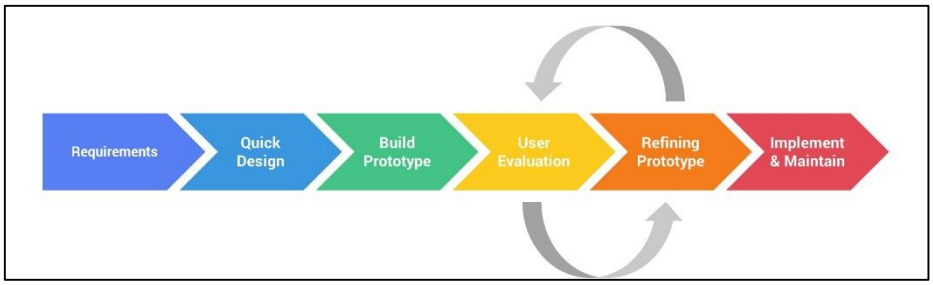

Fig. 1 *Prototype Model* [8]

3.1 System Development process

This section outlines the workflow for system development of the eLaporan system, structured according to the Prototyping Models. Every stage of development is structured to ensure that the project efficiently and effectively fulfills the requirements of its stakeholders [9]. The workflow is divided into several essential phases, each comprising specific duties and outputs that facilitate the project's advancement from conception to deployment [10].

Table 2 *System Development Process*

	Phase	*Task*	*Output*	*Tools*
1.	*Requirement*	Gather users requirement	Specified user task and role	Interview
2.	*Quick Design*	Create system design with UI interface	Get a better view of the system	Figma., Canva
3.	*Built Prototype*	Generate system prototype	Analyse issues of the Figma system	Figma
4.	*User Evaluation*	Get user experience the protype system	Ensure the prototype meets the user requirement	Follow up meeting
5.	*Refining Prototype*	Modified and discuss to improve the system	The system aligns with Figma user requirement	Figma
6.	*Implement and maintain*	Build frontend and backend of the system	Integrate system features	Laravel, MySQL

4. System Analysis

ELaporan is designed as a comprehensive system to manage a reporting system used by educators to provide analytical data for administrators to analyze educator and school performance for non-educational purposes. In this section, we will discuss the analysis and design of the system.

4.1 System Requirement Analysis

This section outlines the implementation of specific system needs and requirements, providing a framework for successful system, development and reducing project failure by ensuring stakeholder and user satisfaction. Data flow diagrams, entity relationships diagrams, data dictionaries, and user interface design are used for analysis, while a wireframe is created to demonstrate the system's appearance. The functional and non-functional requirements of the system are shown in Table 3 and Table 4.

Table 3 *Functional Requirements*

	Modules	*Description*
1.	*User management*	Allow user to Login, Register, update personal details, and delete account including update new password.
2.	*Report management*	Allow users to manage report from submission, online form, digital approval and statistical analyse.
3.	*Notifications*	Display status update of all type of users including teacher, Administrator, and Principle
4.	*Report listing*	Display approved report by category with filtration by date, year, and search function
5.	*Posting announcement*	Create and delete posting announcement to alert users on real-time situation
6.	*Leaderboard*	Display the best submitters with filtration function to motivate Teachers
7.	*Best categories*	Display analytics data related to all reports category
8.	*User actice session*	Display the details of user active session including IP Address and web browser used by the users.

Table 4 Non-*Functional Requirements*

	Modules	*Description*
1.	*Performance*	The system should be running smoothly without crash
2.	*Security*	The system should be highly secured to protect the data from authorized access
3.	*Usability*	The system should be responsive across all devices including smartphones, tablets and desktops
4.	*Reliability*	The system should ensure the data is consistent and accurate to prevent data loss or corruption

4.2 System Design Diagram

eLaporan is designed as a comprehensive system to manage reporting system used by the educators provide analytical data for administrator analyse educator and school performance on non-educational purposes. In this section, will be discuss about analysis and design of the system.

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4.3 Context Diagram

The context diagram in Figure 2 illustrates eLaporan system and its interactions with three key extrernal entities which is Teachers, Administrator, and Principal. The administrator manage and review report details, update announcements and monitor analytics whole Teachers are allow to submit reports, receive status alert, and access updated information. Principle is allow to log into the system to view report analytics, teachers details and announcement updates. The diagram, emphasied the bidirectional flow of key information such as login data, report status, announcement, and teachers information ensuring it is coordinate with communication and transparency across the school reporting ecosystem. This model serve as the foundation for understanding the system's scope and the roles of each users in the report management process.

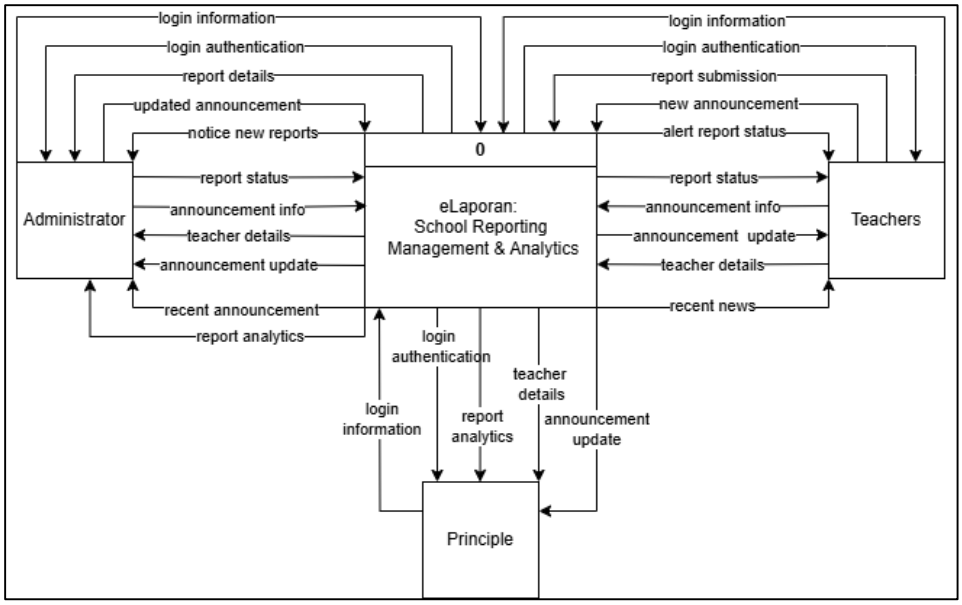

Fig 2. *Context Diagram*

4.4 Entity Relation Diagram (ERD)

In the Entity-Relation Diagram (ERD) shown in Appendix A, we will discuss the data modeling used in this project. Data modeling encompasses the construction of entity-relationship diagrams and other representations that describe. This system comprises several key entities, including Administrators, Teachers, Principals, and others. Each entity represents a real-world component of the system, defined by its attributes and the roles it performs.

At the core of the model is the users table, which holds authentication and role data and connects to all other entities, such as announcements, reports, and notifications. The announcement and notification tables link each record to a user_id, establishing user-specific content distribution and alerts. The system supports multiple report modules, including *unit uniform, sukan permaianan, kelab persatuan, program sekolah panitia, perhimpunan_report,* and report_plc. Each of these modules contains fields relevant to specific report types such as event dates, time, eacher involved, and approval status. All report tables, including common fields such as written by, status, and rejection reason, enable a structure that allows for extensibility and comprehensive role-based data access across different school activity reporting components.

4.5 Data Flow Diagram

The Data Flow Diagram (Level 1) of the Report Management Module, shown in Appendix B, discusses the process of report submissions from teachers through the stages of form management, approval, and display, as they interact with administrators, principals, and various categories of reports, including Co-curriculum, Curriculum, Students Affairs, and School Program. In process 2.1 report form management, the report's data, entered by teachers through their routes to appropriate subcategories, such as Unit Uniform, is being accepted. Process 2.2 is for the report approval process, where the administrator verifies and approves or rejects the submitted reports. The feedback loops back to teachers. If administrators reject the report, the system needs a rejection reason for the report. If the report is accepted, the system will automatically generate a PDF version of the report for documentation.

4.6 Flow Chart

The flowchart in Appendix C (a) shows the end-to-end process for an administrator user in the eLaporan system. It begins by checking user validation, which involves verifying the email address registered with the password. Once the user account is validated, the login session is successful, and the user is directed to the admin dashboard, which displays various analytics categories, including best submitter and best categories, with notification and announcement updates. Administrators must choose the category and sub-category to manage report submissions by teachers.

The flowchart shows that the principal user is depicted in Appendix C (b), starting with the user validation process to determine whether the user is valid. Once the validation process is successful, the principal's dashboard appears, displaying various analysis and monitoring reports, as well as submission and approval by the teacher and administrator. The principal is used to monitor the progress of submission.

Teacher flowcharts in Appendix C (c) begin with the user validation process and directly go to the teacher dashboard if the login process is successful. The dashboard displayed notification and announcement updates from the report's submission, as well as essential information. Teachers are required to choose a category before being allowed to access the online form submission.

4.7 User Interface Design

A user interacts with a computer or application through the user interface (UI), which comprises graphical components such as menus, icons, text, and buttons designed for user-friendliness, facilitating seamless navigation and system operation due to their simplicity. It aims to provide a user interface that is accessible, responsive, and intuitive, thereby enhancing the user experience by facilitating job completion. The user interface employed in the eLaporan system is crafted to be intuitive and easily understandable for older users.

Figure 3 (a) shows the user interface design of Teacher dashboard displayed the leaderboard of the month with real-time notification and announcement updates. Figure 3 (b) displays the design of digital form of report submission.

(a) (b)

Fig 3. (a) *Teacher Dashboard,* (b) *Digital Form Submission*

Figure 4 display the interface design of digital form submission that teachers need to fill in to submit the reports. Figure 5 illustrates analytics with various type of data including best submitters, categories, and Co-curriculum details.

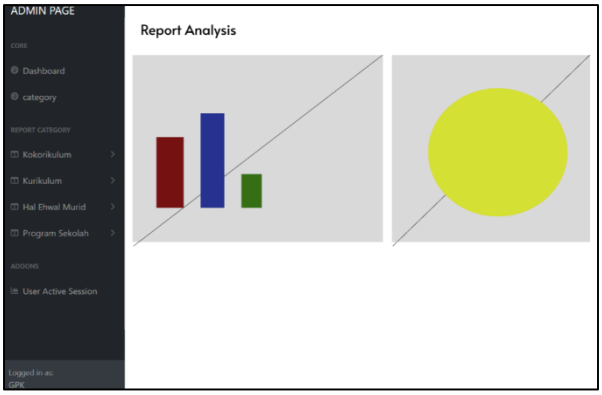

Fig 4. *Analytics Interface*

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5. Implementation and Testing

This section discusses the implementation and testing of the eLaporan Reporting System and Digital Analytics. The system implementation and testing phase is crucial in the development process since it enables us to evaluate whether the system's features fulfill the user's requirements. Additionally, coordinating the system flow is essential so that the modules in the design and analysis phase can function optimally. To ensure the project functions well once the design is implemented, the eLaporan system is developed and tested as intended in this section.

5.1 System Implementation

The eLaporan system was developed as a web-based system using Laravel framework. The system's database was created using MySQL and manage by phpMyAdmin. The user interface was designed by Figma before the implementation start to begin.

5.1.1 Notification Module

Notifications modules show in Figure 5 is responsible for informing users about report activities such as report submissions, approvals, and rejections. Currently, it operates through a dashboard display, requiring users to login into the system to check or dismiss alerts.

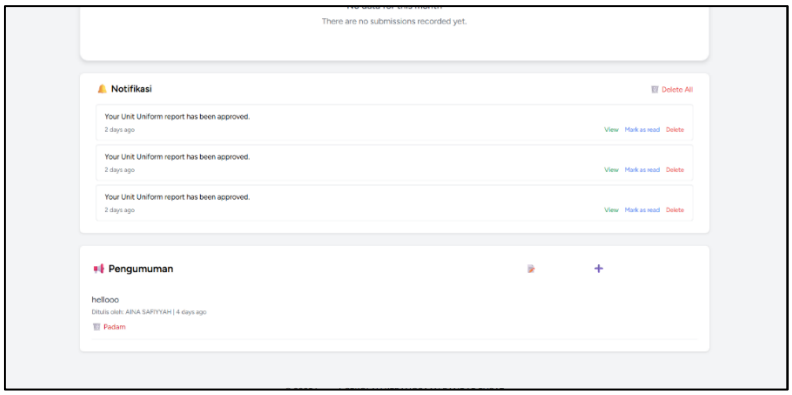
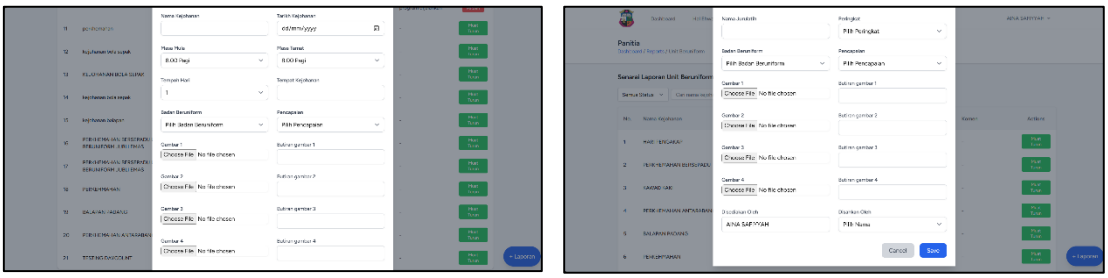


Fig 5. *Notifications Module*

5.1.2 Online Form Submission

Online form submissions in Figure 6 allows users specifically teacher to fill out and submit report details digitally through a structured web-based interface. Instead of using manual paperwork, users select the appropriate category and complete the form with requirement fields. Once submitted, the data is automatically stored in the database and route to administrator to review and approval.

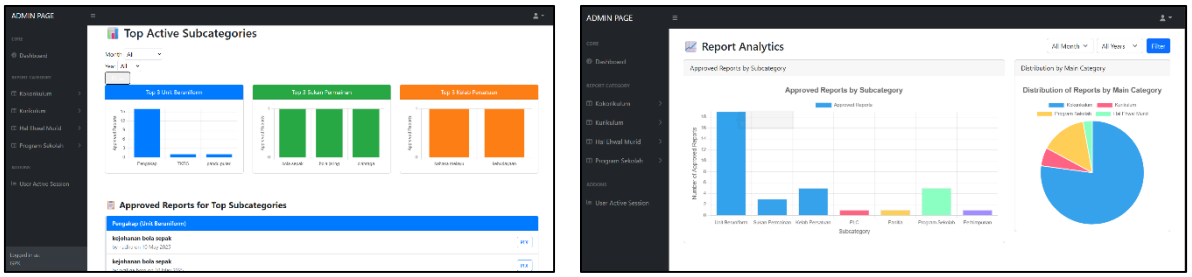


(a) (b)

Fig 6. *(a) Online Form Submission, (b) Online Form Submission Continue*

5.1.3 Report Analysis Module

Report analysis module show in Figure 7 is designed to process and evalutae submitted reports to provide meaningful insights for school administrator and principals. It aggregates data from various categories and analyzes metrics such as most active categories in Co-corriculum, and analyse categories with approved report submission. The goal is to support data-driven planning, monitor staff engagement, and ensure that school activities are well documented.



(a) (b)

Fig 7. *(a) Co-corriculum Most Active, (b) Categories Analysis*

5.1.4 Announcement Module

The Announcement Module show in Figure 7 allow all users to post important updates or notices that are visible to all users within the platform. These announcements may include reminder for report submission deadline, or maintenance alert. Once published, announcements appear on the user dashboard, ensuring visibility upon login.

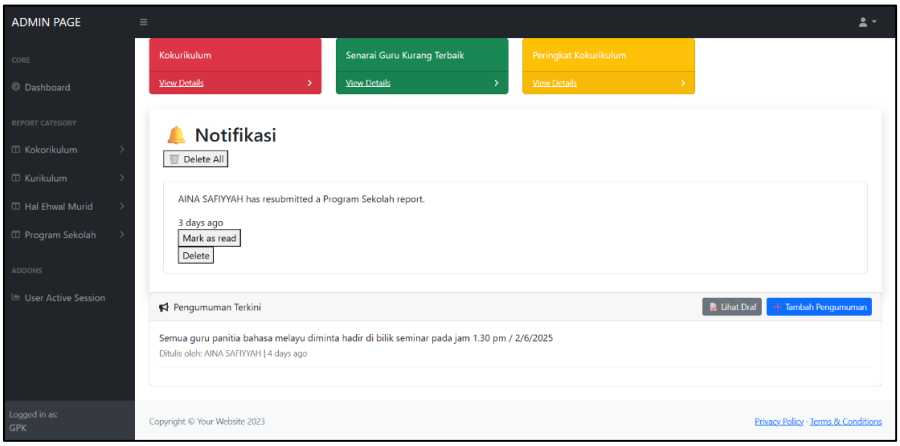
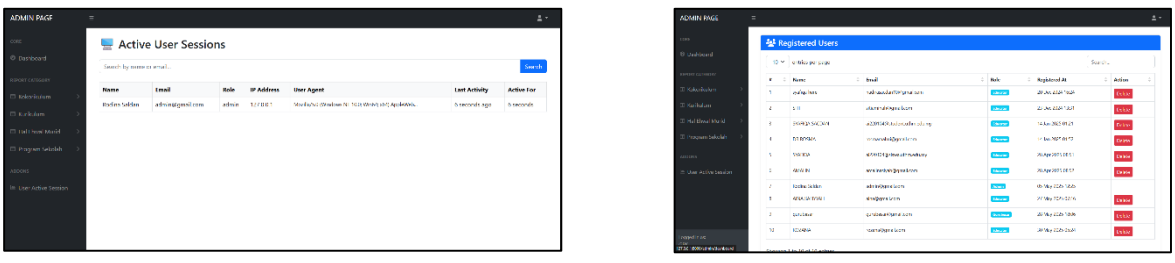


Fig 8. *Announcement Module*

5.1.5 User management

The user management module show in Figure 8(a) display the active session of the user in current time, user email, IP address use by user, last activity and active time. Figure 8(b) display the registered user with user role and action delete user for administrator handle user activity for example changing staff that no longer available to use the system.



(a) (b)

Fig 9. *User Management*

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5.2 System functionality

The system testing encompasses two types of testing which are functional testing and user acceptance.

5.3 Fucntional Testing

Functional testing examines all modules and functions of the system to ensure that the system operates exactly as defined in the earlier phase. The test plan is used to support functional testing. The following sections describe the test plans developed for the system testing

5.3.1 Test plan

Testing phase on eLaporan reporting system's modules conducted by all the test cases dedicated to each module in test plan and observing the result of each test case tested. The test plan results of testing on each module are shown in Table 5.

Table 5: *Test Cases for All Modules*

Test Case ID	Requirement ID	Description	Status
		User Management Module	
TC_100_01	REQ_101	The system should display the home page with login and register option button	Pass
TC_100_02	REQ_102	The system should allow the user to register by entering name, email address, password, and confirm password.	Pass
TC_100_02	REQ_103	The system should validate the registration input and directly bring to the correct dashboard if registration successful.	Pass
TC_100_03	REQ_104	The system should display the correct error message if the registration does not meet the requirement.	Pass
TC_100_04	REQ_105	The system should display the login page	Pass
TC_100_05	REQ_106	The system should allow user to log in the system by entering valid email address and password.	Pass
TC_100_06	REQ_107	The system must verify the email address and password to match in the database	Pass
TC_100_07	REQ_108	The system should display the correct error message if the login attempted failed.	Pass
TC_100_08	REQ_109	The system should not allow the not registered user log into the system	Pass
TC_100_09	REQ_110	The system should update the user profiles information if the user makes a change	Pass
		Report Management Module	
TC_200_01	REQ_201	The system should display the list of report for each category	Pass
TC_200_03	REQ_203	The system should not display the same content on digital form for each main category	Pass

Table 5: Continue…

TC_200_04	REQ_204	The system should display the correct error message if user does not follow the form requirement	Pass
TC_200_05	REQ_205	The system should save the information filled by the user	Pass
TC_200_06	REQ_206	The system must display the list of submitted report by the Teacher on the Administrator and Principal pages.	Pass
TC_200_07	REQ_207	The system should display the pending status on the latest report submission	Pass
TC_200_08	REQ_208	The system should display the list and progress status on principle page	Pass
TC_200_09	REQ_209	The system should update the report status on all users' pages once administrator update.	Pass
TC_200_10	REQ_210	The system should display the rejection option if the report need to reject.	Pass
TC_200_11	REQ_211	The system should update the rejection reason of the report details.	Pass
TC_200_12	REQ_212	The system should automatically generate the PDF file format of the approved report.	Pass
		Notification Module	
TC_300_01	REQ_301	The system should display report update progress on all type of user's dashboard.	Pass
TC_300_02	REQ_302	The system should display all report progress for approved and rejected on Teacher page.	Pass
TC_300_03	REQ_303	The system should display the submission progress on Administrator and Principal dashboard.	Pass
TC_300_04	REQ_304	The system should display the correct notification based on user roles.	Pass
TC_300_05	REQ_305	The system should update the CRUD for notification.	Pass
		Posting Announcement	
TC_400_01	REQ_401	The system should display the announcement section on the dashboard for all type of users	Pass
TC_400_02	REQ_402	The system should allow all type of user to publish announcement.	Pass
TC_400_03	REQ_403	The system should be available on display for 5 days before disappearing from the dashboard.	Pass
TC_400_04	REQ_404	The system should secure the draft announcement to public.	Pass

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Table 5: Continue…

TC_400_05	REQ_405	The system should update the latest announcement and CRUD.	Pass
		Leaderboard	
TC_500_01	REQ_501	The system should display the leaderboard section on Teacher dashboard.	Pass
TC_500_02	REQ_502	The system should update the report submission to finalize the leaderboard.	Pass
TC_500_03	REQ_503	The leaderboard analysis should be display on Administrator and Principal page only.	Pass
TC_500_04	REQ_504	The system should be displaying correct filtration of leaderboard by month and year.	Pass
		Analysis Data	
TC_600_01	REQ_601	The system should be displaying analytics data on Administrator and Principal page only.	Pass
TC_600_02	REQ_602	The system should save updated data from the report submission correctly.	Pass
TC_600_03	REQ_603	The system should display correct data based on filtration by month and year.	Pass
TC_600_04	REQ_604	The system should display correct reports list on category.	Pass
		Co-curriculum Analysis	
TC_700_01	REQ_701	The system should display bar chart and pie chart based on competition level correctly.	Pass
TC_700_02	REQ_702	The system should only display the analytics data on Administrator and Principal page.	Pass
TC_700_03	REQ_703	The system should display top category in co-curriculum in bar chart.	Pass
		User Active Session	
TC_800_01	REQ_801	The system should record login and logout session of all users.	Pass
TC_800_02	REQ_802	The system should display the active session time of all users	Pass
TC_800_03	REQ_803	The system displays the active session page on Administrator and Principle page only.	Pass

5.2.2 Test plan

User Acceptance Testing is conducted to ensure that the system's development meets the client's needs and requirements. Twenty respondents have performed this test consisting of 3 main users, one administrator, one

principal, and 18 teachers shows in Figure 10. The questionnaires are divided into three sections, which is Section a, Section B, and Section C. Section A asked directly about general questions related to usability and functionality of the system to all types of users. Section B asked about users' roles, which are teacher, principal, and administrator. The last section, Section C, inquired about the security features of the system. The test contains a scale with 1 to 5, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. The respondents are required to answer all questions based on the scale provided. The feedback collected from the respondents is extracted into a graph visualization.

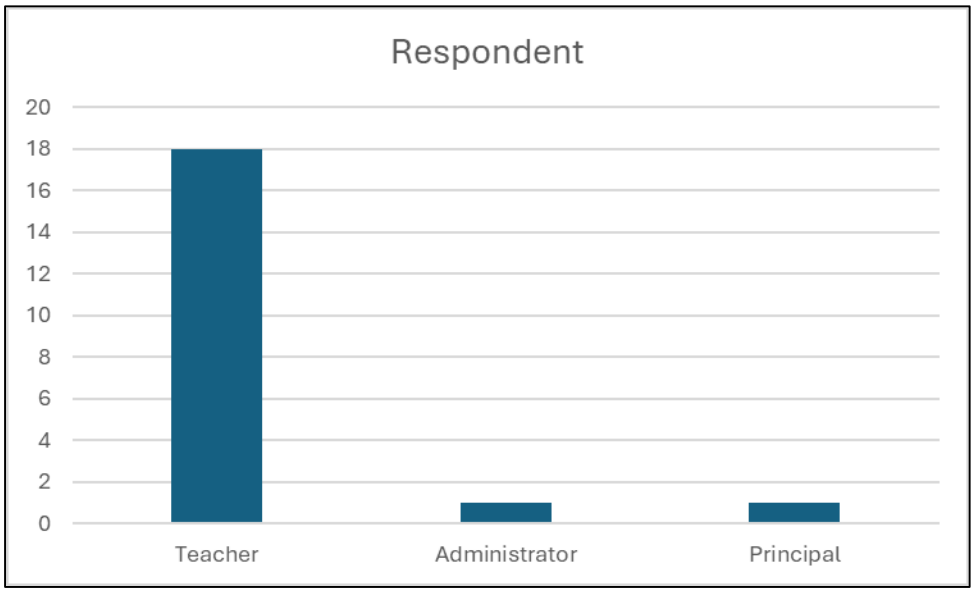

Fig 10. *Repondent Number*

Figure 11 shows the total response in section A to general questions related to the system. The questions used to user acceptance test in section A are shown in Appendix D (a) and (b). The result shows 85% of the respondents strongly agree that the system is easy to navigate, 100% respondents truly agree related to clear labels on the system. 90% of respondents strongly agree with no difficulties face during testing the system and 75% strongly agree on consistent interface in the system.

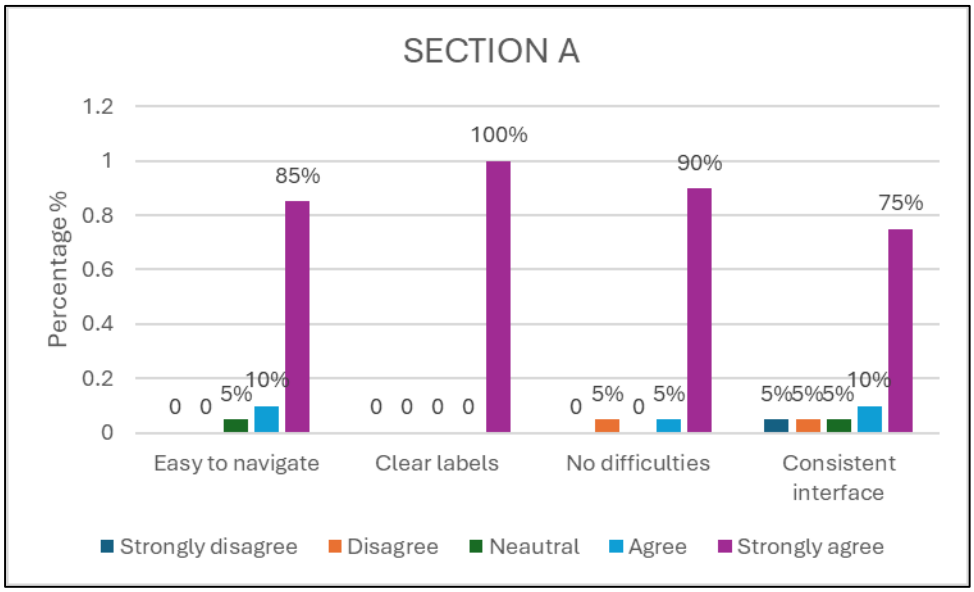

Fig 11. *Section A Graph*

Figure 12 shows the total response in section B about questions related to user role. The questions used to use the user acceptance test in section B are shown in Appendix D (c) and (d). 85% of the respondents of teachers strongly agree with the system submission smoothly work. 94.44% strongly agree on a clear status update on the system. 77.77% of the teachers strongly agree on easy resubmission and 100% of teachers strongly agree with the announcement that helpful.

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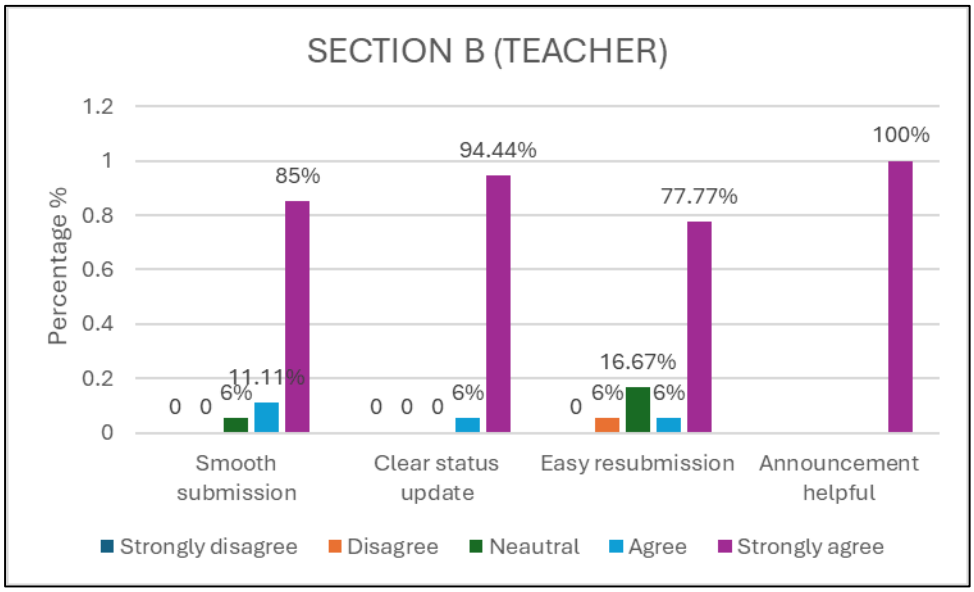

Fig 12. *Section B Graph (Teacher)*

Figure 13 shows the total response in section B about questions related to user role. The questions used to user acceptance testing in section A are show in Appendix D (e) and (f). the administrator rate strongly agree on all question which is related to report management, filtering features, notification module and clear statistic data.

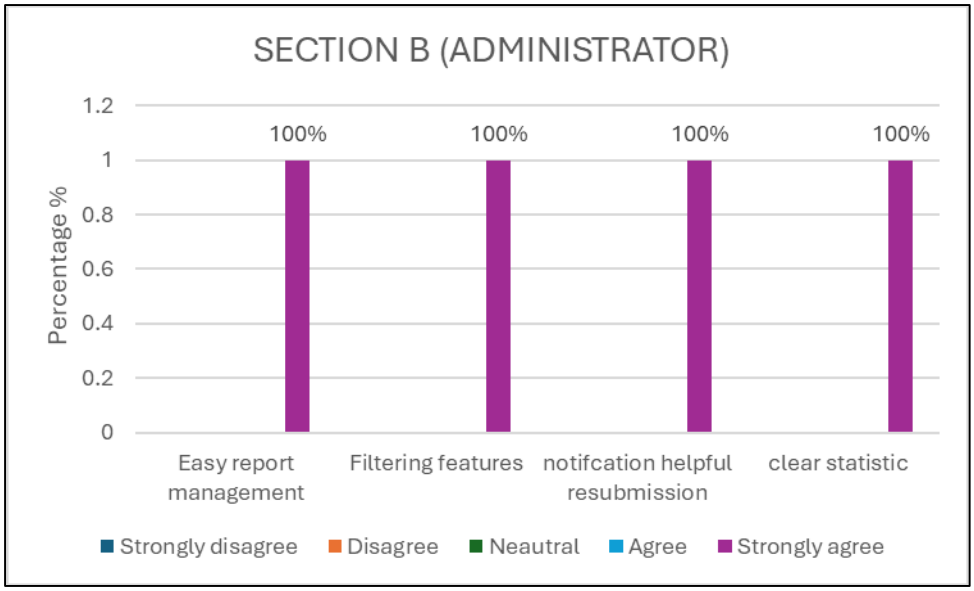

Fig 13. *Section B Graph (Administrator)*

Figure 14 shows the total response in section B about questions related to user role. The questions used to user acceptance test in section A are show in Appendix D (g). The principal rate 100% agree on all questions related to view report progress, notification function, manage user progress and clear data statistic.

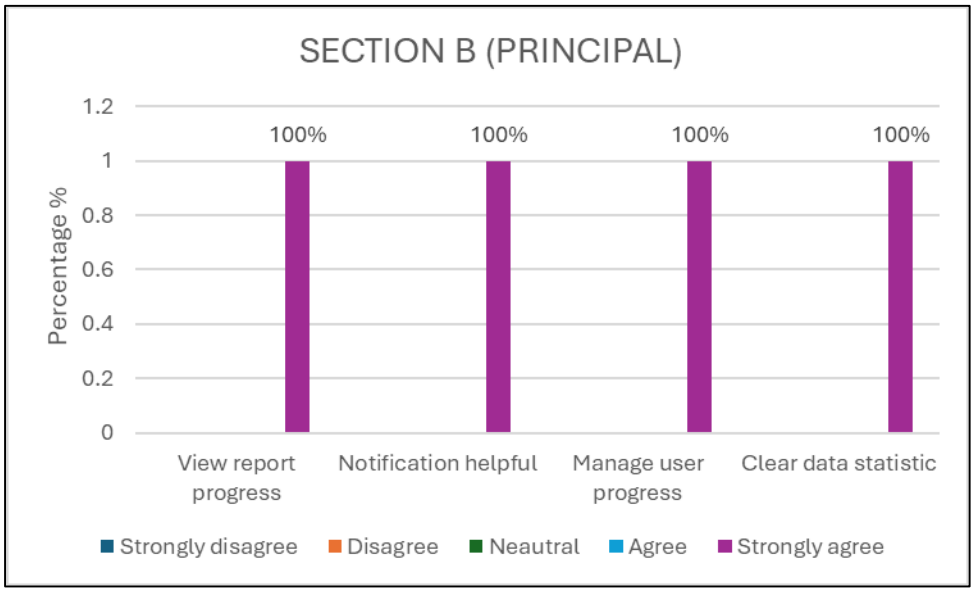

Fig 14. *Section B Graph (Principal)*

Figure 15 shows the total response in section B about questions related to user role. The questions used to user acceptance testing in section A are shown in Appendix D (h). Result showed that 75% of all respondents strongly agree that the security encounter system and 60% strongly agree with clear error message that reflecs on system with 100% respondents strongly agree with control restricted areas on the system.

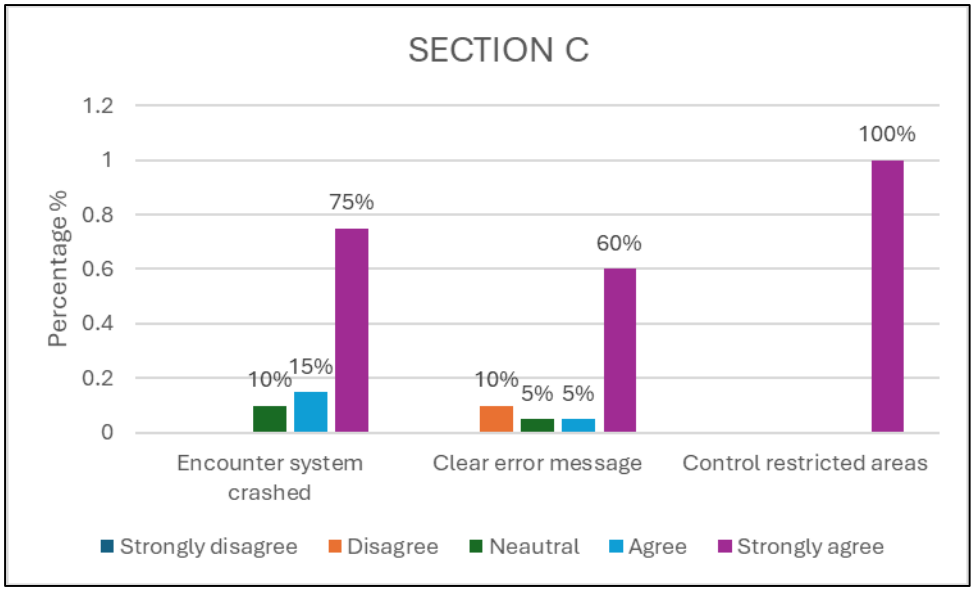

Fig 15. *Most Active in Co-Curriculum*

6. Conclusion

The eLaporan system successfully addresses key inefficiencies in traditional non-academic reporting by offering a centralized, web-based platform for real-time report submission, approval, and analytics. With tailored access for teachers, administrator and principal, the system enhances workflow efficiency and transparency. Core features such as online form submission, PDF generation, digital approval, real-time notification, analytics dashboards, and multi-user authentication contribute to improved reporting accuracy and better decision-making. Functional and user acceptance testing confirm the system's better, reliability, and effectiveness across all devices.

Despite its strengths, eLaporan has limitations, including a lack of real-time notification alerts outside the dashboard, absences of version tracking, manual analytics processes, and a single-language interface. To address these, future enhancements are proposed which are to integrate email and push notifications, implementing report version control, applying AI improvements will further strengthen the system's usability, scalability and relevance for wider adoption in educational institution.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

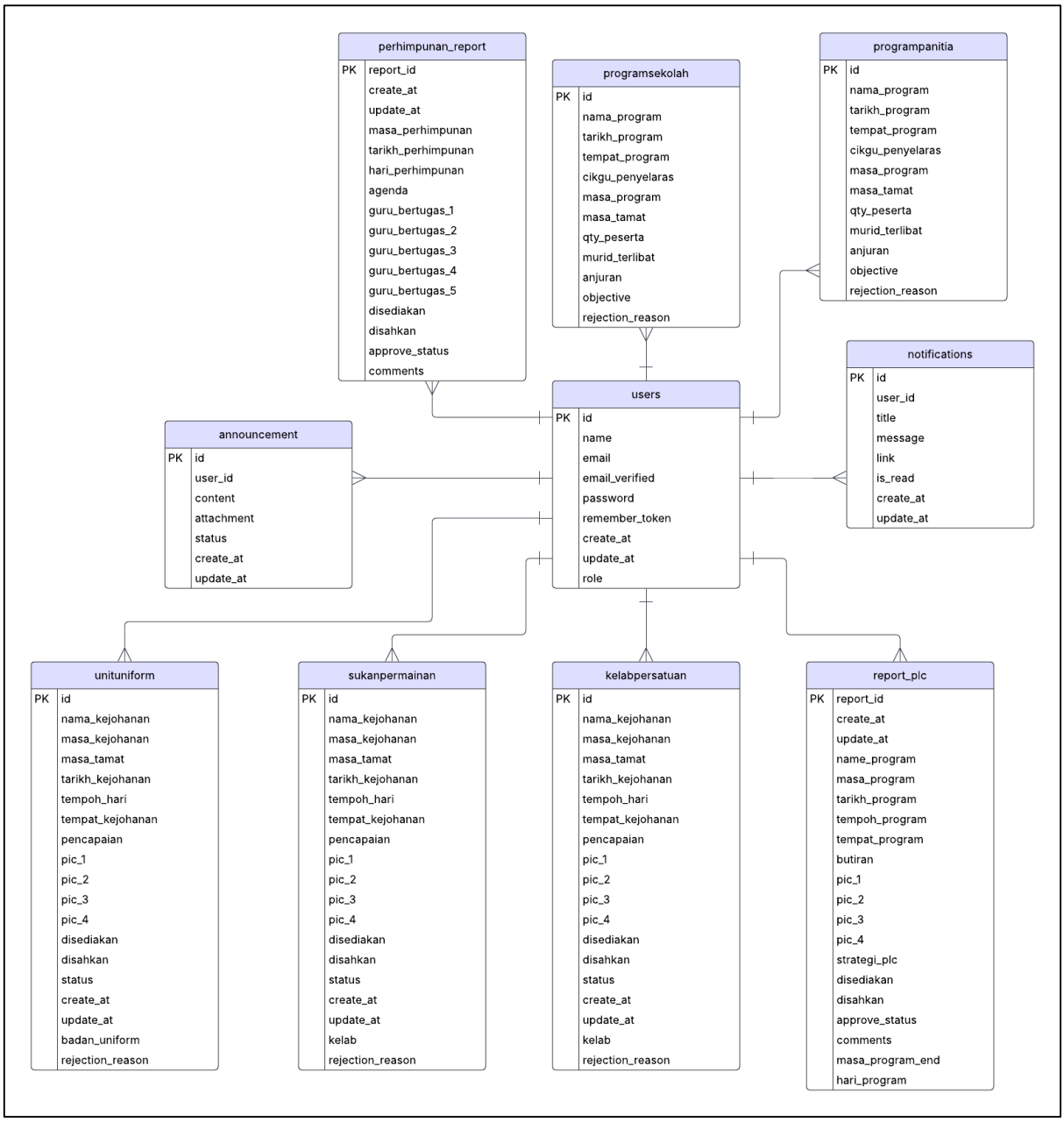
Author Contribution

The authors confirm contribution to the paper as follows: ***study conception and design:*** *Nadira Syafiqa Sacdan, Rozanawati Darman;* ***data collection:*** *Nadira Syafiqa Sacdan, Rozanawati Darman;* ***analysis and interpretation of results:*** *Nadira Syafiqa Sacdan, Rozanawati Darman;* ***draft manuscript preparation:*** *Nadira Syafiqa Sacdan, Rozanawati Darman. All authors reviewed the results and approved the final version of the manuscript.*

References

[1] A. Datnow, V. Park, D. Peurach, and J. Spillane(2022), *Transforming Education for Holistic Student Development: Learning from Education System (Re)Building around the World*,.
[2] H. Cornet, S. Stadler, P. Kong, G. Marinkovic, F. Frenkler, and P. Sathikh (2019), "User-centred design of autonomous mobility for public transportation in Singapore," *Transportation Research Procedia*, vol. 41, pp. 894–903.
[3] K. Bagwan and S. Ghule(2019), "A modern review on Laravel-PHP framework," *IRE Journals*, vol. 2, no. 12, pp. 41–44.
[4] K. Knight(2014), "Responsive web design: What it is and how to use it," *Responsive Design*.
[5] Typeform, "Connect your tools with Typeform," Typeform, [Online]. Available: https://www.typeform.com/try/connect.
[6] @02DCE(2020), "Software engineering prototyping model," *Greeks for Greeks*.
[7] N. Rachma and I. Muhlas(2022), "Comparison of Waterfall and Prototyping models in research and development (R&D) methods for Android-based learning application design," *Jurnal Inovatif: Inovasi Teknologi Informasi dan Informatika*, vol. 5, no. 1, pp. 1–6.
[8] M. Sami(2012), *Software Development Life Cycle Models and Methodologies*.
[9] *"Prototype model in software engineering,"* Guru99, Aug. 13, (2024). [Online]. Available: https://www.guru99.com/software-engineering-prototyping-model.html
[10] A. Polydoropoulou, I. Pagoni, A. Tsirimpa, A. Roumboutsos, M. Kamargianni, and I. Tsouros(2020), "Prototype business models for Mobility-as-a-Service," *Transportation Research Part A: Policy and Practice*, vol. 131, pp. 149–162.

Appendix A: Entity Relationships Diagram



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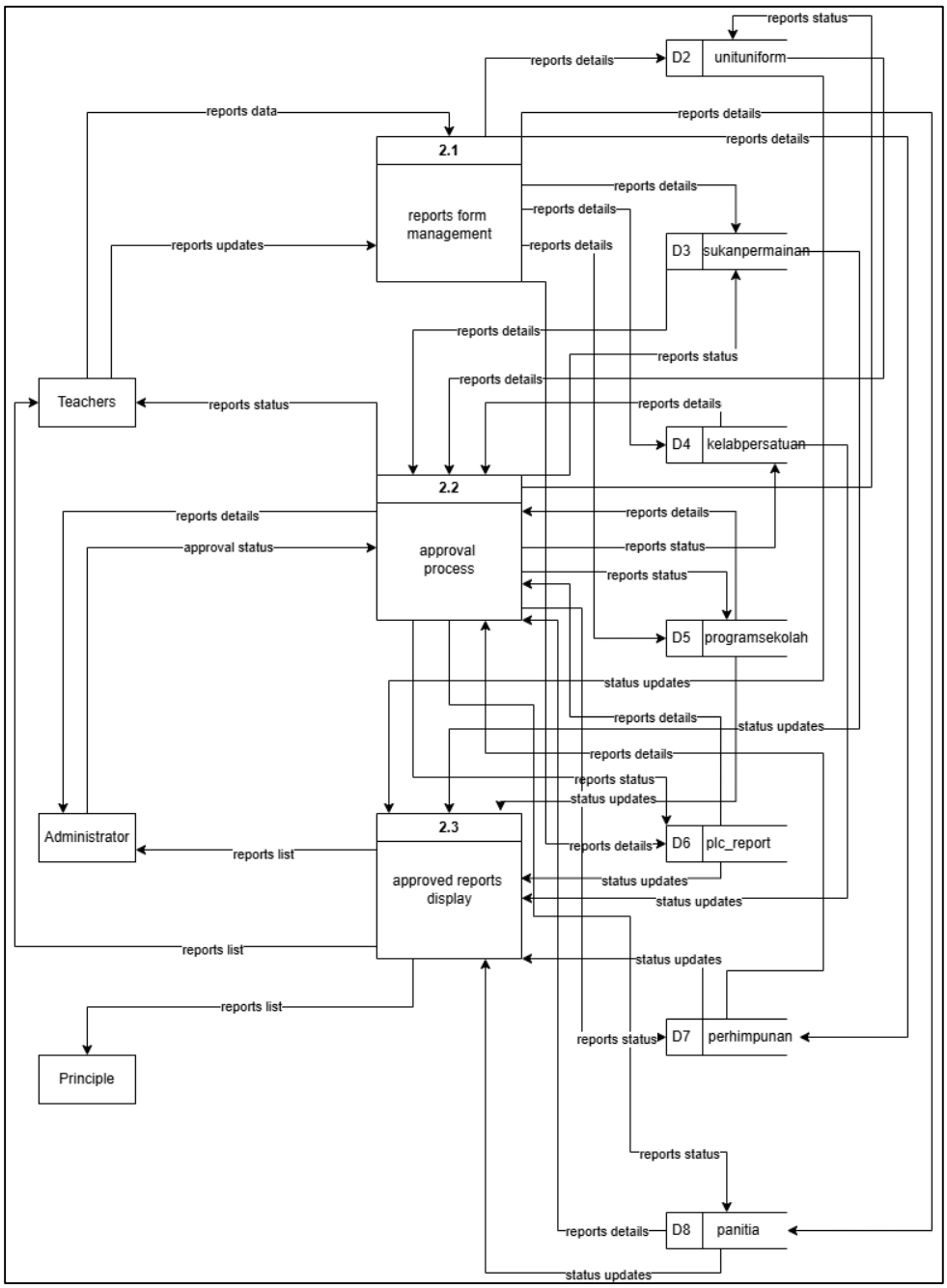
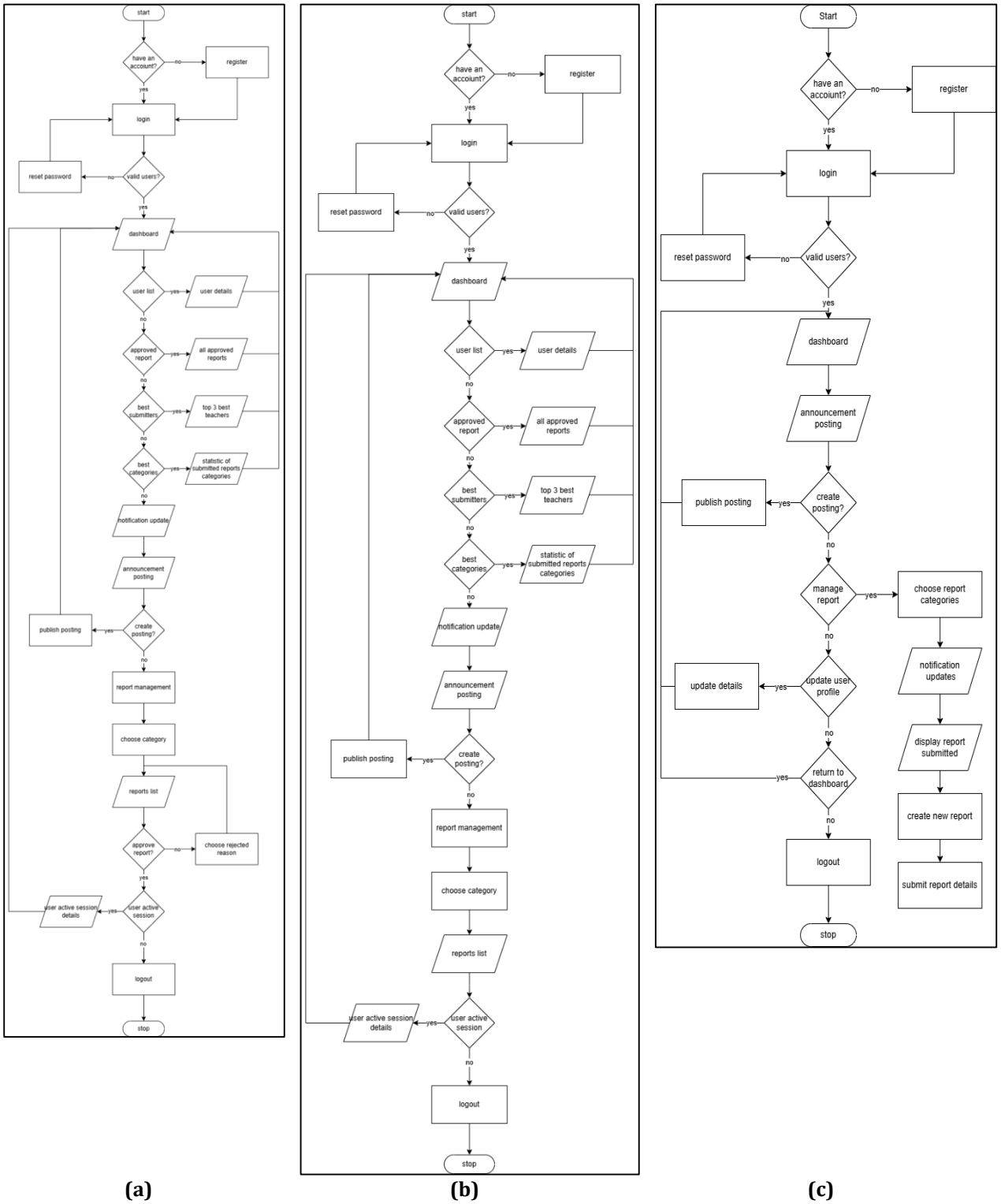
Appendix B: Data Flow Diagram Level 1 (Report Management)



Appendix C: Flowchart



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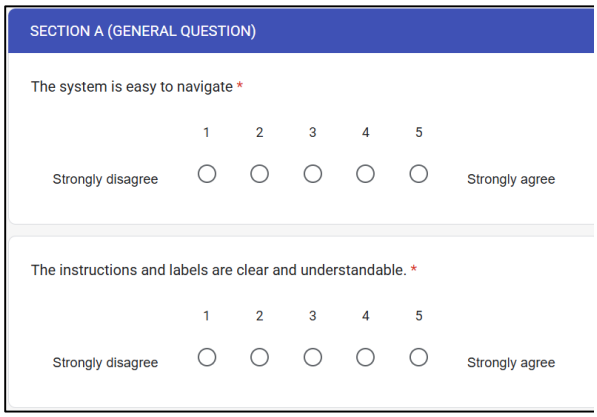
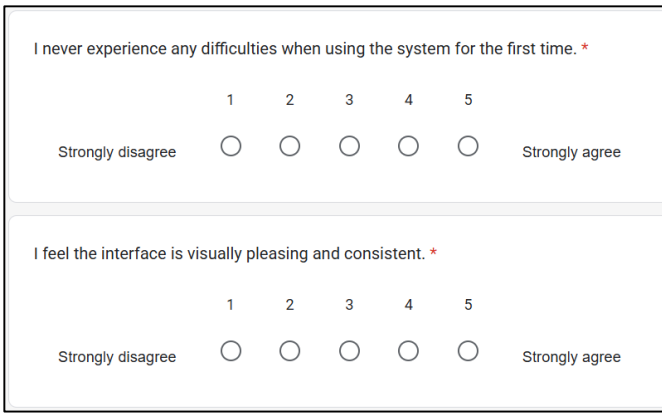
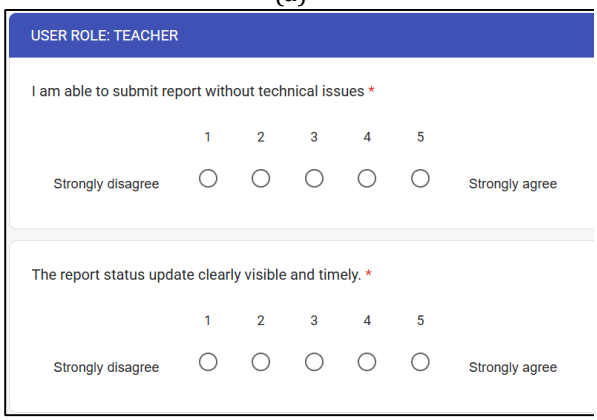
Appendix D: Google form for user acceptance testing



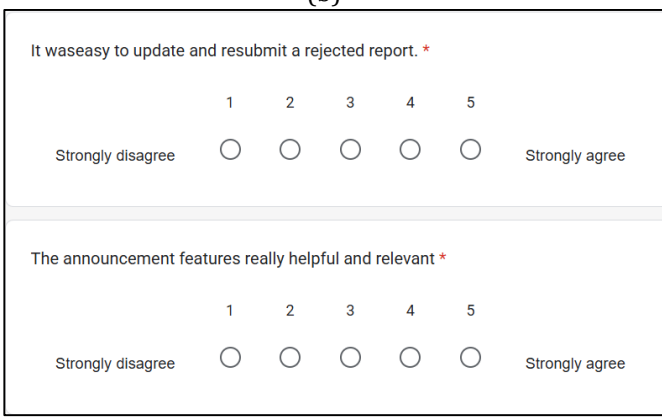
(a)



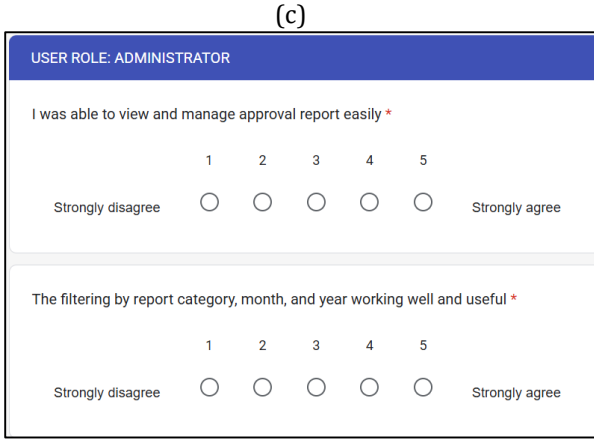
(b)



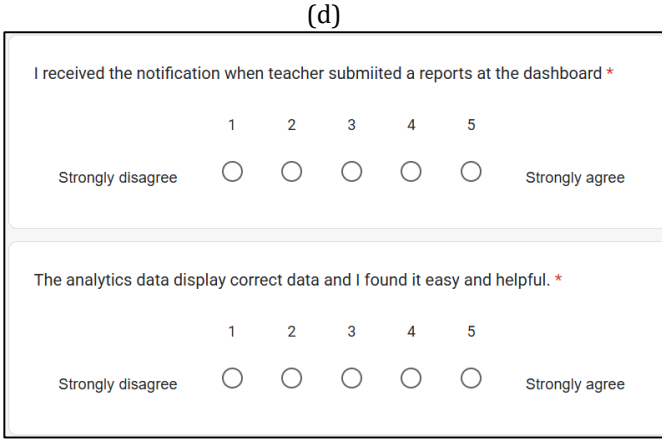
(c)



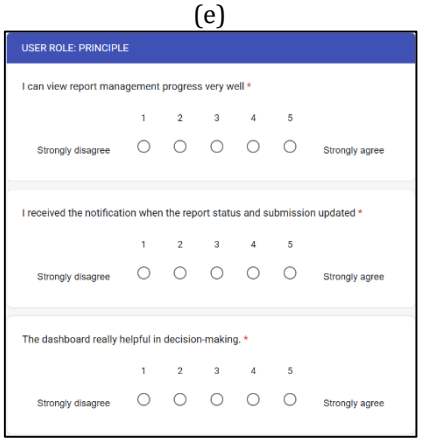
(d)



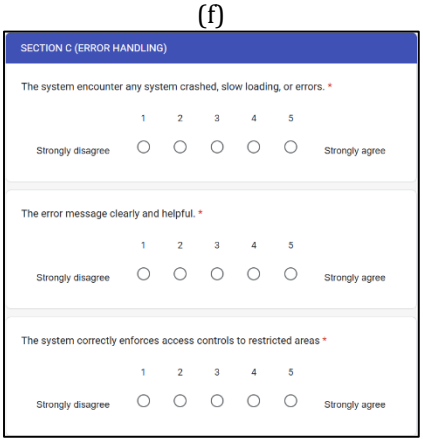
(e)



(f)



(g)



(h)