Innovation For Class Reminder System (EduAlert)

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Abstract: *To solve significant issues with academic schedule management, EduAlert, a class reminder system for UiTM students, was developed. Existing procedures, such taking notes by hand and setting alerts, are ineffective and prone to mistakes. It will need overcoming ingrained behaviours related to previous methods, showcasing the system's benefits through user-friendly features, and guaranteeing a smooth transition with strong marketing and support to get students to embrace this new approach. Another major issue is technical dependability because EduAlert needs to work offline and on a variety of platforms and devices. Strong backend infrastructure is necessary to manage interaction with applications like WhatsApp and SMS and guarantee data synchronisation after reconnection. Protecting user data with strict privacy safeguards to address security concerns and build student trust is equally critical. To avoid user overload, sophisticated features like customisable notifications and attendance tracking must be balanced with ease of use. Accessibility and inclusivity will be improved by providing practical yet user-friendly features while preserving device compatibility and language inclusivity. Positive student feedback, high user uptake, and higher attendance rates will all be used to gauge EduAlert's performance. Its dependability will be further confirmed by efficient notifications, technical stability, and a safe data environment. The system's total impact on academic performance will establish its worth, while tutorials and support resources will assess usability. EduAlert will revolutionise schedule management for UiTM students by resolving these issues and meeting these metrics, promoting better organisation and academic achievement.*

Keywords: EduAlert, academic scheduling, real-time notifications, student attendance, educational technology

1. INTRODUCTION

At Universiti Teknologi MARA (UiTM), effectively managing academic calendars is essential to student success. Although it offers some basic functionality, the existing class scheduling system is inadequate in addressing important problems including schedule accessibility, real-time updates, and simplicity of use. When changes arise, students are frequently forced to manually construct or edit their schedules, which wastes time and causes irritation.

Schedules may only be saved in the phone gallery, which is a significant drawback that makes them vulnerable to unintentional deletion. The learning schedule is also often updated in response to modifications in the teaching staff or the configuration of the classes. Students are forced to manually reconstruct their timetables because they are not informed of these changes in real-time. These

difficulties cause missing lessons and decreased student participation in addition to upsetting academic routines.

The significance of automated systems in improving academic achievement is highlighted by research. Traditional attendance tracking techniques are laborious and prone to human error, according to a study published in the International Journal of Scientific & Technology Research. Automated systems, on the other hand, may increase accuracy and efficiency (Mangalaraj & Subramanian, 2017). Additionally, since consistent attendance is strongly associated with academic success, it has been demonstrated that the use of automated reminders increases attendance rates (Union, 2024).

The effectiveness of scheduling systems also has a big impact on student happiness. According to a Hanover Research survey, students' primary concerns regarding course availability and scheduling have an impact on both their academic performance and general level of happiness. By minimizing schedule conflicts and offering timely information, an automated class reminder system helps allay these worries (Hanover Research, 2018).

By providing automatic reminders, real-time schedule updates, and enhanced accessibility, the proposed EduAlert system seeks to address these issues. This method will help students better manage their academic calendars by utilizing contemporary technologies, which will lower the likelihood of missing classes and improve academic performance overall. This strategy is in line with UiTM's mission to promote a cutting-edge learning environment. The EduAlert method will improve communication, academic organization, and learning results for both students and teachers by solving the shortcomings of the current method.

2. METHOD & MATERIAL

First, improvement of the class reminder system. To successfully grab students' attention, the class reminder system should include visually appealing alerts. The reminders will stand out on the user's device if they employ icons, pictures, or a mix of colors and graphics. For students who could be balancing several obligations and might otherwise ignore text-based reminders, this strategy will make the system more interesting and less likely to be disregarded. Because students are more inclined to interact with a system that is both aesthetically pleasing and practical, the alerts' visually appealing design can help increase user engagement.

Second, features for customized notifications. Students must be able to alter the notification schedules to suit their own tastes. With the help of this tool, customers may schedule reminders well in advance, giving them ample time to be ready for each lesson. Customizability acknowledges that not all pupils have the same habits and accommodates varying student timetables. While some might need a reminder closer to the class time, others might need one earlier. This degree of flexibility will make the system more sensitive to individual requirements and flexible, which will increase overall student attendance and lower the probability of missed lessons.

Third, offline functionality. Making sure the class reminder system continues to operate properly even in the absence of internet access is one of the important results. Poor or erratic internet connectivity is a problem for many students, particularly in rural places or during peak school hours. The system becomes more dependable and inclusive when offline capability is enabled, guaranteeing that students can still view their schedules, manage attendance, and receive timely reminders without worrying about internet connectivity. This functionality will guarantee that all students may take use of the system regardless of their network circumstances and greatly increase accessibility.

Fourth, enhancement of attendance management. An improved attendance management function ought to be included in the system. Through the app, students would be able to monitor their attendance, provide justifications for absences, and upload any required paperwork, such as absence letters. Students would be able to explain their absences more easily with this capability, which would simplify communication with teachers and eliminate the need for emails or in-person meetings. Incorporating attendance management into the reminder system encourages a more structured and responsible attitude to class participation in addition to helping students keep track of their attendance.

Fifth, automatic class updates. The system should automatically send out updates on changes to the class schedule, cancellations, or lecturer substitutes so that students are always aware of any changes. Students won't have to search for information about changes via emails or campus announcements, which will reduce confusion. Rather, the system will send their smartphones real-time updates. Students will be able to better manage their time and be in class on time thanks to this feature, which will also improve communication efficiency and guarantee that they are never caught off guard by unforeseen schedule changes.

Next, multi-platform alerts. The system should provide alerts on several platforms in an attempt to increase accessibility and convenience. Notifications, for instance, may be delivered via email, SMS, or WhatsApp, guaranteeing that students are informed regardless of their preferred method of contact. Whether students check their messages on a computer, mobile device, or messaging app, the system may contact them in the most comfortable way possible thanks to our multi-channel strategy. By providing this flexibility, students may use any platform or location to keep in touch with their class schedules and reminders.

Then, multilingual support. The system should support a number of languages in order to serve a varied student group. Students from a variety of linguistic backgrounds might use the app more easily thanks to this functionality, which would make it easier for them to navigate and engage with the system. In multicultural educational settings, offering multilingual choices is especially crucial since it facilitates communication and guarantees that all students, regardless of their first language, may take advantage of the system's features to the same extent.

Furthermore, design with privacy in mind. When utilizing any digital system, students are particularly concerned about how their personal data is handled. In order to guarantee that any personal data, like name, student ID, or attendance records, is utilized exclusively for educational reasons, the system must be built with privacy in mind. This includes avoiding utilizing the data for business reasons or disclosing it to outside parties. By putting privacy and openness first, the system may gain users' trust and increase their comfort level while interacting with the app's features.

Moreover, accessible tutorials. It is crucial that the system provide accessible tutorials or guidelines for students who might not be accustomed with digital tools or apps. To assist students, learn how to use the system and take use of all of its capabilities, these instructions should be straightforward, easy to follow, and unambiguous. Providing a range of teaching forms, including interactive walkthroughs, videos, and textual instructions, may guarantee that every student has the assistance they require to make the most of the system. This will enhance the user experience and lessen annoyance, especially for people who might not be as tech-savvy.

Lastly, device compatibility. A variety of devices, including tablets, laptops, and smartphones, should be able to use the system. Because students utilize a variety of devices according to their availability and preferences, cross-platform compatibility is essential for accessibility. The system should provide a smooth experience across all platforms, whether a student is using a laptop to access more thorough attendance information or a phone to check their class schedule while on the road. This

will boost the system's usefulness and uptake by enabling students to remain informed and connected regardless of how they use the app.

3. FINDINGS

The success of the EduAlert system is measured through various key indicators that reflect its effectiveness in improving class scheduling, attendance, and overall student engagement. By analyzing user interaction, attendance rates, feedback, and system reliability, we can determine whether the system meets its intended objectives. These indicators help assess not only the system's usability and adoption but also its impact on students' academic performance and time management. The following factors outline the key success measures for EduAlert in enhancing the academic experience.

3.1 High User Involvement

The degree of user involvement with the system will be a crucial determinant of its success. Students are demonstrating that the system is fulfilling their requirements and offering value if they are actively utilizing it to check attendance, manage their schedules, and get reminders. A high level of involvement indicates that students are integrating the system into their daily routines and view it as a useful tool for their academic life. Monitoring use data will provide you a clear picture of how well the system is being used, including how often users log in, engage with notifications, and use features like attendance monitoring.

3.2 Increase Attendance Rates

The effect on student attendance will be a powerful predictor of success. The effectiveness of the system's notifications and reminders in encouraging students to be to class on time would be indicated by a discernible increase in the percentage of students who arrive on time. The impact of the system on student conduct may be measured by comparing attendance data collected before and after it was implemented. Increased attendance indicates the system's ability to improve time management and student discipline in addition to its efficacy in reminding students.

3.3 Positive User Feedback

The system's effectiveness is largely dependent on how satisfied students are. Positive user evaluations, surveys, or direct conversation will all yield insightful information about how students rate the system's general usability, design, and usefulness. The system is in line with students' requirements and preferences if they show satisfaction with its usability, usefulness of notifications, and aesthetics. It will be easier to determine areas for growth and strengths if you collect both qualitative and quantitative feedback.

3.4 Widespread Use

Then, widespread use also one important measure of success will be how well the system is incorporated into students' everyday academic routines. The system's usefulness and significance will be seen if a sizable section of the student body starts depending on it for routine chores like scheduling and attendance monitoring. High adoption rates among a variety of student demographics will indicate that the system is working well and is quickly becoming a necessary tool for academic administration, indicating that it is fulfilling the demands of the students.

3.5 Effective Notifications

Also, effective notifications are another crucial success indicator will be the notification system's dependability and efficacy. The system is successfully carrying out its primary function of informing students about class schedules and modifications if they find the alerts useful, reliable, and timely. The success of the system in providing crucial warnings will be evaluated with the use of feedback on how helpful the notifications are, such as if they encourage students to attend courses or notify them of cancellations. Additionally, it will demonstrate the system's dependability if students indicate that messages are sent promptly and without problems.

3.6 Data Security Assurance

Safeguarding user data is a vital component of any digital system. The system will be successful in upholding confidence if students voice few complaints or concerns about the gathering, use, and storage of personal information. Users' confidence will be increased by having clear privacy rules, strong security measures, and open information regarding data processing. The system's overall performance will be aided by the lack of complaints or security breaches, which will imply that it is safe and that students feel comfortable using it.

3.7 Technical Stability

Technical stability is the long-term success depends on the system's technical stability. The system will be considered robust and well-designed if it functions reliably across many platforms and devices with no downtime or technical problems. For students to be able to rely on the system without experiencing aggravation, it must function smoothly, load quickly, and be free of bugs. Sustaining high stability will need timely technical issue resolution and routine system performance monitoring.

3.8 Language Inclusivity

The system's capacity to accommodate pupils from diverse language origins is another indicator of its effectiveness. The system's inclusion will be demonstrated if students from various linguistic groups can utilize it effectively and express satisfaction with the offered language options. To guarantee that all students, regardless of their mother tongue, can access and benefit from the system, it is imperative to provide different languages in a way that is factual and culturally relevant. Positive comments from non-native speakers and the capacity to adjust to changing linguistic requirements will also be signs of success in this area.

3.9 Students' Access to and Appreciation of Tutorials and User Support Materials

Next, students' access to and appreciation of tutorials and user support materials. Whether or whether students access and appreciate the tutorials and user support materials will be another measure of success. It will appear that the system is easy to use and that students value having help available when they need it if they are actively using these resources to learn how to use it and make the most of it. High utilization of FAQs, training videos, and help manuals will show that students are interested in the system and feel equipped to take use of everything that it has to offer.

3.10 Positive Academic Impact

The system's effect on students' academic achievement will serve as the final gauge of its effectiveness. It will be clear that the system is improving students' academic performance if they say it has helped them keep organized, manage their time better, and concentrate better on their studies. Strong proof that the method is having a noticeable positive impact on students' success and

productivity will come from feedback on enhanced academic achievement, such as higher grades or more participation in class.

4. DISCUSSION

Implementing a digital class reminder system like EduAlert presents several challenges, ranging from user adoption to technical limitations. While the system aims to improve scheduling efficiency and attendance management, several barriers must be addressed to ensure its success. These challenges include user resistance to change, technical difficulties in cross-platform functionality, data security concerns, and the need for a balance between simplicity and customization. The following discussion outlines the key obstacles encountered and considerations for improving system effectiveness.

First, user adoption. This is because encouraging students to switch from more conventional approaches, such as manually creating notes or setting alarms, to the new class reminder system will be one of the main hurdles. Many students may be reluctant to embrace new technologies since they are used to their existing routines. Demonstrating the system's additional value such as the ease of automatic alerts, the capacity to track attendance, and the centralization of all pertinent data—will be crucial to overcoming this obstacle. Making the system user-friendly, interesting, and advantageous enough to convince students that it would greatly enhance their academic achievement and time management will be crucial. Adoption will also be influenced by peer endorsements, efficient marketing, and simple-to-follow instructions.

Next, technical difficulties. there will be a lot of technical difficulties in making sure the system runs well on all platforms and is dependable offline. The system's offline functionality will be essential for students who live in places with spotty or restricted internet connection. It takes a strong backend infrastructure and careful design to keep the system functioning without network access, ensuring seamless notifications and precise real-time changes even when the internet is down. In order to avoid missing updates, this will entail making sure data synchronization happens properly when the device reconnects to the internet. It will be technically challenging to manage cross-platform compatibility, especially with WhatsApp, SMS, and email alerts. To guarantee consistency and dependability across all platforms, integration with many APIs and services is necessary.

Third, data security and privacy. Resolving students' privacy concerns will be extremely difficult. In order to prevent sensitive data, including student IDs and attendance records, from being exploited, the system must ensure the safety of personal information. The system has to have explicit and unambiguous privacy policies that outline who may access the data and how it is utilized in order to build confidence. To protect sensitive personal information, robust security measures including encryption, safe data storage, and strict access restrictions must be put in place. Students also need to be assured that their data is only being utilized for educational reasons and isn't being shared with outside parties, which calls for constant security protocol monitoring and upgrading.

Furthermore, complexity against simplicity. This difficulty will be striking a balance between the requirement for a straightforward and user-friendly user interface and the intricacy of the system's functions, such as attendance monitoring and class schedule modifications. Students may feel frustrated and decide not to utilize the system if it becomes too feature-rich or challenging to operate. Offering sophisticated tools that are helpful to students—like submitting absence letters or adjusting notification times—while making sure these capabilities don't overwhelm users is the aim. Users will be able to interact with the system without feeling overloaded by options or complexity because to a simple, minimalist design that makes important functions easily accessible and navigational.

Then, excessive customization. Although personalization is necessary to accommodate the preferences of each student, an excessive number of customization choices may cause confusion and user overload. Giving users too many options for themes, notification settings, and other features might make the system seem too complex. Offering a small but significant range of customization options that enhance the user experience without being overly complicated is essential for striking a balance. Allowing students to select their preferred language and notification timing, for instance, might improve usability; nevertheless, offering too many alternatives for every small element could reduce the system's overall efficacy. It's crucial to maintain the system's usability while allowing for customization.

Moreover, multilingual integration might be difficult to make sure the system works well in several languages, especially when it comes to precise and suitable translations. Pupils from diverse linguistic origins will anticipate seeing interfaces, alerts, and instructions in the languages of their choice. This calls for meticulous attention to translation accuracy in addition to technological integration for language choices. The user experience might be harmed by translation errors or inaccuracies that cause misunderstanding or annoyance. To guarantee that all translations are accurate and culturally appropriate, it will be crucial to have trained translators and perhaps even a community-driven approach for feedback and revisions.

Lastly, device compatibility one of the most important technological challenges will be making sure the system functions flawlessly on a variety of devices, such as tablets, laptops, and smartphones. The system must be able to adjust to different surroundings without compromising functionality or performance due to differences in hardware specs, operating systems, and screen sizes. To make sure the system loads fast, runs smoothly, and offers a consistent experience across all devices, it must be tested. Any malfunctions or performance concerns, such sluggish load times or display issues on smaller devices, might irritate students and reduce the system's usefulness. To guarantee that students can access their reminders and manage their schedules on the device of their choice, cross-device compatibility must be a top focus.

5. CONCLUSION

In order to solve inefficiencies in accessing and organizing class schedules, the EduAlert was created. The project's goal was to provide an easy-to-use solution that would cut down on time-consuming procedures, minimize scheduling mistakes, and enhance students' overall educational experience. In order to keep students informed, organized, and on time, the new system incorporates features like automated email notifications, real-time updates, and alarm reminders.

By greatly improving communication and operational effectiveness, this method promotes greater interaction between instructors and students. It facilitates better time management and lowers the possibility of missed lessons or scheduling conflicts by making schedule access easier and sending out timely reminders. All users are guaranteed scalability and smooth operation through integration with UiTM's current systems.

Notwithstanding its advantages, the system has drawbacks, such as a dependence on internet access and the possibility of server outages during periods of high demand. Future editions can, however, fix these issues. Potential additions that might further increase accessibility and usefulness include offline capabilities, better mobile app integration, and AI-driven predictive scheduling.

Overall, the EduAlert significantly enhances scheduling management. A more effective and well-organized learning environment is produced by putting user requirements first and utilizing

technology. Future enhancements will guarantee that it keeps up with the changing needs of the UiTM community.

References

Aziah, N., Kadir, A., Aftan, N., & Hussin, N. (n.d.). *The Importance of Reminders and Students' Performance*. https://ir.uitm.edu.my/58067/1/58067.PDF

Hanover Research. (2018). *BEST PRACTICES IN COURSE SCHEDULING*. https://f.hubspotusercontent30.net/hubfs/4523134/Hanover%20Research%20 %20Best%20Practices%20in%20Course%20Scheduling.pdf

Lai, C.-H., Jong, B.-S., Hsia, Y.-T., & Lin, T.-W. (2020). Using Reminder Tools to Increase Learning Motivation: A Comparison of Mobile Devices, Email and E-learning Platforms. *International Journal of Interactive Mobile Technologies (IJIM)*, *14*(19), 82. https://doi.org/10.3991/ijim.v14i19.12519

Mangalaraj, D., & Subramanian, S. (2017). *Study on implementing automated classroom performance system for recording student attendance.*

Munthe, B., Herman, Arifin, A., Sulistyo Nugroho, B., & Fitriani, E. (2021). Online Student Attendance System Using Android. *NASA ADS*, *1933*(1), 012048. https://doi.org/10.1088/1742-6596/1933/1/012048

Ruslawati, N., Mustapa, N., Hajar, S., & Mustapa, N. (2020). Design and Development of Mobile Application for Academic Reminder System. *Journal of Computing Research and Innovation (JCRINN)*, *5*(4), 2600–8793. https://ir.uitm.edu.my/43338/1/43338.pdf

Union. (2024). *Improving Attendance Rates with Automated Reminders and Scheduling - Union*. Union. https://union.world.edu/improving-attendance-rates-with-automated-reminders-and-scheduling/