World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(RESEARCH ARTICLE)

Examinsight: An AI-based Exam Performance Analytics and Feedback System for Improving Academic Outcomes of First Year Education Students at SEAIT

Hernie B. Deduro [1 *], Rosemarie T. Gepolani [1], Queen Love R. Ladaran [2], Gelen T. Ligara [2] and Conrado Limos Jr. [2]

[1] *College of Teacher Education, South East Asian Institute of Technology Inc., National Highway, Crossing Rubber, Tupi 9505, South Cotabato, Philippines.*
[2] *College of Information and Communication Technology, South East Asian Institute of Technology Inc., National Highway, Crossing Rubber, Tupi 9505, South Cotabato, Philippines.*

World Journal of Advanced Research and Reviews, 2026, 29(03), 114–126

Publication history: Received on 13 January 2026; revised on 22 February 2026; accepted on 25 February 2026

Article DOI: https://doi.org/10.30574/wjarr.2026.29.3.0456

Abstract

This study focused on Improving Academic Performance and Test Preparedness of First-Year Students at SEAIT. Exam Lens, an AI-powered system designed to assist students in exam preparation and attain better academic achievements in the learning analytics, was reviewed in this study. Exam Lens was primarily designed for first year education students at South East Asian Institute of Technology Incorporated (SEAIT). A descriptive research design was used to evaluate the system's usability, functionality. Data were collected from 100 first-year education students through survey questionnaires and feedback forms, and analyzed using descriptive statistics to determine the performance of the Exam Lens system. Findings revealed that with an overall System Usability Scale (SUS) score of 63%. It was demonstrated that the combination of analytics and AI in Exam Lens provides assistance in exam. Educational outcomes can be improved by integrating AI powered systems and analytics. These results indicates that Exam Lens improve academic performance of the First Year Education Students. In conclusion, Exam Lens is valued for being supportive and engaging in exam preparation. This study shows how an artificial intelligence powered tool can improve the learning process through clear feedback and personalized recommendations. Exam Lens can also be further improved in the future with enhancements in navigation, speed, and continued student feedback.

Keywords*:* Personal Learning; Exam Analytics; Test Preparedness; AI-Powered; Educational Outcomes; Exam Lens

1 Introduction

AI's role in education has become increasingly important as it offers new opportunities in both teaching and learning. AI applies ideas from computer science, data science, and cognitive science to design adaptive learning systems that make learning more effective by customizing instruction to each student's learning style. The capabilities of AI in education for personalized learning have been noted by using it as a tutor that adjusts feedback and guidance to a learner's pace (Hwang et. Al., 2020, Holmes et. Al., 2019). Many researchers have noted the ability of AI to focus on the student's strengths and weaknesses and build their confidence, promote engagement, and improve their attitude toward learning (Johnson and Smith, 2019, Hennekeuser et. Al., 2024). AI evaluates student performance through performance analytics and identifies the barriers to progress, providing customized action plans (Baker, 2021). Exam prep has seen the positive impact of AI as it provides supportive criticism and designs structured learning approaches. There remain challenges, such as issues of equity, accessibility, and the evolving role of the educator (Castaneda and Selwyn, 2019). This research demonstrates the Exam Lens, an AI-driven exam analytics tool, showing the integration of learning and preparation models through data analysis, feedback, and customization.

* Corresponding author: Hernie B. Deduro

1.1 Research Problem

The current study explores the role that AI-driven exam analytics play in helping education students in their first year to better their study strategies and get ready for exams. Here, the assessments may only result in a score report with no information on what they did well and where they made mistakes. A student without proper feedback cannot identify and address their gaps; for this reason, students often have a sense of being sickly before their assessments. This study centers on the idea that exam analytics, empowered by AI, can catalyze students with distinct learning gaps to improve in their confidence and final grades by processing their exam data, monitoring their learning curves, and providing them with customized advice.

1.2 Research Questions and Objectives

- What is the relationship between academic performance and the implementation of an AI-based exam analytics system?
- How does the feedback system in an exam analytics AI-powered system impact the students' level of test preparedness?
- How much are the AI-generated personalized recommendations responsible for the advancements achieved in the overall academic performance of students?

Objectives

- To design and develop an AI-Powered exam analytics system aimed at improving student academic performance.
- To integrate a feedback mechanism within the system to support and enhance student's test preparedness.
- To implement AI-driven personalized recommendations in the system to address learning gaps and strengthen student's overall academic performance.

1.3 Justification and Significance

This study revolves around the obstacles that are faced while studying and preparing for exams, with a discussion of the system Exam Lens which is driven by data and goals and aims to support students' exam preparations personally. The aim of this study is to improve the digital learning experience by bringing together the distinctive characteristics of data analytics, custom feedback, report writing, assessment submissions, and suggestions from AI so students can identify the areas where they lack knowledge and improve their study habits. Exam Lens is built to ease the burden of exam preparation and improve effectiveness through timely feedback, comprehensive learning objectives of the exam, and active learning triggers. Since Exam Lens also produces teacher reports, it aids decision-making related to student support. This study contributes to the educational technology field by demonstrating the learning effectiveness, academic performance enhancement, independent study support, and overall value addition to teaching and learning that AI integration brings.

2 Literature review

2.1 AI-powered Performance Analysis and Personalized Feedback System for Competitive Exam Preparation

Competitive exams such as civil service tests and entrance examinations necessitate wide and deep expertise over certain subjects. Recognizing weak areas becomes difficult for a lot of students. An AI powered system designed to analyze mock exam results identifies weak areas and personalized study recommendations and feedback assists with this. The system, which draws on research in adaptive learning and machine learning, conducts a performance analysis in real time and adapts the level of practice questions according to the learner's needs. Documenting performance over time and in areas of strength and weakness, it enables students to prioritize areas critical to their success (Gnanasigamani & Harish, 2025).

2.2 Artificial Intelligence for Assessment and Feedback to Enhance Student Success in Higher Education

This article emphasizes the role of effective and real-time feedback along with qualitative assessment for enhancing students' learning in a higher education setting. The onset of the coronavirus pandemic led to an increased number of online-based learning, shifting the preferred mode of assessment to the practices that can be directly associated with better outcomes for students. While much literature has been dedicated to assessment mechanisms, little is discussed on the role of learning analytics for the assessment process. The present study investigates the role of AI and machine learning to improve the practices of assessment and feedback. It was found that the I-FCN algorithm models outclass comparative ones such as ANN, XG Boost, SVM, Random Forest, and Decision Trees across all the performance

indicators. A comparative examination of these findings supports institutions in adopting data-based mechanisms to promote the creation of valid, less stressful, and reliable assessments that contribute to improved learning outcomes (Hooda, M., et. al., 2022).

2.3 The Impact of AI-Powered Personalization on Academic Performance in Students

AI technology growth in education is reflected through the emergence of tools for individualized learning. A study conducted on a comparison of traditional classrooms with adaptive learning demonstrated a good positive correlation with increases in achievement, engagement, and satisfaction. These results suggest that although AI personalization improves learners' performances academically, it may alter the educational delivery system (Koshti & Shete, 2024).

3 Methodology

3.1 Research Design

To consider how students interact with an AI-powered exam analytics system, this research will adopt a descriptive research design. Here, for the purposes of this research design, the exam analytics system will be treated as the independent variable while the students' academic performance and test preparedness will be treated as dependent variables. This design illustrates how the system is able to assist students in identifying their learning gaps, enhancing their study patterns, and also preparing for their examinations.

3.2 Participants

This study focused on 100 first-year education students at the South East Asian Institute of Technology, Inc. To evaluate how well the AI-powered exam analytics system assisted the students in learning and exam readiness, the study assesses the students' academic performance and test preparedness.

3.3 Data Collection

Quantitative data were collected through structured questionnaires to measure students' academic performance and test preparedness with the AI-powered exam analytics system. Random sampling was used, and the data were analyzed statistically to find patterns in responses and their connection to features like feedback, reports, and personalized recommendations.

3.4 Data Analysis

Responses from the structured questionnaires will be analyzed using descriptive statistics. For all the items pertaining to students' academic performance and test preparedness using the AI-enabled Exam Lens system, means and standard deviations will be computed.

3.5 Ethical Considerations

The study will prioritize protecting participant privacy and data. Informed consent will be obtained from each participant, and they will have the option to withdraw from the study at any time. Any results presented will not disclose participants' identities. The researchers will follow ethical guidelines for educational research, ensuring that participants will not experience discomfort, harm, or misuse of their academic information during the study.

4 Advanced HCL design

4.1 System Architecture

The AI-powered Exam Performance Analytics and Feedback System was created to help students improve their academic performance and be prepared for exams. It allows assessment data to be uploaded, analyzed, and transformed into feedback and reports. The system also provides personalized recommendations powered by artificial intelligence, giving both students and instructors valuable insights to guide learning and teaching.

Key components include:

- *Client–side (User Interface):* Allows users to access the system through a web browser for easy interaction and navigation.

- *Reports Management:* Stores and processes data to generate analytic reports that track student performance and progress.
- *Feedback Management:* Reviews and delivers AI-generated feedback to help students understand their performance and improve study strategies.
- *AI Recommendation Module:* Generates, stores, and updates personalized learning to each student's needs.

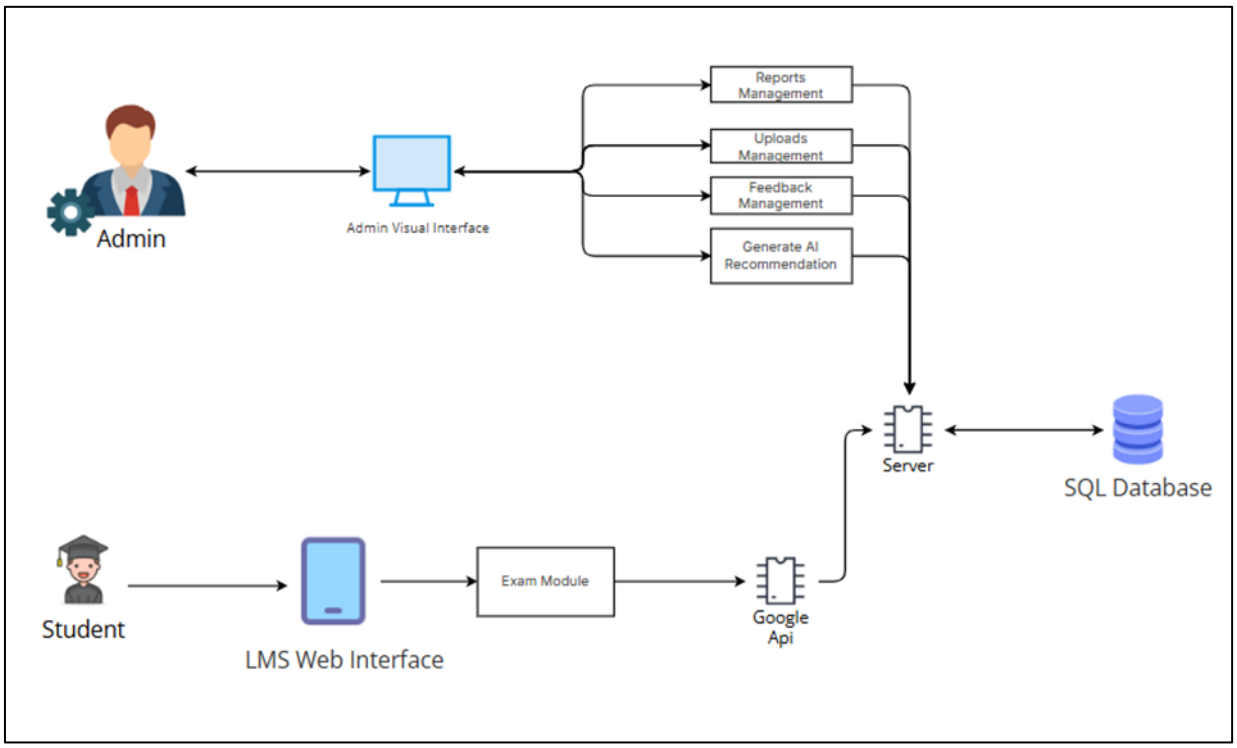

Figure 1 The diagram shows the Exam Lens System, where administrator manage reports, uploads, feedback, and AI recommendations through a visual interface, while students access exams using the LMS web interface. Both connect to the server, which uses an SQL database and Google API to process and store data.

5 Software Engineering Methodology

The Incremental Process Model guided the study through short, end-to-end cycles that each delivered a usable slice of the system, gathered user feedback, and informed the next build. The first increments established the core workflow (data intake, analysis, and report viewing) so students and instructors could try it early; subsequent increments refined the UI/UX, added targeted feedback features, and introduced personalized recommendations tied to observed strengths and weaknesses. Each increment concluded with usability, accessibility, and functionality checks plus simple analytics to see how feedback changed preparedness and behavior, ensuring risks were surfaced early and fixes landed fast. By iteratively expanding scope only after validating the previous slice, the team kept development aligned to the research objectives, improved quality and user satisfaction at each step, and produced evidence of impact compared with traditional, non-iterative study support.

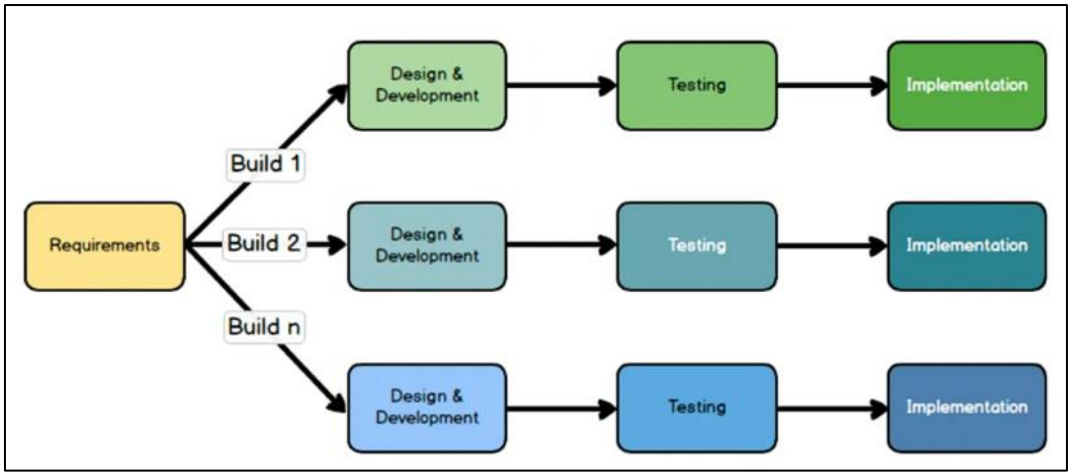

Figure 2 Software Engineering Methodology using Incremental Process Model

5.1 Features and Functionalities

The features and functionalities of ExamInsight System are the following:

- *Data Analytics*
    - The system processes uploaded assessment data to identify patterns in student performance, highlight strengths and weaknesses, and monitor progress over time. This helps both students and instructors recognize learning trends and make informed decisions.

- *Feedback Module*
    - Students receive timely and actionable feedback based on their assessment results. This feature helps them understand mistakes, reinforce key concepts, and improve their test preparedness.
- *Report Generation*
    - The system produces detailed reports that summarize both individual and class performance. These reports allow students to track their improvement and provide instructors with valuable insights for planning targeted interventions.
- *Uploading of Assessment Data*
    - Instructors can upload exam or quiz data directly into the system, ensuring that performance information is centralized, organized, and ready for analysis.
- *Personalized Recommendations*
    - Using artificial intelligence, the system generates customized learning strategies and study resources tailored to each student's needs. This helps students strengthen academic performance and prepare more effectively for examinations.

5.2 User Interface Design

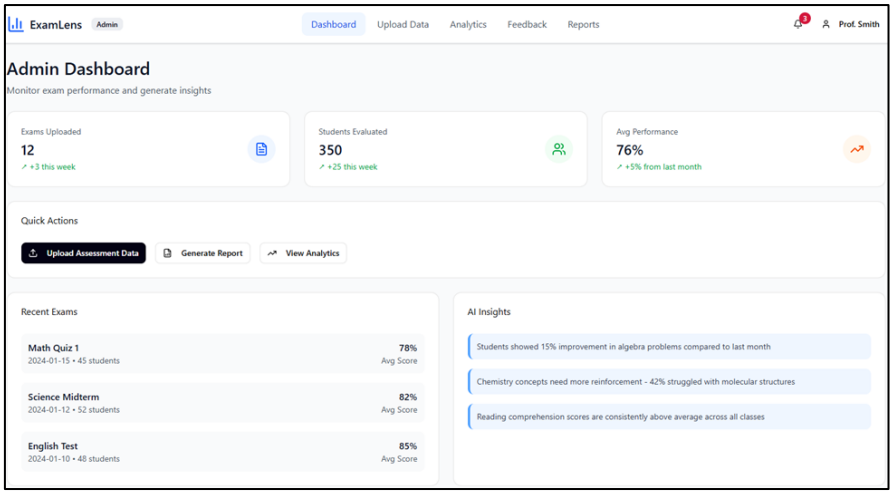

Figure 3 Admin dashboard page of the Exam Lens System

In this figure, it shows the admin dashboard page of the Exam Lens System.

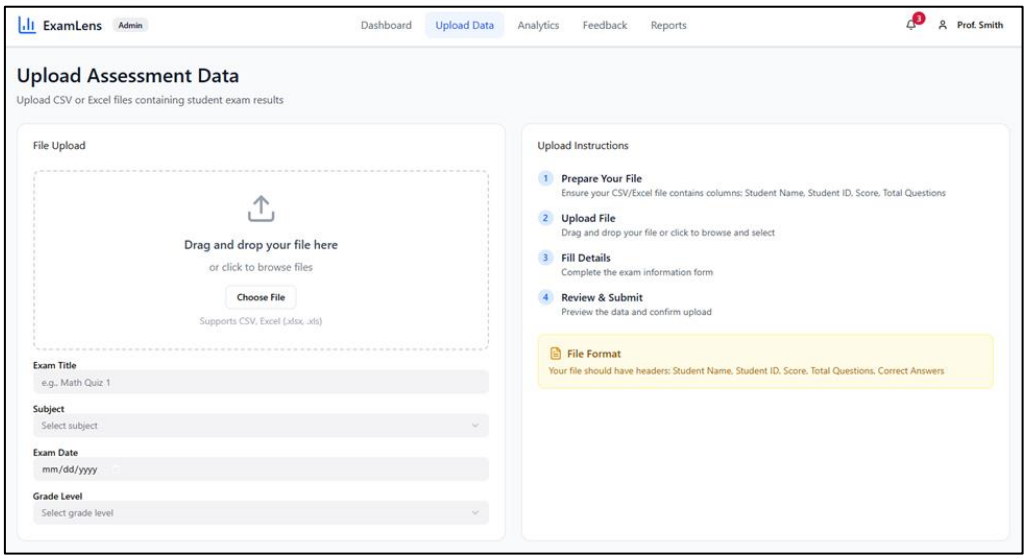

Figure 4 Upload assessment data page of the Exam Lens System

In this figure, it shows the upload assessment data page of the Exam Lens System.

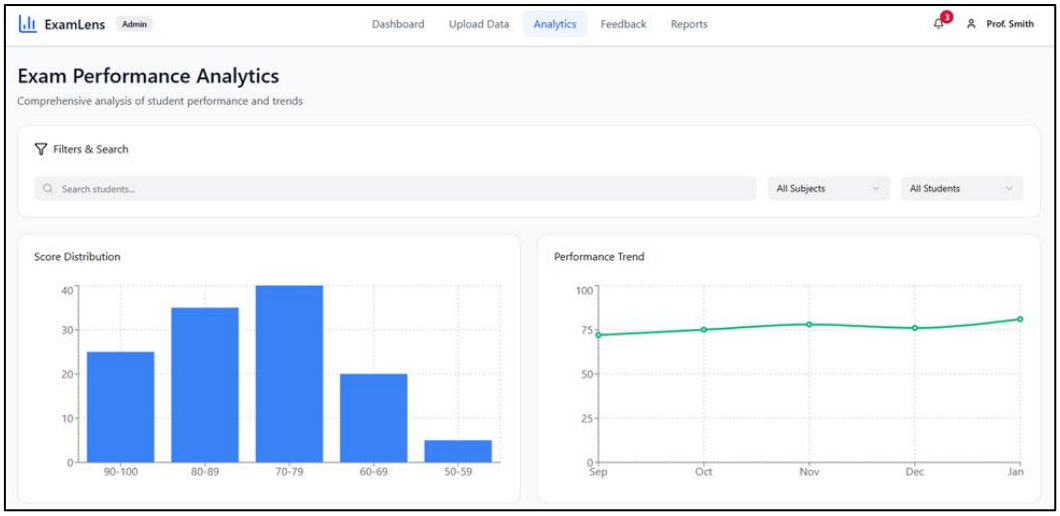

Figure 5 Exam Performance Analytics page of the Exam Lens System

In this figure, it shows the Exam Performance Analytics page of the Exam Lens System.

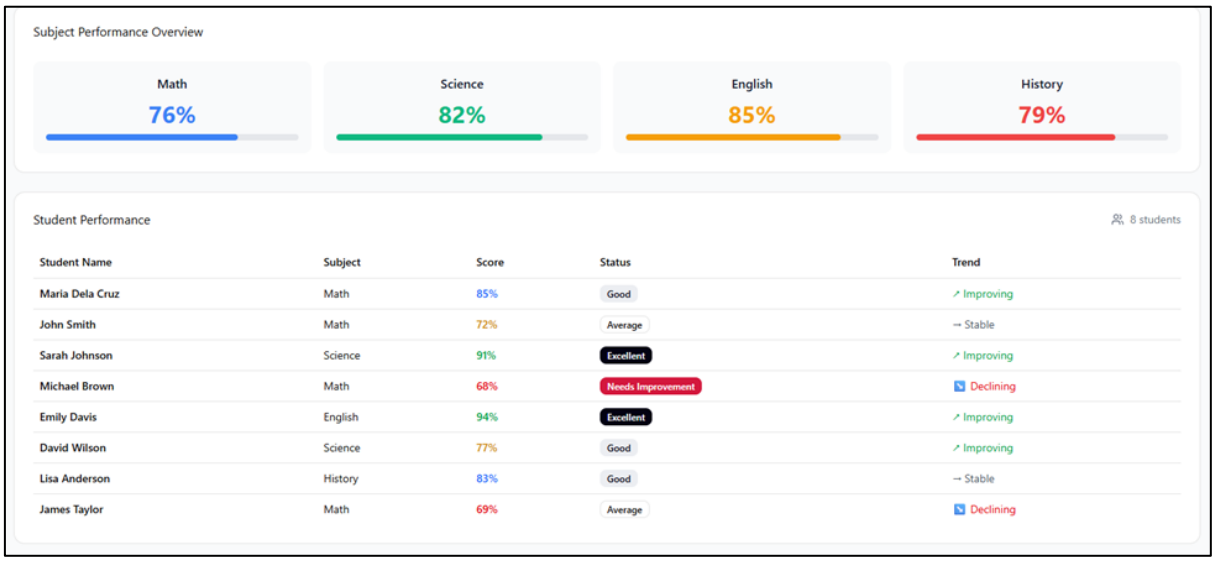

Figure 6 Exam performance analytics page of the Exam Lens System

In this figure, it shows the exam performance analytics page of the Exam Lens System.

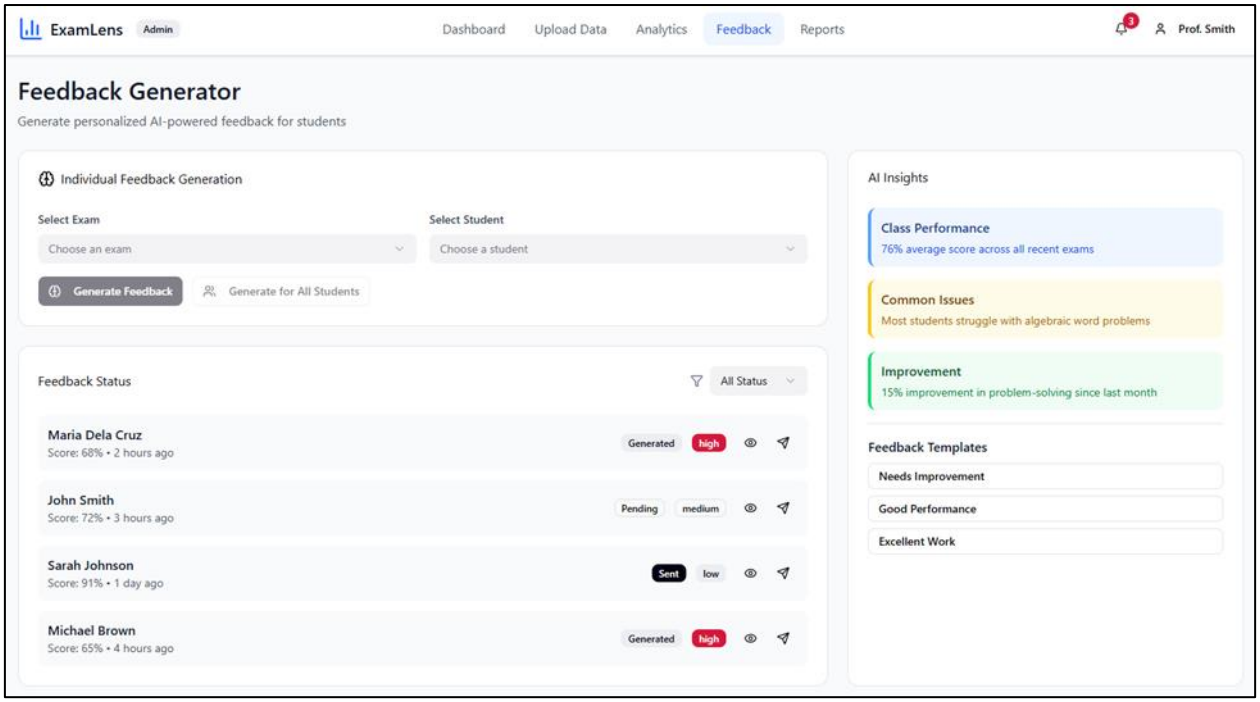

Figure 7 Feedback page of the Exam Lens System

In this figure, it shows the feedback page of the Exam Lens System.

6 Evaluation and results

6.1 Usability Testing

Usability testing showed that students found the Exam Lens system easy to use, with an overall score of 2.52 or 62%. Many enjoyed using it (3.90) and said they would likely use it often to prepare for exams (3.87). They also felt that most students could learn it fairly quickly (2.93) and were somewhat confident using it (2.62). Still, some had difficulties ease of use was rated lower (2.44), and a few felt they might need technical help (2.77). The main concerns were that the system sometimes felt unnecessarily complex (1.37), cumbersome (1.42), and inconsistent (1.62). Overall, students saw value in the system, but making it simpler and more consistent would greatly improve their experience.

Table 1 Usability Result Table

Questions	Mean
1. I thought the system was easy to use for exam preparation.	2.44
2. I found the system unnecessarily complex.	1.37
3. I needed to learn a lot of things before I could get going with this system.	2.28
4. I would imagine that most student would learn to use this system very quickly.	2.93
5. I think that I would need the support of a technical person to be able to use this system.	2.77
6. I found the tool very cumbersome to use.	1.42
7. I felt very confident using the Exam Lens system.	2.62
8. I thought there was too much inconsistency in this system.	1.62
9. I think I would like to use this system frequently for exam preparation.	3.87
10. I found the overall experience of using the system enjoyable.	3.90
TOTAL MEAN	2.52

6.2 Performance Metrics

These results show how the Exam Lens system helps first-year Education students at SEAIT with learning and exam prep. They reflect students' views on usefulness, ease of use, and access to analytics and feedback.

Accessibility: 3.00 – Students generally found the system easy to use. Students praised its clear visuals (3.61) and ease of accessing reports and feedback (3.47), but some faced issues with navigation (2.65), delays (2.50), lag (1.81), and difficulty on certain devices (1.77). While overall feedback access was timely (3.00) and confidence was moderate (3.17), simplifying navigation and improving speed would enhance accessibility.

Table 2 Accessibility Result Table

Questions	Mean
I thought the system's visual elements (icons, buttons, labels) were clear and easy to identify.	3.61
I found the exam analytics and recommendations hard to read or understand on some devices.	1.77
I found it simple and straightforward to access performance reports and feedback.	3.47
I needed help to find instructions or figure out what to do in the system.	4.60
I could access exam results and analytics without unnecessary delays or errors.	2.50
I had difficulty navigating to specific features (e.g., uploading assessments, viewing reports).	2.65
I felt confident using the system without additional guidance.	3.17
The system responded slowly or lagged while I viewed analytics or recommendations.	1.81
Feedback and recommendations were immediately accessible after completing an assessment.	3.00
I found the system difficult to use when I was in a hurry or under time pressure.	3.38
TOTAL MEAN	3.00

Functionality: 2.62 – The system's functionality received mixed but generally positive feedback. Strong results appear in confidence after use (3.72), clarity/usefulness of AI recommendations (3.66), integration of functions (3.52), and features working as expected (3.45). Users also agreed that the system helped identify strengths and weaknesses (3.30) and responded quickly when handling data (3.25). Reports of problems were low: dissatisfaction (1.41), slowness/unreliability (1.25), and obstacles during exam prep (1.24). However, a low score for understanding how the system works (1.36) suggests that some students need clearer guidance. Overall, the results point to solid functionality with room to improve feature clarity and in-app instructions, while maintaining the system's strong recommendations, integration, and reliability.

Table 3 Functionality Result Table

Questions	Mean
1. The system helped me identify my strengths and weaknesses in different subjects.	3.30
2. The AI-powered recommendations were easy to understand and useful.	3.66
3. The system responded quickly when uploading or accessing assessment data.	3.25
4. I feel dissatisfied with the functionality of the system.	1.41
5. I feel more confident in preparing for exams after using the system.	3.72
6. I find the system performance to be slow or unreliable.	1.25
7. All major features of the system worked as I expected.	3.45
8. It is not difficult to understand how the system's function works.	1.36
9. I found the various functions of the system to be well integrated.	3.52

10. I encounter obstacles or complications while attempting use the system for exam preparation.	1.24
TOTAL MEAN	2.62

6.3 Comparative Analysis

This study focused on contrasting Exam Lens with traditional methods of exam preparation. Students reported Exam Lens to be more interesting and more user friendly. They appreciated its visual materials, prompt feedback, and customized suggestions. Exam Lens was also unique in that, unlike traditional systems which provide only raw scores, it gave meaningful score reports which aided in studying.

7 Results and Findings

Total mean for usability, accessibility, and functionality prove that the Exam Lens system met its objectives:

- Usability – 2.52
- Accessibility – 3.10
- Functionality – 2.62

An evaluation of the usability scale outcomes showed that the Exam Lens system performed well in functionality, usability, and accessibility. Students expressed satisfaction while interacting with the system. The usefulness of the system and its intuitive nature helped students remain focused and engaged during the exam preparation process.

8 Discussion

8.1 Interpretation of Findings

The study found that the Exam Lens system helped students improve their performance and exam preparedness by giving personalized recommendations, timely feedback, and clear visuals. Its integration of analytics, feedback, and reporting also encouraged participation and made exam preparation more effective.

Table 4 Descriptive Survey Result Table

Questions	**Mean**	**Standard Deviation**
To what extent do the exam analytics features (e.g., data insights, performance tracking, personalized reports) motivate you to prepare for exams?	3.34	0.62
How often do you prepare more effectively for exams when using the Exam Lens system?	3.31	0.99
How would you rate the user interface of the Exam Lens system (e.g., layout, icons, colors, navigation)?	3.90	0.30
To what extent do you agree with the following statement: "The AI-powered recommendations in the Exam Lens system help me understand lessons better and improve my exam preparedness."	3.75	0.54
How satisfied are you with your overall learning experience when using the Exam Lens system for academic performance and exam preparation?	3.33	0.71
TOTAL MEAN	3.53	0.63

RQ1: *How does an AI-powered exam analytics system influence student academic performance?*

Most students felt more confident preparing for exams after using Exam Lens 93.75% agreed or strongly agreed with a total mean of 3.75. Students also said the system helped them identify their strengths and weaknesses, and that the AI

recommendations gave clear, focused steps on what to review and how to practice. These results suggest that Exam Lens supports exam preparation by turning performance data into actionable guidance.

RQ2: *How does the feedback mechanism within an AI-powered exam analytics system affect students' level of test preparedness?*

Results showed that the Exam Feedback feature helped students prepare for exams. The visual design was clear and easy to understand (M = 3.61; 90.25% agreed or strongly agreed), which made it easier for students to use the feedback in their study plans. This suggests that clear, easy–to–understand feedback helps students feel more confident for their examinations.

RQ3: *To what extent do personalized recommendations generated by AI contribute to improvements in students' overall academic performance?*

The results indicated that Exam Lens' feedback feature improved students' test preparedness and the app's visuals were clear and easy to read (Mean=3.61) (90.25%). The students easily understood the feedback and applied it to their studies. These findings suggest that readily available feedback plays an important role in adequately preparing students for exams.

8.2 Contributions and Innovation

The study shows that AI can significantly refine students' exam preparation and performance. However, the tool's true potential lies in the seamless integration of data analysis, feedback and targeted recommendations. This makes it easier to study and understand how things work in the real world. They also emphasize the importance of maintaining learning tools simple and intuitive, rather than overloading them with complex features.

8.3 Limitations and Future Work

Since the study was limited to first-year education learners at SEAIT, it may not sufficiently reflect the experiences of other students. The type of devices used during the study since some students used older or low-end laptops, PCs and smartphones.

9 Conclusion

9.1 Summary of Key Findings

The Exam Lens system received good reviews regarding student confidence and exam preparedness. Students ascribed this enjoyment to the system's clear visuals, feedback and study recommendations. The findings also show that the students' experiences using Exam Lens are significantly linked to the tool's accessibility and navigability.

9.2 Final Remarks

In conclusion, Exam Lens is valued for being supportive and engaging in exam preparation. This study shows how an artificial intelligence powered tool can improve the learning process through clear feedback and personalized recommendations. Exam Lens can also be further improved in the future with enhancements in navigation, speed, and continued student feedback.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

References

[1] Gnanasigamani, L. J., D, R., Harish B, Harsha Vajrala, & Sanjai K. (2025). *AI-Powered Performance Analysis and Personalized Feedback System for Competitive Exam Preparation*. 1–6. https://doi.org/10.1109/sennet64220.2025.11136067

[2] Hooda, M., Rana, C., Dahiya, O., Rizwan, A., & Hossain, M. S. (2022). Artificial intelligence for assessment and feedback to enhance student success in higher education. Mathematical Problems in Engineering, 2022, 1–19. https://doi.org/10.1155/2022/5215722

[3] Shete, S. G., Priyanka Koshti, & Pujari, V. I. (2024). The Impact of AI-Powered Personalization on Academic Performance in Students. *The Impact of AI-Powered Personalization on Academic Performance in Students*. https://doi.org/10.1109/icrtcst61793.2024.10578480

Appendices

Appendix A: System Usability Scale (SUS) Likert Scale Survey Questionnaire

Functionality

Questions	Ratings			
The system helped me identify my strengths and weaknesses in different subjects.	1	2	3	4
The AI-powered recommendations were easy to understand and useful.	1	2	3	4
The system responded quickly when uploading or accessing assessment data.	1	2	3	4
I feel dissatisfied with the functionality of the system.	1	2	3	4
I feel more confident in preparing for exams after using the system.	1	2	3	4
I find the system performance to be slow or unreliable.	1	2	3	4
All major features of the system worked as I expected.	1	2	3	4
It is not difficult to understand how the system's function works.	1	2	3	4
I found the various functions of the system to be well integrated.	1	2	3	4
I encounter obstacles or complications while attempting use the system for exam preparation.	1	2	3	4

Accuracy

Questions	Ratings			
I thought the system was easy to use for exam preparation.	1	2	3	4
I found the system unnecessarily complex.	1	2	3	4
I needed to learn a lot of things before I could get going with this system.	1	2	3	4
I would imagine that most student would learn to use this system very quickly.	1	2	3	4
I think that I would need the support of a technical person to be able to use this system.	1	2	3	4
I found the tool very cumbersome to use.	1	2	3	4
I felt very confident using the Exam Lens system.	1	2	3	4
I thought there was too much inconsistency in this system.	1	2	3	4
I think I would like to use this system frequently for exam preparation.	1	2	3	4
I found the overall experience of using the system enjoyable.	1	2	3	4

Accessibility

Questions	**Ratings**			
I thought the system's visual elements (icons, buttons, labels) were clear and easy to identify.	1	2	3	4
I found the exam analytics and recommendations hard to read or understand on some devices.	1	2	3	4
I found it simple and straightforward to access performance reports and feedback.	1	2	3	4
I needed help to find instructions or figure out what to do in the system.	1	2	3	4
I could access exam results and analytics without unnecessary delays or errors.	1	2	3	4
I had difficulty navigating to specific features (e.g., uploading assessments, viewing reports).	1	2	3	4
I felt confident using the system without additional guidance.	1	2	3	4
The system responded slowly or lagged while I viewed analytics or recommendations.	1	2	3	4
Feedback and recommendations were immediately accessible after completing an assessment.	1	2	3	4
I found the system difficult to use when I was in a hurry or under time pressure.	1	2	3	4

Appendix B: Descriptive Survey Questionnaire

EXAMINSIGHT: An AI-based Exam Performance Analytics and Feedback System for Improving Academic Outcomes of First Year Education Students at SEAIT

- To what extent do the exam analytics features (e.g., data insights, performance tracking, personalized reports) motivate you to prepare for exams?

  ☐ Not At All ☐ Slightly ☐ Very Much ☐ Extremely

- How often do you prepare more effectively for exams when using the Exam Lens system?

  ☐ Never ☐ Rarely ☐ Often ☐ Always

- How would you rate the user interface of the Exam Lens system (e.g., layout, icons, colors, navigation)?

  ☐ Very Poor ☐ Poor ☐ Good ☐ Excellent

- To what extent do you agree with the following statement: "The AI-powered recommendations in the Exam Lens system help me understand lessons better and improve my exam preparedness."

  ☐ Strongly Disagree ☐ Disagree ☐ Agree ☐ Strongly Agree

- How satisfied are you with your overall learning experience when using the Exam Lens system for academic performance and exam preparation?

  ☐ Very Dissatisfied ☐ Dissatisfied ☐ Satisfied ☐ Very Satisfied