Eniac Student Feed – A Feedback System

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***Abstract*— A student feedback system named Eniac Student Feed was created especially for the Department of Computer Science and Engineering at the PSNA College of Engineering and Technology. The primary goal is to assess feedback in light of the Course Outcomes (COs) of each course. Structured responses from students regarding the quality of the course, the quality of the instructors, and their overall academic experiences are gathered immediately and mapped to predefined COs. Eniac Student Feed use data analytics to identify patterns, areas of strength, and areas for progress, offering helpful knowledge for curriculum and staff development. Openness is encouraged, the quality of education is continuously enhanced, and educational methods have been aligned with business standards and accreditation bodies such as the NBA and NAAC.**

Keywords—Analyzing feedback, Course effectiveness, Faculty performance, Learning experiences, Data analytics, Curriculum enhancement.

I. INTRODUCTION

Student feedback plays a vital role in evaluating teaching effectiveness, subject relevance, and faculty performance in modern educational settings. Traditional methods—such as paper-based surveys or basic online forms—are often time-consuming and fail to deliver actionable insights or real-time analytics (Ardalan et al., 2007; Kerman et al., 2024). Moreover, these systems typically do not map feedback to specific Course Outcomes (COs), limiting their effectiveness in assessing subject-level learning objectives. Studies have shown the value ofdigital feedback systems, with e-peer feedback enhancing student motivation, critical thinking, and collaboration (Guardado & Shi, 2007; Yang, 2011, 2015; Chong, 2019). However, challenges still exist regarding the reliability and consistency of student input, especially when influenced by individual biases (Lu & Bol, 2007;Laflen & Smith, 2017). An intelligent, organized feedback system that evaluate student responds in real time and aligns them with predefined Cos is implemented by ENIAC Student Feed in order to bypass these limitations. The system promotes compliance to the educational quality standards developed by the NBA, NAAC, and AICTE by offering actionable insights for enhancing subject-level delivery and teaching methodologies via the use of data analytics and visual reporting. In order illustrate how outcome-aligned feedback systems can improve teaching quality, increase student engagement, and promote informed academic decision-making, this study analyzes the execution of ENIAC in the CSE department at PSNA College of Engineering and Technology.

II. LITERATURE SURVEY

The use of online technologies has the potential to support and innovate frontal teaching lessons, also solving problems associated with lack of time and space in the standard lesson environment. To achieve the above objective, we included the collaborative activity of peer assessment within the online Genomics laboratory as a formative process for the second consecutive year. This experimental procedure was conducted entirely online, using the Moodle e-learning platform [1]. In recent years, the technical possibilities of educational technologies regarding online peer feedback have developed rapidly. However, the impact of online peer feedback activities compared to traditional offline variants has not specifically been meta-analyzed. Therefore, the aim of the current meta-analysis is to do an in-depth comparison between online versus offline peer feedback approaches. An earlier and broader meta-analysis focusing on technology-facilitated peer feedback in general, was used as a starting point. We synthesized 12 comparisons between online and offline peer feedback in higher education [2]. The methodology leverages a combination of direct and indirect assessment technique to gather comprehensive data on student performance. Direct assessments include evaluations such as exams, projects, and assignments, which provide objective evidence of student achievement. Indirect assessments, on the other

hand, draw on student feedback from tools like exit surveys and course evaluation forms, capturing perceptions and experiences that complement the direct evidence. By integrating these two methods, the approach facilitates a holistic evaluation of learning outcomes, offering deeper insights into both strengths and areas requiring enhancement. The integration of direct and indirect assessment results is a cornerstone of this methodology. By comparing these two types of data, the approach ensures consistency and alignment in the evaluation process, enhancing the reliability of the findings. This comparative analysis also highlights potential discrepancies, prompting further investigation and refinement of the assessment process. Overall, this proposed method represents a significant contribution to the field of academic assessment and evaluation. Its structured and practical design provides a robust framework for engineering programs seeking to meet accreditation criteria while fostering a culture of continuous improvement. Beyond its application to the EE program, this approach has broader implications and can serve as a valuable model for other programs aiming to enhance their assessment practices and achieve excellence in educational outcomes [3]. With the popularity of computer technology, online peer feedback has become common in university writing classes. This paper reports an exploratory study of 22 English as a Second Language (ESL) students' experiences of online peer feedback in a sheltered credit course at a western-Canadian university. Based on analyses of the electronic feedback (e-feedback) participants received, comparisons of their initial and revised drafts, and follow-up interviews, the study shows that e-feedback, while eliminating the logistical problems of carrying papers around, retains some of the best features of traditional written feedback, including a text-only environment that pushes students to write balanced comments with an awareness of the audience's needs and with an anonymity that allows peers to make critical comments on each others' writings [4]. Cognitive ability is closely associated with the acquisition of programming skills, and enhancing learners' cognitive ability is a crucial factor in improving the efficacy of programming education. Adaptive feedback strategies can provide learners with personalized support based on their learning context, which helps to stimulate their interest and improve learning outcomes. Nevertheless, it remains unclear whether adaptive feedback can enhance the cognitive ability of programming learners. This study applies adaptive feedback strategies to an introductory programming course by designing a quasi-experiment to analyze and reveal the effects of adaptive feedback on the cognitive ability to program learners from multiple modalities, including physiological, psychological, and behavioral data [5]. Six studies investigated analysis outcomes in online peer feedback. These studies have identified various analysis outcomes, such as argumentation skills, reflective thinking (Chen et al., 2009; Pham et al., 2020), and critical thinking (e.g., Altinay, 2016; Zhan, 2020). Chen et al. (2009) and Pham et al. (2020) showed that it can enhance students' reflective thinking skills. Additionally, Liu et al. (2001) and Zhan (2020) demonstrated that online peer feedback can promote students' critical thinking abilities [6]. Formative feedback is instrumental in the learning experience of a student. It can be effective in promoting learning if it is timely, personal, manageable, motivational, and in direct relation with assessment criteria. Despite its importance, however, research suggests that students are discouraged from engaging in the feedback process primarily for reasons that relate to lack of motivation and difficulty in relating to and reflecting on the feedback comments. In this paper we present Online FEdback System (OFES), an e-learning tool that effectively supports the provision of formative feedback. Our aims are to enhance feedback reception and to strengthen the quality of feedback through the way feedback is communicated to the students. We propose that an effective feedback communication mechanism should be integrated into a student's online learning space and it is anticipated that this provision will motivate students to engage with feedback. Empirical evidence suggests that the developed system successfully addressed the issues of student engagement and motivation and achieved its objectives. The results of using the system for two years indicate a positive perception of the students which, in turn, encourage us to further explore its effectiveness by extending its functionality and integrating it into a an open source learning management system [7]. Assessment is a critical aspect of higher education because it has a range of powerful impacts on what staff and students do and how universities operate. Underpinned by relevant theory and practical advice this fully updated new edition takes into account the changing expectation of students in the context of an increasingly complex and shifting higher education environment to promote the role of formative assessment and formative feedback and its impact on

shaping the student learning experience [8]. Feedback is an integral part of education and there is a substantial body of trials exploring and confirming its effect on learning. This evidence base comes mostly from studies of compulsory school age children; there is very little evidence to support effective feedback practice at higher education, beyond the frameworks and strategies advocated by those claiming expertise in the area. This systematic review aims to address this gap. We review causal evidence from trials of feedback and formative assessment in higher education. Although the evidence base is currently limited, our results suggest that low stakes-quizzing is a particularly powerful approach and that there are benefits for forms of peer and tutor feedback, although these depend on implementation factors. There was mixed evidence for praise, grading and technology-based feedback [9]. Formative feedback is well known as a key factor in influencing learning. Modern interactive learning environments provide a broad range of ways to provide feedback to students as well as new tools to understand feedback and its relation to various learning outcomes. This issue focuses on the role of formative feedback through a lens of how technologies both support student learning and enhance our understanding of the mechanisms of feedback. The papers in the issue span a variety of feedback strategies, instructional domains, AI techniques, and educational use cases in order to improve and understand formative feedback in interactive learning environments. The issue encompasses three primary themes critical to understanding formative feedback: 1) the role of human information processing and individual learner characteristics for feedback efficiency, 2) how to deliver meaningful feedback to learners in domains of study where student work is difficult to assess, and 3) how human feedback sources (e.g., peer students) can be supported by user interfaces and technology-generated feedback [10].

III. DEVELOPMENT OF THE CONCEPTUAL MODEL

A. Conceptual Model

The Student Feedback System based on Course Outcomes (COs) is a web-based application designed to enhance faculty assessment, curriculum design, and teaching effectiveness by linking student responses directly to specific course outcomes. The model emphasizes structured data collection, automated processing, and real-time analytics to support data-driven academic decisions. The initial phase involves system architecture and database design using MySQL, with relational schemas created for storing student responses, course outcome mappings, and faculty evaluations. The front-end interface is developed using HTML, CSS, and JavaScript to ensure an interactive and responsive user experience. The backend operations, including authentication, feedback submission, and data retrieval, are handled through PHP and integrated with secure login systems such as Firebase Authentication.During the data collection phase, students submit structured feedback through dynamically generated web forms. This feedback captures various parameters such as teaching effectiveness, clarity, assessment methods, and course relevance. All data is securely stored and retrieved for analysis, facilitating a seamless feedback loop between students and the institution.

In the report generation and CO mapping phase, the system automatically generates insightful analytics that connect student ratings to defined course outcomes. These mappings assist institutions in aligning their course delivery with outcome-based education (OBE) principles and support accreditation requirements such as those outlined by NBA, NAAC, and AICTE.

A dashboard-driven analytics interface allows faculty and administrators to view performance metrics, trends, and areas for improvement through interactive graphs and summaries. The final phase includes system deployment and user onboarding, with training provided to ensure effective usage by students, faculty, and administrative staff. A feedback validation mechanism is also implemented to enhance the integrity and reliability of collected data.

B. Hypothesis

The following hypotheses guide the development and assessment of the Student Feedback System based on COs:

- H1: A course outcome-based web feedback system improves the accuracy of teaching performance evaluation.
  By linking student feedback directly to learning outcomes, the system enables more objective and structured performance measurement.
- H2: Visualization of CO-based feedback in real time

enhances academic decision-making.Interactive dashboards and automated summaries help institutions identify instructional strengths and gaps promptly.

- H3: Automated mapping of feedback to course outcomes strengthens curriculum alignment with accreditation frameworks. Systematic mapping ensures consistent evaluation against COs and facilitates compliance with NBA and other standards.
- H4: A web-based feedback system reduces administrative burden and manual processing. Automation of collection, analysis, and report generation streamlines the entire feedback lifecycle.
- H5: A user-friendly and secure online platform increases student participation in feedback processes. Ease of access and intuitive design encourage students to submit more meaningful and timely responses.

By validating these hypotheses, the system demonstrates its capability to modernize feedback collection and analysis, promote continuous improvement in education quality, and support institutional excellence in an outcome-driven learning environment.

IV. METHODOLOGY

The Eniac student Feedback System is an intelligent, web-based platform designed to transform student feedback into actionable insights aligned with curriculum goals and accreditation benchmarks. By integrating data analysis and CO mapping, the system ensures transparency, accountability, and informed decision-making—ultimately bridging the gap between student experiences and educational improvement.

System Workflow

This feedback system streamlines the feedback process to ensure high-quality teaching, effective curriculum delivery, and enhanced student engagement. It brings together key stakeholders—students, class coordinators, department heads, and administrators—into a centralized digital platform powered by a secure backend and relational database.

Students securely log in to the system and respond to structured questionnaires. These forms are designed to capture input on various aspects of the teaching-learning process, such as faculty effectiveness, communication, clarity of instruction, content delivery, and usage of teaching aids. Feedback submissions are stored confidentially to promote honest responses and reliable data collection.

The system follows a three-phase analysis model:

1. *Questionnaire Based Analysis:*
   In this phase, the system processes student responses using metrics like average ratings, standard deviations, and trend comparisons. This analysis identifies patterns in feedback and highlights areas needing improvement in teaching methodologies or student engagement.
2. *Course Outcome (CO) Mapping:*
   The second phase maps feedback items directly to Course Outcomes defined for each subject. This alignment helps evaluate how effectively the course content and teaching approaches are helping students achieve targeted outcomes such as problem-solving skills, communication abilities, or technical competencies. The results also contribute to compliance with accreditation frameworks such as NBA, NAAC, and AICTE.
3. *Comprehensive Reporting and Analytics:*
   Finally, the system generates summarized reports based on the collected data and CO mappings. These reports give an overview of teaching performance, student learning satisfaction, and faculty development needs. The reports are role-specific, enabling stakeholders to make data-informed decisions at various institutional levels.

Role-Based Access and Decision Support

- Faculty / Year In-Charges can view feedback relevant to their courses, enabling them to address student concerns promptly, suggest instructional improvements, and help align teaching with desired outcomes.
- Heads of Departments (HoDs) access department-wide analytics, assisting them in refining syllabi, organizing training sessions, and supporting continuous improvement in teaching quality.
- Administrators manage user roles, system configurations, and data protection protocols while having access to institution-wide insights that inform strategic academic planning.

V. FEASIBILITY STUDY

A. Technical Feasibility

The student feedback system Using PHP for server-side logic, MySQL for safe data storage, and HTML, CSS, and JavaScript for the frontend, the Student Feedback System is technically solid. A secure and validated user login is guaranteed by Firebase Authentication. The system efficiently gathers, saves, and processes feedback by replacing manual, paper-based procedures with an automated method. Structured analysis is made possible by the mapping of feedback to certain Course Outcomes (COs). Additionally, because of its scalability, the institution can manage a high volume of student answers without experiencing any performance problems. Automated report production improves the speed and accuracy of performance evaluation while also reducing manual labour.

B. Economic Feasibility

In terms of cost, the system is financially viable. Designing a database, creating a user interface (UI/UX), and integrating analytical tools and authentication methods are all part of the initial development expenditures. Most of them are one-time costs. The operational expenses are low and include security patches, frequent upgrades, and server maintenance. The solution minimises overall administrative costs by drastically cutting down on paperwork and manual data handling. Over time, it turns out to be an affordable option for organisations looking to simplify their feedback procedures.

C. Operational Feasibility

Both faculty and students will find the system straightforward to use and intuitive. Through a simple, user-friendly interface, students can safely log in and submit feedback, and administrators and professors can view analytical results to assess how well they are teaching. The technology makes feedback insights easier to comprehend and act upon by presenting them in an interactive, visual way. It facilitates real-time feedback analysis, which enables prompt performance evaluations and curriculum modifications, improving overall educational results.

D. Legal Feasibility

Privacy and ethical standards must be followed when handling student data. In order to solve this, the system integrates Firebase Authentication for safe logins and access management. Only authorised individuals can access the data because it is safely kept in the database and encrypted. The gathered feedback is handled in confidence, and the analysis is carried out objectively and openly. The system is made to comply with data protection regulations, guaranteeing that academic and personal data are managed legally.

E. Feasibility Conclusion

The Student Feedback System is, in summary, a technically sound, financially viable, operationally effective, and legally compliant solution. It offers a safe, automated, and organised way to gather and examine student input. It greatly enhances the quality of instruction, facilitates curriculum development, and gets institutions ready for accreditation procedures by promoting Outcome-Based Education (OBE). All things considered, the system gives educational establishments the ability to embrace a data-driven strategy for ongoing academic development.

VI. RESULT/OUTCOME

For schools and other educational institutions, Eniac Student Feed is a comprehensive, locally installed online application that makes it easier to collect, manage, and evaluate data on academic performance and student feedback. It has a number of features, including password recovery, feedback submission forms, program and course outcome assessment, secure student login, and analytics dashboards with comprehensive data. By providing easy-to-use interfaces for entering academic and personal data and by making it easier for administrative users, like department heads, to monitor the calibre of academic delivery, the platform also aims to boost student involvement. Evidence-based decision-making for continuous curriculum development and quality improvement is facilitated by mapping student feedback against specific course outcomes and Eniac.

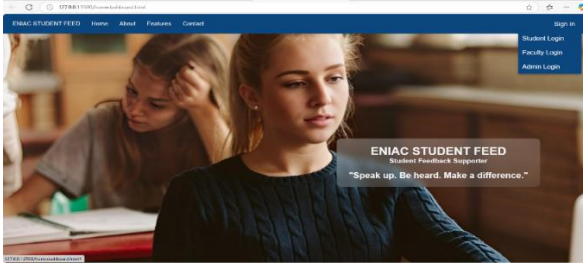


Figure .2. Home Dashboard Interface

The Eniac Student Feed System's home dashboard interface, which acts as the main landing page for all platform users, is displayed in Figure 2. This page offers easy access to the main system components, such as Home, About, Features, and Contact, thanks to its user-friendly layout and navigation. A high-resolution banner image of kids actively participating in a classroom environment dominates the page's visual landscape, signifying the platform's strong academic orientation and dedication to improving educational quality through student involvement. The banner prominently displays the system's motivational tagline, "Speak up." Be heard. Make a difference. This statement sums up the platform's core purpose, which is to empower students by allowing them to participate in the academic feedback process and encouraging an environment of open communication and continual growth.The dashboard has a Sign In dropdown menu placed thoughtfully in the upper-right corner to fit the various roles of its users. For administrators, faculty, and students, this menu offers customised login choices that guarantee quick and role-specific access to their individual dashboards and features. All things considered, this landing page successfully presents Eniac Student Feed as a cutting-edge, user-focused platform that facilitates feedback collecting that is matched to Course Outcomes (CO) and makes a substantial contribution to institutional quality assurance. The system is essential to promoting accountability, openness, and ongoing development in the educational setting since it facilitates group engagement and data-driven academic assessments.

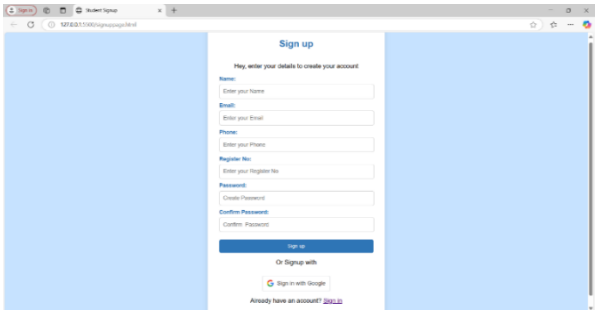


Figure .3. Student sign-up interface

Figure 3 Displays the student sign-up interface of the Eniac Student Feed web application. a feedback system based on CO that is intended to assess course results and improve academic quality. With a single form asking users to create their accounts by inputting pertinent academic and personal information, the page has a responsive and simple design. In order to ensure safe and authentic student registration, the form gathers the following information: Name, Email, Phone number, Register Number, Password, and Password confirmation. The message "Hey, enter your details to create your account" lends a welcoming and interesting tone to the website. A blue 'Sign up' button makes it easier to create an account, while other features like Google sign-in integration make the registration process even easier. Users who already have an account are redirected to the Sign-in page via a prompt below the main form. The first step in enabling students to take part in CO-specific feedback surveys and incorporate their opinions into a systematic academic development process is this registration page.

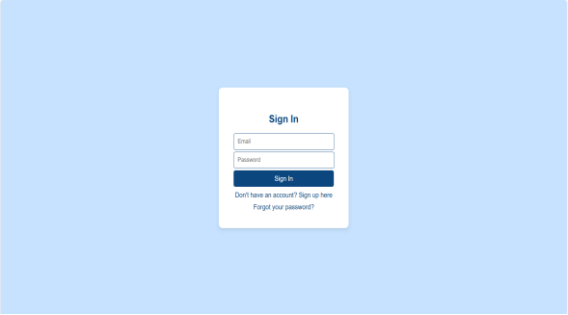


Figure .4.Signin Page for Students,Faculty,Admin

Figure 4 Displays the unified Signin page designed for students, faculty, and admin users within the Eniac student feed system. With email and password entry boxes and a prominent "Sign In" button, the interface offers a simple and easy-to-use login form. Additionally, it has links for both new users to register and for current users to retrieve their forgotten passwords. Secure role-based authentication is made possible by this centralised login page, guaranteeing that users are sent to the appropriate dashboards according to their roles following a successful login. All user types benefit from an intuitive user experience because to the minimalist and uniform design.

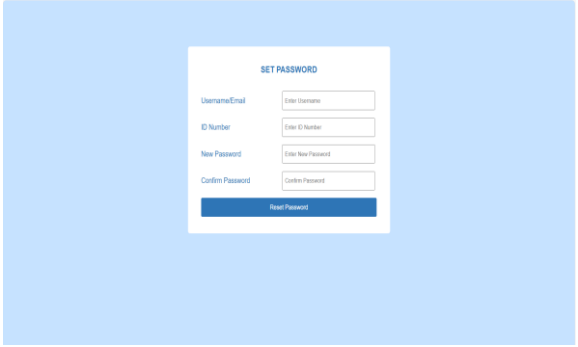
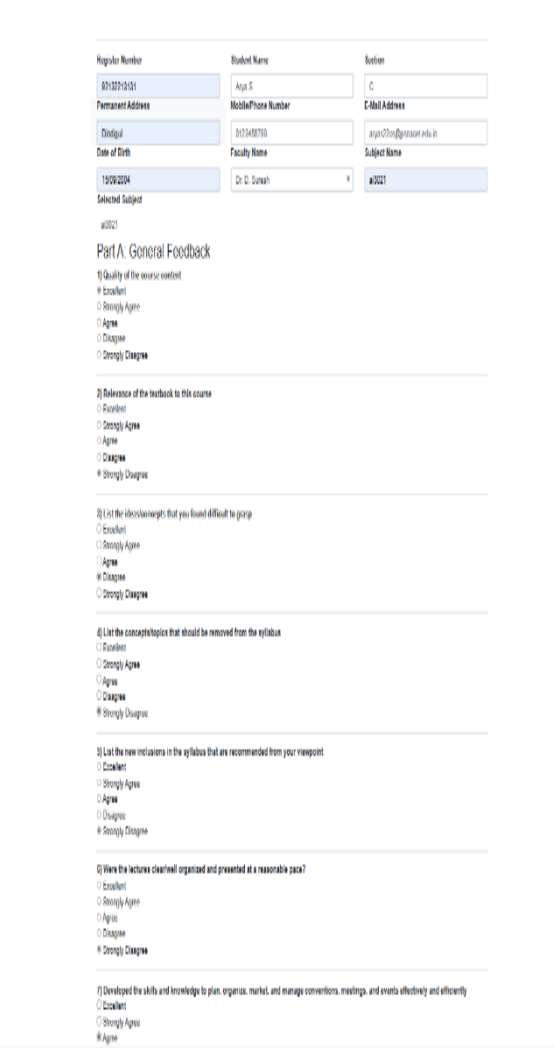


Figure .5. Password Recovery Page

Figure 5 illustrates the password recovery interface of the Eniac Student Feed System.This "Set Password" page is essential for improving user accessibility and account security since it allows users to change their passwords in the event that they are compromised or forgotten. The function is a vital part of the entire user experience because it is commonly used by different users of the system, such as administrators, teachers, and students. The user must supply important identifying information, such as their username, registered email address, institutional ID number, a new password, and a confirmation of the new password to guarantee accuracy, in order to start the password reset procedure. The system safely changes the user's password after correctly comparing the entered data with its database records. Without the need for administrator assistance, the user can then use the freshly created login credentials to access their account and regain access to the system.



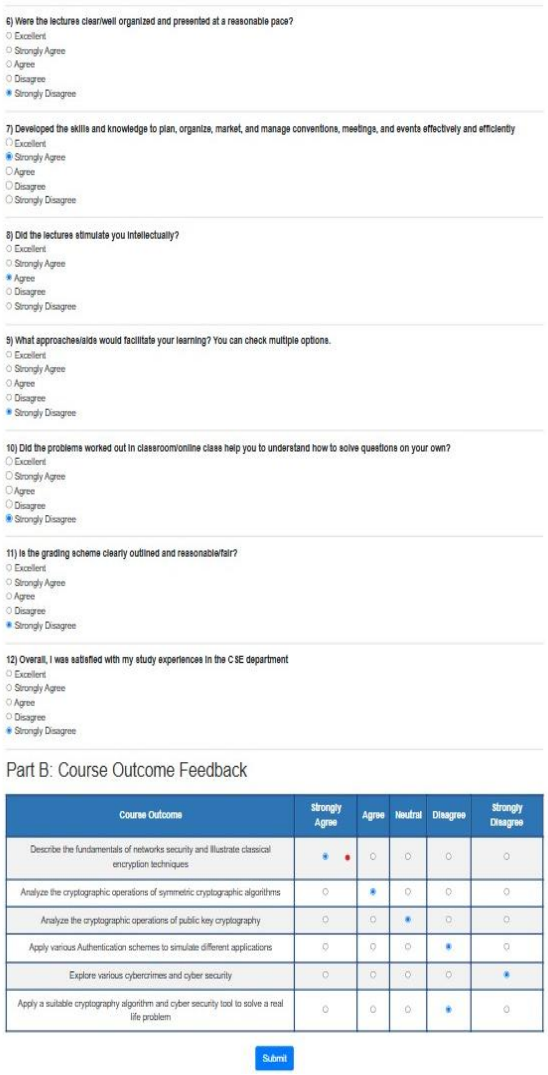


Figure .6. Student Feedback Form Page

Figure 6 displays the page for the Student Feedback Form. To gather comprehensive information about the educational experience, the student feedback form is divided into many sections. Students must provide their registration number, student name, section, permanent address, phone number, email address, date of birth, faculty name, and subject name at the top. Students assess the quality of the course material, the textbook's relevance, the concepts that are hard to understand, the concepts that should be eliminated, and the suggested additions to the syllabus in Part A of the form, which is devoted to general feedback. It also asks on how well-structured and well-paced the lectures were, as well as whether the course contributed to the development of pertinent knowledge and skills. Students select "Excellent," "Strongly Agree," "Agree," "Disagree," and "Strongly Disagree" as their answers for each of these

questions .Course Outcomes is covered in Part B. One example topic is "computer electric." The relevant course outcomes are retrieved from the database and shown to the learner for feedback when they choose a subject code. A Likert scale from "Strongly Agree" to "Strongly Disagree" is used to rate these.

After asking about general satisfaction with the study experiences in the CSE department, the form ends with a submit button to capture the responses. The form design supports the institution's objective of ongoing development through student input by guaranteeing comprehensive coverage of both course content and learning outcomes.

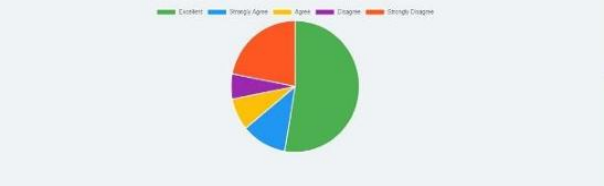


Figure .7. Overall Analysis page of the Eniac Student Feed System

The Eniac Student Feed platform's Overall Analysis page is shown in Figure 7. Based on student feedback, this graphical overview offers insights into how Course Outcomes (COs) are evaluated. Both tabular and graphical representations are used to show the data in order to facilitate a thorough comprehension of the responses from the students. The response distribution for the three course outcomes is shown in the upper table. For instance, CO1 shows how well students can use their foundational engineering and computer knowledge to tackle technical issues. Diverse student perceptions are indicated by the replies' distribution throughout a predetermined rating scale. The percentage distribution of answers across five categories—Excellent, Very Good, Good, Average, and Poor—is graphically represented in a pie chart beneath the table.

VI. DISCUSSION

A. Improving Methods and Literature

A strong foundation in academic research was required for the development of Eniac Student Feed in order to understand the prevalent problems with student feedback systems. Even though earlier studies have examined feedback mechanisms in instruction, little is known about automated feedback analysis, faculty performance monitoring, and curriculum improvement. By combining data-driven information, organised feedback collecting, and institutional accreditation support, this project aims to close this research gap. In order to ensure overall system design, the design methodology used for Eniac development included both qualitative and quantitative methods. In order to ensure overall system design, the design technique used for the creation of Eniac Student Feed included both qualitative and quantitative methods. Iterative testing, feedback systems, and user-centred design concepts were all part of the project's multi-stage development cycle. Several key approaches were used, including data visualisation techniques, usability testing, mapping accreditation guidelines, and student and faculty surveys, all of which enhanced the Eniac platform's usability and efficacy.

B. Project Phases

The development of InsightHub was divided into multiple stages to enable a systematic and efficient procedure. These stages were:

1.Identification of Stakeholders and Ecosystem Mapping

Finding and comprehending the feedback system's major stakeholders was the first step in the development process. Students, instructors, administrators, and outside accrediting organisations were among them. Determining how each user would engage with the platform was made easier by mapping the ecosystem. In order to facilitate collaboration amongst all parties and provide a user-centric environment that complied with academic evaluation criteria and institutional aims, a collaborative framework was built.

2. Definition of Service Scope and Functionalities

The system's primary features and general scope were precisely defined during this phase. The platform was created to automate a number of functions, including evaluating faculty performance, gathering student feedback at the course level, and mapping that feedback to certain Course Outcomes (COs). The system was also designed to produce informative reports that could be utilised for accreditation and internal reviews. This distinct viewpoint made it easier to match academic objectives with technical design**.**

3. Ethical and Legal Obligations

Ensuring ethical data processing and regulatory compliance was a critical component of the project. Regulations pertaining to the privacy of academic data were carefully examined, and safe user authentication and access control systems were put in place.

Institutional guidelines for confidentiality and data use were also considered. These steps were essential to ensuring that the platform maintained the integrity and confidence necessary in an academic setting in addition to operating efficiently

4.Analysis and Testing of User Needs

Understanding end users' requirements and expectations was crucial to developing an intuitive and successful feedback system. Both teachers and students were surveyed and interviewed to get their opinions on the reporting features, interface preferences, and usability of the system. By removing obstacles and improving the user experience overall, this feedback was crucial in improving the system's responsiveness and intuitiveness.

5.Development of Personas and Use Cases

Several user personas were created to reflect various roles engaging with the system in light of the feedback and insights gathered. These featured an administrator overseeing system access and compliance, a faculty member evaluating performance reports, and a student providing comments. In order to replicate real-world interactions and guarantee that the system would function as expected by all user groups, comprehensive use cases were developed.

6.Integration of Databases and Systems

A strong architecture was used to build the system's technical foundation. PHP was utilised for server-side logic, and MySQL was used for organised database management. Dynamic form handling and interactive dashboards were made possible using JavaScript. In order to maintain data integrity and security, the system was built to securely handle massive amounts of feedback data. It also provided role-based access, which made sure that only authorised users could read or alter particular information.

7.Iteration and Proof of Concept

To verify the system's functionality, a prototype was created and first implemented in a few departments. Faculty and administrators' real-time usage during the pilot phase yielded insightful information. Several incremental changes were made to streamline processes, address issues, and enhance system performance in response to their input. This stage made sure the finished output would be trustworthy and appropriate for the educational setting.

8.Completed Prototype and Implementation

The system's final version was ready for broader institutional deployment after several iterations of testing and improvement. To make sure the system could manage higher user demands, more scalability and performance tests were carried out. Eniac Student Feed was successfully implemented with all the necessary elements in place, providing a productive, outcome-based feedback system that complied with accreditation requirements and institutional goals.

C. Collaboration and Participation of Stakeholders

A multi-stakeholder partnership method was employed by Eniac Student Feed, including several sectors to promote a realistic and well-balanced development strategy:

• Academic Institutions: Provided data on accreditation requirements, course feedback platforms, and faculty evaluation criteria.

• Technology specialists: Contributed to the development of scalable and safe web-based platforms built using PHP, MySQL, and JavaScript.

• Faculty members contributed to the development of reporting frameworks, data interpretation specifications, and evaluation rubrics.

• Students: Made a substantial contribution to testing, feedback submission, and system usability validation.

At every stage of the project, a variety of stakeholders were actively involved, with administrators managing adherence, academics setting evaluation criteria, and students improving usability through continuous feedback.

D. Future Considerations and Governance

Creating strong governance guidelines and ensuring long-term viability may have been the most important factors in Eniac Student Feed success. Adoption of the system necessitates institutional compliance procedures, well-structured data protection regulations, and ongoing enhancements based on user feedback. Maintaining student feedback anonymity while guaranteeing faculty evaluation openness is a significant implementation problem for Eniac Student Feed.

Additionally, institutional goals should be connected to automated performance analytics and monitoring without the inclusion of bias or biassed assessment elements. The financial aspect is also important because Eniac Student Feed deployment across several institutions requires server infrastructure, system

upgrades, and data security measures. However, it is a worthwhile investment due to the long-term benefits of data-informed faculty development, expedited accreditation processes, and increased student participation**.**

E. Important Discoveries and Difficulties

From our research and development activities, some of the most significant conclusions and difficulties were identified:

User-Centric Design Is Essential: Both teachers and students favoured an easy-to-use method of giving and getting feedback over a convoluted, multi-step procedure. Data privacy and security must come first: Building user trust required adherence to institutional standards, safe role-based access, and encrypted feedback storage. Collaboration Among Stakeholders Drives Success Continuous feedback loops between administrators, instructors, and students greatly increased reporting accuracy and system usability. Iterative Development Boosts System Reliability: Several testing cycles improved automated reporting mappings for accreditation compliance and faculty assessment algorithms.

Figure.9. CO Distribution pi chart

A pie chart that displays the breakdown of CO mappings as reported by department heads was created in order to further examine the efficacy of Course outcome evaluations. The distribution of the mapped results on important learning criteria is shown in this visual comprehension (see Figure 9).

VII. CONCLUSION

One noteworthy advancement in student feedback systems is ENIAC Student Feed, which was created for PSNA College of Engineering and Technology's CSE department. In order to assess the efficacy of instruction and learning opportunities, it methodically gathers and examines student input, matching answers with predetermined Course Outcomes (COs). Its integrated analytics support the ongoing improvement of instructors and course delivery by assisting in the identification of trends, areas of strength, and areas for improvement. Wider acceptance hinges on improvements like user training, user-friendly dashboards, and interaction with academic systems, even though the initial implementation shows great promise. For long-term success, data privacy and system scalability must be addressed. ENIAC can meet industry expectations and promote a culture of continual academic improvement by bringing educational methods into line with NBA, NAAC, and AICTE standards with further development and institutional assistance.

DATA AVAILABILITY

Accreditation criteria, publicly accessible academic frameworks, and institution-approved feedback procedures were all used in the development of ENIAC Student Feed. During the development stage, no private or sensitive student information was used. All feedback gathering throughout testing complied with stringent academic privacy regulations and moral data-handling guidelines. Transparency and data security were given top priority in the system's design. Any future integration involving student or institutional data will adhere strictly to the institution's data protection regulations as ENIAC develops in order to preserve stakeholder trust and guarantee confidentiality. This dedication to prudent data use guarantees that the system will always be safe, dependable, and compliant with ethical and academic norms.

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The CSE department at PSNA College of Engineering and Technology worked together to create the ENIAC Student Feed. Internal academic resources and faculty-led projects aimed at enhancing higher education feedback systems provided support for the project. The development was in line with the institution's objectives for quality control and ongoing improvement, even though no outside funding was employed. The department supplied infrastructure and technical support to make development and testing easier. The team's dedication and common vision were crucial in taking ENIAC from idea to reality and supporting the institution's overarching goal of bringing academic procedures into line with industry norms and accrediting requirements.

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