SOUTHEAST ASIAN JOURNAL OF SCIENCE AND TECHNOLOGY

Volume 10, Issue 1, 2025
P-ISSN: 2672-2984
E-ISSN: 2672-2992
www.sajst.org

I-EVALUATE: An Employee Performance Evaluation System with Data Analytics for King's College of the Philippines-Benguet

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Article Info:
Received: ***01 June 2025;*** *Revised:* ***09 Aug 2025;*** *Accepted:* ***21 Oct 2025;*** *Available Online:* ***15 Dec 2025***

Abstract –*This study addressed the inefficiencies of the traditional faculty evaluation process at King's College of the Philippines–Benguet by developing a web-based evaluation system called i-Evaluate. The system was designed to modernize data collection, enhance accuracy, and support informed decision-making through real-time analytics. Using Extreme Programming (XP) as the development methodology, the study identified essential information requirements and implemented core features such as self, peer, student, and supervisor evaluations. The usability of the system was assessed using the System Usability Scale (SUS), which yielded an average score of 85.01, indicating high user acceptance and satisfaction. The findings demonstrate that the i-Evaluate system effectively streamlines faculty evaluations, improves efficiency, and supports the operational needs of the Human Resource Management Office.*

Keywords – *Performance evaluation, Data analytics*

INTRODUCTION

Technology has grown in prominence through innovative and emerging new ideas. One of which is the Evaluation Systems (ES) that function various services for industry sectors such as health, education, manufacturing, finance and business (Feyen et.al, 2021).

A study that explored the relationship of innovation in office technology, effective management and sustainable development that was presented by Muhammad (2023) claimed that innovation in office technology, such as energy-efficient devices, digitalization and automation significantly aid office managers, harness reduction of resource consumption, waste generation and environmental impact. It also concluded that effective management practices through collaborative tools are viewed as paramount in promoting sustainable development because it promotes and nurtures employee engagement and awareness programs, adopting eco-friendly procurement processes, and impacts overall sustainability performance of organizations. The Human Resource Management (HRM) Office of an organization is not an excuse for this innovation. It was emphasized by Davidescu et. al (2020) that HRM needs to be redesigned, including long-term development regeneration, and renewal of human resources, passing from consuming to developing human resources by incorporating the concept of sustainability. Further, through this innovation, employers can focus on employee and environmental care, employee participation and development, external partnership, flexibility, compliance with labor regulations, cooperation between employees, equity and equality (Davidescu et. al, 2020).

Employee evaluation such as teachers' evaluation was seen as a policy effort that increased teacher effectiveness and student learning (Sok & Heng, 2024). Ho (que et.al, 2023) pointed out that every

Volume 10, Issue 1, 2025
P-ISSN: 2672-2984
E-ISSN: 2672-2992
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organization has an objective towards optimum performance and the employees are the key drivers in achieving it. That is why employees' performance holds a significant role in the success of the organization. Further, quality of learning providers is an essential matter in establishing trust in academic institutions among its stakeholders (Benosa & Onate, 2021).

According to Putra, Borman, and Arifin (2022), teacher performance appraisal data gathering conducted through manual process took time, tended to input data repeatedly and errors in data input and inefficient data storage resulted in a longer data search process. They also added that it does not support decision-making on teacher performance assessments, so the school has difficulty determining achievement and evaluating teacher performance.

Moreover, Zhenjing et al. (2022) said that the assumptions of Human Resource Management Office (HRMO) states that the employees of the company are how improved performance is achieved. To increase performance, teaching employees of the institution are therefore should be seen as a valuable asset by all means. Thus, employee evaluation will always be a part of any organization, company or an institution.

A recent study on Student Evaluation of Teaching (SET) in Taiwan stressed that online teaching evaluation provides ease of use, clarity and helpfulness as reflected on their survey among 364 Asian students, which coincides with claims among other countries (Wang et.al, 2023). The study also mentioned ratemyprofessors.com which is an online platform used in the United States of America (USA), Canada and the United Kingdom (UK).

In the Philippines, a web-based faculty performance evaluation system was developed to digitize the Qualitative Contribution Evaluation (QCE) by Kasan and Buenavides (2023). This system implemented the administrators, peers, students, and self through online platforms in evaluating teachers' performance using C# and MySQL. The students, faculty, and administrators who rated the performance of the system through the survey questionnaire evaluated the developed system and showed that the Web Mobile-Based Teachers' Performance Evaluation System (W-B BTPES) based on the teacher's performance evaluation yielded a faster, more convenient, and a secure way of evaluating the performance of faculty members. Moreover, there are essential functionalities of faculty evaluation for assessing performance and effectiveness in quality education (Merentek et.al,2023). These then are as follows: 1) Self-Evaluation, 2) Student Evaluation, 3) Immediate Supervisor Evaluation, and 4) Peer Evaluation.

Another innovative trend for evaluation systems is the application of Data Analytics which will improve decision making for Human Resource Management Office (HRMO). Khan & Ghosh (2021) states that data analytics can be a useful tool for evaluating employee performance in the educational sector. It was also mentioned that institutions need to adapt and choose the right data analytics tool to reap the rewards of massive data volume (Krishna et.al,2023). Data analytics have a big role and importance like the following: (1) It provides factual evidence-based insights that guide strategic planning and decision-making and eliminating guesswork; (2) Improve work efficiency; (3) It can involve the systematic organization and management of tasks and processes to ensure optimal performance, efficiency, and productivity; (4) It can predict potential threats and manage or maximize risks, thus enabling proactive response strategies; and (5) It can reduce operating cost (Roberts (2023), Boyle (2023) and Dataforest, (2023)). One of the notable branches of data analytics is Descriptive Analytics where Wolniak (2023) stated that it aims to produce clear and concise results of data that can be useful for decision making. This also involves historical data to gain insights and trends to pattern data collection into optimizing results for better management (Wolniak, 2021) (Olkiewicz et. al, 2021).

Volume 10, Issue 1, 2025
P-ISSN: 2672-2984
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There are so many types of an employee evaluation system that any institutions can use to evaluate their faculty and staff such as Graphical Rating Scales system (Forson et. al, 2021), 360-degree organizational performance evaluation (Vuong & Nguyen, 2022) and Monitoring and Evaluation systems (M&E) (Messineo, 2024). Others are Connecteam, Lattice, Cornerstone OnDemand, Perform yard, Trakstar, AssessTeam (Software World, 2023 and Cohen, 2024). Moreover, one of the best approaches in presenting evaluations is through Data Analytics. It was proven in the research of Cinizan and Valdez (2023) that was and efficient approach to have an inclusive and insightful analysis on faculty performance. With these issues, challenges and solutions through innovations presented by several authors on employees' evaluation, the proponent seeks to propose an employee's performance Evaluation System for King's College of the Philippines-Benguet that will be called i-Evaluate, targeting the faculty performance evaluation system. This will be proposed to the Human Resource Management Office (HRMO) through the Human Resource Director.

Currently, the office has only 1 staff member with the HR Director. With this set-up, there is a need for innovation processes to alleviate the employee, especially on faculty evaluation. The said proposal will focus on developing a web-based application that will cater the needs of the HRMO, Heads and Faculty in order to measure their performance.

The HR Director will act as the administrator of the system. She will have all the access to manage faculty performance evaluation. Mentioned collected reports of evaluation with the integration of Data Analytics will be subject to management's decision making such as promotion, recommendation or sanction for specific faculty.

The faculty also have access to the system in order to conduct peer evaluation, also they can view results of their evaluation. For the immediate supervisor, he/she will evaluate all faculty members that are within the department.

For students, the evaluation process will be based on the subjects available for evaluation, with particular emphasis on those with multiple sections. The Human Resource (HR) Director will determine which subjects are to be open for evaluation, in accordance with the academic schedule. Furthermore, the proposal will target the Sustainable Development Goals (SGD) of 2017 particularly number 8 (Decent Work and Economic Growth); number 9 (Industry, Innovation and Infrastructure); and number 11 which is Sustainable Cities and Communities.

MATERIALS AND METHODS

This section presents the materials and methods used in developing i-Evaluate.

Research Design

The study used a developmental-descriptive research design. The developmental component focused on the creation of a web-based employee performance evaluation system intended for the Human Resource Management Office (HRMO), while the descriptive component assessed the usability and acceptability of the system after development.

To guide the software creation process, the researcher utilized Extreme Programming (XP), an agile development methodology recognized for its iterative cycles, responsiveness to changing requirements, and emphasis on software quality. XP was selected because the project required continuous refinement based on stakeholder feedback and institutional needs.

Locale of the Study

The study was conducted at King's College of the Philippines-Benguet. The institution's Human

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P-ISSN: 2672-2984
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Resource Management Office is responsible for faculty and employee evaluations, making it the primary beneficiary and implementation site of the developed system.

Respondents of the Study

The respondents of the study consisted of the actual users and stakeholders of the evaluation process, namely:

Respondent Group	Role in the Study
Human Resource Director	Administrator / Key Informant
HR Staff	Administrative Users
Teaching Employees	Faculty Evaluators and Evaluatees
Immediate Supervisors / Deans	Supervisory Evaluators
Students	Student Evaluators

For usability assessment, 725 college student participants were invited from a total population of 2,646 students to interact with the system and answer the usability survey.

Sampling Technique

The study used **purposive sampling** in selecting respondents for system evaluation. This technique was employed because only participants directly involved in the faculty evaluation process and those who had access to the system were considered appropriate respondents for usability testing.

Data Gathering

The researcher implemented the phases of Extreme Programming (XP), one of the agile development methodologies. The researcher plans to adopt this because of its ability to adopt changing requirements due to user's comments and suggestion (Anasara, 2023). It is also an iterative aiding in achieving high software quality (Fazrin et.al, 2021). Figure 1 shows the different phases of the XP as presented by Anasara (2023).

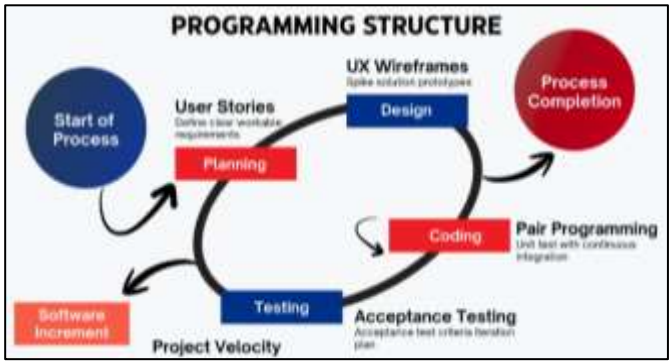

Figure. 1: *The Extreme Programming (Anasara, 2023)*

Planning Phase

This stage is the initial step in system development, where several planning activities are carried out, including problem identification, analyzing requirements, and setting the schedule for system development implementation.

The researcher used interviews, observation, and survey on this stage to identify and understand the processes and difficulties of the existing system. Further, the researcher used the Gantt chart to plot the schedule of tracking the development of the system

Design Phase

The next stage is the design phase, where modelling activities take place, starting from system modelling, architecture modelling, to database modelling. System and architecture modelling utilize Unified Modelling Language (UML) diagrams, while database modelling will use Entity Relationship Diagram (ERD).

The researcher modelled out the architecture models and database models for the system. First, the developer created the three-tier system architecture.

SOUTHEAST ASIAN JOURNAL OF SCIENCE AND TECHNOLOGY

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P-ISSN: 2672-2984
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Second, the researcher created the system models through UML diagram through class diagram, use case diagram, sequence diagram, and package diagram that were presented in figures 4, 5, 6,7, and 8, which also helps in the creation of the database diagram through ERD as shown in figure 2.

Coding Phase

This stage involves the implementation of the previously created models into a user interface using a programming language.

From the designed models as the output of Phase 2, the researcher implemented these through actual coding. The tools used for the development are: for the front-end it was used for react and material UI, which aided by the scripting tool for the back-end which is Laravel and MySQL as the database.

Testing Phase

After the coding stage is completed, the system undergoes testing to identify any errors that may occur while the application is running and to determine if the system built meets the user requirements.

The system is beta-tested with the Human Resource (HR) Director, the teaching employees and students. After which, the user will test the system using the System Usability Scale (SUS).

If the system during the testing happened to be missing some important features that should be implemented to solve a particular issue, the Software increment will be observed where the developer and the user will re-define or define the identified lacking requirement, design,

Instrument Used

The primary instrument used to evaluate usability was the System Usability Scale (SUS). It consists of ten items rated using a five-point Likert scale from **Strongly Disagree** to **Strongly Agree**. Odd-numbered items are positively worded, while even-numbered items are negatively worded.

Statistical Treatment of Data

The usability score of the system was computed using the SUS formula:

$$SUS\ Score = \frac{\sum \text{individual scores}}{n}$$

Where:

- $\sum$ = Total Adjusted Scores
- n = Number of Respondents

Based on the responses gathered:

$$SUS\ Score = \frac{61637.5}{725} = 85.01$$

The final score of **85.01** falls under Grade A – Excellent, indicating high system usability and strong user acceptance.

Ethical Considerations

Participation in the usability survey was voluntary. Respondents were informed of the purpose of the study, and submitted responses were treated confidentially. Access to evaluation results was restricted according to user roles to preserve privacy and integrity of records. The researcher ensured responsible handling of institutional and personal data throughout the study.

RESULTS AND DISCUSSION

This chapter presents the information requirements needed in the design and development of the application; the features of the system; and level of usability of the application.

Information Requirements

This section of the study presents various representations that illustrated the development of the system. These representations provided a detailed

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overview of how the system operates, highlighting the flow of processes and interactions within its components.

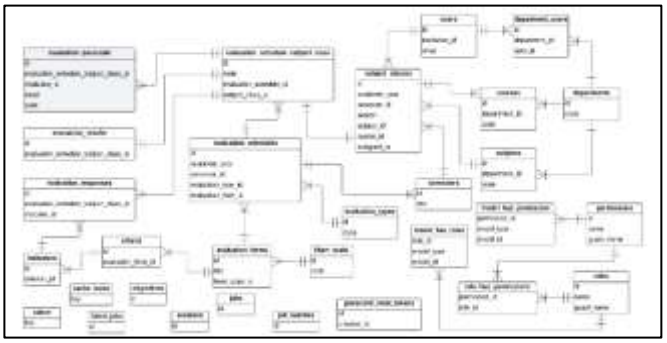

Figure 2*: Entity Relationship Diagram*

The Entity Relationship Diagram (ERD) presented comprehensive representation of the database structure for the evaluation system. It visualizes the system's key entities, their attributes, and the relationships among them, providing a clear and logical organization of data. By defining how entities are interconnected and highlighting cardinality, the ERD ensures the seamless flow of information, supporting efficient storage, retrieval, and management of evaluation-related data.

This ERD serves not only as a blueprint for database design but also as a guide for the researcher in understanding the underlying data model. It facilitates the implementation process and ensures that the system's objectives are met effectively. Additionally, the ERD promotes consistency, accuracy, and clarity in database development, forming the foundation for the evaluation system's successful operation.

Moreover, the class diagram serves as a structural representation of the system's design, showcasing the core classes, their attributes, methods, and the relationships between them within the evaluation system. As illustrated in figure 3, the diagram provides a clear and organized view of how the system's components interact, ensuring a well-defined architecture. This representation is essential for understanding the system's functionality, guiding development, and facilitating effective communication among team members during the implementation process.

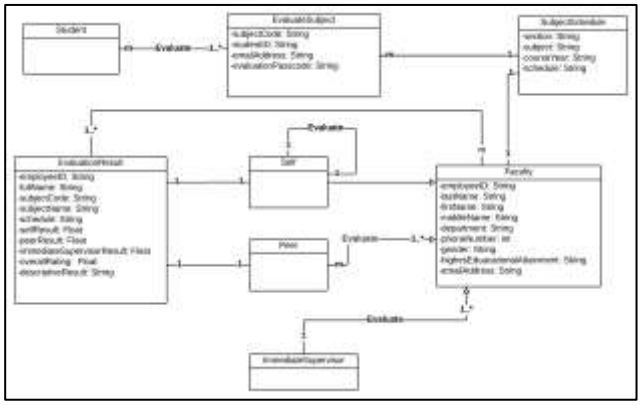

Figure 3: *Class Diagram*

This diagram captures the primary components involved, including Student, Faculty, SubjectSchedule, EvaluationResult, Self, Peer, and ImmediateSupervisor. Each class contains attributes that define its properties and operations, illustrating the functionality and data flow within the system. This diagram provides an overview of the system's architecture, facilitating better understanding and enabling developers to identify how the components interact to achieve the system's goals. It serves as a foundational reference for both implementation and further refinement of the system.

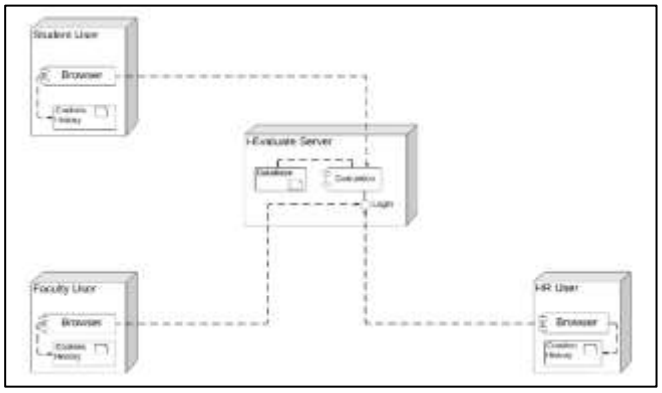

Figure 4: *Deployment Diagram*

The deployment diagram illustrated the physical architecture and distribution of the "i-Evaluate" system across hardware devices, emphasizing its operational infrastructure. The diagram includes three key user roles:

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Volume 10, Issue 1, 2025
P-ISSN: 2672-2984
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Student user, Faculty user, and HR user. Each user accesses the system through a browser installed in the device, the browser interacts with the "i-Evaluate" Server to perform specific tasks, such as logging in, evaluating, or managing data.

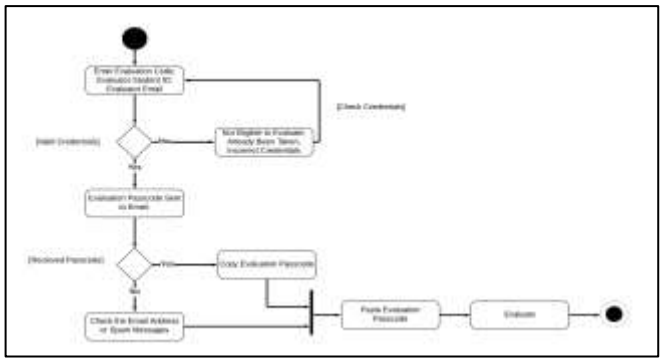

Figure 5*: Activity Diagram*

On the other hand, the activity diagram illustrated on figure 5, shows the process of how a student evaluate their teacher using the evaluation system. It represents the flow of actions starting from entering credentials like, evaluation code, student ID number, and evaluator email for the student to be able to receive an evaluation passcode to proceed.

The figure also demonstrates that if a student is not eligible to participate in the evaluation, they will not be allowed to proceed. This functionality ensures that the system can verify whether the student is included in the class schedule designated for evaluation. Additionally, the diagram provides a clear representation of the sequence of steps, decision points, and interactions within the system, effectively showcasing its functionality and validation process. This validation mechanism enhances the system's accuracy and ensures that only authorized students can complete the evaluation, maintaining the integrity of the process.

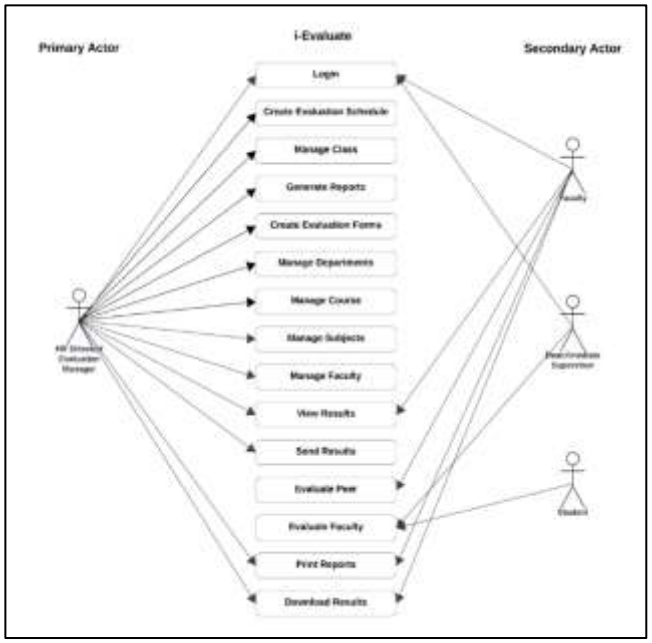

Figure 6: *Use Case Diagram*

The use case diagram for the "i-Evaluate" system provides a high-level visual representation of the interactions between the system and its users, highlighting the roles and responsibilities of each actor. It identifies the primary actors — HR Director/Evaluation Manager, Faculty, Immediate Supervisor, and Student, and outlines their specific interactions with the system.

The HR Director or Evaluation Manager has full access to all features of the system, enabling them to manage evaluation schedules, create and edit evaluation forms, generate and view reports, manage departments, courses, and subjects, and oversee faculty-related activities. Faculty members have limited access, allowing them to perform self-evaluations, evaluate peers, view their evaluation results, and download or print these results for reference. The Immediate Supervisor, such as a dean, can log in and evaluate all faculty members under their department, ensuring accountability and adherence to departmental goals. Lastly, students are limited to evaluating their respective teachers, providing valuable feedback that contributes to the overall assessment process.

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This structured role-based access ensures the system maintains security and functionality while streamlining the evaluation process for all users. The diagram effectively illustrates these interactions, emphasizing clarity and ease of understanding for system stakeholders.

The sequence diagram shown in figure 7 represents the process of user authentication and evaluation within a system, detailing the interaction among user, computer, server, and the evaluation module.

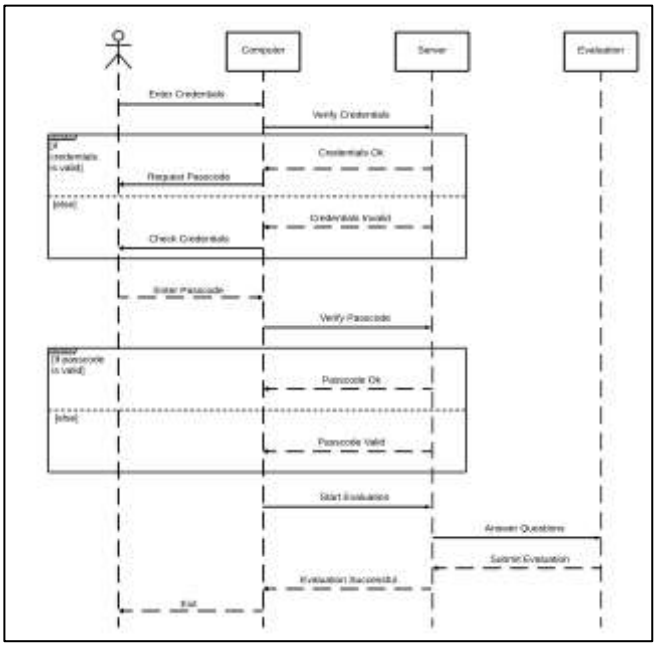

Figure 7: *Sequence Diagram*

The server needs first to authenticate the user's credentials if it is valid or not. If valid, the system proceeds to request a passcode, if invalid, the user is not notified and the process stops. Evaluation passcode is the key for the user to proceed for evaluation once its validated. Once authenticated, the user starts the evaluation, after submission the system confirms a successful evaluation and the user exits.

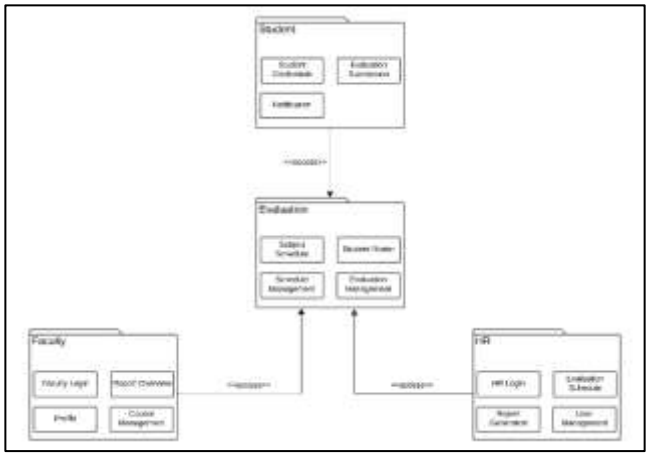

Figure 8*: Package Diagram*

The package diagram for the "i-Evaluate" system serves as a high-level visualization of its modular structure, grouping related components into distinct packages to reflect their specific roles and responsibilities. This diagram includes four key packages: Student, Faculty, HR, and the System itself, each containing components essential to their operations.

The student package handles functionalities such as evaluation submissions, while the faculty package manages features like feedback viewing and course-related data. The HR package focuses on administrative capabilities, including evaluation scheduling and reporting. Lastly, the System package encapsulates shared functionalities, such as authentication, database access, and error handling.

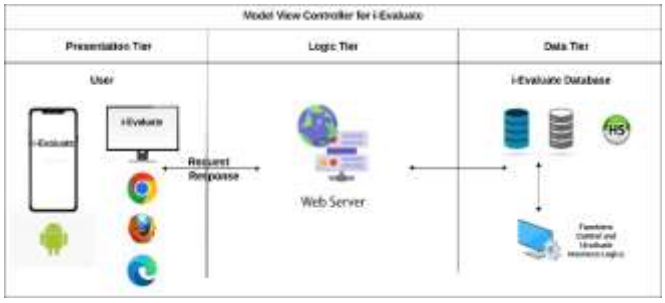

Figure 9*: Model View Control Architecture*

The "i-Evaluate" follows a Model-View Controller (MVC)architecture, which divides the application into three key layers which are Presentation

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Tier, Logic Tier and Data Tier. This structure improves maintainability and scalability by clearly separating how data is handled, processed and displayed. The Presentation Tier is responsible for the user interface, allowing users to interact with the system via web browsers through a shared network. It collects user input and presents the evaluation results in a user-friendly manner. This tier ensures a smooth and accessible experience for users.

The Logic Tier acts as the core of the system, handling business logic and user request flow. The back end relies on the Laravel framework for efficient development which manages data storage and retrieval, utilizing a database to store information such as user details and evaluation results.

Tools like HeidiSQL is a lightweight and open-source database management tool designed for working with MySQL, MariaDB, PostgreSQL, and SQL Server databases. It provides a user-friendly interface that simplifies various database tasks, such as executing SQL queries to retrieve or manipulate data, browsing and editing table records to maintain consistency, and exporting or importing data for backup and restoration purposes. Additionally, HeidiSQL supports schema design, allowing users to create or modify tables, views, and indexes to optimize database structure. It also offers tools for data analysis to monitor and improve database performance, along with features to manage user access and privileges to ensure security and prevent unauthorized changes.

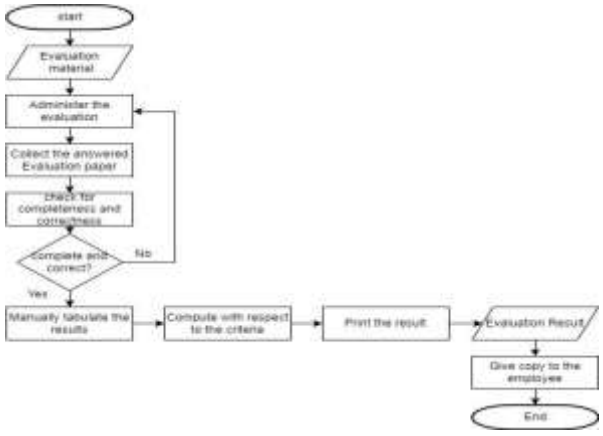

Figure 10: *Existing Evaluation Processes*

The following flowchart illustrates the current manual evaluation process, showcasing the sequential steps involved in assessing faculty performance. The process begins with the preparation of evaluation materials ensuring all necessary resources, such as questionnaires and scoring rubrics, are ready. Next, the evaluation is administered, where participants complete the forms.

Once collected, the evaluation papers are reviewed to ensure completeness and accuracy. If any discrepancies are identified, the evaluation process is revisited to address the issues. Following verification, the results are manually tabulated and computed using the predetermined criteria. These computations are then compiled into printed reports for further review. Finally, the processed results are shared with the respective faculty members, marking the conclusion of the evaluation.

This manual evaluation process is labor-intensive and prone to human error, particularly in the stages of data verification and computation. Addressing these inefficiencies implies the need for an automated system like “i-Evaluate,” which can make the process easily manage, enhance accuracy, and significantly reduce administrative workload.

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Features of the Proposed System

The system supports four distinct user roles: Human Resource (HR) director/Human Resource staff, immediate supervisor, faculty, and students. Each user role has different levels of access:1) Human Resource (HR) director/ Human Resource staff: Full access to all system features, like managing user, configure evaluation settings, view analyze all evaluation results, and generate needed reports for organizational use. 2)Faculty: Faculty members have limited access to features that focus on their evaluation and performance. They can conduct self-evaluation, peer evaluation, and access their evaluation result. Additionally, they can print or download their results for reference. 3)Immediate Supervisor: Sometimes called Deans. They are granted access to evaluate the performance of their subordinates. 4)Students: Students are limited to evaluating their respective faculty.

To manage the evaluation system, the Human Resource (HR) director or HR staff must first configure and set up the system before it can be used. This initial setup includes uploading all necessary datasets like faculty programs offered, departments, subjects, and subjects that are opened for evaluation.

Additionally, the setup process involves defining user roles and access permissions to ensure that each user can only access the features relevant to their responsibilities. The HR personnel are responsible for encoding or importing faculty profiles and assigning them to appropriate departments and subject loads. This structured setup facilitates accurate mapping between evaluators and evaluates, which is crucial for generating reliable evaluation results. By organizing the foundational data during the initial configuration, the system ensures a smooth and efficient evaluation process.

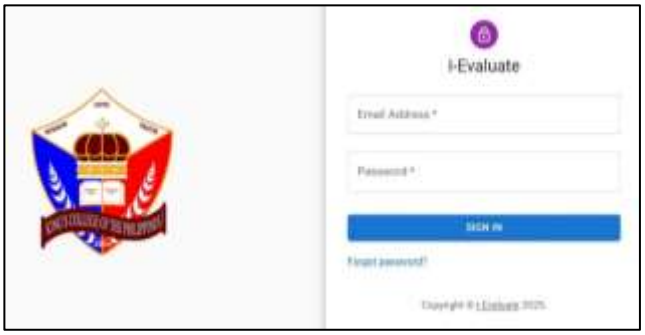

Figure 11: *Login Page*

The figure above illustrates the login page of the system, designed to cater to both Human Resource (HR) personnel and faculty members. To access the system, users are required to enter their email address and password as login credentials, ensuring secure authentication. The login page also includes a "Forgot Password" link, which enables users to reset their passwords independently in case they have forgotten them. This feature not only enhances the system's usability by providing a self-service recovery option but also reduces administrative workload by minimizing password reset requests. Furthermore, the design of the login page prioritizes user convenience and security, ensuring that only authorized personnel can access the system. Clear instructions and a simple interface make it easy for users to navigate and complete the login process. These features collectively contribute to a streamlined and user-friendly experience, maintaining the system's reliability and accessibility for all stakeholders.

In addition to its functional elements, the login page incorporates a clean and minimalist layout that aligns with modern web design standards. The interface utilizes a neutral color scheme with clearly labeled input fields, ensuring readability and reducing user confusion. Responsive design principles were also applied, allowing the login page to adapt seamlessly across various devices, including desktops, tablets, and smartphones. Visual cues such as icons beside input fields and subtle error messages provide users with immediate feedback, further enhancing usability. Overall, the aesthetic and structural design of the login page reflects an emphasis

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on both form and function, ensuring an intuitive and professional user experience from the first point of system interaction.

Figure 12: *Dashboard*

The dashboard provides various data visualizations, offering insights into key HR metrics. It includes an employee count per department, employee count by gender. The dashboard also includes different types of evaluations data including; student to teacher evaluation, dean to teacher evaluation, and self evaluation.

The dashboard provides a comprehensive overview of key faculty metrics, including an employee count by status, which indicates the number of part-time and full-time faculty members. Additionally, it displays an employee count by highest educational attainment, categorizing faculty members based on their qualifications, such as bachelor's degrees, master's degrees, or doctorate degrees. These features enable HR personnel to monitor and analyze faculty demographics efficiently.

Figure 13*: System Menu*

Figure 13 shows the systems main menu, where the HR director can navigate to manage evaluations. It is located at the upper left part of the dashboard inside a hamburger menu. This menu includes key sections such as general settings for managing evaluation forms, the department registry, the courses registry, the subject registry, and the user's registry.

To begin the configuration, the Human Resource (HR) director starts by creating evaluation forms that will serve as essential tools for the evaluation process. These forms are categorized into different types, including student-teacher evaluation, peer evaluation, self-evaluation, and immediate supervisor evaluation.

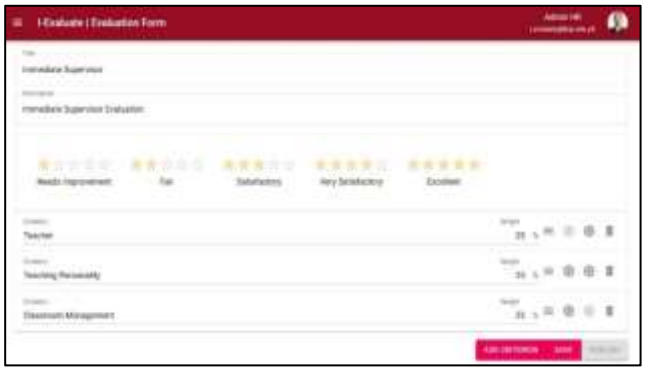

Figure 14: *Creating Evaluation Form*

This alignment fosters meaningful insights by addressing key performance indicators and specific evaluation criteria relevant to the institution.

SOUTHEAST ASIAN JOURNAL OF SCIENCE AND TECHNOLOGY

Volume 10, Issue 1, 2025
P-ISSN: 2672-2984
E-ISSN: 2672-2992
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Additionally, it enhances stakeholder confidence in the evaluation results, promoting fairness and consistency while driving informed decision-making for continuous improvement.

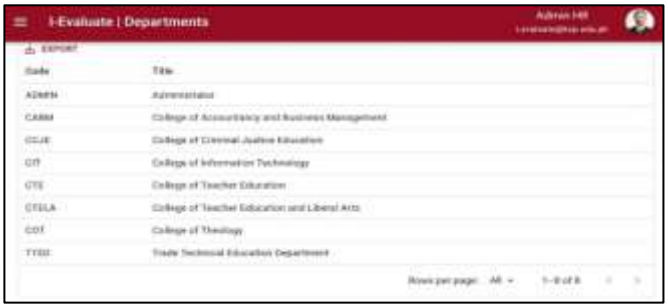

Figure 15: *Register Department*

Figure 15 illustrates the list of departments uploaded by the HR director into the system, representing the organizational structure of King's College of the Philippines. Each department is identified by a unique code and title, ensuring clarity and distinction between units within the institution. These departments serve as foundational elements for the seamless organization and assignment of faculty members, courses, and programs.

Recommendations

Based on the development, testing, and pilot deployment of Vaxi-eTrack, several recommendations are proposed to enhance its effectiveness and support broader implementation. The system should be expanded to additional barangays and health centers to maximize its impact on community immunization tracking. Notification features can be enhanced through SMS or push alerts to improve parental awareness of upcoming vaccinations. To address connectivity challenges, offline functionality should be developed, ensuring uninterrupted access to records. Advanced reporting and analytics capabilities are recommended to enable healthcare authorities to monitor immunization trends, identify coverage gaps, and make data-driven decisions. Continuous user training and support for healthcare staff and parents will help maintain proper system use and facilitate adaptation to new features. Finally, periodic system evaluations and updates based on user feedback and emerging requirements are essential to sustain relevance, efficiency, and overall system performance.

Figure 16: *Register Faculty*

This figure displays the list of registered users in the system, which includes most faculty members of King's College of the Philippines. This page provides an overview of all faculty members who have been added to the system, ensuring that each is properly registered and linked to their respective departments.

This feature is important for managing the evaluation process, as it allows the HR director to monitor and verify the faculty members who will undergo evaluation for specific semester. The system ensures that only registered faculty can be assigned to an evaluation, and it helps to maintain accurate records of each faculty member's involvement in the evaluation process. Additionally, it is easy to assign the subjects of each faculty by assigning it to their given ID number.

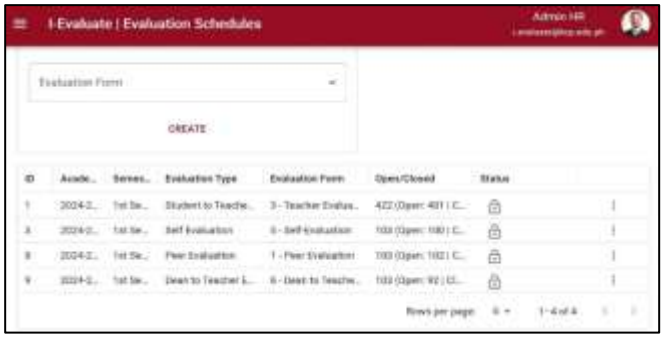

Figure 17: *Created Evaluation Schedules*

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After uploading all the necessary components for evaluation, the HR director can proceed to create the evaluation schedule. To set up a schedule, the HR director must fill in all required fields, such as the Academic Year Start, Academic Year End, Semester, Evaluation Type, and Evaluation Form. Once the details are completed, the schedule is added to the system's schedule list, as illustrated in Figure 20. Each schedule is categorized by evaluation type, ensuring clear distinctions between various evaluation forms. The HR director can efficiently monitor ongoing evaluations by reviewing the list of schedules.

Figure 18: *Evaluation Schedule*

Figure 18 presents the details of the student-to-teacher evaluations created within the system. It highlights important metrics, including the total number of instructors scheduled for evaluation, the number of subjects currently open for evaluation, and those already closed.

For easy monitoring, the HR director can use the search functionality to locate specific instructors easily. Additionally, this provides insights into the total number of subjects assigned to each teacher, enabling the HR director to verify how many subjects are linked to individual instructors for evaluation.

Figure 19: *Subjects for Evaluation*

Each subject entry contains essential details such as the Evaluation Code, Section, Subject, Course/Year, Schedule, Respondents, and Overall Rating. To populate respondents for each subject as shown on figure 23, the HR director can add eligible students to the class roster for evaluation. This ensures that only students officially enrolled in the class are permitted to evaluate the subject, preventing unauthorized evaluations by students from outside the class.

These ID numbers are being extracted from a third-party platform, for the HR director to have an official list of evaluators.

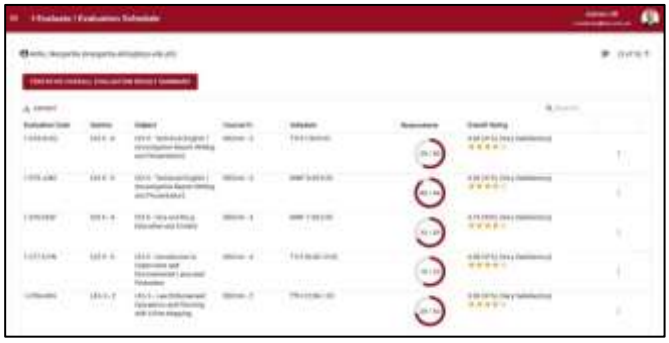

Figure 19: *Completed Evaluation*

Furthermore, the results can also be viewed on an individual basis, enabling the HR director to analyze the ratings for each subject in greater detail. As shown in figure 19 and 20, the per-class evaluation results provide comprehensive information, including detailed subject data, results for each criterion, the overall rating, and the corresponding descriptive equivalent of the rating. This granular view allows for more in-depth analysis and informed decision-making.

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Figure 20: *Result per Class*

CONCLUSION

This study successfully developed i-Evaluate, a web-based Employee Performance Evaluation System with data analytics for King's College of the Philippines–Benguet. The system was designed to address the inefficiencies of the existing manual faculty evaluation process, particularly delays in data collection, repetitive encoding, computational errors, limited accessibility of reports, and difficulty in monitoring participation rates. Through digital automation, the proposed system provided a more efficient, accurate, and organized mechanism for conducting employee performance evaluations.

Using the Extreme Programming (XP) methodology, the study was able to identify the necessary information requirements and translate them into functional system components. These included faculty records, subject schedules, evaluation criteria, student class lists, computation formulas, and role-based access controls. Based on these requirements, the developed system successfully integrated key evaluation modules such as student-to-faculty evaluation, peer evaluation, self-evaluation, and immediate supervisor evaluation, supported by automated computation and real-time reporting features.

The inclusion of descriptive data analytics enhanced the value of the system by enabling the Human Resource Management Office to visualize results, track participation rates, monitor faculty performance trends, and generate evidence-based insights for administrative decision-making. This demonstrates that the system is not only an evaluation tool but also a management support platform that can improve transparency, accountability, and strategic planning.

The usability evaluation using the System Usability Scale (SUS) yielded an average score of 85.01, interpreted as Excellent, indicating that users found the system highly usable, user-friendly, and satisfactory. This high usability rating confirms that the system's interface, functions, and workflow were well accepted by intended users, increasing the likelihood of sustained adoption and long-term implementation.

Overall, the study concludes that i-Evaluate is an effective and sustainable solution for modernizing employee performance evaluation processes in academic institutions. It significantly improves efficiency, reduces administrative workload, strengthens decision-making through analytics, and promotes a more reliable and technology-driven evaluation culture.

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Volume 10, Issue 1, 2025
P-ISSN: 2672-2984
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