# **Esee: A Web-Based Performance-Driven Employee Management System for The Midnight Suns Company**

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#### **Abstract**

The emergence of live streaming has resulted in the expansion of talent agencies, whose purpose is to manage and support live streamers. However, companies, including the Midnight Suns Company, have resorted to a manual management approach due to the absence of a platform for managing live streamers. To solve this problem, the researchers developed Esee, a web-based performance-driven employee management system that manages hosts' information and tracks their performance. The system aims to provide a comprehensive and optimized approach to host management, as well as centralize and organize the Midnight Suns Company's data, allowing administrators to focus on higher-value duties. The researchers utilized Node.js, Vue.js, JavaScript, Filestack, MySQL, HTML, CSS, ApexCharts.js, SendGrid, Ws, and Sequelize in developing the system. To construct the system's processes, the researchers also employed design thinking, an effective approach for addressing problems and identifying solutions. The system satisfied the client's needs by allowing them to conveniently organize the company's data and seamlessly track host performances. In addition, the system centralized the recruitment process, dashboard, announcements, events, leaderboard ranking, host management, report generation, and help center into a single platform.

#### **Keywords**

Web Application, Employee Management System, Human Resource Management, Performance-Driven, and Live Streamers.

#### 1. Introduction

Since the rise of social media, millions of individuals are now influenced by the opinions of others expressed online. This opportunity has made it possible for anyone to become an "influencer" and earn money online through promotions, commissions, and affiliation. One of the rising profitable ways to earn money online is known to be live streaming. ReportLinker (2022) expects the Global Live Streaming Market to expand to \$25.19 billion by 2026, increasing at a 13.47 percent compound annual growth rate. This has led to the growth of talent agencies for live streamers, with the goal of managing and supporting live streamers across various platforms.

Just like in any other industry, the success or failure of a company in the live streaming industry depends on the quality of hosts chosen. Ijoga and Adewole (2019) highlighted the importance of human resource as an essential component of a company's success, claiming that human resource is the most valuable and critical resource. Moreover, Troth and Guest (2020) asserted that human resources are essential to the overall success of the company and are among the elements that enable it to realize numerous advantages. This can be attributed to the fact that a company's success is directly related to the amount of effort put forward by each person. Thus, human resource management is crucial as it can impact organizational performance by influencing employees' skills, talents, attitudes, and behaviors (Anwar and

Abdullah 2021). Also, manually managing employee records presents difficulties. Other organizations maintain their employee records in a large file room or on spreadsheets, which makes it difficult to access and retrieve employee information remotely on short notice.

In view of this, companies must establish ways to organize employee data, recognize and support employees' work accomplishments (Ijoga and Adewole 2019). The system presented in the paper is Esee, a web-based performance-driven employee management system that efficiently manages hosts' information and tracks their performance. The Midnight Suns talent agency, based in Manila, Philippines, is poised to leverage this system to streamline and enhance host management. Esee not only centralizes, organizes, and enhances host management for maximum productivity, but also consolidates recruitment, information dissemination, analysis, and report generation in a single platform, freeing up administrators to focus on higher-value tasks.

## 1.1 Objectives

This research aims to develop a web-based performance-driven employee management system that offers a comprehensive approach to host management. The study seeks to replace and improve the current manual host management system by creating a functional and user-friendly system. The specific objectives of the study include establishing a centralized data system that produces automated reports, streamlining the recruitment of new hosts on a single platform, and providing a single platform for administrators to post important information. The goal is to develop a fully optimized system that results in a significant paradigm shift in the way employee data and performance are managed, thus achieving maximum productivity and assisting administrators and hosts in making informed decisions.

#### 2. Literature Review

The studies substantiate and contrast existing information about the research issue with that of other earlier studies. This literature review explains the importance of the associated significant variables, indicators, and their relationship to the study's objective.

#### **Traditional Management**

The traditional management practices used by many corporations are becoming irrelevant in today's technologically advanced era. The use of standard-based approaches to manage documents and employee engagements has several disadvantages due to poor security and the increased possibility of data loss and human errors. Additionally, the failure to acknowledge substantial modifications in the working environment has led to unpredictable circumstances in many associations. Innovative computer technology constantly threatens enterprises, which necessitates the transition from a manual to a digitalized approach for easier and more efficient management, and records that can be easily accessed anytime and anywhere. In addition to that, human resource management systems outpace standard strategies in terms of performance, asserting satisfaction and intention among human resource management processes (Ho and Kuvaas 2020).

#### **Employee Management System**

In today's modern and innovative corporate world, the management of employee engagement and performance has become a crucial issue. Noronha et al. (2018) suggests that platforms must focus on enhancing workers' engagement development, leading to a positive outcome in terms of labor or work performance. According to Ijoga and Adewole (2019), an employee management system can overcome challenges encountered through standard techniques and paper-based methodology in managing employee engagement information. It provides streamlined record management for the institution's workforce and offers benefits in productivity and engagement. Thus, an employee management system offers a large-scale benefit in productivity and engagement in the work environment. Employee management systems are recognized as significant instruments for human resource practitioners, entrepreneurs, and executives in streamlining employee management (Diawati et al. 2019).

## **Employee Performance**

Employee performance is defined as the quality and quantity of work done by an employee while carrying out assigned tasks, and it is crucial to a company's overall organizational performance (Utin and Yosepha 2019). The commitment of an employee to an organization's objectives and the manner in which they carry out their activities also contribute to their performance. Companies that prioritize and enhance employee performance are more likely to gain a

competitive edge over their competitors (Anwar and Abdullah 2021). As such, it is essential for companies to prioritize employee performance.

## **Performance Management**

Performance management has become an increasingly common practice in companies. Schleicher et al. (2019) termed performance management as the ongoing approach of assessing and promoting individual performance with the objective of aligning performance with the organization's strategic goals. Numerous companies adopt performance management practices to increase employee productivity. However, several factors contribute to the failure of performance management practices, including an organization's unstructured approach and lack of strategic focus. The success and effectiveness of any performance management practice depend on its ability to drive performance in line with the overall strategy and objectives of an organization (Pulakos et al. 2019). Through participative planning, decision-making, and a compensation system, performance management is recognized as an efficient approach for motivating individuals, which has a favorable impact on the performance of an organization (Awan et al. 2020). Thus, performance management practices must be designed to the needs of an organization. It must be consistent with the organization's objectives and policies.

## **Control Theory**

According to control theory, all system actions should be aligned with an organization's overall goals and objectives (Barrows and Neely 2012). It aids in performance management by comparing the system's output to predefined sets of parameters. According to control theory, individuals continually assess their actions and the outcomes of those activities and compare them to established criteria or goals for those actions and results. Individuals typically take corrective actions and attempt to improve their performance when they recognize a discrepancy between actual performance and preferred standards (Awan et al. 2020). As a result, employing a system that provides continuous feedback and allows for self-evaluation of performance is more likely to increase employee performance. In fact, Awan et al. (2020) claimed that the approach of regular feedback is more beneficial than annual performance reviews, and employees will be able to self-regulate their behaviors in accordance with outcome standards, resulting in good overall performance.

#### **Employee Motivation**

Employee motivation is crucial for organizational success, and implementing performance management systems positively affects employee work motivation (Lee 2019; Radojević et al. 2020). Without viable motivation, practices in the institutional transformation management phase may lose significance, resulting in under-participation and loss of employee engagement (Lee 2019). Employee motivation fosters and enhances each stakeholder's desire to perform effectively, contributing to the work performance of an employee, which in turn impacts organizational performance (Kalogiannidis 2021). Therefore, it is necessary to build an employee performance motivation and management system that can boost employee engagement and the corporation's competitive edge. The success of the organization depends on its adequacy and competency in determining the company's asset's trigger point in exerting its best performance in all aspects of labor (Lee, 2019).

#### **Rewarding System**

The use of reward systems is a common practice in organizations to motivate employees and prevent poor work ethics. Successful organizations ensure that their reward systems are fair and equitable, with specific objectives that align with the desired behaviors. A rewarding system should also address the primary needs of employees, including compensation, information sharing, and reducing stress to prevent intentions to quit. Research shows that a well-designed and implemented rewarding system can increase employee engagement, satisfaction, and promote a positive work environment (Spiegel 2020). Therefore, managers should prioritize performance and compensation management of human resources to create a value-based organization (Susma 2022).

#### **Recruitment Process System**

The advent of Information Technology has enabled organizations to create interconnected networks and streamline HR recruitment processes through electronic recruitment or e-recruitment. E-recruitment is the application of information technology and the internet to recruit qualified job candidates, which can replace the duties of manual recruitment (Fachrizal et al. 2019). E-recruitment offers practical advantages such as time and cost savings, job sites' value-added services, personalized solutions, and effective communication with HR managers, among others (Hosain et al. 2020).

## **Retention Management**

The retention of highly valued employees is crucial for the success of any organization, as replacing essential employees can be costly. Employee retention refers to the strategies and procedures that companies implement to retain valuable workers. It is essential for organizations to develop long-lasting and consistent relationships with their staff to ensure they feel connected to the organization's common objectives and that the company values their needs. HR leaders should work closely with executives to acquire, employ, develop, and retain high-quality personnel. Retaining employees is critical to maintaining a healthy and effective workforce (Amushila and Bussin 2021).

#### 3. Methods

The most effective approach to building the project was determined to be the utilization of the Design Thinking Framework, a flexible methodology for resolving complex challenges in a user-centered manner. According to Liedtka (2018), the problem-solving approach is significantly improved when user-driven criteria are incorporated. Design thinking was employed by the researchers, as noted by Naiman (2022), as it is the most effective method for enhancing consumer experiences, streamlining procedures, and deriving meaning, while reducing risk, lowering expenses, increasing efficiency, and stimulating personnel. Through design thinking, ideal solutions founded on actual human requirements are identified.

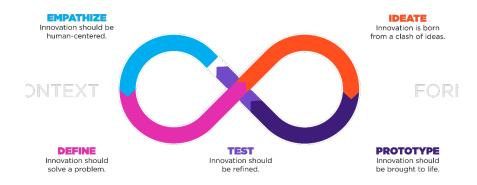


Figure 1. Design Thinking Framework

As illustrated in Figure 1, the Design Thinking Framework comprises five phases: Empathize, Define, Ideate, Prototype, and Test. During the Empathize phase, the researchers conducted an interview with a data analyst to gain an understanding of the client's challenges and goals. In the Define phase, the company's main problems were identified. During the Ideate phase, the researchers brainstormed solutions and came up with the idea of developing a web-based performance-driven employee management system. The system was built by the researchers during the Prototype phase and tested during the Test phase to ensure alignment with client's needs and identify areas for improvement.

#### 4. Data Collection

The data for this study was collected from Midnight Suns Agency, a company located in Manila, Philippines. The study focused on the head administrators and hosts of the company, and the researchers employed various methods to gather data. Firstly, an online interview was conducted to identify clients' needs and determine the necessary features for the system. Secondly, internet research was performed to collect data from websites and articles, address gaps and limitations in prior research, and generate ideas for system enhancement. Thirdly, library research was conducted using EBSCO Host, an online research database provided by the AUF Library, to obtain information about studies related to the system. Finally, a survey was carried out to evaluate user experience and feedback. Survey questionnaires were distributed to hosts, administrators, and super administrators to assess the system's efficiency, effectiveness, and usability. Respondents were asked to rate their agreement or disagreement with a statement using a Likert scale as an additional measure of efficiency and to gather further data.

WHERE: WM = Weighted Mean

 $\mathbf{w} =$ Number of each category

f = Number of respondents in each category

N = Total number of responses

FORMULA:  $WM = \frac{\sum wf}{N}$ 

Table 1. Likert Scale weighted mean

Rate	Verbal Interpretation	Score Range		
4	Strongly Agree	3.51 - 4.00		
3	Agree	2.51 - 3.50		
2	Disagree	1.51 - 2.50		
1	Strongly Disagree	1.0 - 1.50		

The use of Likert scales was identified as an efficient method for assessing indiscernible variables and collecting information on a wide range of topics to build the system more efficiently. Moreover, the researchers administered the survey to 53 respondents, which included 50 hosts, 2 administrators, and 1 super administrator. The survey consisted of 14 questions for the hosts, 19 for the administrators, and 20 for the super administrator. Since the sample size was large, the researchers chose to use a smaller sample size of 50 hosts, which is 10% of the estimated population of the Midnight Suns Company. The hosts were selected using a random sampling method, which is a fair sample approach that helps decrease any bias compared to other sampling methods. The researchers used software that generates random numbers to eliminate the need for human participation in sample selection.

Respondents were required to complete the survey after using the system. The collected data will be utilized to assess the efficiency, effectiveness, and usability of the system, as well as to gather user feedback for improvement purposes.

#### 5. Results and Discussion

The researchers utilized various technologies, frameworks, and libraries such as HTML, CSS, JavaScript, Filestack, MySQL, Node.js, Vue.js, ApexCharts.js, SendGrid, Ws, and Sequelize to create a web-based performance-driven employee management system. This system enables administrators to efficiently organize and monitor employee data, including tracking active and inactive hosts, while allowing hosts to view their performance data and enhance their work. Furthermore, the system offers features such as announcements and calendar events, report generation, and a help center. The primary objective was to enhance and centralize the employee management process to eliminate management issues and increase efficiency.

#### **5.1 Numerical Results**

The respondents were required to complete the survey after using the system. The survey results are presented below by displaying the weighted mean of each criterion within the host's, admins, and super admin's sides. The researchers also included the total weighted average of the host's, admin's, and super admin's sides.

Table 2. Host's survey result

CRITERIA	Strongly Agree	Agree	Disagree	Strongly Disagree	Population	Mean
Simplicity	39	11	0	0	50	3.78
Visual Appeal & Consistency	42	8	0	0	50	3.84
User-friendly Terms	45	5	0	0	50	3.90
Adaptable	38	12	0	0	50	3.76
No Errors	45	5	0	0	50	3.90
Smooth Operation	42	8	0	0	50	3.84
Straightforward	37	13	0	0	50	3.74
Clearly Displays Progress	43	7	0	0	50	3.86
Tracks Monthly Quota	40	10	0	0	50	3.80
Monitors Performance	36	14	0	0	50	3.72
Increases Motivation	34	16	0	0	50	3.68
Notifications	39	11	0	0	50	3.78
Downloads Data/Report	40	10	0	0	50	3.80
Satisfaction	38	12	0	0	50	3.76
Total Weighted Average						

Table 2 shows the weighted mean of all the criteria provided under the host's statistical evaluation. The majority of the criteria received a "Strongly Agreed" response. Upon calculating the total weighted mean average of the host's statistical evaluation, it was found to be 3.80, which is equivalent to "Strongly Agree".

Table 3. Administrators' survey result

CRITERIA	Strongly Agree	Agree	Disagree	Strongly Disagree	Population	Mean
Simplicity	2	0	0	0	2	4.00
Visual Appeal & Consistency	2	0	0	0	2	4.00
User-friendly Terms	1	1	0	0	2	3.50
Adaptable	2	0	0	0	2	4.00
No Errors	2	0	0	0	2	4.00
Smooth Operation	2	0	0	0	2	4.00
Review Host Applications	2	0	0	0	2	4.00
Easy Management of Accounts	2	0	0	0	2	4.00
Host Communication	2	0	0	0	2	4.00
Easy Filtration	2	0	0	0	2	4.00
Ease of announcement management	2	0	0	0	2	4.00
Useful and Comprehensive Reports	2	0	0	0	2	4.00
Downloadable data and reports	2	0	0	0	2	4.00
Notifications	2	0	0	0	2	4.00
Provides Error Messages	2	0	0	0	2	4.00
Data Accuracy	2	0	0	0	2	4.00
Increased Managerial Efficiency	2	0	0	0	2	4.00
Improved Current Management Processes	2	0	0	0	2	4.00
Satisfaction	2	0	0	0	2	4.00
Total Weighted Average					4.00	

Table 3 shows the weighted mean of all the criteria provided under the administrator's statistical evaluation. The majority of the criteria received a "Strongly Agreed" response. However, for the criteria of "easy to understand terms", out of the two administrators surveyed, one responded with "Strongly Agreed" while the other responded with "Agreed". Upon calculation, the total weighted average of the administrator's statistical evaluation was found to be 3.97, which is equivalent to "Strongly Agree".

Table 4. Super administrator's survey result

CRITERIA	Strongly Agree	Agree	Disagree	Strongly Disagree	Population	Mean
Simplicity	1	0	0	0	1	4.00
Visual Appeal & Consistency	1	0	0	0	1	4.00
User-friendly Terms	0	1	0	0	1	3.00
Adaptable	0	1	0	0	1	3.00
No Errors	0	1	0	0	1	3.00
Smooth Operation	1	0	0	0	1	4.00
Review Host Applications	0	1	0	0	1	3.00
Easy Management of Accounts	1	0	0	0	1	4.00
Contact Hosts Easily	0	1	0	0	1	3.00
Filters & Sorts Data Easily	1	0	0	0	1	4.00
Manages Announcements Easily	1	0	0	0	1	4.00
Useful & Comprehensive Reports	0	1	0	0	1	3.00
Downloads Data/Report	0	1	0	0	1	3.00
Notifications	1	0	0	0	1	4.00
Monitor Login Activity	1	0	0	0	1	4.00
Provides Error Messages	0	1	0	0	1	3.00
Data Accuracy	0	1	0	0	1	3.00
Increased Overall Managerial Efficiency	1	0	0	0	1	4.00
Improved Current Management Processes	1	0	0	0	1	4.00
Highly Satisfied	0	1	0	0	1	3.00
Simplicity	1	0	0	0	1	4.00
Total Weighted Average						3.5

Table 4 shows the weighted mean of all the criteria provided under the super administrator's statistical evaluation. Half of the criteria received a "Strongly Agreed" response while the other half received an "Agreed" response. The total weighted average of the super administrator's statistical evaluation was found to be 3.5, which is still equivalent to "Strongly Agree".

## 5.2 Graphical Results

In order to gather insights on the employee management system's functionality and user interface, the researchers conducted a survey among hosts, administrators, and super administrators of Midnight Suns Corporation. In total, 53 individuals participated, with 50 being hosts, 2 administrators, and 1 super administrator. To evaluate the respondents' opinions on the system, the researchers utilized the Likert scale. After collecting the survey data, the researchers summarized the responses to determine the general sentiment of the participants, which is presented below.

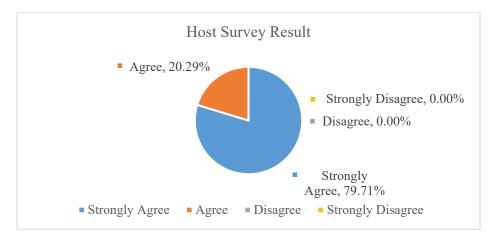


Figure 2. Average sentiment of host survey results

Figure 2 illustrates the average percentage of all questions pertaining to the host evaluation. The host evaluation yielded a Strongly Agree sentiment, which suggests that the system is exceptional in terms of user interface, performance, functionality, and user satisfaction.

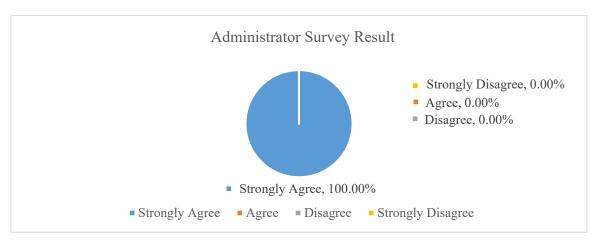


Figure 3. Average sentiment of administrator survey results

The average percentage of all questions related to the administrator evaluation is presented in Figure 3. The results of the administrator evaluation showed a Strongly Agree sentiment, indicating that the employee management system performs exceptionally well in terms of user interface, performance, functionality, and user satisfaction.

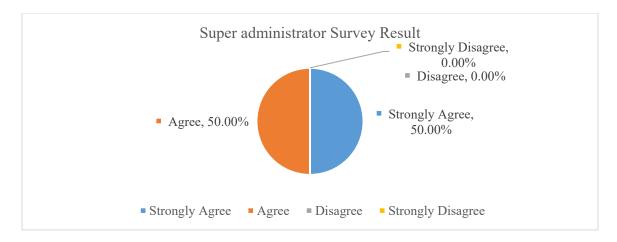


Figure 4. Average sentiment of super administrator survey results

Figure 4 depicts the average percentage of all questions that pertain to the super administrator evaluation. The results of the super administrator evaluation indicate that the employee management system performs well in terms of user interface, performance, functionality, and user satisfaction, as the sentiment comprises both Strong Agreement and Agreement.

## **5.3 Proposed Improvements**

The researchers suggest improving the existing system by incorporating a mobile-based version that will allow greater flexibility and accessibility. Additionally, it is recommended to incorporate APIs to collect more accurate and real-time streaming data, gathering viewer information in real-time, and adding content delivery metrics to identify performance issues quickly. These enhancements will allow hosts to analyze their audience and create personalized content.

#### 5.4 Validation

The researchers conducted a thorough analysis of the company's manual approach to employee management and identified areas for improvement. The system was designed to optimize recruitment, assess host applications, monitor performance, and centralize data management. By integrating multiple functions into a single platform, the system allowed administrators to maximize their efficiency and focus on higher-value activities. The success of the system can be measured by improvements in employee management processes and overall company performance. Therefore, it can be concluded that the web-based performance-driven employee management system is a valid and effective solution for The Midnight Suns Company.

## 6. Conclusion

The researchers presented a web-based performance-driven employee management system to help The Midnight Suns Company improve their manual approach to tracking employees and data. The new system optimized the recruitment process, allowed for efficient assessment of incoming host applications, and enabled administrators to monitor overall and individual host performance. The new platform integrated multiple functions into a single platform, allowing administrators to manage their data through a centralized and user-friendly interface. The new system allowed administrators to maximize their efficiency and focus on higher-value activities.

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# **Biographies**

Mikaella Mae C. Silva is an exceptional student currently pursuing a Bachelor of Science degree in Information Technology from Angeles University Foundation. She is a well-rounded individual who has demonstrated her competence by winning several championships in various school competitions. She has been a consistent scholar since her first year in college, which is a testament to her dedication and hard work. Mikaella is a natural leader, serving as the current president of the College Computer Studies - College Student Council, and formerly, as the secretary. She has also held the position of the non-mandated organization president. Her commitment to her duties is evident in her ability to consistently deliver high-quality work and efficiently manage tasks. Mikaella possesses exceptional strategic

thinking skills and is a quick learner. She is always eager to learn and develop her professional skills, making her a valuable asset to any team or organization.

**Xzyra L. Lapid** is a senior student and a candidate for graduation with a Bachelor of Science in Information Technology at Angeles University Foundation, Angeles City, Philippines. She grew up in Mabalacat City, Pampanga and graduated from Children of Fatima School of Mabalacat, Inc. as an honor awardee in her Senior High. Moreover, Xzyra is a highly organized, motivated, and dedicated individual who desires to grow in various aspects, an adaptable and detail-oriented person with notable communication skills, possesses an ability to do tasks thoroughly either in a group or independently, and is passionate in honing her skills and expand her experiences.

**Kathrine Annette G. Mercado** is a distinguished senior student currently enrolled in Angeles University Foundation, taking up Bachelor of Science in Information Technology with a Major in Web and Mobile Technologies. In addition to her academic pursuits, she held a leadership role as Vice President of the college student council, where she effectively utilized her leadership and interpersonal skills to bring about positive change among her peers. She is a highly motivated individual who constantly strives for personal growth and excellence. Kathrine's hard work and dedication have been evident in her impressive academic record and leadership achievements. Her unwavering commitment to achieving her goals is indicative of her strong desire to establish a career in the tech industry, where she aspires to make a significant contribution. Through her work, she hopes to create a positive impact and contribute to the growth and development of the industry.

Ma. Joyce V. Macaspac is a well-rounded IT professional with extensive experience in various areas of the field. She currently serves as the Program Chair for the Bachelor's in Multimedia and Arts program at the Angeles University Foundation, College of Computer Studies. She was also the former President of JCI Angeles City Culiat, a local chapter of Junior Chamber International. She worked as a Project Manager for Game Development at MVP Asia Pacific Inc before her current roles. During her tenure, she led the development of games and coordinated with various teams involved in the process. She has also spent seven years working with JCI Philippines, where she served as National Director for Web Development and Management. She was responsible for managing the development of an integrated application for JCI Philippines called JCI BOX. She is an accomplished graphic designer and game developer with extensive experience in both web and system development. Throughout her career, she has been committed to excellence, continuous learning, and growth. She has over nine years of experience as a teacher of Information Technology and has spent five years as a Director of an IT department. Ma. Joyce V. Macaspac is also an emerging game developer, particularly as a Unity3D enthusiast, and has been known for her leadership in the field of web development.