UNIVERSITY OF GREENWICH

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COMP1640 – Enterprise Web Software Development

Coursework

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1. Introduction:

In the increasingly progressive 4.0 era, the need for developing technology platforms in general as well as website platforms in particular is essential for society. That includes the issue of education. This need is especially evident at large universities, where the annual compilation of student articles for university journals requires an efficient and adaptable solution. Therefore, the first necessity of web development for education is to build a fully functional, user-friendly, and web-based system designed explicitly for this purpose.

Our team embarked on this journey by segmenting each job to include Scrum Masters, product owners, database engineers, web designers, programmers, and testers. Our overall goal is very clear to meet the requirements we set out.

This report provides comprehensive information about our efforts, from concept to implementation, to complete this project. In addition, we also worked together to come up with a general idea for this project, contributing to optimizing the project. We aim to provide insights into the intersection of technology and teamwork, emphasizing the importance of project management and effective communication in achieving project goals.

2. Evaluation:

2.1. The product:

First, we agreed on the choice of language to ensure the quality of the project. PHP was chosen as the primary programming language because of its speed and ease of use. Accompanied by a combination of css and javascript to meet the needs of friendliness and good looks. The developed product successfully meets all the requirements provided by the customer.

Since mailing articles and uploading high-quality photographs for students were significant demands from consumers, these functional capabilities were prioritized during development. The scrum team used an incremental and iterative approach to make sure that system requirements were addressed efficiently. Selecting this approach allows for systematic feature development to satisfy client requests and is in line with the scrum principles.

❖ Benefits of the developed system

- Usability:

Our products are designed to be user-friendly. My team designed the user interface to be easy to use and have appropriate colors. This use of color is consistent across all pages and is aesthetically pleasing to the eye.

Figure 1: Colors implemented on the website.

Navigation: The marketing manager was to supervise the process and view all the chosen contributions, according to one of the client's requirements. The marketing manager's page now has a search capability that makes it easier for them to go through the submissions, further improving this functionality. This contributes to the website's unique appearance and facilitates effortless navigation.
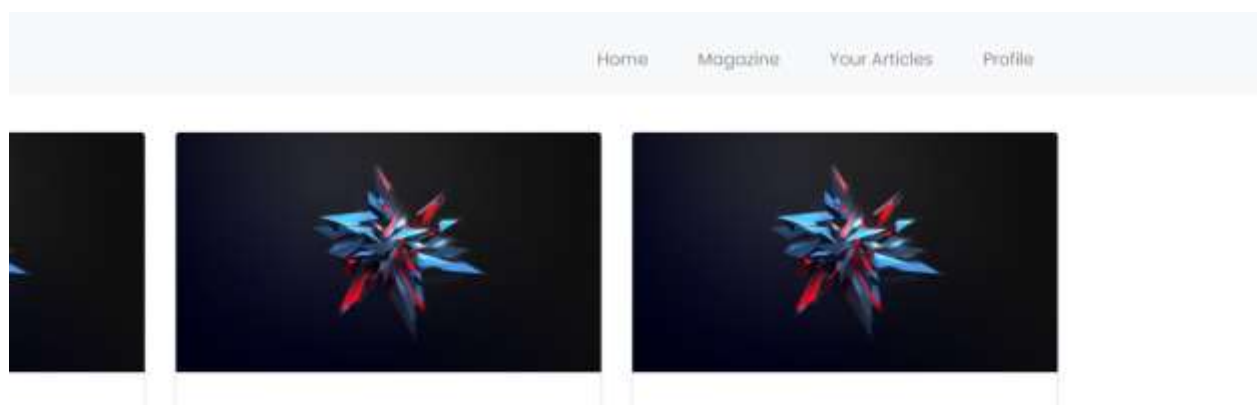

Figure 2: Website showing navigation.

Responsive: The client's desire for the system's adaptability to all devices is another one. By making the system responsive across several platforms, including phones, desktops, and tablets, this criterion was satisfied. This has the advantage of enabling system users to access an article at any time on several platforms.
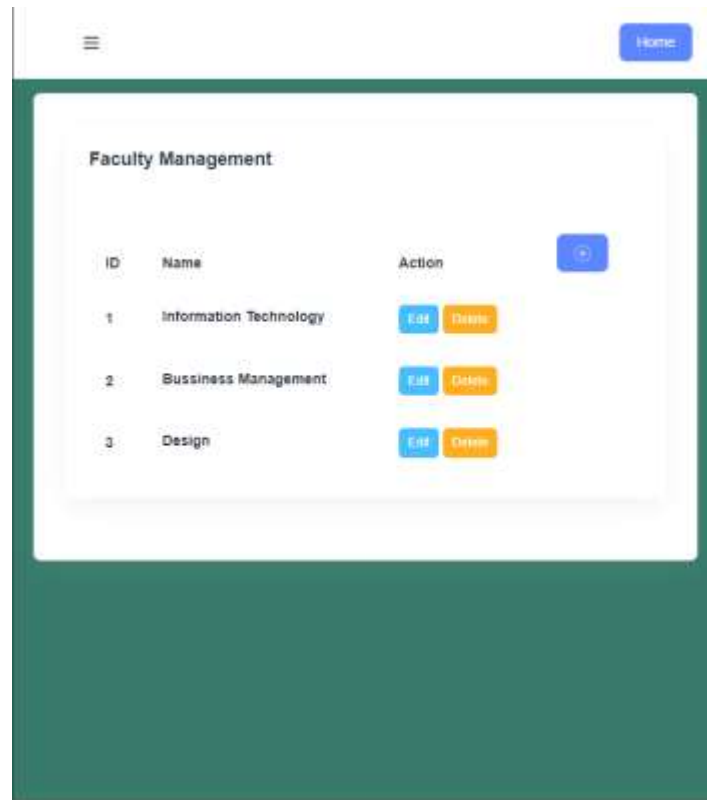

Figure 3:Responsive design on the homepage

- Security and Privacy:

The system was designed with security features to keep illicit activity from being carried out by unauthorized users. The MD5 hash security function was one of several validations used to safeguard the data kept in the system's database. Strict criteria are followed in the system's architecture to guarantee that users receive a website that safeguards their identity and privacy, especially in role-based web applications where abuses of this kind are frequent.

username	password	email
admin	$2y$10$SX/qOE8orTd7YhxEeTX2guD9GazaNUTYup.beQd5MVP...	admin@gmail
admin1	$2y$10$S1f47otFW4VjK3V3t2AO3ObSKmmdspahUe7XBVeWeAj...	admin1@gma
student	$2y$10$UX1MgjJ7hThkV5bbCYYWyuLl/YaeBIDAGaY0jdE5fjm...	student@gma

Figure 4: MD5 hash security feature in the database

Nielsen's heuristics for user interface design will be employed in a subsequent review of the product's evaluation to appraise its efficacy and efficiency concerning both appearance and usability. Below is a summary of the heuristics.

2.1.1. Nielsen's Heuristics for User Interface Design:
- Visibility of system Status – Rating (4)

According to (Nielsen, 1994), Users should be continuously informed of what's happening within the system through appropriate feedback mechanisms such as progress indicators, loading animations, or status messages. Users must be constantly informed about what is happening in the system through appropriate feedback mechanisms such as progress indicators, loading animations, or status messages. For example, in case the user logs in successfully, the system will notify the user.

- User control and freedom – Rating (5)

According to (Nielsen, 1994), Users must be able to easily navigate within the system, undo actions, and exit unwanted states without encountering obstacles or penalties. for example: The website allows students to edit submissions and make changes.

- Aesthetic and minimalist design – Rating (3)

According to (Nielsen, 1994), The website is clutter free and clean and does not take away from the functionalities of the website. Strive for simplicity and elegance in the interface design, focusing on essential elements and removing unnecessary clutter. Use whitespace and visual hierarchy to prioritize content and enhance readability.

- Help users recognize, diagnose, and recover from errors – Rating (4)

According to (Nielsen, 1994), The website effectively communicates with users by alerting them when they access restricted web pages. It provides a helpful link on these pages, directing users back to the home page, ensuring they can navigate easily without feeling patronized.

Rating Scale: 1 = Poor, 2 = Fair, 3 = Good, 4 = Very Good, 5 = Excellent

2.1.2. What else could be done:

Provide more detailed user profiles so instructors and students can highlight their accomplishments, projects, and interests if the product's development were to continue. This has the potential to enhance the platform's sense of community and promote cooperation. Furthermore, adding functionality for more comprehensive user profiles could be another way to improve the system. In addition to showcasing their accomplishments, initiatives, and hobbies, these profiles might let instructors and students list their work experience, education background.

Through the provision of an all-inclusive synopsis of every user's educational and career trajectory, the platform has the potential to enhance community connections and foster collaborative opportunities. Incorporating elements like recommendation algorithms based on user profiles could also propose interesting projects or possible partners, thereby encouraging user involvement and interaction.

In summary, the client's criteria were effectively addressed by the product implementation, resulting in optimal performance as envisioned.

2.2.   The Process:

Scrum methodology elements were used in the product's development, which provided several benefits. First, Scrum makes it possible for iterative development that saves time and is fueled by ongoing client feedback. It also promoted team member development through consistent meetings and cooperative efforts. Five people were chosen for the team and given duties based on their areas of strength to guarantee success. Different strategies were used to keep team members in continual communication with one another. Each member was able to discuss accomplished work and future goals at weekly Scrum meetings, which were held at

regular times and locations. Minutes of meetings were kept in order to monitor decisions and activities.

In addition, the team made use of alternative lines of communication in addition to the weekly Scrum sessions to guarantee smooth cooperation. We held daily stand-up meetings to give brief reports on our progress and any roadblocks we faced. Everyone stayed updated about the project's progress and in alignment thanks to these brief, targeted conversations.

In addition, outside of official meetings, digital platforms like Microsoft Teams were used for rapid information transfers and real-time collaboration. This improved overall productivity and responsiveness to changing requirements by enabling quick decision-making and problem-solving.

The group also practiced transparency by keeping a visible burndown chart, progress chart, and backlog of activities. In addition to holding team members accountable, this transparency gave stakeholders access to project updates and helped them make wise decisions.
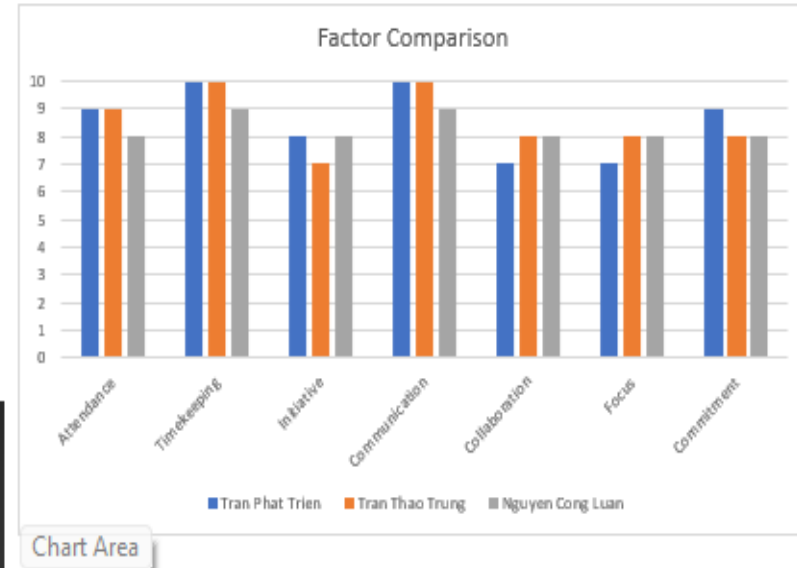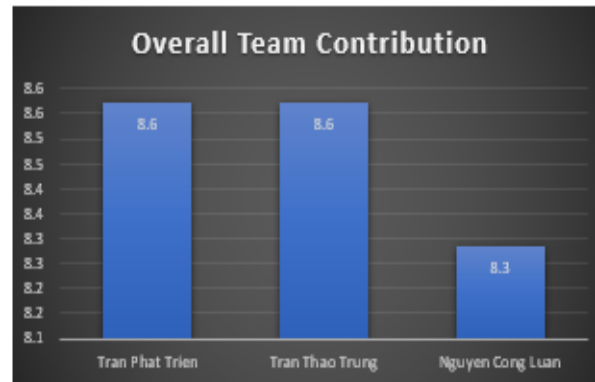
Overall, the product was developed successfully and satisfied customer and user needs thanks to the application of Scrum principles and efficient communication approaches.

2.3. The team:

2.3.1. Team Evaluation:

FACTOR	WEIGHT	Tran Phat Trien	Tran Thao Trung	Nguyen Cong Luan
Attendance	10	9	9	8
Timekeeping	10	10	10	9
Initiative	10	8	7	8
Communication	10	10	10	9
Collaboration	10	7	8	8
Focus	10	7	8	8
Commitment	10	9	8	8
TOTAL	70	8.6	8.6	8.3

PERSON	TOTAL
Tran Phat Trien	8.6
Tran Thao Trung	8.6
Nguyen Cong Luan	8.3

2.3.2. Team Justification:

Name	Factor	Average Rating	Comments
Tran Thao Trung (Author)	Attendance:9 Timekeeping:10 Initiative:7 Communication:10 Collaboration:8 Focus:8 Commitment:8	8.6	Tran Thao Trung demonstrated excellence across multiple roles: - Developer: Tran Thao Trung coding skills were evident in the seamless functionality of the product. He implemented efficient and effective solutions, contributing to its overall success. - Designer: Tran Thao Trung demonstrated creativity and attention to detail in his design contributions. His designs were not only aesthetically pleasing but also user-friendly, enhancing the overall user experience. - Tester: Tran Thao Trung meticulous testing and debugging efforts ensured the product's reliability. His dedication to a seamless user experience underscored his commitment to quality assurance.
Tran Phat Trien	Attendance:9 Timekeeping:10 Initiative:8 Communication:10 Collaboration:7 Focus:7 Commitment:9	8.6	Tran Phat Trien demonstrated excellence across multiple roles: - Technical Leader: Tran Phat Trien provided clear direction and guidance, ensuring alignment of the team's technical efforts with project goals. His strategic thinking and problem-solving skills were crucial in overcoming technical challenges. - Scrum Master: Tran Phat Trien adeptly facilitated the Scrum process, leading meetings and fostering collaboration. His proactive approach in addressing impediments and ensuring adherence to Scrum principles kept the project on track. - Database Designer: Tran Phat Trien showed meticulous attention to detail and deep understanding of database architecture. He crafted an efficient, robust structure meeting project needs while ensuring data integrity and scalability. - Tester: Tran Phat Trien conducted thorough testing and debugging, ensuring the product's quality and reliability. His dedication to a seamless user experience was evident throughout.
Nguyen Cong Luan	Attendance:8 Timekeeping:9 Initiative:8 Communication:9 Collaboration:7 Focus:7 Commitment:8	8.3	Nguyen Cong Luan demonstrated excellence across multiple roles: - Developer: Nguyen Cong Luan coding skills were lacking, resulting in subpar functionality and performance of the product. He often encountered difficulties in implementing solutions and failed to deliver code that met quality standards.

			- Designer: Nguyen Cong Luan design contributions were lacking creativity and attention to detail. His designs were not user-friendly and failed to enhance the overall user experience of the product. - Tester: Nguyen Cong Luan testing efforts were inadequate, leading to numerous bugs and reliability issues in the product. He failed to conduct thorough testing and debugging, resulting in a subpar user experience.

2.4. Self-Evaluation:

My contribution to the team's effort was immense because I was tasked with designing the database. Because my team didn't have too many members, my teammates chose me to be a programmer, designer, and tester. They believed that with the experience I had before, I would fulfill my duties as a programmer, designer, and tester. I also have experience in the years I have studied at university. I am confident that I will be able to perfect the product for the team and will gain new knowledge.

As a programmer, I take immense pride in my responsibility to develop software that not only meets but exceeds quality standards. My approach is characterized by meticulous attention to detail and a deep understanding of coding best practices. I craft code with a strategic mindset, considering various usage scenarios and potential edge cases to ensure robustness and reliability. Through continuous testing and refinement, I strive to identify and address any potential issues before they impact end-users. Collaboration is at the core of my work, and I actively engage with testers to gain insights into potential pain points and areas for improvement. I recognize the importance of staying updated on emerging technologies and industry trends. By incorporating new tools and methodologies into my workflow.

As a designer, my commitment lies in crafting visually stunning and intuitive user experiences that elevate our products to new heights. I approach my role with a blend of creativity and strategic thinking, understanding that every design element plays a crucial role in shaping the overall user perception. Meticulous attention to detail defines my process as I meticulously craft interfaces that not only delight users aesthetically but also enhance usability and accessibility. By

empathizing with the end-user, I ensure that every design decision is rooted in their needs and preferences.

As a tester, I find fulfillment in my role of safeguarding product quality through rigorous testing methodologies, both manual and automated. I meticulously craft test cases that comprehensively cover various usage scenarios, leaving no stone unturned in the pursuit of defect identification and resolution. By continuously refining my testing strategies, I contribute to the ongoing improvement of our products, ensuring they meet and exceed user expectations. By fostering a culture of quality within the team, I promote a shared commitment to delivering software that is reliable, resilient, and user-friendly. I recognize the importance of staying abreast of advancements in testing techniques and technologies, and I embrace opportunities for learning and growth. By staying adaptive and proactive in my approach, I strive to uphold the highest standards of quality assurance, ultimately contributing to the overall success and satisfaction of our users.

3. Conclusion:

This study provides a thorough analysis of all pertinent product elements, highlighting its prompt delivery and fully functional implementation. It emphasizes following the Scrum approach, which entails holding weekly meetings and carefully maintaining the user stories and product backlog. The product is reviewed in the first section along with screenshots and analysis, covering its security, usability, and compliance with Nielsen's UI design principles. It also suggests directions for future research and improvement, such as incorporating tableaux for better statistical visualization.

The development process is evaluated in the second section, which emphasizes team collaboration and the use of design techniques. It assesses the efficiency of Scrum methods in guaranteeing delivery on time and covers team member assessments of each individual, bolstered by comments that demonstrate the success of teamwork and an Excel spreadsheet. Ultimately, a personal evaluation assesses the writer's input towards the group's endeavors, creation of the product, and demonstration. All things considered, the report offers a comprehensive and useful analysis of the full product lifecycle.

References

Nielsen, J., 1994. Usability Engineering. In: s.l.:s.n., p. 165.