

# UNIVERSITY OF GREENWICH Comp1640 – Enterprise Web Software Development

Coursework

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Table of Contents

[1. Introduction 1](#_Toc162432773)

[2. Evaluate 1](#_Toc162432774)

[2.1. The Product 1](#_Toc162432775)

[2.2.1. Nielsen’s Heuristics for User Interface Design 6](#_Toc162432776)

[2.2. The Process 9](#_Toc162432777)

[2.3. The Team 10](#_Toc162432778)

[2.3.1. Team Evaluation 10](#_Toc162432779)

[2.3.2. Team Justification 11](#_Toc162432780)

[2.4. Self-Evaluation 11](#_Toc162432781)

[3. Conclusion 12](#_Toc162432782)

[4. References 1](#_Toc162432783)

Table of Figures

[Figure 1. Article page 2](#_Toc162432796)

[Figure 2. The Article page responsive 3](#_Toc162432797)

[Figure 3. Add new article page 3](#_Toc162432798)

[Figure 4. Articles management of Student role 4](#_Toc162432799)

[Figure 5. View all article in faculty of coordinator 4](#_Toc162432800)

[Figure 6. Browser article features of coordinator 4](#_Toc162432801)

[Figure 7. View approved article page of manager 5](#_Toc162432802)

[Figure 8. Article page with all approved article 5](#_Toc162432803)

[Figure 9. Security about the account password 5](#_Toc162432804)

[Figure 10. Proved about the Visibility principle that applied 6](#_Toc162432805)

[Figure 11. Proved about the Constraints principle that applied 7](#_Toc162432806)

[Figure 12. Proved about the Mapping principle that applied 7](#_Toc162432807)

[Figure 13. Proved about the Consistency principle that applied 8](#_Toc162432808)

[Figure 14. Proved about the Consistency principle that applied 8](#_Toc162432809)

[Figure 15. Proved about the Affordance principle that applied 8](#_Toc162432810)

[Figure 16. Team Evaluation 10](#_Toc162432811)

[Figure 17. Team Evaluation chart 10](#_Toc162432812)

Table of Tables

[Table 1. Team Justification 11](#_Toc162433063)

# 1. Introduction

In this course, I will work on a team with five members to design and develop a web-based secure role-based system for collecting student contributions for an annual university magazine in a large university. The system has 5 roles consisting of Admin, Marketing Manager, Marketing Coordinator, Student, and Guest each role will perform certain actions. With the Student role, they can add, view, update, and delete their contribution. Besides, they can view the feedback comment from the coordinator to their contribution and they can also give their comment to reply to the coordinator and they can manage their profile. The Marketing Coordinator role, they can view all the student's contribution in their faculty, and they can give their feedback to the student's contribution by comment on each contribution and they can make decisions about the status of the student's contribution is approved or rejected. Moreover, they can view statistical reports about the number of student's contributions in their faculty for each academic year and they can manage their profile. With the Marketing Manager, they can view all the students’ contributions that are approved by the Marketing Coordinator, and they can download one or more student's contributions that are approved by the Marketing Coordinator. They can make decisions about the contribution whether public or private. In addition, the Marketing Manager, Admin, and Guest role they can view the statistical report about the number of contributions and contributors of each faculty for each academic year and the can view the statistical about the percentage of the contributions of each faculty for each academic year. Besides, they can view statistical about the number of contributions without comment and the number of contributions without comment after 14 days. With the Marketing Manager and Guest role, they can view the contribution that was published. To design and develop this system, I join the team with 5 members consists of Scrum Master, Database Designer, Web Designer, Programmer and Tester in that I get the task is the Back-end developer and Scrum master. We used the Asp.Net Web API and C# to support for develop the features of the system and the Angular framework with Type Script languages to design and develop the interface of the system. To control and manage the source code we used GitHub to control and manage the code of the project. We worked well together to develop an effective and quality system on time and write down the documenting weekly meeting minutes to reports and demo to the user. This report discusses the system's design and development. Along with relevant pictures that succinctly outline the system's primary features, the report will also include a brief explanation of the implemented system. Besides, the report will show the evaluate table for each member in the team.

# 2. Evaluate

## 2.1. The Product

The system designed and developed meets all the user requirements with five roles with each certain function. In order to meet the system's needs, the scrum team embraced an incremental and iterative method, essential when utilizing scrum for client system development. The project was separated into 6 sprints with specifical tasks in each sprint to ensure the project was completed on time and ensure enough the features of the system like user's requirement. This approach enabled thorough documentation and testing before tackling larger backlogs requiring multiple sprints. Below is some of evaluation overview of the system with some main features.

About the interface, the system designed a friendly interface with user and can fix with multiple screen size such as some laptop, desktop, and mobile. The color of the system coordinated harmoniously with each other that do not dazzling and flashy, that make use comfortable when using. The figure aa is proved for the friendly and comfortable interface to user when using this system.

A screenshot of a website

Description automatically generated

Figure 1. Article page

A screenshot of a computer program

Description automatically generated

Figure 2. The Article page responsive

About the main features of the system will be ensured enough and operating well. For example, about the login features and the add new contribution of student feature, making decision about the status approved and rejected the student's contributions with role coordinator, making decision with the contribution is published or not by manager.

Add a new contribution by student role.

A screenshot of a computer

Description automatically generated

Figure 3. Add new article page

A screenshot of a computer

Description automatically generated

Figure 4. Articles management of Student role

Browse articles by choosing to approve or reject the article by coordinator.

A screenshot of a computer

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Figure 5. View all article in faculty of coordinator

And when the coordinator approves the article, the manager can see the article that approved to make decision published or not.

A screenshot of a computer

Description automatically generated

Figure 6. Browser article features of coordinator

A screenshot of a computer

Description automatically generated

Figure 7. View approved article page of manager

When the manager chooses to publish the article, the article that is published will display on the View Articles page.

A screenshot of a computer

Description automatically generated

Figure 8. Article page with all approved article

About the security, all of the password accounts will be encoded.

A screenshot of a computer

Description automatically generated

Figure 9. Security about the account password

The product assessment will undergo further evaluation using pertinent Nielsen's heuristics for user interface design to assess and determine the effectiveness and efficiency of the product in terms of its appearance and usability and the heuristics is presented in the 2.2.1. Nielsen’s Heuristics for User Interface Design part.

### 2.2.1. Nielsen’s Heuristics for User Interface Design

In this project, we used five principles of (Norman, 2002) to apply for designing and developing the system. Below is the six of design principles:

**Visibility:** This term pertains to the ease of finding or locating specific elements, whether it's navigating through a website, moving from one webpage to another, or selecting an option like "ease image" on a digital camera.

**Constraints:** As a design concept, constraints involve defining limitations and regulating the types of user interactions possible at any given moment.

**Mapping:** The mapping principle in interaction design is crucial for creating intuitive and user-friendly experiences. For instance, using icons in applications that resemble real-life objects, such as a magnifying glass for the search button or a house image for the home button.

**Consistency:** Consistency refers to handling similar situations in uniform ways, maintaining coherence throughout the user experience.

**Affordance:** Affordance is a term denoting the inherent characteristic of an object that allows individuals to understand its potential actions or uses.

Based on Don Norman's six principles above, we apply them to the system as follows:

**Visibility:** This principle will be implemented in the application to ensure users can perceive the system's status and take actions, with the system providing appropriate responses.

A screenshot of a login screen

Description automatically generated A green sign with white text

Description automatically generated

Figure 10. Proved about the Visibility principle that applied

This principle is used to allow user to know the system response to them that they can perform the login features and the system respone to them the animation and the notify that they login successfully.

**Constraints:** We will utilize this principle in the application to alert users and restrict their actions, prompting them to confirm actions they are undertaking.

A screenshot of a computer

Description automatically generated

Figure 11. Proved about the Constraints principle that applied

This principle is used to warn the user when they perform delete an article and they need to verify if they really want to delete article.

**Mapping:** This principle will guide the application's design to intuitively represent components resembling real-life counterparts, enhancing user understanding and interaction.

A screenshot of a computer

Description automatically generated

Figure 12. Proved about the Mapping principle that applied

This principle applies to design, we choose the icon is friendly and reality with user.

**Consistency:** This principle will be applied to maintain uniformity across the application, synchronizing elements such as color and font across backgrounds, icons, and text.

A screenshot of a computer

Description automatically generated

Figure 13. Proved about the Consistency principle that applied

A screenshot of a computer

Description automatically generated

Figure 14. Proved about the Consistency principle that applied

This principle is applied to help team members design consistent system interfaces in terms of colors and fonts.

**Affordance:** We will leverage this principle in the application to provide intuitive cues, such as in input forms, so users can readily understand the required actions without explicit instruction.

A screenshot of a login screen

Description automatically generated

Figure 15. Proved about the Affordance principle that applied

This principle is applied to make the system more friendly with user by this principle allow users easy to understand about the features that they perform and can perform right.

## 2.2. The Process

To ensure the project will succeed, we established a team consisting of five members who were carefully selected and assigned roles aligned with strengths of each member. This project, we applied the scrum to set plan to manage the time and task distribution for each member with certain features with the main goal to complete the system on time and get high effectively. The product was executed utilizing elements of the scrum methodology, offering several advantages. One key benefit is the time saved, as the product is developed iteratively with ongoing feedback from the client. Additionally, scrum fosters enhanced team output through regular meetings and collaborative efforts. With scrum, we join meetings together to discuss the project level and solve the difficulties and improve in the next sprint. When we applied the scrum to the project, we designed a product backlog. This product backlog was designed to identify all necessary functionalities, with the team collectively deciding on tasks for the initial sprint, such as developing the login feature and catching the error and the exception for this feature. Throughout development, new functionalities were incorporated into the backlog to help the system become more professional. In addition, effective communication among team members was maintained throughout the development process. Leveraging user stories and the product backlog proved instrumental in guiding the product's lifecycle, ensuring adherence to scrum principles and successful system development.

## 2.3. The Team

### 2.3.1. Team Evaluation

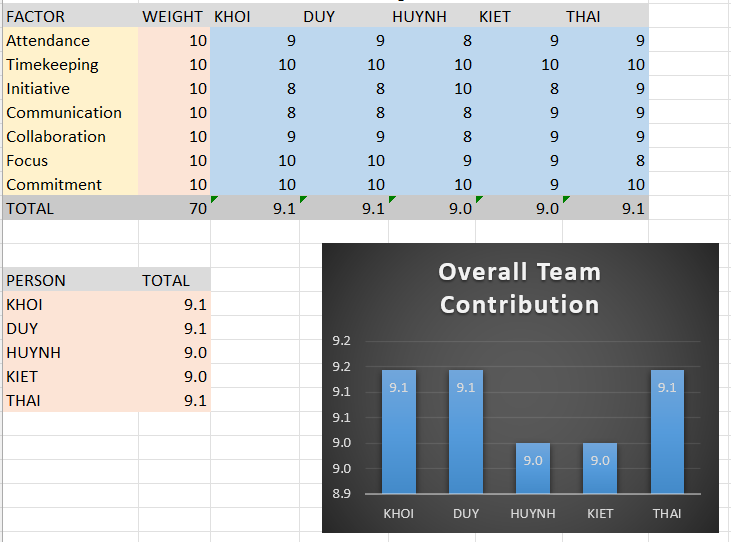


Figure 16. Team Evaluation

A graph of different colored bars

Description automatically generated

Figure 17. Team Evaluation chart

### 2.3.2. Team Justification

Table 1. Team Justification

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Factor** | **Average Rating** | **Comments** |
| Khoi | Attendance: 9 Timekeeping: 10 Initiative: 8 Communication: 8 Collaboration: 9 Focus: 10 Commitment: 10 | 9.1 | In this project, Khoi take the responsibility is a Back-end developer and database designer. He also all of the meetings of team and motivated the group to work hard. |
| Duy (Author) | Attendance: 9 Timekeeping: 10 Initiative: 8 Communication: 8 Collaboration: 9 Focus: 10 Commitment: 10 | 9.1 | Duy is the Back-end developer and Scrum master. He also attended all the meetings of the team and contributed to developing the system. He is the person who set the scrum plan for the team, allocate work to the group, and ensure the project will complete on time and work hard with the team members to build the system. |
| Huynh | Attendance: 8 Timekeeping: 10 Initiative: 10 Communication: 8 Collaboration: 8 Focus: 9 Commitment: 10 | 9.0 | Huynh is the front-end developer and designer UI of the system. In the developing process he also joins in the meetings of team and gives contribution with the goal support develop for the system. He also working hard with team members to build the system. |
| Kiet | Attendance: 9 Timekeeping: 10 Initiative: 8 Communication: 9 Collaboration: 9 Focus: 9 Commitment: 9 | 9.0 | In this project, Kiet is a back-end developer and tester of the system. He ensures all the features of the system operate well. Besides, he ensures all the features meet all the user's requirements. He is also attended all the meetings of the team and give idea and contribution to develop the system. |
| Thai | Attendance: 9 Timekeeping: 10 Initiative: 9 Communication: 9 Collaboration: 9 Focus: 8 Commitment: 10 | 9.1 | Thai is the front-end developer and designer UI of the system. In this project he and Huynh worked together a lot to design and develop the interface of the system. He also attending all meetings of the team and contributing to develop the system on time and ensure the interface of the system will be friendly to user. |

## 2.4. Self-Evaluation

In this project, I undertake the Back-end developer and Scrum master role. I worked hard to contribute to the success of the team by developing an annual university magazine system. I set the plan about the step perform the features of the system and the time of all develop processing and ensure the project will complete on time. Besides, I contribute to the development of the features of the system with the purpose of meeting all the user's requirements and developing more features. When I perform this project, I am also aware of some of my strengths and weaknesses.

About the strength, I know how to apply the scrum to the project and use the scrum to manage the project by setting the plan about the time and tasks for each member in team. Besides, I understand the scrum method of Agile method to the project and with this project I equip yourself the knowledge about the scrum. In addition, this project helps me improve my time management and communication skills when working with the team. I know how to set the time and task for each member to adapt with the group work environment, know how to solve conflict between members in team and contribute to the main goal of team.

About the weakness, when performing this project, I have some difficulty with some of features of the system and from this I know my code skill is not good. In addition, in this project, I undertake the scrum master role, and this is the first I get this role, so that I get some difficulty when apply it to the project, specifically my team being late when not completing all the functions stated in sprint 1 and having to go through sprint 2 about the reset password features when user forget. However, I set the time again and solved this issue.

To sum up, after performing this project I also awarded my strength and weakness to improve for coming project in the future. Besides, I have some knowledge about Agile and Scrum and it can help me a lot in future. Moreover, I improved some soft skill for me about the time management, communication, solving conflict skill. In my view, I think this is a successful project for me and my team and also a lesson and preparation for me in the future.

# 3. Conclusion

This project, I and my team worked together well to design and develop an Annual University Magazine system by using the Asp.Net Web API with C# to develop the back-end of the system to ensure all of the features of the system is enough and operating well and the Angular framework with Type Script to use to design and develop the interface of the system to ensure the interface of the system is friendly with user and ensure follow the five principles of Don Norman to design the interface to make the system professional.

The report has assessed the entire life cycle of the “Annual University Magazine" system covering all pertinent aspects of the product. It's important to highlight that the product was delivered on time, with all functionalities successfully implemented. This accomplishment was facilitated by adhering to various elements of the scrum methodology, including regular weekly scrum meetings, thorough documentation of a product backlog, and the use of user stories to outline product features. The report involved assessing the product, accompanied by relevant screenshots and commentary. The report delved into the system's advantages, particularly focusing on its security and usability aspects. Besides, the report focused on evaluating the system development process, particularly assessing the effectiveness of communication within the scrum team and the utilized design methods. It discussed how effectively the team employed scrum techniques to craft a successful system.

Each team member underwent evaluation using an Excel spreadsheet, assessing them based on different teamwork criteria. Present the task of each member and level of satisfaction with the ability to work cooperatively with each member about the Attendance, Timekeeping, Initiative, Communication, Collaboration, Commitment element. All the members of the team are evaluated in the fairest way with the evaluation element mentioned.

When performing this project, we know about the scrum, about how to apply it to project, how to set the plan for the team to implement and comply with scrum method. Besides, we improve soft skills such as communication, time management, and problem-solving skills. To sum up, this is a successful project of the team and is some luggage for us in the future.

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