**Journal of Information Systems Engineering and Management**
2025, 10(26s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

**Research Article**

# Development and Evaluation of a Portfolio Website for BSEMC Program

Lourence R. Villaluz[1]
[1] Department of Entertainment and Multimedia Computing, Program Head, Eastern Samar State University, Borongan City, Philippines

**ARTICLE INFO**

Received: 24 Dec 2024

Revised: 18 Feb 2025

Accepted: 27 Feb 2025

**ABSTRACT**

**Introduction**: Portfolios have long been used to showcase skills and work quality, with electronic portfolios (ePortfolios) becoming increasingly important in academic and professional settings. Unlike traditional CVs, ePortfolios offer a structured platform for presenting achievements. This study focuses on developing and evaluating a website for the Bachelor of Science in Entertainment and Multimedia Computing (BSEMC) program at Eastern Samar State University (ESSU) Borongan Campus.

**Objectives**: The primary objective of this study is to develop a centralized website for BSEMC students to upload and manage multimedia projects efficiently. Additionally, the platform aims to provide faculty members with tools to oversee grades, fines, class schedules, and project approvals for academic management. Furthermore, the study seeks to evaluate the usability of the system using the System Usability Scale (SUS) to assess its effectiveness and user experience.

**Methods**: The study involved the design and development of a web-based ePortfolio system for the BSEMC program. The platform was tested by students and faculty members, who provided feedback on its functionality and usability. The System Usability Scale (SUS) was used to assess user experience, and the system's performance was analyzed based on user engagement and limitations.

**Results**: The System Usability Scale (SUS) evaluation yielded a score of **75**, indicating "GOOD" usability. The platform effectively provides a structured and accessible space for students to manage their projects and for faculty to oversee academic activities. However, the system requires internet access and supports only specific multimedia formats. Additionally, it does not integrate with other university systems or support large-scale multimedia projects.

**Conclusions**: Despite some limitations, the ePortfolio website proves to be a valuable academic tool, enhancing student learning and professional development. By serving as a structured and accessible portfolio system, it benefits both students and faculty in managing academic projects and records efficiently.

**Keywords:** e-portfolio, BSEMC, Web Development, Computer Programming

## INTRODUCTION

Electronic portfolios (ePortfolios) have evolved from traditional document-based portfolios into essential tools for academic and professional assessment. Initially designed to evaluate student competencies and showcase institutional commitment to learning, ePortfolios are now gaining traction in the professional world, presenting new challenges for business communication. Unlike CVs, blogs, or social media profiles, ePortfolios provide a comprehensive and credible platform for showcasing achievements, integrating information, evidence, and reflection [1].

With the increasing demand for IT specialists, recruiters face challenges in identifying qualified candidates, often requiring additional training for them to meet job requirements. Employment in IT-related fields is projected to grow by 25% in the next 15 to 20 years. ePortfolios serve as digital archives of skills and achievements, facilitating continuous learning and career development.

Eastern Samar State University (ESSU) Borongan Campus upholds its mission to produce globally competitive graduates in various disciplines (ESSU Code, 2004). The College of Computer Studies aims to equip Bachelor of Science in Entertainment and Multimedia Computing (BSEMC) students with a strong foundation in 2D and 3D animation. To support this, a website is proposed as a centralized repository for student multimedia projects. This platform will help students systematically store and showcase their work while integrating a faculty portal for managing grades, fines, class schedules, and project approvals. The system's usability will be evaluated using the System Usability Scale (SUS). Ultimately, this initiative enhances learning, professional development, and accessibility to student portfolios.

Electronic portfolios (ePortfolios) have become essential in education and professional development, providing platforms for students to showcase achievements, enhance employability, and align education with industry demands. Several studies highlight their benefits and challenges.

An ePortfolio was developed using using WordPress, evaluating its usability among medical students. While it effectively supported multimedia documentation, peer exchange, and mentorship, 74% of users struggled with its initial setup, indicating a need for better training.[2] Similarly, a web-based ePortfolio system was created to enhance graduate tracking and university visibility[3]. It allowed employers to identify qualified candidates based on faculty-validated reviews, demonstrating its role in bridging education and employment.

A recent research emphasized the need for research-driven digital portfolio systems to assess student competencies and self-presentation [4]. Her study highlighted gaps in organizational and methodological support for maintaining web portfolios. Meanwhile, a research examined how new media technologies influence students' creativity in portfolio website development. While these tools facilitated idea generation, some students bypassed key conceptual steps, underscoring the importance of structured learning processes [5].

Collectively, these studies emphasize ePortfolios as valuable educational tools that improve student learning, professional exposure, and skill development. However, usability challenges and the need for instructional support persist. This review supports the development of an online portfolio platform for BSEMC students at ESSU, ensuring continuous innovation and evaluation to maximize the effectiveness of digital portfolios in academic and professional contexts.

## OBJECTIVES

1. To develop a centralized website for BSEMC students to upload and manage multimedia projects.
2. To enable faculty to oversee grades, fines, class schedules, and project approvals.
3. To evaluate the usability of the platform using the System Usability Scale (SUS).

## METHODS

This section employs a structured software development model, including planning, design, development, and evaluation phases.

### 1) Software Development Model

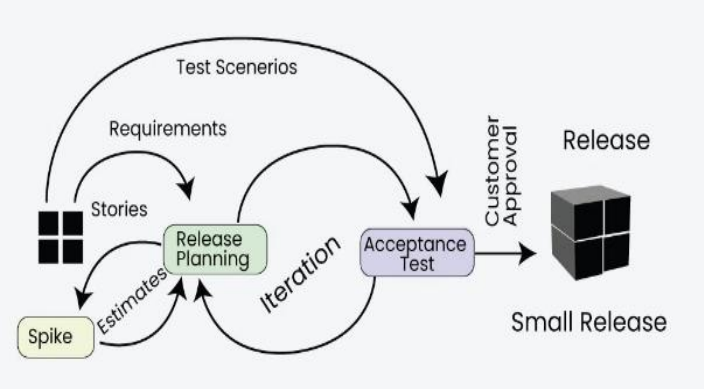


Figure 1 Extreme Programming (Retrieved from: https://www.geeksforgeeks.org)

The researcher utilized Extreme Programming (XP) as the development model for the e-portfolio system. XP is an Agile software development approach that emphasizes frequent feedback, collaboration, and adaptability to ensure high-quality software. The development process began with the spike phase, where research and experimentation were conducted in the College of Computer Studies to determine the most suitable technologies for multimedia uploads, student accounts, and data storage. User stories were then defined to capture the system's functional requirements, such as "As a student, I want to upload my project files to showcase my work." These stories guided the development process. In the estimates phase, the researcher assessed the time and resources needed to implement features like account creation, multimedia support, and secure data storage. Release planning involved scheduling the development and deployment of features in small iterations, with schedules being presented to faculty and students for review. During each iteration, key functionalities such as uploading images, viewing portfolios, and submitting feedback were developed, tested, and refined. Testing scenarios included verifying file uploads, teacher approvals, and ensuring the system was accessible on different devices. The acceptance testing phase involved students and teachers evaluating the system's functionalities before administrative approval was granted. The system was then gradually introduced to students and faculty in the small release phase, before being fully deployed for regular use. The website was hosted on Hostinger, a web hosting service known for its affordable plans, user-friendly interface, and advanced hosting technology (Forbes Advisor, 2024). This development approach ensured that the e-portfolio system was structured, efficient, and user-friendly.

### 2) System Architecture

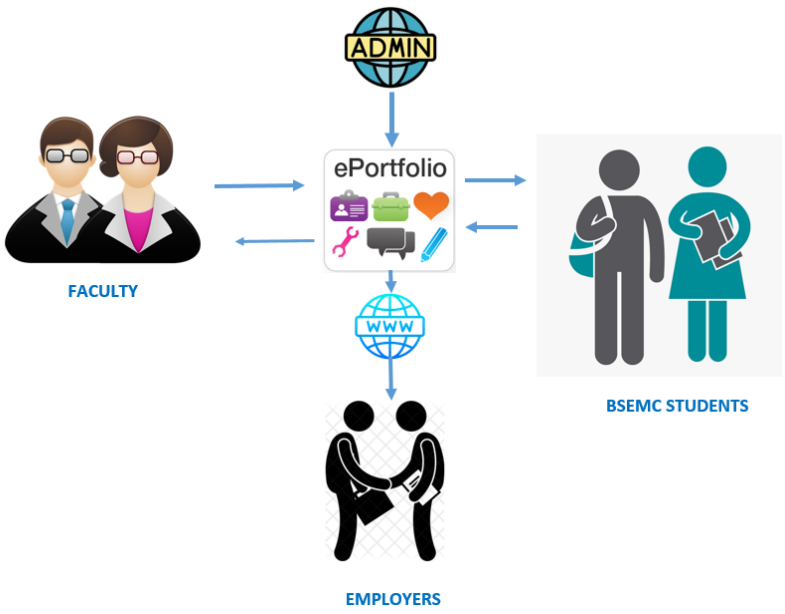


Figure 2 System Architecture

Figure 2.0 illustrates the interconnected roles within the ePortfolio system designed for BSEMC students, highlighting the interactions between the Admin, Faculty, Students, and Employers. The Admin oversees the system's functionality, ensuring smooth operations and managing user accounts. Faculty members engage with the system by reviewing and approving student work, providing essential feedback that helps maintain academic standards. BSEMC students are the primary users, utilizing the platform to upload and showcase their projects, which are then refined based on faculty input. Employers access the system to evaluate student portfolios, aiding in their recruitment process by reviewing validated work and feedback from faculty.

### 1) Evaluation

The study used a developmental-evaluative research design to test the attendance monitoring system in the College of Computer Studies. This approach combined system development with iterative testing, ensuring it met user needs through continuous feedback and assessment. The research took place at Eastern Samar State University Borongan Campus, located in Maypangdan, Borongan City, Eastern Samar, Philippines. The study was conducted in a real-

world academic setting to evaluate the system effectively. The respondents included 25 BSEMC students and 15 faculty members from the College of Computer Studies. They provided feedback using scorecards to assess the system's performance. The System Usability Scale (SUS) was the primary research instrument. This ten-question scale provided an overall measure of usability, with response options ranging from "Strongly Agree" to "Strongly Disagree." SUS scores ranged from 1 to 100, with 68 considered the average usability score. Scoring followed a Likert scale with 10 questions, where respondents rated each statement from 1 to 5. A score of 5 indicated strong agreement, while 1 indicated strong disagreement. This method provided a structured way to measure user satisfaction with the system's usability.

## RESULTS

This part presents the outcomes and analysis derived from the implementation and evaluation of the designed system, aimed at developing a library management and user accessibility. The primary objective of this study was to develop a website for BSEMC students that functions as a portfolio, showcasing all multimedia-related activities.

*1) The developed website*

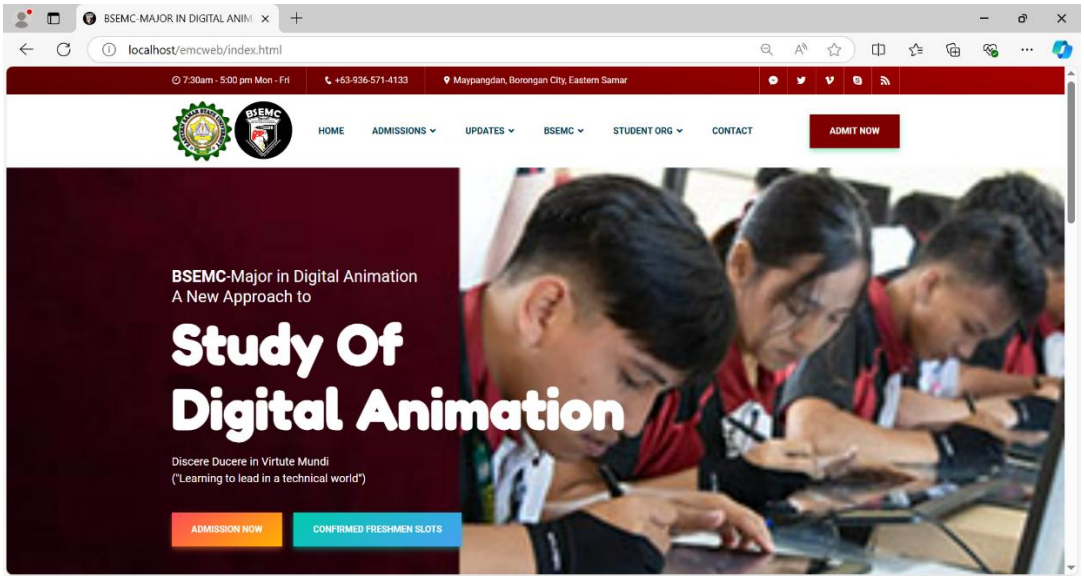


Figure 3 Screen Shot of Index Page

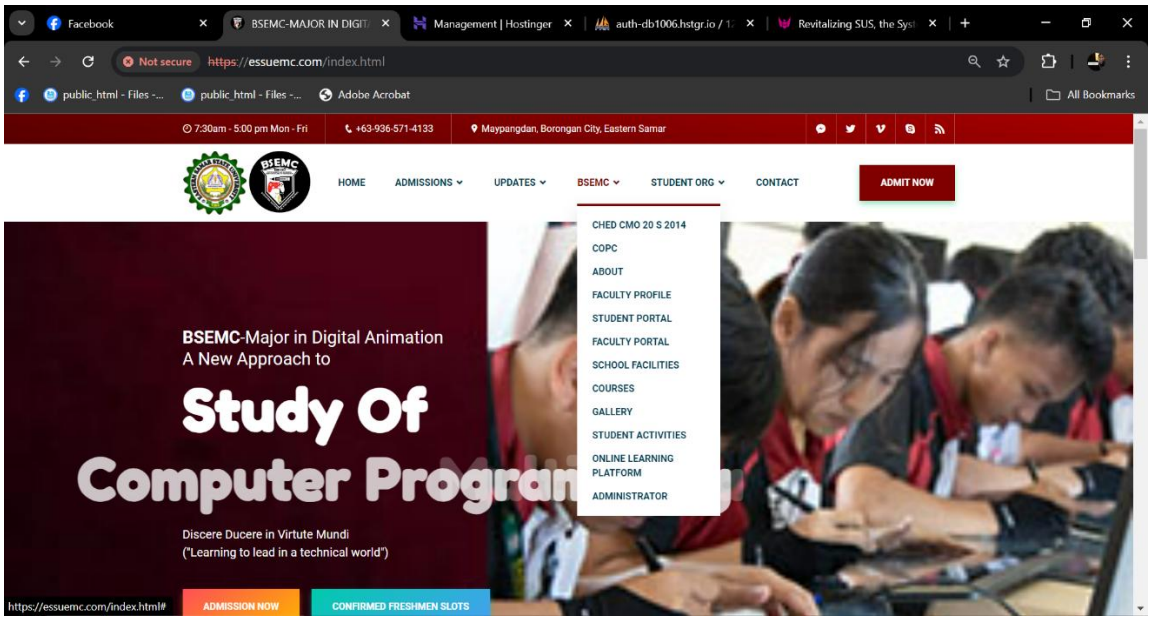


Figure 4 Navigation Tabs

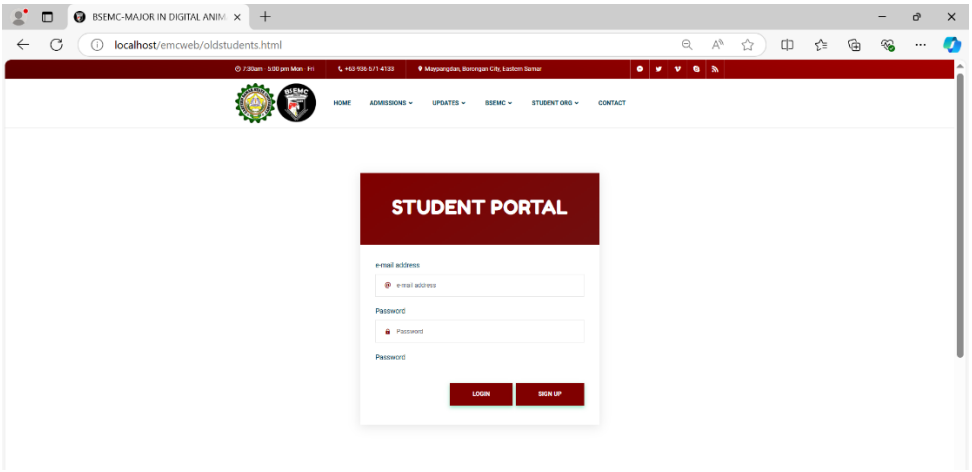


Figure 5 Login Page

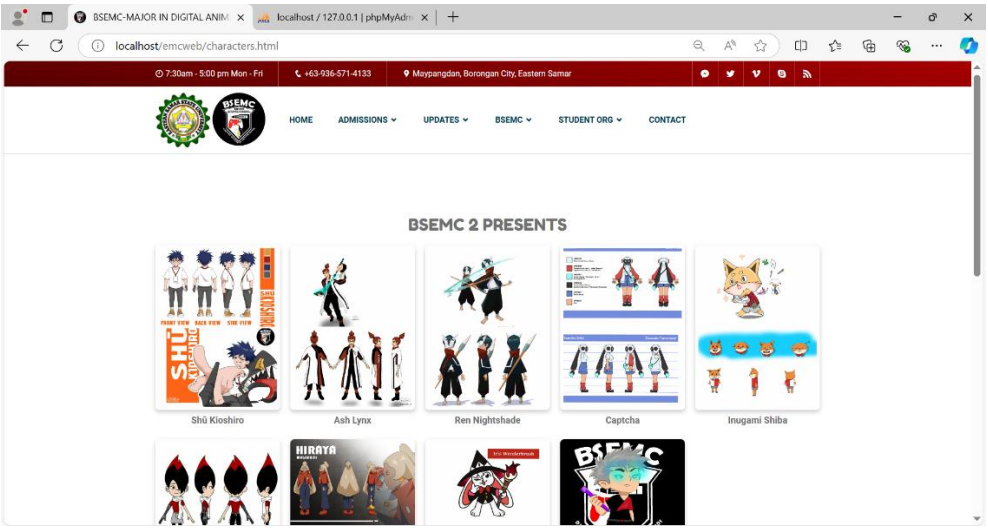


Figure 6 Student Multimedia Files

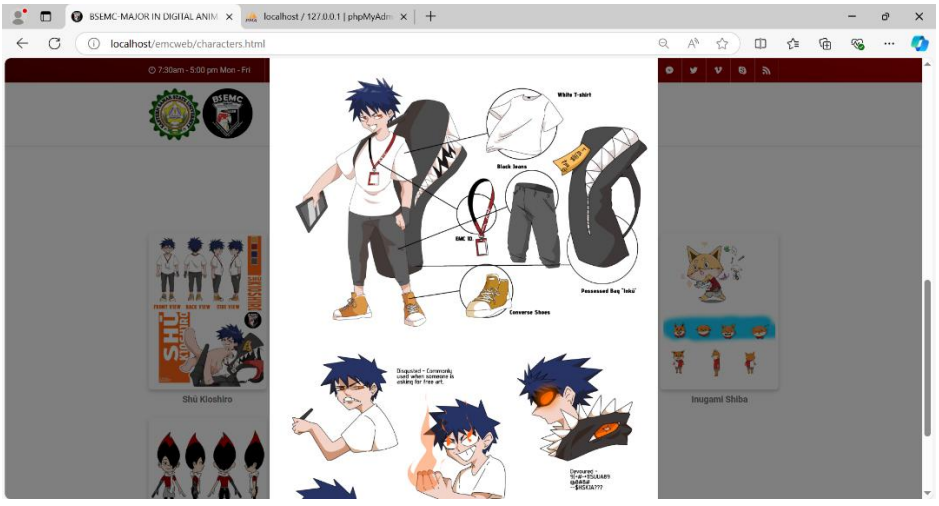


Figure 7 Artwork Display

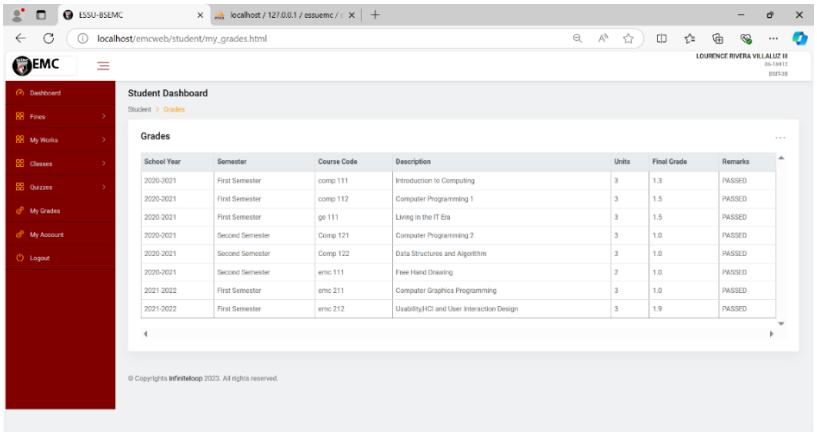


Figure 8 Student Grades Page

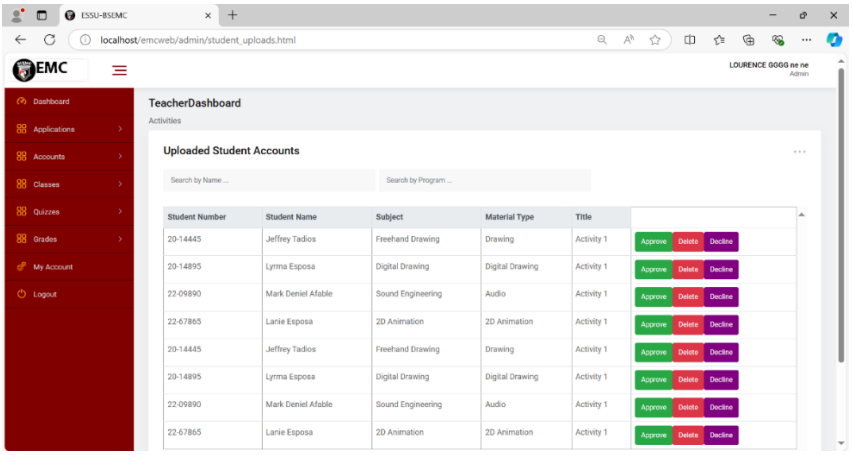


Figure 9 Faculty Dashboard

*2) Evaluation Results*

After conducting multiple system walkthroughs and testing sessions with the clients, the System Evaluation Scale Questionnaire was distributed for them to evaluate the system. Upon completing their evaluation, the clients rated the website using the questionnaire. Table 3 presents a summary of the evaluation results.

**Table 1 Evaluation Result**

| **Questions** | **Rating** |
|---|---|
| 1. I think that I would like to use this system frequently. | 4 |
| 2. I found the system unnecessarily complex. | 3 |
| 3. I thought the system was easy to use. | 4 |
| 4. I think that I would need the support of a technical person to be able to use this system. | 3 |
| 5. I found the various functions in this system were well integrated. | 5 |
| 6. I thought there was too much inconsistency in this system. | 3 |
| 7. I would imagine that most people would learn to use this system very quickly. | 5 |
| 8. I found the system very cumbersome to use. | 2 |
| 9. I felt very confident using the system. | 4 |
| 10. I needed to learn a lot of things before I could get going with this system. | 2 |

**SUS Computation**

$$X = (4 + 4 + 5 + 5 + 4) - 5$$

$$X = 23 - 5$$

$$X = 18$$

$$Y = 25 - (3 + 3 + 3 + 2 + 2)$$

$$Y = 25 - 13$$

$$Y = 12$$

$$\text{SUS Score} = (18 + 12) * 2.5$$

$$\text{SUS Score} = 75$$

Interpretation = GOOD

## DISCUSSION

The website serves as a centralized platform for BSEMC students and faculty, offering essential functionalities to support academic and multimedia-related activities. As shown in Figure 3, the index page provides an intuitive navigation bar that allows users to access various sections of the site without requiring authentication. Below this, Figure 4 highlights a menu that directs users to key areas such as the student and faculty portal login pages, ensuring easy access to relevant features.

Once inside the system, students can log in through the student portal login page (Figure 5), which restricts access to only approved accounts. If an account has not yet received faculty or administrator approval, the system prompts the user with a notification, ensuring security and controlled access. Once logged in, students can interact with the multimedia activities page (Figure 6), where all student-submitted projects, including animations, videos, and artwork, are displayed. These data are securely stored on Hostinger, a web hosting service that employs multiple security measures, such as 24/7 server monitoring, firewall protection, and advanced security modules like mod_security and Suhosin PHP hardening. Additionally, anti-malware protection is implemented on both endpoints and servers, ensuring a robust defense against potential cyber threats.

For student submissions, Figure 7 presents an individual artwork display, allowing users to view associated files by clicking on an image. Additionally, students can track their academic performance through the student grades page (Figure 8), which displays their grades in real time. Meanwhile, Figure 9 illustrates the student dashboard, where students can upload various multimedia content, including plates, 2D and 3D animations, videos, and music.

The website has been successfully deployed using Hostinger and is managed by the system administrator, who holds update privileges via a registered hosting account. The domain is registered for two years, after which renewal will be required. In the interim, administrative control is maintained by the Program Head of the BSEMC program, under whose Hostinger account the website is registered. The BSEMC Student Organization is tasked with content updates, while access to the database remains exclusive to the Program Head.

To evaluate the usability of the system, clients were given a System Usability Scale (SUS) questionnaire, assessing factors such as ease of use, functional integration, and user confidence. The responses, rated on a scale from 1 to 5, are summarized in Table 3. The SUS score was calculated using standard formulas, summing and adjusting responses from odd- and even-numbered questions. The final SUS score of 75 was categorized as "GOOD," indicating a generally positive user experience and usability assessment.

This study successfully developed a website for BSEMC students, functioning as a structured portfolio for showcasing multimedia-related activities. Additionally, a faculty portal was integrated, enabling faculty members to efficiently manage student grades, fines, schedules, quizzes, and project approvals. The usability assessment, based on the System Usability Scale (SUS), yielded a final score of 75, confirming the platform's effectiveness and positive reception. Overall, the system provides a valuable academic tool, facilitating seamless student-faculty interactions while enhancing students' ability to organize and present their multimedia projects.

## REFRENCES

[1] Tasji, L. F., & Turani, A. A. (2023). E-Portfolio Effectiveness in Seeking IT Jobs. Information Sciences Letters, 12(8), 2725–2733. https://doi.org/10.18576/isl/120823

[2] Avila, J., Sostmann, K., Breckwoldt, J., & Peters, H. (2016). Evaluation of the free, open source software WordPress as electronic portfolio system in undergraduate medical education. BMC Medical Education, 16(1). https://doi.org/10.1186/s12909-016-0678-1

[3] Buhia, J.-A. S., Asendiente-Bajao, N., & Magpuyo, S. (2023). Development and Validation of WEPP: UMOST (Web-based Electronic Portfolio Platform: University Marketplace for Skills and Talents). https://www.researchgate.net/publication/382300371

[4] Panyukova, S. (2019). Didactic Potential of Web Portfolio: Theory and Practice. http://ceur-ws.org

[5] Hinchliffe, L. J., & Wolff-Eisenberg, C. (2020). *System usability scale (SUS) implementation in library website and system usability testing: Benefits and challenges*. Weave: Journal of Library User Experience, 1(6). https://quod.lib.umich.edu/w/weave/12535642.0001.602?view=text;rgn=main