CS-499 3-1 Journal

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Part One: Marketing With ePortfolios and Artifact Update

Using an ePortfolio for Self-Promotion

An ePortfolio is a great way to show off your skills, expertise and body of work. By showcasing my projects, I am able to demonstrate my technical expertise, problem-solving skills, and commitment towards quality. An ePortfolio helps me provide concrete examples of my achievements in an interview. This makes it easier for hiring managers and recruiters to evaluate my abilities and suitability for a job (Alvee Akand, 2024.) An ePortfolio also establishes my brand by highlighting technologies and projects relevant to my desired position, demonstrating my practical, and theoretical knowledge applicable for industry needs. By including well documented projects and organized presentation, I can demonstrate my communication skills and attention-to-detail, qualities which are often just as important as technical knowledge.

Maximizing Marketing Potential While Mitigating Risks

In order to maximize my ePortfolio's marketing potential while managing risk, I will select and present projects which showcase relevant skills without revealing sensitive or proprietary information. Public and open-source projects are not subject to intellectual property restrictions, so I can concentrate on them. Instead of revealing details, I may share abstract descriptions for proprietary or confidential projects or talk about the technical skills required without divulging specifics. Limiting sensitive technical details and removing proprietary code can also protect intellectual property, while still showcasing your skills.

In addition, by implementing access control or using private repositories, I can share my ePortfolio with potential employers selectively rather than make all content publicly accessible. This strategy protects sensitive materials but also allows for targeted networking. It ensures that the right audience can access my best work.

Risks of Posting Intellectual Property Online

One of the primary risks of posting an ePortfolio online is the potential exposure of intellectual property. Posting proprietary or sensitive work in a public forum can inadvertently lead to unauthorized use or distribution, potentially breaching confidentiality agreements and damaging professional relationships. Additionally, presenting my work online could risk misinterpretation or unintended competition if others attempt to replicate or adapt the project.

Another downside is that some organizations might be hesitant to hire individuals who publicly share work samples, especially if those samples could compromise the organization’s competitive advantage. To manage these risks, it’s essential to carefully vet the content of each project before posting it and to provide documentation that supports but does not reveal sensitive technical details.

Course Outcomes Achieved and Remaining

So far, I have made significant progress toward several course outcomes. Specifically, I have demonstrated my ability to employ effective software engineering practices, including modularization and optimization, which align with Outcome 4 (using well-founded techniques and tools). I have also demonstrated Outcome 3 (design and evaluation of efficient solutions) through structured code design and task management in my thermostat project. However, I still need to focus on further building collaborative skills to support organizational decision-making (Outcome 1) and refine my security mindset by identifying and mitigating potential vulnerabilities in my work (Outcome 5). As I continue to refine my ePortfolio, I plan to address these remaining outcomes, ensuring that my work reflects a comprehensive and balanced skill set.

Status Checkpoints Table

|  |  |  |
| --- | --- | --- |
| **Course Outcome** | **Status** | **Plan for Completion** |
| Outcome 1: Collaborative Skills | In Progress | Engage in discussions, provide and receive feedback on projects, and incorporate collaborative techniques. |
| Outcome 2: Professional Communication | Completed | Demonstrated through clear documentation and explanation of project goals, structure, and design decisions. |
| Outcome 3: Design and Evaluate Solutions | Completed | Achieved through structured design and optimization in the thermostat project, showcasing problem-solving. |
| Outcome 4: Techniques and Tools | Completed | Demonstrated by implementing modularization, task scheduling, and optimization practices in my artifact. |
| Outcome 5: Security Mindset | In Progress | Plan to include a focus on defensive programming and error handling in future artifacts and portfolio pieces. |

References:

Alvee Akand. (2024, February 16). *GitHub Profile and Git Practices for Job Seekers*. Flatiron

School. <https://flatironschool.com/blog/github-profile-and-git-practices-for-job-seekers/>

Part Two: Status Checkpoints for All Categories

|  |  |  |  |
| --- | --- | --- | --- |
| **Checkpoint** | **Software Design and Engineering** | **Algorithms and Data Structures** | **Databases** |
| **Name of Artifact Used** | Embedded Thermostat System | Embedded Thermostat System | Embedded Thermostat System |
| **Status of Initial Enhancement** | Completed modularization of code, replaced magic numbers with constants, and implemented error handling for UART and I2C initialization | Began refactoring for task scheduling using a priority queue; working on improving variable names for clarity | Started integrating MongoDB for logging temperature and set-point data; created API endpoints for data access |
| **Submission Status** | Submitted for instructor feedback | Enhancement in progress, partial submission for initial feedback | Partial completion, initial feedback on MongoDB integration received |
| **Status of Final Enhancement** | Final adjustments underway based on instructor feedback; final review pending | Finalizing priority-based scheduler and optimization for real-time responsiveness | Refining MongoDB queries, adding error handling for database connection issues |
| **Uploaded to ePortfolio** | Not yet uploaded | Not yet uploaded | Not yet uploaded |
| **Status of Finalized ePortfolio** | In progress | In progress | In progress |

Progress Report

Software Design and Engineering

Initial enhancements for the Software Design and Engineering category have been completed. Professionally, I’ve seen how clear, modular code simplifies maintenance and debugging. Modularizing the code required breaking major functionality into separate functions, such as handling buttons, reading temperatures, and updating displays. For better readability, named constants were used to replace magic numbers. To make the code more robust, error handling was added to UART and I2C Initialization. The final enhancement phase, which incorporates feedback from my professor to refine the code, is currently in progress. Once the enhancement phase is completed, I will upload the artifact to ePortfolio.

Algorithms and Data Structures

For the category of algorithms and data structures, I started refactoring to implement a task scheduler based on priority. The refactoring replaces static interval checking with a more efficient queue system that allows tasks to be dynamically scheduled based on time and priority. In my professional experience, optimizing efficiency is crucial when working on time-sensitive applications, especially in embedded systems. I have also improved variable names for clarity and to ensure that the code is aligned with industry standards. The first enhancement has been partially completed and submitted for feedback. I am currently working to finalize the implementation of the scheduler and test for real-time responsiveness.

Databases

I've started integrating MongoDB in the database category to log temperature readings, set-point adjustments and historical data. This allows the system to provide meaningful insights and store historical information. I have also created initial API endpoints for data access. This will support potential use cases such as external dashboards and monitoring applications. I've received initial feedback about my MongoDB Integration and am currently optimizing queries to maximize performance. I'm also adding error-handling to ensure data integrity and manage database connection problems. This enhancement is still in progress. There are many more tasks to complete before the final submission of ePortfolios and uploading.

Overall ePortfolio Progress

All categories are currently in progress, with most initial enhancements either completed or near completion. Final adjustments are underway in each area to incorporate instructor feedback. Once all enhancements are finalized, I will begin uploading each artifact to the ePortfolio and conduct a thorough review to ensure all requirements and outcomes are met for each category.