**2-1 Journal: What Makes a Productive Code Review**

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* **What is code review?**
  + Code review is a systematic examination of code by developers to identify and fix bugs, improve code quality, and ensure adherence to coding standards and best practices. In the context of security, it also involves auditing code to identify security flaws, ensuring that proper controls are implemented and effective.
* **Why is it an important practice for computer science professionals?**
  + Code review is crucial for catching bugs and vulnerabilities early in the development process, making it more cost-effective and enhancing code reliability and security. By integrating code review into the software development lifecycle (SDLC), organizations can achieve higher code quality and reduce the likelihood of security breaches.
* **What are some code review best practices that you read about in the resources that are crucial to include in a code review? Include when a code review should occur in the development process with a rationale as to why.**
  + **Frequent and Early Reviews:** Conduct code reviews early and often in the development process. This ensures that issues are detected before they become deeply integrated into the codebase.
  + **Check for Security Flaws:** Use secure coding checklists and threat modeling to identify common vulnerabilities like SQL injections and cross-site scripting (XSS). This approach also includes ensuring that sensitive data is handled correctly and that the code has appropriate access control mechanisms.
  + **Document Findings**: Record all review discussions to create a history of design decisions, which aids future developers. This also allows teams to track improvements and avoid reintroducing past issues​.
* **What software have you chosen to use to record your code review?**
  + For my project, I chose to update my Rescue Animals program that I created in IT-145. With this project, I will be able to enhance areas such as software engineering and design, algorithms and data structure, and databases.
* **Describe your approach to creating an outline or writing a script for your code review for each of the three categories that you will be reviewing based on the rubric as well as the code review checklist.**
  + For my code review, I chose to document findings in a checklist format, emphasizing Software Design, Algorithms and Data Structures, and Database efficiency, as guided by the CS 499 rubric and checklist. This format allows for organized feedback, helping to isolate issues like modularity in Driver.java and the inefficiency of ArrayLists for data storage, which I addressed by recommending a MongoDB integration. Creating this outline also ensures each part of the code meets the rubric standards, making the review process rigorous yet manageable.