Capstone Weekly Status Report 5

Date and Time: October 5, 2025

Student Name: Satwik Alla

Capstone Project: Awaiting assignment - SBOM-A (Software applications/Apps) preferred

Capstone Sponsor: No confirmed sponsor - proceeding with Professor Samarah's guidance for students without secured partnerships

Capstone Advisor: Prof. Mohammad Samarah & Prof. Melissa Sahl

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Status Details:

Work accomplished this Week

- Project Preference Submission**:** Completed and submitted internal project preference form on October 4th with three ranked choices (SBOM-A, SBOM-D, iBROWSE)
- Comparative Project Research**:** Conducted detailed research on all three preferred projects to understand requirements, technical complexity, and implementation feasibility
- SBOM Standards Investigation**:** Researched Software Bill of Materials standards, SPDX/CycloneDX formats, and existing SBOM tools (Syft, SBOM Tool, etc.)
- Academic Literature Review**:** Reviewed research papers on SBOM empirical studies, landscape analysis, and stakeholder perspectives
- Browser Security Research**:** Investigated browser extension architectures, Web Extensions API, and privacy/security assessment methodologies for iBROWSE option
- Groundwork Activities**:** Maintained project readiness while awaiting assignment finalization

Work Planned for Next Week

- Project Assignment Confirmation: Receive and confirm final project assignment (October 6th)
- Deep Requirements Analysis: Thoroughly analyze assigned project's core functions, special considerations, and resource materials
- Technical Stack Selection: Identify and evaluate appropriate technologies (databases, search engines, APIs, frameworks) for the assigned project

- Architecture Planning: Design system architecture including data models, search implementation (with fuzzy search), and comparison engine
- Development Environment Setup: Configure development environment, initialize Git repository, and establish project structure
- Alpha Deliverable Planning: Create detailed implementation plan for October 13th alpha checkpoint focusing on core search and display functionality
- Data Strategy Development: If SBOM project assigned, establish strategy for obtaining/generating SBOM data; if iBROWSE is assigned, begin browser API integration research
- Initial Development Sprint: Begin coding core features to have functional demonstration ready for alpha checkpoint

Problems, obstacles, needs, or questions that I need help with from client, advisor, or instructor

- Compressed Timeline: With assignment on October 6th and alpha due October 13th, need clarification on minimum viable deliverable expectations for alpha given only one week of development time
- SBOM Data Acquisition: If assigned to SBOM project, I may need guidance on accessing legitimate SBOM data sources or creating representative sample datasets for development
- Alpha Scope Definition: Request specific guidance on which core features are essential for alpha vs. which can be deferred to beta checkpoint
- Cross-Browser Development: If assigned iBROWSE, may need resources on maintaining single codebase across multiple browser platforms

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Overall Status

- Project Status Color: Yellow (Project assignment pending, tight timeline to alpha)
- Project Status Color from Previous Week: Yellow