

Capstone Weekly Status Report 6

Date and Time: October 12, 2025

Student Name: Satwik Alla

Capstone Project: SBOM Manager - Software Bill of Materials Management System

Capstone Sponsor: Software Engineering Department **Ethical Software Lab** – In-house project

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

Status Details:

Work accomplished this Week

- Project Assignment Confirmed: Received SBOM-A (Software Applications) project assignment on October 6th
- Comprehensive Planning: Developed complete project documentation including system architecture, database schema, API design, and 8-week implementation timeline
- Technology Stack Selected: Frontend (React + TypeScript + Tailwind), Backend (FastAPI + Syft), Database (Supabase PostgreSQL), Hosting (Vercel + Render.com - 100% free tier)
- Requirements Analysis: Analyzed all core features - search with fuzzy matching, SBOM display, comparison engine, and statistics dashboard for 5 platforms (iOS, Android, macOS, Windows, Linux)
- Development Environment: Set up GitHub repository, configured local environment with Node.js and Python 3.11
- Alpha Scope Defined: Authentication + file upload + SBOM generation for 2+ platforms (target: November 3rd)

Work Planned for Next Week

Focus: Infrastructure & Authentication Foundation (Week 1 of 3 to Alpha)

- Supabase Setup (Days 1-2): Create project, configure database schema (users, applications, components tables), enable Auth with email verification, set up file storage bucket

- Backend Development (Days 3-4): Initialize FastAPI project, implement authentication endpoints (register, login, token refresh, user profile), integrate Supabase Auth, add JWT validation middleware
- Frontend Development (Days 5-6): Initialize React project, build authentication UI (registration, login, email verification pages), implement auth state management, create protected routes
- Testing & Documentation (Day 7): End-to-end auth flow testing, API documentation, README updates

Week 1 Deliverables: Working registration/login system with email verification, Supabase database operational, local development environment ready

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

- Alpha Scope Confirmation: Is authentication + upload + SBOM generation for 2 platforms sufficient for alpha, with search/comparison deferred to beta?
- Sample Data Sources: Can I use open-source applications from repositories like F-Droid or npm for testing SBOM generation?
- Tech Stack Approval: Confirming React + FastAPI + Supabase is acceptable, or are there specific technology requirements?
- Syft Integration: Need to verify Render.com free tier supports Syft installation - will test early with containerization backup plan if needed

Overall Status

- Project Status Color: Green
- Project Status Color from Previous Week: Yellow