Module 1 Portfolio Milestone: System Selection

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For my CSC501 portfolio project, I chose a project management approach to develop and implement a software system called Project Codebase, a personal project. However, to meet the CSC501 portfolio project requirements, I have reframed the Project Codebase project as a fictional internal system being developed by a company called Omega.py (I own the omegapy.com domain). The goal of the project is to manage the development and implementation of an intelligent platform/AI agent that would assist Omega.py software engineers and AI coding agents in understanding existing and being developed software codebases and architectures. For software engineers, Project Codebase will provide visual architecture mapping, project workflow visualization, context descriptions, and integration with IDE (Integrated Development Environment) tools. For AI coding agents, Project Codebase will enable AI coding agents to understand the constraints, requirements, and stakeholder needs of software projects, as well as their codebase and architecture. The core feature of Project Codebase is its combination of an AI Agent and RAG (Retrieval-Augmented Generation) system based on a knowledge graph Neo4j database, and on a custom markup language, DE-ML (DescriptionExtractor Markup Language) embedded in code comments and docstrings for component description extraction. The RAG system will allow the Project Codebase AI agent to perform queries of software project documents and codebases, providing grounded responses, context, and analysis to both Omega.py software engineers and AI coding agents.