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CS499

Journal Entry: Emerging Trends and Progress Update

Part One: Two Key Trends in Computer Science

Two major trends shaping computer science right now are generative AI and quantum computing. I feel both are really important, and current events.

Generative AI is changing how we build and interact with technology. Tools like ChatGPT and GitHub Copilot make it easier to write code, generate content, and automate repetitive tasks. As these tools become more accessible, they’re helping people work faster but think less creatively. In the future, I think generative AI will be a standard part of most software workflows, and that directly aligns with my interest in developing smarter tools and user interfaces.

Quantum computing, while still emerging, promises to solve problems that are too complex for traditional computers, like simulating molecules for drug discovery or optimizing massive systems. Companies like IBM and Google are making big moves in this space, and although it’s still early, this trend is something I’m watching closely, especially in areas like cryptography and secure systems.

So far, I’ve met several course outcomes like developing secure code, designing solutions to problems using algorithms, and communicating my work clearly. I still need to wrap up my database enhancements and finalize my ePortfolio layout, but I feel confident about my overall progress.

**Part Two: ePortfolio Progress**

Here’s where I currently stand with each category in the ePortfolio:

### **Satus Checkpoints for All Categories**

|  |  |  |  |
| --- | --- | --- | --- |
| Checkpoint | Software Design and Engineering | Algorithms and Data Structures | Databases |
| Name of Artifact Used | CS405 Encryption/Decryption Tool | CS410 Role-Based Permission System | CS465 TRAVLR MEAN Stack App |
| Status of Initial Enhancement | Complete – added error handling & refactoring | Complete – added efficiency improvements & testing | Complete – added aggregation & user search |
| Submission Status | Submitted in Milestone Two | Submitted in Milestone Three | Submitted in Milestone Four |
| Status of Final Enhancement | Finalized and ready for ePortfolio | Finalized and ready for ePortfolio | Needs final testing and formatting adjustments |
| Uploaded to ePortfolio | Yes | Yes | In progress |
| Status of Finalized ePortfolio | Final formatting and structure in progress | Final formatting and structure in progress | Final formatting and structure in progress |