Name: Shekhar Chaudhary

Date: 10/02/2025

#### **Part One: Two Emerging Trends in Computer Science**

**Trend 1: Artificial Intelligence (AI) Integration Across Systems**

The significance of AI lies in its ability to transform how software systems learn, adapt, and operate autonomously. AI’s influence is seen in every layer of computing—from intelligent assistants to autonomous vehicles—and it continues to redefine efficiency and decision-making. This trend will change the field of computer science by merging traditional programming with machine learning-driven reasoning. Future developers will not just code logic but will train and optimize models that evolve with data.

For consumers and workers, AI will enhance personalization and productivity, while for citizens, it may raise ethical questions about data privacy and transparency. In my career, AI aligns perfectly with my aspiration to build intelligent agentic platforms that automate everyday workflows, such as **Asklytics** and **Zenei Recruiter**. Through these projects, I aim to combine algorithmic precision with human-centered design to make technology truly assistive.  
Course outcome-wise, this trend deepens my understanding of **software engineering and algorithm optimization**, both of which I’ve strengthened through scalable product design and efficient data-handling techniques.

**Trend 2: Cloud-Native Development and Edge Computing**

The rise of cloud-native architecture and edge computing marks a shift toward decentralization and scalability. The significance of this trend lies in how it allows computation closer to the data source, reducing latency and improving real-time performance. In computer science, it redefines how systems are architected—favoring modular microservices and containerization over monolithic design.

This trend changes the experience of consumers and organizations by enabling more responsive, reliable, and connected applications, from smart homes to industrial IoT. For me, this trend strongly relates to my interest in building **scalable, distributed products** capable of supporting millions of users. It reinforces key outcomes in **database design** and **software engineering**, especially in creating resilient systems that scale efficiently while maintaining strong data integrity.

Part Two: Status Checkpoints Table

|  |  |  |  |
| --- | --- | --- | --- |
| Checkpoint | Software Design and Engineering | Algorithms and Data Structures | Databases |
| Checkpoint | Software Design and Engineering | Algorithms and Data Structures | Databases |
| Name of Artifact Used | Software engineering project: inventory tracker app | A sorting/searching program from CS-300 (Data Structures & Algorithms | Database design from CS-340 (Client/Server Development |
| Status of Initial Enhancement | Draft completed with initial documentation | Draft completed with initial documentation | Draft completed with initial documentation |
| Submission Status | Submitted for initial review | Submitted for initial review | Submitted for initial review |
| Status of Final Enhancement | Improve the app’s modularity and add error handling, logging, and test | Improve the app’s modularity and add error handling, logging, and test | Improve the app’s modularity and add error handling, logging, and test |
| Uploaded to ePortfolio | |  | | --- | | Planned for next module |  |  | | --- | |  | | |  | | --- | | Planned for next module |  |  | | --- | |  | | |  | | --- | | Planned for next module |  |  | | --- | |  | |
| Status of Finalized ePortfolio | |  | | --- | | Not finalized yet |  |  | | --- | |  | | |  | | --- | | Finalized and polished |  |  | | --- | |  | | Not finalized yet |

#### **Reflection**

So far, I’ve met multiple course outcomes related to **algorithmic efficiency**, **database structure**, and **software scalability**. My next goal is to refine each artifact to reflect professional-level polish and narrative clarity. I plan to focus on integrating testing frameworks and detailed documentation to demonstrate software reliability—skills directly transferable to my career in building **scalable, AI-driven systems** that serve real-world needs.