

Name: Marshall Geiger

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Assignment Name: CS 470 Final Reflection

A YouTube video link: <https://youtu.be/xIolQ1lsvjo>

Experiences and Strengths

Throughout this course we have had great directions and teachings which have allowed me to hone on a robust set of skills by developing a full-stack application on the cloud, closely adhering to the principles of cloud-based development and industry best practices. My expertise now extends across both front-end and back-end technologies, primarily focused on Amazon Web Services. This training has not only equipped me with essential technical skills but has also strategically positioned me to fulfill my long-term professional aspirations in this field.

Skills Learned/ Enhanced in This Course

- *Broad Technical Foundation:* I achieved proficiency in the full spectrum of web development, ranging from user interface design to server and database management.
- *Cloud Expertise with AWS:* I gained an in-depth understanding of deploying and managing applications on AWS, mastering its core services, and utilizing its infrastructure to engineer scalable solutions.
- *Real-World Problem Solving:* I tackled practical challenges that reflect those found in the tech industry, which sharpened my analytical and troubleshooting skills.
- *Project Management and Collaboration:* I developed the ability to lead projects from inception through to execution, showcasing my skills in managing timelines and fostering effective teamwork through thick and thin and hard work.
- *Adaptability to Technological Changes:* I committed to continuous learning and adapting to new technologies and methodologies as they evolve within the tech world.

Planning for Growth

As I plan for future growth using cloud services such as microservices and serverless architectures, several factors are crucial for ensuring efficient management, scalability, and cost-effectiveness.

Microservices

- *Scale:* Microservices enable individual scaling of services based on specific demands, which allows for efficient resource utilization but requires vigilant monitoring and management.
- *Error Handling:* It is essential to implement robust error handling and fallback mechanisms within each microservice. Independent strategies are necessary to prevent errors from cascading through the system.

Serverless

- *Scale*: Serverless functions scale automatically with execution requests. This scalability is managed by the cloud provider, which eliminates the need for manual scaling efforts.
- *Error Handling*: Although serverless platforms often retry failed executions automatically, it is vital to design idempotent functions and maintain rigorous error logs to ensure system integrity.

Predicting Costs

- *Microservices*: Estimating costs can be complex due to the interdependencies of services which may lead to variable resource usage.
- *Serverless*: While cost prediction is more straightforward as it is directly tied to usage, variations can be significant with fluctuations in demand.

Cost Comparison - Containers vs. Serverless:

- *Containers*: Although offering more predictable costs due to continuous resource allocation, containers can incur charges even when idle.
- *Serverless*: Less predictable cost-wise, serverless configurations can be more cost-efficient, charging only based on actual usage.

This course and my instructor have both expanded my understanding and capabilities not only within myself but within cloud computing, which in turn has prepared me for advanced roles in software development and systems architecture. I look forward to applying these skills and insights into real-world applications with sights on one day starting my own business in the tech industry.