Katelynn Thompson

George Johnson

CS-470

10/27/24

# Course Reflection CS 470

## Experiences and Strengths

Throughout CS 470, I gained hands-on experience developing, deploying, and managing a full-stack web application in the cloud. This course refined my skills in cloud-based development, a critical area in today's tech industry. Some of the key skills I developed include containerization, serverless architecture, and cloud security best practices. I learned how to use Docker and Docker Compose to manage multiple services in containers, which ensures consistency and simplifies deployments. Additionally, I worked with AWS Lambda, API Gateway, and S3 to create and deploy serverless APIs that automatically scale with demand.

Documenting the entire development process and creating a presentation enhanced my technical communication skills, enabling me to convey complex information to both technical and non-technical audiences. These experiences have boosted my confidence and prepared me for roles such as Cloud Developer, DevOps Engineer, or Full Stack Developer, where my understanding of cloud architecture and containerization will be invaluable. Furthermore, the ability to explain cloud concepts across audiences will directly support my growth as a data analyst—a role that often involves translating technical insights into accessible language. As I work toward my goal of becoming a data analyst, my knowledge of cloud services and data workflows will be especially relevant, given the growing reliance of data analytics on scalable, cloud-based storage and processing.

**Planning for Growth**

As I plan for the future and the growth of my skills, I recognize the importance of cloud services such as microservices and serverless architectures for scalability and efficiency. Microservices help enable the application to scale each component independently, based on demand, reducing resource waste. Serverless functions, like AWS Lambda, could handle irregular workloads, ensuring cost efficiency by only charging for the time the function runs. This setup not only optimizes resources but also supports agile responses to usage of spikes.

To manage scalability, I would leverage AWS's elasticity features, allowing the application to automatically scale up or down depending on traffic. AWS CloudWatch can also be used for error handling by monitoring application health and triggering automated responses, which minimizes downtime.

Cost predictability is a significant factor in choosing between serverless and containerized solutions. Serverless computing is cost-effective for variable workloads, as it only charges based on actual usage. However, for applications with steady, predictable usage, containers may offer a more predictable cost model, particularly when utilizing reserved instance pricing.

In my future data analytics career, these cloud skills will help me manage large datasets efficiently. Serverless models are ideal for data processing tasks that need to scale with data volume, keeping costs low by adapting to usage. Understanding cloud architecture and the nuances of cost control and scalability is essential for data analytics, where handling large datasets efficiently is key.

Elasticity and pay-for-service models are crucial in planning for growth. Elasticity allows applications to adjust resources based on demand, handling sudden traffic spikes without

overcommitting resources. The pay-for-service model, used in serverless architecture, enhances cost control by only charging for what's used, making it easier to budget as the application scales.

**Conclusion**

CS 470 has strengthened my technical skills and strategic thinking about cloud-based development, scalability, and cost management, all of which will support my goals in data analytics. Skills in serverless computing, containerization, and efficient resource management are highly valuable in this field, where large datasets and scalable infrastructure are essential. These skills and insights from CS 470 will guide me as I pursue my career goals and build efficient, scalable solutions in the cloud.