Michael Antoniazzi

3/3/24

## CS 470 Final Reflection

Experiences and Strengths

Professional Goals and Skills Learned:

In CS 470, I've gained some critical skills that will help with my professional goals in software development and cloud computing. This course has been helpful in developing an even deeper understanding of full-stack web application development in a cloud environment. Learning about things like containerization and orchestration with Docker and Docker Compose, how serverless architecture works through AWS Lambda services for backend development, more database management skills using something I was already familiar with in MongoDB as well as a new database in DynamoDB, and how to build and test APIs with AWS API Gateway has been an extremely valuable experience in this class.

I think one way to handle scale and error handling would be to apply auto-scaling policies and error-handling mechanisms within microservices. AWS Lambda's automatic scaling and built-in error-handling capabilities offer strong solutions. Predicting costs in a serverless architecture involves understanding the number of function executions, execution duration, and other resource usage. AWS does provide the tools for monitoring and estimating costs. Serverless architectures, while offering variable costs based on usage, can be more predictable for workloads with fluctuating demands compared to containers, which may suffer costs for idle resources. Some pros for that would be deciding factors in planning for expansion would be high scalability, reduced operational overhead, enhanced agility, and the ability to focus more on coding than infrastructure. The cons would be the potential for higher costs at scale, limitations in control over the environment, and challenges in monitoring and debugging. Elasticity ensures the application can handle varying loads efficiently, which is critical for future growth and user experience. The pay-for-service model helps in keeping the costs aligned with actual usage, making it cost-effective during different stages of application growth.

The skills and knowledge I have gained in this class have not only made me stronger candidate in the field of cloud computing and software development but has also prepared me with the strategic insight to plan and execute the future growth of web applications in a cloud environment more effectively.