8-1 Assignment: Final Reflection

Mark W. Meyer

Southern New Hampshire University

CS470-H7246: Full Stack Development II

Prof. Nizar Dajani, PhD

August 16, 2022

Presentation Link:

Experiences and Strengths: Explain how this course will help you in reaching your professional goals.

This course will help me in reaching my professional goals because the tech industry is increasingly moving toward cloud solutions because of its convenience, automation, scalability, elasticity, cost-effectiveness, performance, and efficiency. This course prepares students with the fundamentals and skills needed to be familiar with basic cloud operations which is a great tool for any software engineer working through this paradigm.

What skills have you learned, developed, or mastered in this course to help you become a more marketable candidate in your career field?

The skills I learned, developed, and mastered in this course are the following: containerization process using Windows PowerShell, Vim, Docker, and Docker Compose; migration of a containerized, static web application and MongoDB database to the serverless AWS cloud using an S3 bucket, Lambda functions, and a corresponding HTTP API connected via API Gateway and DynamoDB; and presenting these concepts to a well-rounded presentation given to both technical and nontechnical audiences.

Describe your strengths as a software developer.

My strengths as a software developer are attention to detail, skilled troubleshooting, effective written and verbal communication, creative design, vision, ambition, integrity, self-motivation,

problem solving, dedication, and patience. My goal in development is to take a challenge, break it down into a myriad of small challenges, identify expected versus logical versus practical solutions, design the solution(s) bearing in mind appropriate tools, then develop robust, secure, and test-driven code—rinse and repeat as needed.

Identify the types of roles you are prepared to assume in a new job.

The types of roles I am prepared to assume in a new job include those that employ my creative side and satisfy my technical aptitude and desire to grow as a software engineer. Depending on the nature of the company, this could fall under numerous roles: system operations, backend developer, frontend developer, UI/UX engineer, robotics engineer, AI engineer, DevOps/DevSecOps engineer, or Cloud engineer—to name a few.

Planning for Growth: Synthesize the knowledge you have gathered about cloud services. Identify various ways that microservices or serverless may be used to produce efficiencies of management and scale in your web application in the future. Consider the following: How would you handle scale and error handling?

The way I would approach error handling regarding scale would be to design and architect coding standards to include the logging and monitoring of unhandled exceptions. Then, use these logs and analytics to improve the code base going forward to be proactive in mitigating vulnerabilities and improving the user experience and overall quality assurance of my applications.

How would you predict the cost?

Predicting the cost accurately is contingent on the capacity to predict future metrics. One significant benefit of moving an application to the cloud is the automated system of metrics and analytics. For example, using Amazon Web Services (AWS) would include data analytics out of the box. I would strongly consider utilizing this cloud feature to my advantage to attain accurate numbers. Otherwise, the alternative would be creating and/or purchasing a similar tool.

What is more cost predictable, containers or serverless?

I would say serverless is more cost predictable because of the cloud's built-in analytics tracking costs (i.e., AWS) down to charging per requests at increments of 100 milliseconds. Additionally, containerized applications are ideal for building serverless frameworks; however, containers by themselves will incur charges outside of use. In other words, with serverless, you only pay for what you use at any scale. Additionally, scaling and security vulnerabilities could mean unpredictable costs for container management; whereas serverless encompasses these elements natively.

Explain several pros and cons that would be deciding factors in plans for expansion.

Some pros in plans for expansion that act as deciding factors include scalability, elasticity, automation, encryption, security, performance, data analytics, uptime, easy integration, and cost savings of time, money, and resources.

Some cons in plans for expansion that act as deciding factors include deployment, platform, programming languages, expertise (i.e., need for Cloud Engineers), policy changes, potential downtime due to expansion, and business risk (i.e., migrating application to cloud on to discover it ultimately was not good for business).

What roles do elasticity and pay-for-service play in decision making for planned future growth?

Elasticity and pay-for-service plays a significant role in decision making for planned future growth because, oftentimes, software applications are resource-intensive whether they're being used or not. With that said, when a business can save money by only being charged per use, and further, only use resources as needed, then the product becomes even more robust than the application itself. In other words, the cloud not only saves money, but also increases the value of the product.