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CS - 470 - Full Stack Development II

Southern New Hampshire University

October 20, 2023

Presentation Link: https://youtu.be/LUNSn28c5zU

Assignment: Final Reflection

Experiences and Strengths:

The journey through CS 470 has been both transformative and enlightening, reshaping my perspective on cloud-based application development and strengthening my foundation as a software developer. Reflecting on the skills and experiences gathered throughout this course, I have a renewed understanding of the future digital landscape. This course has played a vital role in my professional development, shifting how I approach software design and deployment. Mastering the intricacies of migrating full-stack applications to the cloud, understanding the nuances of containerization and orchestration, and diving deep into serverless architectures have equipped me with a versatile skill set, making me a more marketable candidate in the rapidly evolving tech industry. The outcomes of the assignments completed in this course were showcased through the full-stack web application I developed and documented in a comprehensive presentation.

As a software developer, my strengths have been heightened by the knowledge and experiences this course has given me. The organized approach to cloud migration, from rehosting to refactoring, has sharpened my ability to make informed decisions tailored to specific project

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needs. Engaging with tools like Docker, diving into serverless computing with AWS Lambda, and understanding the importance of security and access control mechanisms like IAM roles have all contributed to a well-rounded development portfolio. Given this broad knowledge base, I am prepared to embrace roles requiring expertise in cloud architecture, application migration, and security in a new job setting.

Planning for Growth:

The rapid growth of digital platforms requires planning to ensure that web applications are scalable, efficient, and cost-effective. As I incorporate my understanding of cloud services, the potential of serverless architectures arises as a foundation for the future development of web applications. "*The term "microservices" refers to an architectural pattern in which applications are broken down into a series of small services (hence the term "microservice")*" (*Tozzi, 2021*). Microservices present an architectural technique that structures an application as a collection of loosely connected, independently deployable services. This modularity enables easier management, scalability, and error handling. By breaking down an extensive application into smaller components, each microservice can be scaled independently based on its workload, ensuring resource efficiency.

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On the other hand, serverless computing isolates infrastructure management, allowing developers to focus exclusively on the code. The scalability offered by serverless architectures makes it a promising candidate for the future growth of web applications.

The cost of these architectures depends on operational needs. Containers, while offering a controlled environment, have costs associated with the infrastructure. Serverless architectures typically follow a pay-as-you-go model. Regarding cost predictability, serverless is the ideal choice due to its transparent pricing based on actual usage. However, the decision to expand using either container or serverless is complicated. Containers offer greater environmental control, making them ideal for applications requiring specific designs. Serverless, while efficient, might introduce latency and may not suit applications with consistently high loads.

Elasticity and pay-for-service are critical to decision-making for planned future growth. Elasticity ensures that resources are supplied based on demand, ensuring optimal resource usage. The pay-for-service model offers a cost-effective approach by aligning costs with use, especially for businesses with irregular demands. In conclusion, the journey through CS 470 has reinforced my skills as a developer and allowed me to anticipate and plan for the future of cloud computing. As web applications continue to evolve, the insights and experiences from this course will undoubtedly serve as a guide in my professional journey.

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References

Tozzi, C. (2021, March 18). Microservices vs. serverless architecture. Sumo Logic. https://www.sumologic.com/blog/microservices-vs-serverless-architecture/