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Assignment Name: CS 470 Final Reflection

https://youtu.be/J587zhH_GU0

Experiences and Strengths:

Throughout the duration of CS 470, I have gained a comprehensive set of skills that will undoubtedly contribute to my journey in reaching my professional goals as a software developer. This course has equipped me with the ability to develop full-stack applications that operate in the cloud environment, which is a skill highly sought after in today's tech industry.

One of the key skills I've developed is the mastery of cloud-based development principles and best practices. Security in modern software development and deployment is key, and this class has equipped me with the knowledge of how to properly secure a cloud-based application to avoid both application breach and unauthorized access. Learning to build upon the software stack I developed in Full Stack Development I and implementing frameworks to construct a cloud architecture has been instrumental in expanding my capabilities. This newfound skill has not only made me a more marketable candidate in my career field but has also enabled me to approach software development from a holistic and future-oriented perspective.

As a software developer, my strengths lie in my dedication to detail and problem-solving. Throughout this course, I've honed my ability to analyze complex technical challenges and devise innovative solutions. This class has equipped me with the knowledge of conceptualization through to application deployment, maintenance and scalability, something I have not done on my own in the past. Moreover, my experience with articulating highly technical content to diverse audiences has enhanced my communication skills, making me more effective in collaborative settings.

In terms of roles, I am prepared to assume in a new job, I am confident in my capacity to take on responsibilities across the entire software development lifecycle. Whether it's front-end design, back-end development, or even cloud architecture planning, I am well-equipped to contribute meaningfully and adapt to the evolving needs of the team.

Planning for Growth:

Synthesizing the knowledge I've gained about cloud services, I'm well-prepared to strategize for the future growth of my web application. By implementing microservices or serverless architecture, I can achieve efficiencies of management and scale. For scalability and error handling, I would design my application to automatically allocate resources based on demand and implement redundancy strategies to ensure high availability. Most of my work in the past in full stack development were manually deployed on servers I configured myself. The issue with this kind of development is that unless the application is managed by orchestration tools such as Kubernetes that automatically scales and load balance your containers and pods, a complex process which requires deep knowledge of the tools, scalability will always be an issue. I realized through this class that services such as AWS serverless Lambda paired with S3 and database option like DynamoDB is a great replacement that takes the burden of scalability off the shoulder of the developer. This option is one that I am going to explore a lot and adopt to help me rapidly develop, deploy, and test my application without worrying about setting up and configuring the infrastructure to run my application. I believe this approach can greatly increase my speed of work and help me grow as a developer, as it will help me avoid the error prone process of doing everything by myself and help me scale my application automatically and efficiently. Although we did not use containers to run our application in the cloud, running applications in containers in the cloud is also something I will explore because of the knowledge I gained from running the application in containers on my local machine; almost all the big companies running applications in the cloud use containerization and orchestration tools like docker and Kubernetes to manage a vast array of microservices. The ability to run and maintain such services in the cloud will add to my skill set and make me stand out as an applicant.

In predicting costs, I would leverage cloud service analytics to monitor resource usage and estimate expenses accurately. Comparing containers and serverless, I find serverless more cost predictable due to its pay-as-you-go model, eliminating the need to provision and pay for unused resources.

Expanding my application would involve considering various pros and cons. Factors like ease of deployment, scalability, and maintenance would influence the decision between server and a serverless architecture. While a server architecture can provide me with great flexibility in configuration, especially for bigger and complex applications, a serverless architecture will be a great fit for APIs that needs to be highly scalable and resilient, thanks to services like AWS Lambda. Additionally, elasticity and pay-for-service models would drive decisions for future growth. The ability to scale resources up or down based on demand aligns with cost-efficiency and ensures optimal performance.

CS 470 has empowered me with the skills and knowledge to thrive in the ever-evolving landscape of cloud-based development. My strengths as a software developer, combined with the ability to plan for future growth using cloud services, position me as a valuable asset in any development team. I look forward to applying these insights and skills as I embark on the next stage of my career.