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CS 470 Final Reflection

https://youtu.be/q9JhxWwR6EY

Taking CS 470 has been an important step in preparing me for a career in software development, especially in cloud computing. This course gave me hands-on experience with building and deploying a full stack web application in the cloud. It also taught me valuable skills that I can use in future jobs, like creating scalable applications and using serverless technologies. These skills will make me a stronger candidate for roles in cloud development and full stack engineering.

During this course, I learned how to use tools like Docker to containerize applications. Containerization makes it easier to package an application and its dependencies so that it works the same way in different environments. I also learned about Docker Compose, which simplifies the process of running multiple containers, like a frontend, backend, and database, all working together. On top of that, I gained experience using serverless architecture with AWS Lambda and API Gateway. These services allowed me to build applications without worrying about managing servers. I also worked with Amazon S3 for storage and learned how to secure applications using AWS Identity and Access Management (IAM) roles and policies.

Through these experiences, I improved my problem-solving skills and became more confident working with cloud technologies. These are key strengths that will help me succeed in roles like Cloud Engineer, DevOps Specialist, or Full Stack Developer. I am now well-prepared to contribute to teams that are building and maintaining cloud-based applications.

Looking to the future, planning for the growth of a cloud application requires thinking ahead about scalability and cost. Microservices and serverless architectures are both effective options for managing growth. Microservices allow different parts of an application to scale independently, so resources aren't wasted. Serverless, on the other hand, automatically adjusts resources to meet demand and only charges for what is used. Both are great for ensuring an application can handle more users while keeping costs under control.

One of the key lessons I learned in this course is the importance of elasticity and error handling. Elasticity ensures that resources automatically scale up or down based on how much traffic the application is receiving. For example, AWS Lambda can handle sudden spikes in traffic without any extra work from the developer. I also learned how to handle errors effectively by setting up retries and logging errors in dead-letter queues. These strategies help keep an application running smoothly, even when something goes wrong.

When planning for growth, it’s also important to predict costs. Serverless options like AWS Lambda are generally more predictable because costs are based on execution time and usage. Containers can be harder to predict since they require paying for fixed resources, even if they’re not fully used. Choosing between these two options depends on the needs of the application. Serverless is a great choice for applications with fluctuating traffic, while containers are better for applications that need more control over their environment.

In this course, I also learned to weigh the pros and cons of serverless and container-based architectures. Serverless is simple to use and cost-efficient, but it has limitations, like shorter execution times and potential vendor lock-in. Containers offer more control and flexibility, but they require more management and can be more expensive during periods of high usage. Elasticity and pay-for-service are key factors to consider when deciding how to handle future growth, as they help ensure that resources are used efficiently and costs are kept manageable.

In conclusion, CS 470 taught me how to build, deploy, and secure cloud-based applications. The skills I gained, like working with Docker, AWS Lambda, and serverless architecture, will help me succeed as a software developer. This course also gave me the tools to think ahead and plan for the growth of applications, ensuring they are scalable, efficient, and cost-effective. I’m excited to apply what I’ve learned as I move forward in my career and continue working with cloud technologies.