Teddy Wyatt

CS 470: Full Stack Development II

Southern New Hampshire University

Dec 16, 2023

Final Course Reflection

Yoututbe Listing of Video: https://youtu.be/31lcT-1hcQ8

Experiences and Strengths:

Q: Explain how this course will help you in reaching your professional goals.

This course has been instrumental in shaping my path towards my professional goals. Firstly, it provided me with a comprehensive understanding of containerization using Docker, a skill highly sought after in the industry. By mastering Docker, I am now equipped to streamline application deployment processes and maintain consistency across various environments. This proficiency aligns perfectly with my aspiration to excel in DevOps and infrastructure management roles, where containerization is a fundamental practice.

Moreover, the course introduced me to container orchestration tools such as Kubernetes and Docker Swarm. These tools are essential for effectively managing containers at scale. Gaining expertise in container orchestration empowers me to handle complex infrastructure configurations, which is a key strength for the roles I aspire to in my career.

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

Throughout this course, I've honed a multitude of skills that significantly enhance my marketability as a candidate in the field of cloud development and DevOps:

1. **Containerization Proficiency:** I've acquired in-depth knowledge of containerization using Docker. This expertise allows me to create, deploy, and manage containers efficiently, ensuring consistency across development, testing, and production environments.
2. **Container Orchestration Mastery:** I've mastered container orchestration tools like Kubernetes and Docker Swarm. These skills are invaluable for managing containerized applications at scale, making me a competent candidate for roles that involve orchestration and scalability challenges.

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3. **Serverless Computing Expertise:** Exploring serverless computing with AWS Lambda has equipped me with the ability to design and develop event-driven, serverless applications. This knowledge is highly relevant in the modern cloud landscape and positions me as a suitable candidate for roles centered around serverless architecture.
4. **Database Selection Skills:** I've gained the capability to compare and choose databases based on project requirements. This skill enables me to make informed decisions about database selection and design efficient data management strategies.
5. **IAM and Security Competence:** My understanding of AWS Identity and Access Management (IAM) and security best practices has made me proficient in securing cloud resources and data. In a security-conscious industry, this competency is a valuable asset.
6. **Cross-Origin Resource Sharing (CORS) Proficiency:** I've learned to configure CORS, a crucial aspect of developing web applications that interact securely with external resources.

These skills, coupled with my strong enthusiasm for cloud development and DevOps, position me as an appealing candidate for roles that demand expertise in cloud-native technologies and best practices. I am well-prepared to contribute effectively to teams and projects requiring cloud development skills.

Planning for Growth:

Q: Synthesize the knowledge you have gathered about cloud services.

My understanding of cloud services, particularly in the context of AWS, has expanded significantly during this course. I now possess the insights needed to plan for the future growth of web applications in a cloud-native environment. Here are some key considerations:

Q: Identify various ways that microservices or serverless may be used to produce efficiencies of management and scale in your web application in the future.

1. **Microservices for Scalability:** Microservices architecture allows for modular, independent components, making it easier to scale specific parts of an application as needed. By breaking down monolithic applications into microservices, I can ensure efficient resource utilization and scalability.
2. **Serverless for Event-Driven Scaling:** Serverless computing, exemplified by AWS Lambda, is ideal for event-driven applications. It automatically handles resource

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provisioning and scaling, enabling cost-effective and efficient processing of events, such as user requests or data updates.

Q: How would you handle scale and error handling?

For handling scale, I would employ auto-scaling mechanisms provided by cloud platforms like AWS. With the right configuration, these mechanisms can dynamically adjust resources based on traffic and demand, ensuring optimal performance during traffic spikes.

Regarding error handling, I would implement robust error detection and monitoring systems. Tools like AWS CloudWatch can help in identifying and responding to errors proactively. Additionally, I would implement retries and fallback mechanisms to gracefully handle errors and maintain system reliability.

Q: How would you predict the cost? What is more cost predictable, containers or serverless?

To predict costs, I would leverage cloud provider cost calculators and monitoring tools. Containers are generally more cost predictable as they require specifying resource allocations explicitly. Serverless, on the other hand, charges based on actual usage, which can be less predictable if the workload fluctuates significantly.

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

Pros of Expansion:

- **Scalability:** Cloud services offer seamless scalability, allowing the application to handle increased traffic and demand without major infrastructure adjustments.
- **Cost-Efficiency:** Pay-as-you-go pricing models ensure cost efficiency, as you only pay for the resources you use.
- **Global Reach:** Cloud providers offer global data centers, enabling applications to reach a worldwide audience with low-latency access.

Cons of Expansion:

- **Complexity:** Expanding applications in the cloud can introduce complexity in terms of resource management and monitoring.

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- **Cost Management:** Without proper cost monitoring and control, cloud costs can escalate unexpectedly.
- **Security Concerns:** As an application expands, the attack surface also increases, necessitating robust security measures.

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

Elasticity and pay-for-service models play pivotal roles in decision making for planned future growth. Elasticity ensures that the application can scale seamlessly to meet increased demand without overprovisioning resources. Pay-for-service models align costs with actual usage, promoting cost-efficiency and enabling businesses to optimize resource allocation.

In conclusion, my experiences in this course have equipped me with essential skills and knowledge to excel in cloud development and DevOps roles. I am well-prepared to leverage cloud services, including microservices and serverless computing, for efficient application growth and scaling. The considerations of cost predictability, error handling, and security are critical factors in planning for future expansion in the cloud-native landscape. Elasticity and pay-for-service models are key decision-making factors that ensure cost-effective and scalable growth in the cloud.

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