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Course Modules

SDLC Automation



1. Implement CI/CD pipelines

- Software dvlpmt lifecycle (SDLC) concepts, phases, & models
- Pipeline deplymt patterns for single- and multi-account envmt

2. Integrate automated testing into CI/CD pipelines

- Different types of tests (unit tests, integration tests, etc.,)
- •Different types of tests at different stages of the CI/CD pipeline

3. Build and manage artifacts

- Artifact use cases and secure management
- Methods to create and generate artifacts
- Artifact lifecycle considerations

4. Deplymt strategies (container, and serverless environments)

- Deployment methodologies for various platforms
- Application storage patterns ([Amazon EFS], Amazon S3, etc)
- Mutable deployment patterns \contrast to immutable deplymt
- Tools and services available for distributing code

Configuration Management and IaC

5. Define cloud infrastructure and reusable components

- Infrastructure as code (IaC) options and tools for AWS
- Change management processes for IaC-based platforms
- Configuration management services and strategies
- AWS account structures, best practices, and related AWS services
- AWS services and solutions to automate tasks and processes
- Strategies to interact with AWS software-defined infrastructure

Resilient Cloud Solutions

6. Highly available soln to meet resilience and business req

- Multi-AZ and multi-Region deployments
- SLAs
- Replication and failover methods for stateful services
- Techniques to achieve high availability (multi-AZ, multi-Region)

7. Solutions that are scalable to meet business requirements

- Appropriate metrics for scaling services
- Loosely coupled and distributed architectures
- Serverless architectures
- Container platforms





Monitoring and Logging

9. Collection, aggregation, & storage of logs & metrics

- How to monitor applications and infrastructure
- Amazon CloudWatch metrics (namespaces, metrics, etc)
- Real-time log ingestion
- Encryption options for at-rest and in-transit logs and metrics
- Security configurations (IAM roles and permissions)

10. Audit, monitor, & analyze logs and metrics to detect issues

- Anomaly detection alarms (CloudWatch anomaly detection)
- Common CloudWatch metrics and logs
- Amazon Inspector and common assessment templates
- AWS Config rules
- AWS CloudTrail log events

11. Monitoring & event management of complex environments

- Event-driven, asynchronous design patterns
- Capabilities of auto scaling for a variety of AWS services
- Alert notification and action capabilities
- Health check capabilities in AWS services (ALB target groups,)



Incident and Event Response

12. Event sources to process notify, in response to events

- AWS services that generate, capture, and process events
- Event-driven architectures (fan out, event streaming, queuing)
- Fleet mngmt services (Systems Manager, AWS Auto Scaling)
- Configuration management services (for example, AWS Config)

13. Troubleshoot system and application failures.

- AWS metrics and logging services (CloudWatch, X-Ray)
- AWS service health services (AWS Health, CloudWatch, etc.,)
- Root cause analysis

Security and Compliance

14. Implement techniques for identity and access management

- Appropriate usage of different IAM entities
- Identity federation techniques
- Permission management delegation
- Organizational SCPs



15. Apply automation for security controls and data protection

- Network security components (security groups, network ACLs,)
- Certificates and public key infrastructure (PKI)
- Data management (data classification, encryption, etc.,)



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16. Implement security monitoring and auditing solutions

- Security auditing services and features
- AWS services for identifying security vulnerabilities and events
- Common cloud security threats (insecure web traffic, etc.,)

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