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Cloud Computing (AWS)
Course Curriculum

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Course Overview:

This course gives hands-on training to understand the concept of Cloud Computing and core Amazon Web Services

WEEK	DAY	MODULE	OBJECTIVES	TOPICS	HOURS
Week 1	Day 1	1. Introduction to Cloud Computing	This module introduces cloud computing and its advantages over traditional data centers.	1. Introduction to computing 2. Introduction to cloud computing 3. Advantages of cloud computing 4. Cloud roles	1.5
Week 1	Day 1	2. Introduction to Amazon Web Services and models of Cloud Computing	Understand what AWS offers, the different models of cloud computing – IaaS, PaaS, SaaS. Learn how to utilize AWS documentation.	1. Web services 2. AWS services 3. Models of cloud computing 4. AWS documentation	1.5
Week 1	Day 2	3. AWS Pricing and Infrastructure	Understand the pricing philosophy of AWS and review the fundamental characteristics of pricing. Identify tools that you can use to calculate estimates of how much it might cost to use AWS services. Review the AWS Global Infrastructure and its features. Also learn how to identify the difference between AWS Regions, Availability Zones, and Points of Presence.	1. AWS pricing model 2. AWS free tier 3. AWS global infrastructure, region and availability zones	3.0
Week 2	Day 3	4. AWS Services and Categories	Identify AWS services and service categories – storage, compute, networking, containers and so on.	1. AWS foundational services 2. AWS Management console walkthrough	1.0
Week 2	Day 3	5. AWS Shared Responsibility Model	Describe AWS cloud security and the shared responsibility model. Identify the security responsiblities of AWS versus the security responsibilties of the customer.	1. AWS security responsibilities 2. Customer security responsibilities	1.0
Week 2	Day 3	6. AWS S3	Describe the purpose and benefits of Amazon Simple Storage Service (Amazon S3). Explain the basic pricing that's used by Amazon S3.	1. S3 features 2. S3 storage classes 3. Object URL structure 4. Redundancy and scaling in S3 5. S3 pricing	2.0

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Week 2	Day 4	7. AWS Elastic Compute	Understand EC2 pricing models. Learn how to launch instances using AWS console. Understand different instance types and their use cases.	1. AWS runtime compute choices 2. EC2 overview and pricing options 3. Launching EC2 instances 4. Instance types 5. Amazon Machine Image (AMI)	2.0
Week 3	Day 5	8. Introduction to Networking and Networking concepts	Define basic networking terms. Identify the main components of a computer network	1. Basic networking terms 2. Components of a computer network	1.0
Week 3	Day 5	9. IP addressing and subnets	Learn Classless Inter-Domain Routing (CIDR) notation to specify subnet address ranges. Explain the purpose of an IP address and its notation. Convert an IP address to binary Distinguish between different classes of IP addresses	1. Internet Protocol (IP) and its features 2. Port numbers 3. Classes of IP address	2.0
Week 3	Day 6	10. Amazon VPC	Explain virtual networking in the cloud with Amazon Virtual Private Cloud (Amazon VPC). Describe the key components of a VPC. Relate subnetting and CIDR block addressing to Amazon VPC features.	1. Amazon VPC 2. IP addressing in Amazon VPC	2.0
Week 3	Day 6	11. Network security and threat mitigation	Recognize the importance of network security. List types of network security threats. Understand techniques to mitigate network security threats	1. Importance of network security 2. Techniques of mitigating security threats	1.0
Week 4	Day 7	12. Network security systems hardening	Understand principle of system hardening. Describe baselines and understand their importance. Learn different techniques of hardening systems and tools used to detect common security problems.	1. Security baselines 2. Common ways to harden systems 3. Tools for systems hardening	1.5
Week 4	Day 7	13. Network security architecture	Describe how network zones work. Understand security possibilities at the network level	1. Security architecture 2. FIrewalls 3. Network address translation (NAT)	1.5
Week 4	Day 8	14. AWS Security Groups	Learn the features and benefits of AWS security groups	1. AWS security groups 2. Amazon VPC and security groups 3. Multi-tier security groups 4. Network access control lists (NACLs)	2.0
Week 4	Day 8	15. Data security and PKI	Undertand data confidentiality and data integrity and how to ensure both using encryption and hashing respectively. Understand how PKI and certificates work.	1. Data in motion vs data at rest 2. Cryptography and Encryption 3. Data integrity with hashing 4. Role based access control 5. Public key infrastructure (PKI)	1.0
Week 5	Day 9	16. Identity management	Describe what identity management is and its different parts. Understand how authetication works and describe different authentication factors.	1. Personally identifiable information (PII) 2. Authentication factors 3. Federated users 4. Identity providers	1.5

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Week 5	Day 9	17. AWS IAM	Describe how authentication and authorization are implemented in IAM. Understand IAM users, groups and roles.	1. AWS account root user vs IAM 2. Principle of least previledge 3. IAM users, groups, roles 4. IAM policy assignment	2.0
Week 5	Day 10	18. AWS Cloudtrail	Describe AWS CloudTrail - a service that helps log actions in an AWS environment.	1. AWS Cloudtrail overview and benefits 2. Using Cloudtrail	1.0
Week 5	Day 10	19. Amazon CloudWatch	Understand monitoring resources to check health and performance. Desribe the three components of CloudWatch	1. Amazon Cloudwatch 2. Detailed monitoring for EC2 instances 3. ClloudWatch metric, alarm, event	1.5
Week 6	Day 11	20. AWS Config	Describe the value and features of AWS Config - a service that enables you to assess, audit, and evaluate the configurations of your AWS resources.	1. AWS Config overview 2. Configuration management using AWS config 3. AWS config rules	1.0
Week 6	Day 11	21. AWS Trusted Advisor	Describe AWS Trusted Advisor. Explore the five categories of recommendations produced by Trusted Advisor. Interpret Trusted Advisor recommendations.	1. Using AWS Trusted Advisor 2. Trusted Advisor features	1.5
Week 6	Day 11	22. AWS Security compliance and resources	Understand how AWS provides customers with guidance and expertise through online tools, resources, support, and professional services to secure their data in the cloud.	1. AWS account teams 2. AWS enterprise support 3. AWS Professional services and AWSPartner Network	1.0
Week 6	Day 12	23. Amazon RDS	Understand relational and non relational models of databases, database management system (DBMS), Database-as-a-Service (DBaaS). Discover differences between managed and unmanaged database solutions. Give an overview of Amazon RDS. Describe some of the options that Amazon RDS offers. Explore Amazon RDS backup options. Understand high availability and scalability with Amazon RDS.	1. Introduction to databases 2. Amazon Relational Database Service 3. High availability and scalability with Amazon RDS	2.5
Week 7	Day 13	24. Dynamo DB	Understand features of Amazon DynamoDB - a non relational AWS database service. Understand the concept of partitioning.	1. Amazon Dynamo DB 2. Tables, items and attributes 3. Partition keys and sort keys	1.5
Week 7	Day 13	25. AWS Well-Architected Framework	Understand cloud architecting by learning about the AWS Well-Architected Framework, which you can use to improve your cloud architecture. Also understand how to use the Well-Architected Framework to get a better understanding of how design decisions can impact your business. Review each of the pillars that make up the AWS Well-Architected Framework.	1. Well-Architected Framework feature 2. Well-Architected Framework pillars	2.0
Week 7	Day 14	26. AWS CLI	Explore programmatic access of AWS resources using AWS CLI. Understand importance of signed requests for authorization to AWS. Work with some AWS services using CLI.	1. AWS command line interface CLI	2.5

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Week 8	Day 15	27. AWS Systems Manager	Unsertand AWS Systems Manager - a highly automation-focused management service which enables the configuration and management of systems that run on-premises or in AWS.	1. Details of AWS Systems Manager 2. Highlight features of AWS Systems Manager	1.0
Week 8	Day 15	28. Hosting a static website on AWS S3	Practical walkthrough of one of the features of AWS S3 - hosting static websites. We would use console and AWS CLI.	Practicals	2.0
Week 8	Day 16	29. AWS Elastic Beanstalk	Understand Elastic Beanstalk - an easy-to-use compute service for deploying and scaling web applications and services.	1. AWS Elastic BeanStalk 2. Components in an Elastic BeanStalk	1.5
Week 8	Day 16	30. Containers and Serverless framework	Discuss container and serverless frameworks which allows to build and manage applications without thinking about servers. Discuss AWS serverless compute service Lambda, APIs and API Gateway.	1. AWS Lambda 2. Amazon API Gateway	1.5
48				TOTAL	48