AWS Devops

Basic AWS Developer Interview Questions (1-25)

1. **What is AWS?**

   - AWS (Amazon Web Services) is a cloud computing platform provided by Amazon that offers a wide range of services, including computing power, storage options, databases, machine learning, and more.

2. **What are the core services of AWS?**

   - The core services include EC2 (Elastic Compute Cloud), S3 (Simple Storage Service), RDS (Relational Database Service), Lambda, VPC (Virtual Private Cloud), CloudWatch, and IAM (Identity and Access Management).

3. **What is EC2 in AWS?**

   - EC2 (Elastic Compute Cloud) provides resizable compute capacity in the cloud, allowing you to run virtual machines called instances.

4. **What is S3 in AWS?**

   - S3 (Simple Storage Service) is a scalable object storage service that allows you to store and retrieve any amount of data.

5. **What is IAM in AWS?**

   - IAM (Identity and Access Management) allows you to manage user permissions and access to resources in AWS securely.

6. **What is VPC in AWS?**

   - VPC (Virtual Private Cloud) allows you to create a private network within AWS, where you can launch resources like EC2 instances.

7. **What is Lambda in AWS?**

- ○ Lambda is a serverless compute service that allows you to run code without provisioning or managing servers.

8. **What is CloudWatch in AWS?**

- ○ CloudWatch is a monitoring service for AWS cloud resources and applications, which helps you to track metrics and logs.

9. **What is RDS in AWS?**

- ○ RDS (Relational Database Service) is a managed relational database service that supports engines like MySQL, PostgreSQL, SQL Server, and Amazon Aurora.

10. **What is the purpose of an AWS Region?**

- ○ AWS Regions are geographical areas that contain multiple Availability Zones, providing redundancy and fault tolerance.

11. **What is an Availability Zone in AWS?**

- ○ An Availability Zone is a distinct location within a region designed to be isolated from failures in other zones.

12. **What is the difference between public and private subnets in a VPC?**

- ○ Public subnets have direct access to the internet, while private subnets do not, requiring resources like a NAT Gateway to access the internet.

13. **What is Elastic Load Balancing (ELB)?**

- ○ ELB automatically distributes incoming traffic across multiple EC2 instances to ensure high availability and fault tolerance.

14. **What are Security Groups in AWS?**

- Security groups act as virtual firewalls to control inbound and outbound traffic to resources in a VPC.

15. **What is AWS CloudFormation?**

- AWS CloudFormation is an infrastructure-as-code (IaC) service that allows you to define and provision AWS infrastructure using templates.

16. **What is Auto Scaling in AWS?**

- Auto Scaling automatically adjusts the number of EC2 instances based on demand to maintain performance and cost-efficiency.

17. **What is Route 53 in AWS?**

- Route 53 is a scalable DNS (Domain Name System) service used for domain registration, routing traffic, and health checks.

18. **What is AWS Elastic Beanstalk?**

- Elastic Beanstalk is a platform-as-a-service (PaaS) that enables you to deploy and manage web applications without having to worry about the infrastructure.

19. **What is the AWS Free Tier?**

- The AWS Free Tier provides limited access to AWS services free of charge for 12 months after signing up for AWS.

20. **What are AWS CloudTrail and its use?**

- CloudTrail is a service that records AWS API calls for monitoring and auditing purposes.

21. **What is AWS DynamoDB?**

- DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless

scalability.

22. **What is AWS S3 bucket versioning?**

   ○ S3 bucket versioning enables you to keep multiple versions of an object in a bucket, allowing you to recover from accidental deletes or overwrites.

23. **What is AWS Elastic File System (EFS)?**

   ○ EFS is a scalable file storage service for use with EC2 instances that provides a shared file system for Linux workloads.

24. **What is AWS Simple Notification Service (SNS)?**

   ○ SNS is a messaging service that allows you to send notifications to users or other systems via SMS, email, or HTTP endpoints.

25. **What is AWS CloudWatch Logs?**

   ○ CloudWatch Logs allows you to collect, monitor, and analyze log data from AWS services and applications.

Intermediate AWS Developer Interview Questions (26-50)

26. **What is an AWS Lambda function and how does it work?**

   ○ A Lambda function is a piece of code that runs in response to events, such as changes to data or user requests. It can be triggered by services like S3, DynamoDB, or API Gateway.

27. **What is the difference between an EC2 instance and an AWS Lambda function?**

   ○ EC2 instances are virtual servers that run applications, whereas Lambda functions are serverless, event-driven pieces of code.

28. **How does AWS S3 ensure durability and availability of objects?**

   ○ S3 stores objects redundantly across multiple Availability Zones, ensuring durability of 99.999999999% and high availability.

29. **What are AWS Trusted Advisor and its benefits?**

   ○ AWS Trusted Advisor is an online resource to help you reduce cost, increase performance, and improve security by offering best practices.

30. **What is an AWS CloudFormation Stack?**

   ○ A CloudFormation stack is a collection of AWS resources that are created, updated, or deleted as a single unit based on a CloudFormation template.

31. **How does AWS Elastic Beanstalk simplify application deployment?**

   ○ Elastic Beanstalk automates the provisioning of infrastructure and the deployment of code, allowing developers to focus on writing code without managing servers.

32. **What is the use of Amazon CloudFront?**

   ○ CloudFront is a content delivery network (CDN) service that speeds up the distribution of content by caching it in edge locations around the world.

33. **What are Lambda Layers in AWS?**

   ○ Lambda Layers are a distribution mechanism for libraries, custom runtime, and other function dependencies that can be shared across Lambda functions.

34. **What is AWS CodeDeploy?**

   ○ CodeDeploy is a service that automates the process of deploying applications to EC2 instances, Lambda functions, and

on-premises servers.

35. **What is AWS CodePipeline?**

   ○ CodePipeline is a continuous integration and continuous delivery (CI/CD) service that automates the steps required to release software.

36. **What is Amazon RDS Multi-AZ deployment?**

   ○ Multi-AZ deployment improves availability and fault tolerance by synchronously replicating data to a standby instance in a different Availability Zone.

37. **What is AWS Elasticache?**

   ○ Elasticache is a fully managed in-memory data store service for caching and improving performance for web applications by reducing database load.

38. **What is the difference between RDS and DynamoDB?**

   ○ RDS is a relational database service, while DynamoDB is a NoSQL database service designed for scalability and low-latency access.

39. **How does AWS CloudFormation differ from Terraform?**

   ○ AWS CloudFormation is a native AWS service for managing infrastructure, while Terraform is an open-source IaC tool that supports multiple cloud providers.

40. **What are EC2 Spot Instances?**

   ○ Spot Instances allow you to purchase unused EC2 capacity at a lower cost, but they can be terminated by AWS with little notice when the capacity is needed.

41. **How do you configure a VPC Peering connection?**

○ A VPC Peering connection allows communication between two VPCs. It is established by creating a VPC peering connection and updating route tables to route traffic between VPCs.

42. **What is an AWS Security Group?**

○ A Security Group acts as a virtual firewall to control inbound and outbound traffic to your resources in a VPC.

43. **What is AWS Direct Connect?**

○ Direct Connect is a service that allows you to establish a dedicated network connection between your on-premises data center and AWS.

44. **What is the role of the AWS Identity and Access Management (IAM) Policy?**

○ IAM policies are JSON documents that define permissions for AWS resources, specifying who can access what and under what conditions.

45. **What is AWS VPC Flow Logs?**

○ VPC Flow Logs capture information about the IP traffic going to and from network interfaces in your VPC, which is useful for security analysis and troubleshooting.

46. **What are AWS Regions and Availability Zones?**

○ AWS Regions are geographically isolated areas, and each region contains multiple Availability Zones to ensure high availability and fault tolerance.

47. **What is Amazon Kinesis?**

○ Kinesis is a platform for real-time streaming data processing, allowing you to collect, process, and analyze streaming data like logs and video.

48. **What is Amazon SQS and how does it work?**

○ Amazon Simple Queue Service (SQS) is a fully managed message queue service for decoupling and scaling microservices, distributed systems, and serverless applications.

49. **What are Lambda event sources?**

○ Lambda event sources are AWS services that can trigger a Lambda function, such as S3, DynamoDB, SNS, and CloudWatch.

50. **How can you use AWS Secrets Manager?**

○ AWS Secrets Manager allows you to securely store and manage sensitive information such as API keys, database credentials, and passwords.

Advanced AWS Developer Interview Questions (51-75)

51. **What is the concept of Infrastructure as Code (IaC) in AWS?**

○ IaC in AWS allows you to define and provision AWS resources through code using tools like AWS CloudFormation or Terraform.

52. **What is the difference between Amazon EC2 and AWS Lambda?**

○ EC2 provides virtual servers for running applications, while Lambda is a serverless compute service for running code without provisioning or managing servers.

53. **What is the AWS Well-Architected Framework?**

○ The AWS Well-Architected Framework provides best practices for designing, deploying, and operating workloads in the cloud, focusing on five pillars: operational excellence, security, reliability, performance efficiency, and cost

optimization.

54. **How do you optimize costs in AWS?**

   - Cost optimization strategies include choosing the right instance types, using Spot Instances, leveraging Reserved Instances, scaling with Auto Scaling, and implementing S3 lifecycle policies.

55. **What are AWS Reserved Instances?**

   - Reserved Instances provide a discounted rate for EC2 instances when you commit to using them for a one- or three-year term.

56. **What is the AWS Elastic Load Balancer (ELB) and how does it work?**

   - ELB distributes incoming traffic to multiple EC2 instances based on algorithms and ensures high availability and fault tolerance.

57. **What is AWS Lambda@Edge?**

   - Lambda@Edge allows you to run Lambda functions at AWS edge locations in CloudFront to improve performance and reduce latency.

58. **What are AWS CloudWatch Alarms?**

   - CloudWatch Alarms monitor your AWS resources and applications, triggering actions when a specific threshold is met (e.g., scaling an Auto Scaling group).

59. **What are Amazon Aurora and its advantages over traditional RDS?**

   - Aurora is a fully managed relational database that is compatible with MySQL and PostgreSQL. It is highly available, scalable, and cost-effective compared to traditional RDS.

60. **How do you manage multi-region deployment in AWS?**

○ Multi-region deployment can be managed using services like Route 53 for DNS routing, CloudFormation for consistent infrastructure, and AWS Global Accelerator for application performance.

61. **What is the purpose of AWS Transit Gateway?**

○ AWS Transit Gateway simplifies network architecture by connecting VPCs and on-premises networks through a central hub.

62. **What is AWS CodeStar?**

○ AWS CodeStar is a service that enables you to quickly develop, build, and deploy applications on AWS by providing integrated development tools.

63. **What is the difference between S3 and EBS?**

○ S3 is an object storage service for unstructured data, while EBS is block storage for EC2 instances, providing persistent storage.

64. **How do you implement security best practices in AWS?**

○ Implement security best practices by using IAM roles and policies, encrypting data, configuring Security Groups and Network ACLs, and enabling CloudTrail and CloudWatch logs for monitoring.

65. **What is Amazon Elastic Container Service (ECS)?**

○ ECS is a container orchestration service that allows you to run Docker containers on a cluster of EC2 instances or Fargate (serverless compute).

66. **What is AWS Fargate?**

○ AWS Fargate is a serverless compute engine for containers that allows you to run containers without managing the underlying EC2 instances.

67. **How do you secure sensitive data in S3?**

   ○ Sensitive data in S3 can be secured using encryption (at rest and in transit), access controls (IAM policies, bucket policies), and logging (S3 access logs).
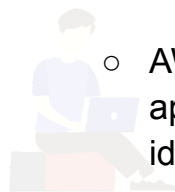
68. **What is AWS WAF (Web Application Firewall)?**

   ○ AWS WAF is a service that protects web applications from common web exploits and attacks like SQL injection and cross-site scripting.

69. **What is AWS Shield?**

   ○ AWS Shield is a managed DDoS protection service that safeguards AWS applications from malicious attacks.

70. **What is the AWS X-Ray service used for?**

   ○ AWS X-Ray helps in debugging and analyzing distributed applications by tracing requests made to AWS services and identifying performance bottlenecks.

71. **How does AWS Glue work?**

   ○ AWS Glue is a fully managed ETL (extract, transform, load) service that simplifies data preparation for analytics.

72. **What is AWS Step Functions?**

   ○ Step Functions is a serverless workflow service that enables you to coordinate the components of distributed applications using visual workflows.

73. **What is Amazon Sagemaker?**

   ○ Sagemaker is a fully managed service that allows developers and data scientists to build, train, and deploy machine learning models quickly.

74. **What is Amazon ElasticSearch Service?**

   ○ ElasticSearch is a fully managed search service that enables you to perform real-time search, logging, and analytics on your data.

75. **What is the difference between EBS and EFS?**

   ○ EBS is block storage for EC2 instances, while EFS is a scalable file storage service designed to be shared across multiple EC2 instances.

Technical AWS Developer Interview Questions (76-100)

76. **How do you implement Continuous Integration and Continuous Deployment (CI/CD) with AWS?**
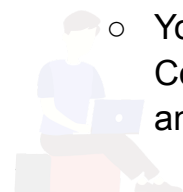
   ○ You can use AWS CodePipeline, CodeBuild, CodeDeploy, and CodeCommit to implement CI/CD pipelines for automated testing and deployment.

77. **How would you scale a web application in AWS?**

   ○ You can scale a web application in AWS using Auto Scaling for EC2 instances, ELB for load balancing, and CloudFront for content delivery.

78. **What are the use cases of AWS Lambda in serverless architectures?**

   ○ Lambda can be used for real-time file processing, backend APIs, automation tasks, and event-driven microservices.

79. **What is Amazon S3 Transfer Acceleration?**

   ○ Transfer Acceleration speeds up the upload and download of data to/from S3 by utilizing Amazon CloudFront's globally distributed edge locations.

80. **How does AWS Elastic Load Balancer work with Auto Scaling?**

   ○ ELB distributes traffic across multiple EC2 instances, while Auto Scaling adjusts the number of EC2 instances based on demand, ensuring high availability.

81. **What is a CloudFormation StackSet?**

   ○ A StackSet allows you to deploy CloudFormation stacks across multiple AWS accounts and regions.

82. **What is Amazon CloudFront caching, and how does it work?**

   ○ CloudFront caches content at edge locations to deliver data with low latency and high transfer speeds. You can control caching behavior with cache policies.

83. **What is the purpose of a NAT Gateway in AWS?**
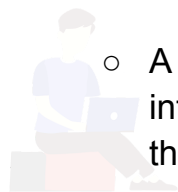
   ○ A NAT Gateway allows instances in private subnets to access the internet for software updates and external services while keeping them secure.

84. **What are the differences between AWS EC2 On-Demand, Reserved, and Spot Instances?**

   ○ On-Demand instances are billed per hour, Reserved instances offer a discount with a one- or three-year commitment, and Spot instances are unused EC2 capacity offered at lower prices but with the risk of termination.

85. **What is the purpose of Amazon SNS?**

   ○ SNS is used for sending notifications, such as alerts or messages, to users or other AWS services, via email, SMS, or HTTP.

86. **What is AWS S3 Select?**

○ S3 Select allows you to retrieve a subset of data from an object by using SQL-like queries, improving performance by processing only the data you need.

87. **What is AWS CloudFront's Edge Location?**

○ An Edge Location is a data center where CloudFront caches copies of your content, making it faster to serve to end-users based on geographic proximity.

88. **What is AWS Cost Explorer?**

○ Cost Explorer helps you visualize, understand, and manage your AWS spending by generating cost and usage reports.

89. **What is the difference between IAM Role and IAM User?**

○ IAM Users are entities that represent individuals, while IAM Roles are assumed by trusted entities to gain temporary access to AWS resources.

90. **How does AWS Key Management Service (KMS) help in encryption?**

○ KMS enables you to create and control encryption keys used to encrypt your data across AWS services.

91. **What is AWS CodeCommit?**

○ CodeCommit is a fully managed source control service that allows you to host secure Git repositories.

92. **What is AWS Batch?**

○ AWS Batch is a fully managed batch processing service that allows you to run hundreds or thousands of batch computing jobs.

93. **What is AWS CodeArtifact?**

- CodeArtifact is a fully managed software package repository service that allows you to securely store, publish, and share software packages.

94. **How would you ensure high availability of a database in AWS?**

- You can use RDS Multi-AZ deployments, EC2 instances in multiple Availability Zones, and configure automatic failover for high availability.

95. **What are AWS CloudWatch Logs Insights?**

- CloudWatch Logs Insights is an interactive log analytics service that allows you to query and analyze log data.

96. **What is the AWS Shared Responsibility Model?**

- The Shared Responsibility Model defines the division of security and compliance tasks between AWS (security of the cloud) and the customer (security in the cloud).

97. **What are the different types of Amazon S3 storage classes?**

- Amazon S3 offers different storage classes: Standard, Intelligent-Tiering, Standard-IA (Infrequent Access), One Zone-IA, Glacier, and Glacier Deep Archive.

98. **What are AWS security best practices?**

- AWS security best practices include using IAM policies, enabling multi-factor authentication (MFA), encrypting sensitive data, and monitoring using CloudTrail and CloudWatch.

99. **What is AWS Global Accelerator?**

- Global Accelerator is a service that improves application performance by routing traffic to the nearest AWS edge location and then to the optimal AWS region.

100. **What is AWS Outposts?** - AWS Outposts extends AWS infrastructure to on-premises data centers to run applications with low latency and high throughput, using the same AWS tools and services.