1. Basics of AWS

1. What is AWS?
   Amazon Web Services (AWS) is a comprehensive, widely-adopted cloud computing platform, offering over 200 fully featured services from data centers globally. It provides on-demand, pay-as-you-go access to a wide range of cloud services, including computing power, storage, databases, networking, analytics, machine learning, and security.
2. What are the benefits of AWS (vs on-premise)?
   The main benefits of AWS over traditional on-premise infrastructure are:
   - **Agility & Speed:** You can rapidly spin up and tear down resources, allowing for quick experimentation and deployment.
   - **Cost-Effectiveness:** You only pay for what you use, eliminating the need for large upfront capital expenditures on hardware.
   - **Global Reach:** AWS infrastructure is available in regions all over the world, allowing you to deploy applications closer to your customers.
   - **Elasticity & Scalability:** Resources can be automatically scaled up or down to meet changing demand, ensuring your application performs well during peak traffic.
   - **Security:** AWS has a robust security framework and is compliant with many global security standards (e.g., ISO 27001, SOC, PCI DSS).
3. What are the main categories of AWS services?
   AWS services are grouped into categories, including:
   - **Compute:** EC2, Lambda, Elastic Beanstalk
   - **Storage:** S3, EBS, EFS
   - **Database:** RDS, DynamoDB, Aurora
   - **Networking:** VPC, Route 53, Direct Connect
   - **Security & Identity:** IAM, KMS, Shield
   - **Management & Governance:** CloudWatch, CloudTrail, AWS Config
   - **Analytics:** Redshift, EMR, Athena
   - **Application Integration:** SQS, SNS, Step Functions
4. **Difference between Regions, Availability Zones (AZs), and Edge Locations?**
   - **Region:** A geographical area containing two or more Availability Zones. Regions are physically isolated from each other, providing a high level of fault tolerance and stability. Example: `us-east-1` (N. Virginia), `eu-west-1` (Ireland).
   - **Availability Zone (AZ):** One or more discrete data centers within a Region. Each AZ is isolated but connected to other AZs in the same Region via low-latency networks. You deploy resources across multiple AZs for high availability.
   - **Edge Location:** Data centers used by Amazon CloudFront (CDN) to cache content. They are located closer to end-users to reduce latency. They are distinct from Regions and AZs.
5. What is Shared Responsibility Model in AWS?
   The Shared Responsibility Model defines the split of security duties between AWS and the customer.
   - **AWS is responsible for "Security *of* the Cloud"**: This includes the underlying infrastructure, hardware, software, and physical facilities.

    - **The customer is responsible for "Security *in* the Cloud"**: This includes managing their data, IAM, network configuration (Security Groups, NACLs), and application-level security.
6. Difference between On-Demand, Reserved, and Spot Instances?
   These are the main purchasing options for EC2 instances:
    - **On-Demand Instances:** Pay for compute capacity by the hour or second with no long-term commitment. This is flexible and ideal for unpredictable workloads.
    - **Reserved Instances (RI):** Commit to a specific instance type for a 1- or 3-year term in exchange for a significant discount (up to 75%) compared to On-Demand. Ideal for steady-state workloads.
    - **Spot Instances:** Request spare EC2 capacity for up to a 90% discount. The catch is that AWS can reclaim the instance with a 2-minute warning. Ideal for fault-tolerant, flexible, or stateless workloads like big data or batch jobs.
7. What is AWS Free Tier?
   The AWS Free Tier provides a way for new customers to get hands-on experience with AWS services at no cost. It includes three types of offerings:
    - **12 Months Free:** Free for 12 months from your AWS signup date (e.g., 750 hours of EC2 `t2.micro` or `t3.micro` instance usage per month).
    - **Always Free:** Services that are always free up to a certain usage limit (e.g., 1 million AWS Lambda requests per month).
    - **Short-Term Trials:** Services that are free for a specific, limited time to test them out.

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2. AWS Core Compute Services

8. What is EC2?
   Amazon Elastic Compute Cloud (EC2) is a web service that provides resizable compute capacity in the cloud. It's a foundational AWS service that lets you rent virtual servers (called instances) to run applications.
9. What are EC2 instance types?
   EC2 instance types are optimized for different use cases and come in various families, each with a different balance of CPU, memory, storage, and networking.
    - **General Purpose:** Good for a wide range of workloads. (`T` and `M` series)
    - **Compute Optimized:** Ideal for compute-intensive tasks like high-performance web servers. (`C` series)
    - **Memory Optimized:** Designed for memory-intensive applications like in-memory databases. (`R` series)
    - **Storage Optimized:** Best for workloads that require high, sequential read/write access to large datasets on local storage. (`I` and `D` series)
    - **Accelerated Computing:** Uses hardware accelerators or co-processors for compute-intensive tasks like machine learning. (`P` and `G` series)
10. What is Auto Scaling in AWS?
    AWS Auto Scaling automatically adjusts the number of EC2 instances in your application to maintain performance and availability. It can scale out (add instances)

to handle increased traffic and scale in (remove instances) to reduce costs during low traffic. This works by defining scaling policies based on metrics like CPU utilization.

11. What is Elastic Load Balancer (ELB)? Types?
    An Elastic Load Balancer (ELB) distributes incoming application traffic across multiple targets, such as EC2 instances, in multiple Availability Zones. This increases the availability and fault tolerance of your applications.
    - **Application Load Balancer (ALB):** Best for HTTP/HTTPS traffic. Operates at Layer 7 (Application layer).
    - **Network Load Balancer (NLB):** Best for high-performance TCP/UDP traffic. Operates at Layer 4 (Transport layer).
    - **Classic Load Balancer (CLB):** The legacy ELB. Not recommended for new applications.
12. **Difference between EC2, Lambda, and ECS/EKS?**
    - **EC2:** An IaaS (Infrastructure as a Service) offering. You manage the virtual machine (OS, security patches, etc.). Provides full control.
    - **Lambda:** A Serverless FaaS (Function as a Service) offering. You just upload your code, and AWS manages everything else. Ideal for event-driven, short-lived tasks. You pay per execution.
    - **ECS/EKS:** Container orchestration services. **ECS (Elastic Container Service)** is a highly scalable, high-performance container orchestration service that supports Docker containers. **EKS (Elastic Kubernetes Service)** is a managed service for running Kubernetes on AWS. You manage the containers, and AWS manages the underlying infrastructure.
13. What is AWS Lambda (Serverless)? Use cases?
    AWS Lambda is a serverless compute service that lets you run code without provisioning or managing servers. You only pay for the compute time you consume.
    - **Use Cases:**
        - Processing data streams from Kinesis or DynamoDB.
        - Creating backend APIs using API Gateway.
        - Performing data transformations (ETL).
        - Automating tasks, like resizing images when they are uploaded to an S3 bucket.
14. What is Elastic Beanstalk?
    Elastic Beanstalk is an easy-to-use PaaS (Platform as a Service) for deploying and scaling web applications and services. You simply upload your code, and Elastic Beanstalk automatically handles the deployment, capacity provisioning, load balancing, and scaling. It abstracts away the underlying infrastructure details.

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3. Storage Services

15. What is Amazon S3?
    Amazon Simple Storage Service (S3) is an object storage service that offers scalability, data availability, security, and performance. You can store and retrieve any amount of data from anywhere on the web. It's a great choice for static website hosting, data backups, and data lakes.
16. What are S3 storage classes?
    S3 offers different storage classes optimized for various access patterns and costs.

- **S3 Standard:** General purpose storage for frequently accessed data.
- **S3 Intelligent-Tiering:** Automatically moves data between two access tiers (frequent and infrequent) to optimize costs without performance impact.
- **S3 Standard-IA (Infrequent Access):** For data that is accessed less frequently but requires rapid access when needed. Cheaper than Standard.
- **S3 One Zone-IA:** Same as Standard-IA, but data is stored in a single AZ. Even cheaper but not as resilient.
- **S3 Glacier:** Low-cost storage for data archiving. Retrieval times can be hours.
- **S3 Glacier Deep Archive:** The lowest-cost storage for long-term data archiving (7-10 years or more). Retrieval times are up to 12 hours.

17. **What is S3 versioning and lifecycle policy?**
    - **S3 Versioning:** A feature that keeps multiple versions of an object in a single S3 bucket. It helps protect against accidental overwrites and deletions. When you enable versioning, a new version is created each time you modify or delete an object.
    - **S3 Lifecycle Policy:** A set of rules that automates the transition of objects to different storage classes or their expiration. For example, you can create a policy to move objects to Glacier after 30 days and then delete them after one year.
18. **What is S3 bucket policy vs ACL?**
    - **S3 Bucket Policy:** A JSON-based policy that grants or denies permissions to a bucket and its objects at the bucket level. It's the recommended way to manage access.
    - **S3 Access Control List (ACL):** A legacy method of granting permissions to individual objects or buckets. ACLs are simpler but less flexible than bucket policies.
19. **Difference between EBS, EFS, and S3?**
    - **EBS (Elastic Block Store):** A block-level storage volume that is attached to a single EC2 instance. It acts like a virtual hard drive for your EC2 instance. Data is stored in blocks.
    - **EFS (Elastic File System):** A file storage service for EC2 instances. It is a shared file system that can be mounted by multiple EC2 instances simultaneously.
    - **S3 (Simple Storage Service):** An object storage service. Data is stored as objects in buckets. It is not a traditional file system and is accessed via API calls.
20. What is AWS Storage Gateway?
    AWS Storage Gateway is a hybrid cloud storage service that connects an on-premises software appliance with cloud-based storage. It allows you to integrate your existing on-premise IT environment with the cloud, providing a seamless way to store data in S3 for backup, archiving, or disaster recovery.

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4. Database Services

21. **Difference between RDS and DynamoDB?**

- **RDS (Relational Database Service):** A managed service for relational databases (e.g., MySQL, PostgreSQL, SQL Server). It's a structured database with tables, rows, and columns. You manage the database engine and scaling. Best for applications with complex queries and ACID transactions.
- **DynamoDB:** A fully managed, serverless NoSQL key-value and document database. It's highly scalable and designed for applications that require low latency at any scale. Best for flexible, non-relational data models.

22. What is Amazon Aurora?
    Amazon Aurora is a MySQL and PostgreSQL-compatible relational database built for the cloud. It combines the speed and availability of high-end commercial databases with the simplicity and cost-effectiveness of open-source databases. It is up to 5x faster than standard MySQL and 3x faster than standard PostgreSQL.
23. What is DynamoDB and its features?
    DynamoDB is a fully managed, serverless NoSQL database.
    - **Features:**
      - **Scalability:** Scales horizontally to handle massive traffic.
      - **Low Latency:** Provides single-digit millisecond latency.
      - **Serverless:** No servers to provision or manage.
      - **Flexible Data Model:** Supports key-value and document data models.
      - **Streams:** DynamoDB Streams captures a time-ordered sequence of item-level modifications.
24. What is ElastiCache?
    Amazon ElastiCache is a managed in-memory data store and caching service. It supports Redis and Memcached. It's used to improve the performance of web applications by retrieving information from a fast, in-memory cache instead of a slower disk-based database.
25. What is Redshift?
    Amazon Redshift is a fully managed, petabyte-scale data warehouse service. It's used for large-scale data analytics and business intelligence. It uses columnar storage and parallel query processing to execute complex queries on large datasets.
26. What is Amazon Neptune?
    Amazon Neptune is a fully managed graph database service. It is designed to store and navigate highly connected datasets. It is ideal for social networking applications, recommendation engines, and knowledge graphs.

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5. Networking Services

27. What is VPC in AWS?
    Amazon Virtual Private Cloud (VPC) lets you provision a logically isolated section of the AWS Cloud where you can launch AWS resources in a virtual network that you define. It gives you control over your virtual networking environment, including IP address ranges, subnets, route tables, and network gateways.
28. **Difference between Public and Private Subnets?**
    - **Public Subnet:** A subnet whose instances can send outbound traffic directly to the internet. This is typically done through an Internet Gateway.

- **Private Subnet:** A subnet whose instances are not directly accessible from the internet. They can access the internet via a NAT Gateway in a public subnet.

29. **What are Security Groups vs NACLs?**
    - **Security Group:** A virtual firewall for an EC2 instance. It controls inbound and outbound traffic at the instance level. It's stateful, meaning if you allow inbound traffic, the outbound response is automatically allowed.
    - **Network Access Control List (NACL):** A stateless firewall for a subnet. It controls traffic at the subnet level. It's stateless, so you must explicitly allow both inbound and outbound rules.
30. **What is Internet Gateway vs NAT Gateway?**
    - **Internet Gateway:** A horizontally scaled, redundant, and highly available VPC component that allows communication between instances in your VPC and the internet. It is used with public subnets.
    - **NAT Gateway:** A managed service that allows instances in a private subnet to connect to the internet or other AWS services without exposing the instances to the internet.
31. What is Route 53?
    Route 53 is a highly available and scalable cloud DNS web service. It translates human-readable domain names (e.g., example.com) into the IP addresses that computers use to connect to each other. It also offers domain registration and health-checking services.
32. **What is VPC Peering vs Transit Gateway?**
    - **VPC Peering:** A networking connection between two VPCs that enables you to route traffic between them privately. It's a one-to-one connection.
    - **Transit Gateway:** A network transit hub that you can use to interconnect your VPCs and on-premises networks. It simplifies your network by providing a hub for connecting all your VPCs, instead of creating individual peering connections.
33. What is Direct Connect?
    AWS Direct Connect is a network service that provides a dedicated network connection from your on-premises data center to AWS. It bypasses the public internet, offering a more consistent network experience with lower latency and higher bandwidth.

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6. Security & IAM

34. What is IAM in AWS?
    AWS Identity and Access Management (IAM) is a web service that helps you securely control access to AWS resources. You use IAM to manage users, groups, and permissions.
35. **Difference between IAM Users, Groups, and Roles?**
    - **IAM User:** An entity representing the person or service that interacts with AWS. It has a unique set of credentials (username, password, access keys).
    - **IAM Group:** A collection of IAM users. Permissions (policies) are attached to a group, and all users in that group inherit those permissions.

    - **IAM Role:** An identity with temporary permissions that can be assumed by a trusted entity. Roles are used to grant temporary access to AWS resources without having to share long-term credentials.
36. What are IAM Policies?
    IAM Policies are JSON documents that define permissions. They specify what actions are allowed or denied on which AWS resources, and under what conditions. Policies are attached to users, groups, or roles.
37. What is AWS KMS (Key Management Service)?
    AWS KMS is a managed service that makes it easy to create and manage cryptographic keys. It helps you control the encryption of your data. You can use it to create and manage customer master keys (CMKs) and control their use across a wide range of AWS services and in your applications.
38. What is AWS CloudHSM?
    AWS CloudHSM is a cloud-based hardware security module (HSM) that allows you to generate and manage your own cryptographic keys on a FIPS 140-2 Level 3 validated HSM. It provides a more dedicated and secure hardware environment compared to KMS.
39. What is AWS Cognito?
    AWS Cognito is a service that provides authentication, authorization, and user management for web and mobile applications. It helps you manage user sign-up and sign-in, and it can scale to millions of users.

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7. Monitoring & Logging

40. What is CloudWatch?
    Amazon CloudWatch is a monitoring service for AWS cloud resources and the applications you run on AWS. It collects and tracks metrics, collects and monitors log files, and sets alarms. It provides system-wide visibility into resource utilization, application performance, and operational health.
41. What is CloudTrail?
    AWS CloudTrail is a service that enables governance, compliance, operational auditing, and risk auditing of your AWS account. It logs and records all AWS API calls made by an account. This includes who made the call, when, from where, and what was done.
42. **Difference between CloudWatch and CloudTrail?**
    - **CloudWatch** is for **monitoring**. It tells you *what is happening* with your resources (e.g., CPU utilization, network traffic). It's focused on performance and operational health.
    - **CloudTrail** is for **logging/auditing**. It tells you *who did what, when, and where*. It's focused on security and compliance.
43. What is AWS Config?
    AWS Config provides a detailed inventory of your AWS resources, a history of configuration changes, and a record of compliance against a desired state. It helps you assess, audit, and evaluate the configurations of your AWS resources.
44. What is Trusted Advisor?
    AWS Trusted Advisor is a service that helps you follow AWS best practices. It

inspects your AWS environment and provides recommendations across five categories:
    - Cost Optimization
    - Performance
    - Security
    - Fault Tolerance
    - Service Limits

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8. Deployment & DevOps on AWS

45. What is CodeCommit, CodeBuild, CodeDeploy, CodePipeline?
    These are services in the AWS DevOps suite.
    - **CodeCommit:** A fully managed source control service that hosts secure Git-based repositories.
    - **CodeBuild:** A fully managed build service that compiles source code, runs tests, and produces deployable software packages.
    - **CodeDeploy:** A service that automates code deployments to any instance, including EC2 instances and on-premises servers.
    - **CodePipeline:** A fully managed continuous delivery service that automates your release pipelines for fast and reliable application and infrastructure updates. It connects the other services to create a full CI/CD workflow.
46. **What is Elastic Container Service (ECS) vs Elastic Kubernetes Service (EKS)?**
    - **ECS:** A simple, scalable, and high-performance container orchestration service. It is deeply integrated with the AWS ecosystem. It uses its own scheduler to manage containers.
    - **EKS:** A fully managed Kubernetes service. If you are already using or want to use open-source Kubernetes, EKS is a good choice. It gives you the full power of Kubernetes without having to manage the master nodes.
47. What is AWS Fargate?
    AWS Fargate is a serverless compute engine for containers that works with both ECS and EKS. It allows you to run containers without having to manage the underlying EC2 instances. You just specify the resources (CPU, memory) your container needs, and Fargate launches it.
48. How to implement CI/CD in AWS?
    A typical CI/CD pipeline in AWS would look like this:
    - **Source:** A developer pushes code to **CodeCommit**.
    - **Build: CodePipeline** detects the change and triggers **CodeBuild** to compile the code and run tests.
    - **Deploy: CodePipeline** then passes the built artifact to **CodeDeploy**, which deploys the application to the target environment (e.g., EC2 instances, Lambda functions).
    - **Automation:** The entire process is orchestrated by **CodePipeline**.
49. What is CloudFormation?
    AWS CloudFormation is an IaC (Infrastructure as Code) service. It allows you to define your AWS infrastructure in a template (JSON or YAML) and provision it in an

automated and repeatable way. It helps you manage your infrastructure as a single unit.

50. **Difference between CloudFormation and Terraform?**
    - **CloudFormation:** An AWS-native IaC service. It is tightly integrated with AWS services but can only manage AWS resources. It supports rollback and drift detection.
    - **Terraform:** An open-source IaC tool from HashiCorp. It is cloud-agnostic and can manage resources across multiple cloud providers (AWS, Azure, GCP) and on-premises.

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9. Advanced & Architecture

51. What is Well-Architected Framework in AWS?
    The AWS Well-Architected Framework is a set of best practices for building secure, high-performing, resilient, and efficient cloud applications. It's based on five pillars:
    - **Operational Excellence**
    - **Security**
    - **Reliability**
    - **Performance Efficiency**
    - **Cost Optimization**
52. **What is High Availability vs Fault Tolerance vs Scalability in AWS?**
    - **High Availability:** The system is continuously operational, even if a component fails. This is often achieved by deploying redundant resources across multiple Availability Zones.
    - **Fault Tolerance:** The ability of a system to continue operating without interruption when one or more of its components fail.
    - **Scalability:** The ability of a system to handle a growing amount of work by adding resources (scaling out) or by upgrading existing resources (scaling up).
53. **What is Multi-AZ vs Read Replica in RDS?**
    - **Multi-AZ:** A high-availability feature where RDS automatically provisions and maintains a synchronous standby replica in a different AZ. If the primary instance fails, a failover to the standby occurs automatically.
    - **Read Replica:** An asynchronous copy of your primary database. It is used to scale out the read-heavy workload of your database, reducing the load on the primary instance. It can be in the same or different Region.
54. What are Spot Fleets in AWS?
    A Spot Fleet is a set of Spot Instances and, optionally, On-Demand Instances that are launched based on a user's criteria. It's a way to automatically manage a group of instances to meet a specific capacity target at the lowest possible price.
55. What is Data Lake in AWS?
    A data lake is a centralized repository that allows you to store all your structured and unstructured data at any scale. It's built on AWS services like S3 (for storage), Glue (for cataloging), and Athena (for querying), allowing you to analyze data using various tools.

56. What is AWS Glue?
    AWS Glue is a fully managed extract, transform, and load (ETL) service. It makes it easy to prepare and load data for analytics. It's a key component of a data lake, as it can crawl your data sources and create a unified metadata repository.
57. What is AWS EMR?
    Amazon EMR (Elastic MapReduce) is a managed cluster platform that simplifies running big data frameworks, such as Apache Hadoop and Spark, to process vast amounts of data. It's used for analytics and machine learning.
58. What is AWS Step Functions?
    AWS Step Functions is a serverless function orchestrator that makes it easy to coordinate multiple AWS services into serverless workflows. You can build visual workflows to coordinate and manage microservices.
59. **What is EventBridge vs SNS vs SQS?**
    - **EventBridge:** A serverless event bus that makes it easy to connect applications using data from your own applications, SaaS applications, and AWS services. It's a hub for events.
    - **SNS (Simple Notification Service):** A messaging service for A2A (application-to-application) and A2P (application-to-person) communication. It uses a publish/subscribe model.
    - **SQS (Simple Queue Service):** A message queuing service for decoupling microservices. It's a buffer for messages.
60. **Difference between Kinesis and Kafka on AWS?**
    - **Kinesis:** A managed, real-time data streaming service. It is fully managed by AWS and is tightly integrated with other AWS services.
    - **Kafka on AWS (MSK - Managed Streaming for Kafka):** A fully managed service for Apache Kafka. If you already have a Kafka application or want to use the open-source Kafka ecosystem, MSK is the right choice. You have more control over the clusters.

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10. Security & Best Practices

61. How does AWS ensure compliance (HIPAA, GDPR, PCI)?
    AWS provides a secure infrastructure and services that are compliant with various global security and privacy standards. They offer services like AWS Artifact, which provides access to compliance reports, and services like AWS KMS and CloudHSM, which help customers meet specific compliance requirements. The customer is responsible for configuring their applications to be compliant.
62. **What is AWS Shield vs WAF?**
    - **AWS Shield:** A managed Distributed Denial of Service (DDoS) protection service. **Shield Standard** is included with all AWS accounts. **Shield Advanced** provides enhanced protection and cost benefits.
    - **WAF (Web Application Firewall):** A service that helps protect web applications from common web exploits. It allows you to create rules to block common attack patterns like SQL injection or cross-site scripting.
63. What is DDoS protection in AWS?
    AWS provides several layers of DDoS protection.

- **AWS Shield:** Provides automatic, inline protections.
- **Elastic Load Balancing:** Helps distribute traffic.
- **AWS WAF:** Protects against common web exploits.
- **CloudFront:** Caches content at Edge Locations to absorb traffic and reduces the load on your origin servers.

64. How to secure an S3 bucket?
    You can secure an S3 bucket in several ways:
    - **Bucket Policies:** Use JSON policies to control access.
    - **IAM Policies:** Grant specific IAM users or roles permissions to the bucket.
    - **Block Public Access:** A feature that can prevent all public access to a bucket and its objects.
    - **Encryption:** Encrypt objects in the bucket using S3-managed keys or KMS.
65. **How to manage secrets in AWS?**
    - **Secrets Manager:** A service for securely storing and managing secrets, such as API keys and database credentials. It can automatically rotate secrets and integrates with other AWS services.
    - **Parameter Store (part of AWS Systems Manager):** Provides secure storage for configuration data and secrets. It's simpler and more cost-effective for general configuration, but it lacks the automatic rotation feature of Secrets Manager.

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11. Cloud Migration & Cost

66. What is AWS Migration Hub?
    AWS Migration Hub provides a single location to track the progress of application migrations across multiple AWS and partner solutions. It allows you to discover your on-premises servers and plan your migration strategy.
67. What is AWS Snowball vs Snowmobile?
    These are data transfer services for moving large amounts of data into or out of AWS.
    - **AWS Snowball:** A petabyte-scale data transport solution that uses secure, ruggedized appliances to transfer large amounts of data into and out of AWS.
    - **AWS Snowmobile:** An exabyte-scale data transfer service that uses a 45-foot shipping container, pulled by a semi-trailer truck, to move massive amounts of data.
68. What is AWS Pricing Model?
    The main pricing models are:
    - **Pay-as-you-go:** You only pay for the individual services you use, with no long-term contracts.
    - **Reserved Instances/Savings Plans:** You commit to a certain amount of usage over a 1 or 3-year term to get a significant discount.
    - **Spot Instances:** You bid on unused EC2 capacity for a deep discount.
69. How to optimize AWS costs?
    Cost optimization is a key pillar of the Well-Architected Framework. Ways to optimize costs include:

- **Right-sizing:** Ensure your instances and services are correctly sized for the workload.
- **Elasticity:** Use Auto Scaling to scale down during off-peak hours.
- **Reserved Instances/Savings Plans:** Use these for predictable workloads.
- **Spot Instances:** Use Spot for fault-tolerant workloads.
- **Storage Tiers:** Use S3 storage classes like Glacier for infrequently accessed data.
- **Monitoring:** Use AWS Cost Explorer and Budgets to track spending.

70. **What is AWS Budgets vs Cost Explorer?**
    - **AWS Budgets:** Allows you to set custom budgets to track your costs and usage from the simplest to the most complex use cases. It sends you an alert when your cost or usage exceeds your budgeted amount.
    - **AWS Cost Explorer:** A service that lets you visualize, understand, and manage your AWS costs and usage over time. You can view historical data and forecast future spending.