Unit-I

AWS Fundamentals: Overview, Creating an AWS account and navigating the AWS Management console, AWS CLI, AWS SDK

Identity and Access Management (IAM): users, groups, roles, policies, AWS Global Infrastructure: Regions, Availability Zones, Local Zones, Edge Locations.

Important topics:

- Importance of AWS SDKs and their role in writing cloud native applications?
- Primary purpose, applications and use cases of AWS Regions, Availability Zones, Local Zones, Edge Locations
- Benefits of Availability Zones, Local Zones, Edge Locations
- What are Regional and Global AWS services and examples of AWS services for regional and global AWS services
- Difference between Root user and IAM Admin user
- Tasks that need to be done with root user credentials only
- Security best practices for root user account
- Methods of creation and necessity of IAM Users, IAM Groups, IAM roles
- IAM Policy - Identity based and resource based policies, JSON format (Effect, action, resource)
- IAM policy evaluation logic and flow diagram

Unit – II

Amazon Virtual Private Cloud (VPC): isolated networks in AWS, Amazon Route 53: scalable DNS service, AWS Shield: DDoS protection, AWS WAF: web application firewall,

Amazon CloudFront: global content delivery network, Introduction to Software-Defined Networking (SDN) and Network Function Virtualization (NFV),

Amazon CloudWatch: monitoring for AWS resources, AWS CloudTrail: record and audit AWS account usage, Amazon EventBridge.

Important topics:

- Amazon VPC and its components, subnets, router, route table, internet gateway, NAT gateway, NACLs, Security Groups
- Route 53 - features, routing policies, benefits, pricing
- AWS Shield: DDoS protection, AWS WAF: web application firewall - features and benefits, use cases
- CloudFront - features, use cases and benefits
- Difference between Amazon Cloudwatch and CloudTrail services, CloudWatch features - logging, metrics, alarms
- use cases of CloudWatch logs, metrics, alarms and cloudtrail
- Event driven architectures, Eventbridge - features, use cases, automation
- AWS Services that contribute for running event driven architectures on AWS platform

Unit –III

Amazon Elastic Cloud Computing (EC2): launching and managing instances, EC2 instance types and pricing models, automating scaling and EC2 capacity.

Elastic load balancing: distributing traffic across the instances

AWS Lambda: serverless compute service.

Important topics:

- EC2 launch steps
- EC2 instance types - features and use cases
- EC2 pricing models - features and use cases
- Auto scaling groups - steps of setting up EC2 auto scaling
- Elastic Load balancing - types of AWS load balancers, features, use cases
- High availability using Auto scaling and load balancing
- AWS Lambda – features, serverless, use cases, concurrency, pricing, customers
- Difference between EC2 and Lambda
- Lambda lab activities

Unit –IV

AWS Storage: Amazon Simple Storage Service(S3): Object Storage, Amazon Elastic Block Store (EBS): block storage for EC2, Amazon Glacier: low-cost archive storage, Elastic File System (EFS) and Amazon FSx,

Amazon Athena: interactive query service, Amazon QuickSight: business intelligence service.

Important topics:

- EBS Volumes – Block storage, types of EBS volumes, features, pricing and use cases
- Amazon EFS - features and use cases, Amazon FSx - features and use cases
- Amazon S3 – features, use cases, customers, storage classes, S3 glacier use cases and types, S3 lab activities
- Amazon Athena and Amazon QuickSight - features, use cases, customers

Unit –V

Amazon Relational Database Service (RDS) and Amazon CloudWatch: managed databases, Amazon DynamoDB: NoSQL database service, Amazon Redshift: data warehousing

Amazon Simple Queue Service (SQS): managed message queuing, Amazon Simple Notification Service (SNS): pub/sub messaging.

Important topics:

- Amazon RDS - features, use cases, customers, Aurora
- Amazon DynamoDB - features, use cases, customers
- Differences between RDS and DynamoDB

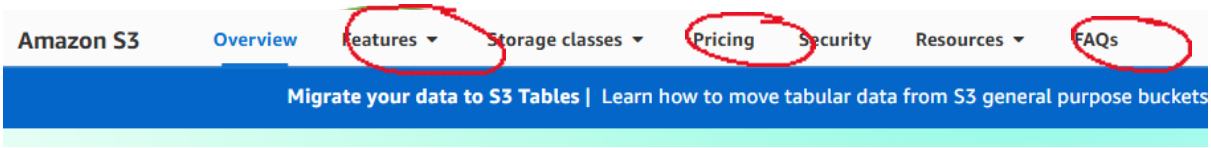
- Amazon Redshift - features, use cases, customers
- Amazon SQS - features, use cases, customers
- Amazon SNS - features, use cases, customers

Important Links for Documentation

Please note: For all services, when you visit service home page like

https://aws.amazon.com/s3/

you will find features, use cases, customers, pricing etc., all in one place in different tabs on the home page. Please go through all these pages



AWS Local zones

https://aws.amazon.com/about-aws/global-infrastructure/localzones/faqs

https://medium.com/@balvinder.s.devops/aws-region-availability-zones-local-zones-and-edge-locations-ef18157daeca

https://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/Concepts.RegionsAndAvailabilityZones.html

IAM introduction

https://docs.aws.amazon.com/IAM/latest/UserGuide/introduction_identity-management.html

IAM Access management

https://docs.aws.amazon.com/IAM/latest/UserGuide/access.html

https://docs.aws.amazon.com/IAM/latest/UserGuide/access_controlling.html

IAM Service role creation

https://docs.aws.amazon.com/IAM/latest/UserGuide/id_roles_create_for-service.html#roles-creatingrole-service-console

IAM policy evaluation logic

https://docs.aws.amazon.com/IAM/latest/UserGuide/reference_policies_evaluation-logic_policy-eval-basics.html

AWS VPC

https://aws.amazon.com/vpc/faqs/

Amazon EC2 instance types

https://aws.amazon.com/ec2/instance-types/

EC2 pricing

https://www.geeksforgeeks.org/amazon-ec2-pricing/

Elastic IP addresses

https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/elastic-ip-addresses-eip.html

Elastic Load Balancer

https://aws.amazon.com/compare/the-difference-between-the-difference-between-application-network-and-gateway-load-balancing/

Application load balancer features

https://medium.com/@iamsteffinissac/deep-dive-into-application-load-balancer-alb-59d55214908c

EC2 autoscaling

https://docs.aws.amazon.com/autoscaling/ec2/userguide/create-asg-launch-template.html

AWS Lambda

https://aws.amazon.com/lambda/faqs/

AWS Elastic Beanstalk

https://docs.aws.amazon.com/whitepapers/latest/overview-deployment-options/aws-elastic-beanstalk.html

High availability in AWS

https://aws.amazon.com/blogs/startups/how-to-get-high-availability-in-architecture/

Amazon CloudWatch

https://aws.amazon.com/cloudwatch/features/

Amazon CloudTrail

https://aws.amazon.com/cloudtrail/features/

Amazon Eventbridge

https://docs.aws.amazon.com/eventbridge/latest/userguide/eb-what-is-how-it-works-concepts.html

Amazon S3

Amazon S3 - Cloud Object Storage - AWS

Amazon EBS

Amazon EBS volume types - Amazon EBS

Amazon EFS & FSx

https://aws.amazon.com/efs/features/

https://aws.amazon.com/fsx/windows/

Amazon DynamoDB

https://aws.amazon.com/pm/dynamodb

Amazon Athena

https://aws.amazon.com/athena/faqs

Amazon Quicksight

Business Intelligence Service – Amazon QuickSight FAQs – AWS

Amazon SQS

Amazon SQS Features | Message Queuing Service | AWS

Amazon SNS

Amazon Simple Notification Service (SNS) Features | Messaging Service | AWS

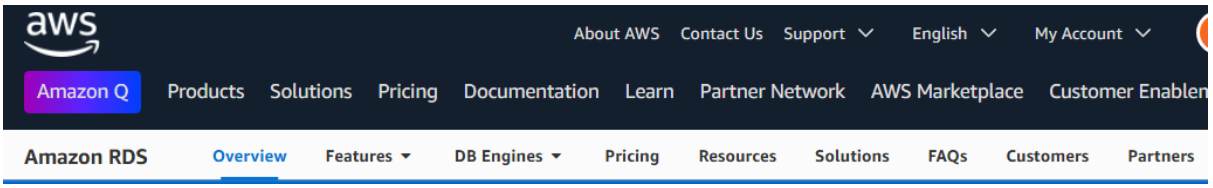
Amazon RDS

https://aws.amazon.com/rds

Note: For every service, features, pricing and customers are available in home page itself.

Go through all those tabs for all services

Sample SS of rds home page



Amazon Redshift

https://aws.amazon.com/pm/redshift