**S3 service:-**

Amazon **S3** is an object storage service that stores data as objects within buckets. An object is a file and any metadata that describes the file.

**Features of Amazon S3 :-**

1. Storage classes
2. Storage management
3. Access management
4. Data processing
5. Storage logging and monitoring
6. Analytics and insights
7. Strong consistency
8. **Storage classes :-**

There are 6 storage classes

* Standard
* Infrequent access (IA)
* Intelligent tearing
* One zone Infrequent Access
* Glacier
* Deep Glacier

1. **Storage management :-**

* S3 lifecycle :- according to requirement move the data on storage class
* S3 object lock :- it is use to prevent the data from the delete the data or lock the object
* S3 replication :- create a replica for data backup
* S3 batch operations :- it is use to perform operations such as copy, invoke AWS lambda function and restore on millions or billions of object.

1. **Access management :-**

* S3 block public access :- block access to S3 bucket and objects. By default public access is enable.
* AWS identity and access management:- create IAM user for your AWS account to manage access to your Amazon S3 resources.
* Bucket policies :- use IAM based policy language to configure resource-based permissions for your S3 buckets and the object in them.
* Access control lists (ACL’s) :- grant read and write permission for individual buckets and objects to authorized users.
* S3 object ownership :- disable ACL’s and take ownership of every object in your bucket, simplifying access management for data stored in amazon S3.
* Access analyzer for S3 :- evaluate and monitor your S3 bucket access policies, ensuring that the policies provide only the intended access to your S3 resources.

1. **Data processing :-**

To transform data and trigger workflow to automate a variety of other processing activities at scale, you can use the following features.

1. S3 object Lambda :- add your own code to S3 get request to modify and process data as it is returned to an application. Filter rows, dynamically resize images, redact confidential data, and much more.
2. Event notifications :- trigger workflows that use amazon simple notification service(amazon SNS), amazon simple queue service(amazon SQS), and AWS lambda when a change is made to your S3 resources.
3. **Storage logging and monitoring :-**
4. Automated monitoring tools :-
5. Amazon cloudwatch metrics amazon S3 :- track the operational health of your S3 resources and configure billing alerts when estimate charges reach a user-defined threshold
6. AWS cloudtrail :- record actions taken by a user, role or an AWS service in amazon S3.
7. Manual monitoring :-
8. server access logging :- get detailed records for the requests that are made to a bucket.
9. AWS trusted advisor :- evaluate your account by using AWS best practice checks to identify ways to optimize your AWS infrastructure improve security and performance, reduce costs and monitor service quotas.
10. **Analytics and insights :-**

Amazon S3 offers features to help you gain visibility into your storage usage.

1. Amazon S3 storage lens :- understand analyze, and optimize your storage.
2. Storage class analysis :- analyze storage access patterns to decide when it’s time to move data to a more cost-effective storage class.
3. S3 inventory with inventory reports :- audit and repot on object and their corresponding metadata and configure other amazon S3 features to take action in inventory reports.