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at
Sathyabama Institute of Science and Technology
(Deemed to be University)

Submitted in partial fulfillment of the requirements for the award of
Bachelor of Engineering Degree in Computer Science and Engineering

By
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SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited with Grade "A" by NAAC

(Established under Section 3 of UGC Act, 1956)

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **MOHAMMAD KAIF SYED (Reg No : 40731111)** who carried out the project entitled "AWS Storage" under my supervision from FEB 2023 to APRIL 2023.

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DECLARATION

I, **MOHAMMAD KAIF SYED** hereby declare that the Project Report entitled “**AWS Simple Service Storage**” done by me under the guidance of **Ms Hema.V** is submitted in partial fulfillment of the requirements for the award of Bachelor of Engineering degree in Computer Science and Engineering.

DATE: 17-04-2023

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ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to **Board of Management of SATHYABAMA** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

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I wish to express my thanks to all Teaching and Non-teaching staff members of the **Department of Computer Science and Engineering** who were helpful in many ways for the completion of the project.

TRAINING CERTIFICATE

CERTIFICATE OF COMPLETION



THIS IS TO ACKNOWLEDGE THAT

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ABSTRACT

Cloud Computing is going to be the future and way to store each and every data's in the present world. It Conveniently opens your application in different regions around the world with just a few clicks. As a result, the customer can experience lower latency and low cost. Cloud Computing is the finest way to store and access all user data. When it comes to Cloud Computing "Amazon Web Services (AWS)" is the popular cloud services platform. AWS is used by many organizations and individuals all over the world. AWS is everywhere in the world and it has been providing more than 100+ services in various types. AWS supports a highly safe, extensible, low-cost infrastructure platform in the cloud. AWS having a variety of big data analytics and application services. AWS has the possibility of being the age defining a cloud service provider. It further brings attention and expectation of the cloud consumers/service providers. People are willing to Cooperate with AWS due to the center of attraction built around it

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CHAPTER 1

INTRODUCTION

1.1 AWS STORAGE

AWS offers a wide range of storage services that can be provisioned depending on your project requirements and use case. AWS storage services have different provisions for highly confidential data, frequently accessed data, and the not so frequently accessed data. You can choose from various storage types namely, object storage, file storage, block storage services, backups, and *data* migration options. All of which fall under the AWS Storage Services list.

1.2 AMAZON S3

S3, is the object storage service provided by AWS. It is probably the most commonly used, go-to storage service for AWS users given the features like extremely high availability, security, and simple connection to other AWS Services. AWS S3 can be used by people with all kinds of use cases like mobile/web applications, big data, machine learning and many more.

1.3 BUCKET IN S3

In S3 data is stored in containers called buckets.

- Each bucket will have its own set of policies and configuration.
- This enables users to have more control over their data.
- Bucket Names must be unique.

1.4 FEATURES OF S3 BUCKET

1.4.1 STORAGE CLASSES:

Amazon S3 offers a range of storage classes designed for different use cases. For example, you can store mission-critical production data in S3 Standard for frequent access, save costs by storing infrequently accessed data in S3 Standard-IA or S3 One Zone-IA, and archive data at the lowest costs in S3 Glacier Instant Retrieval, S3 Glacier Flexible Retrieval, and S3 Glacier Deep Archive. You can store data with changing or unknown access patterns in S3 Intelligent-Tiering, which optimizes storage costs by automatically moving your data between four access tiers when your access patterns change. These four access tiers include two low-latency access tiers optimized for frequent and infrequent access, and two opt-in archive access tiers designed for asynchronous access for rarely accessed data

	S3 Standard	S3 Intelligent-Tiering*	S3 Standard-IA	S3 One Zone-IA†	S3 Glacier	S3 Glacier Deep Archive
Designed for durability	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)
Designed for availability	99.99%	99.9%	99.9%	99.5%	99.99%	99.99%
Availability SLA	99.9%	99%	99%	99%	99.9%	99.9%
Availability Zones	≥3	≥3	≥3	1	≥3	≥3
Minimum capacity charge per object	N/A	N/A	128KB	128KB	40KB	40KB
Minimum storage duration charge	N/A	30 days	30 days	30 days	90 days	180 days
Retrieval fee	N/A	N/A	per GB retrieved	per GB retrieved	per GB retrieved	per GB retrieved
First byte latency	milliseconds	milliseconds	milliseconds	milliseconds	select minutes or hours	select hours
Storage type	Object	Object	Object	Object	Object	Object
Lifecycle transitions	Yes	Yes	Yes	Yes	Yes	Yes

Fig 1.1-types of storage classes

S3 STANDARD CLASS:

S3 Standard offers high durability, availability, and performance object storage for frequently accessed data. Because it delivers low latency and high throughput, S3 Standard is appropriate for a wide variety of use cases, including cloud applications, dynamic websites, content distribution, mobile and gaming applications, and big data analytics.

S3 INTELLIGENT TIERING CLASS:

Amazon S3 Intelligent-Tiering (S3 Intelligent-Tiering) is the first cloud storage that automatically reduces your storage costs on a granular object level by automatically moving data to the most cost-effective access tier based on access frequency, without performance impact, retrieval fees, or operational overhead. S3 Intelligent-Tiering delivers milliseconds latency and high throughput performance for frequently, infrequently, and rarely accessed data in the Frequent, Infrequent, and Archive Instant Access tiers. You can use S3 Intelligent-Tiering as the default storage class for virtually any workload, especially data lakes, data analytics, new applications, and user-generated content.

S3 STANDARD-INFREQUENT ACCESS (S3 STANDARD-IA) CLASS:

S3 Standard-IA is for data that is accessed less frequently, but requires rapid access when needed. S3 Standard-IA offers the high durability, high throughput, and low latency of S3 Standard, with a low per GB storage price and per GB retrieval charge. This combination of low cost and high performance make S3 Standard-IA ideal for long-term storage, backups, and as a data store for disaster recovery files.

S3 ONE ZONE INFREQUENT ACCESS (S3 ONE ZONE-IA) CLASS:

S3 One Zone-IA is for data that is accessed less frequently, but requires rapid access when needed. Unlike other S3 Storage Classes which store data in a minimum of three Availability Zones (AZs), S3 One Zone-IA stores data in a single AZ and costs 20% less than S3 Standard-IA. S3 One Zone-IA is ideal for customers who want a lower-

cost option for infrequently accessed data but do not require the availability and resilience of S3 Standard or S3 Standard-IA. It's a good choice for storing secondary backup copies of on-premises data or easily re-creatable data. You can also use it as cost-effective storage for data that is replicated from another AWS Region using S3 Cross-Region Replication.

S3 GLACIER CLASS:

Amazon S3 Glacier storage classes are purpose-built for data archiving, providing you with the highest performance, most retrieval flexibility, and the lowest cost archive storage in the cloud. All S3 Glacier storage classes provide virtually unlimited scalability and are designed for 99.999999999% (11 nines) of data durability. The S3 Glacier storage classes deliver options for the fastest access to your archive data and the lowest-cost archive storage in the cloud.

S3 GLACIER DEEP ARCHIVE:

S3 Glacier Deep Archive is Amazon S3's lowest-cost storage class and supports long-term retention and digital preservation for data that may be accessed once or twice in a year. It is designed for customers—particularly those in highly-regulated industries, such as financial services, healthcare, and public sectors—that retain data sets for 7—10 years or longer to meet regulatory compliance requirements. S3 Glacier Deep Archive can also be used for backup and disaster recovery use cases, and is a cost-effective and easy-to-manage alternative to magnetic tape systems, whether they are on-premises libraries or off-premises services.

1.4.2 BUCKET POLICY

A bucket policy is a resource-based policy that you can use to grant access permissions to your bucket and the objects in it. Only the bucket owner can associate a policy with a bucket. The permissions attached to the bucket apply to all of the objects in the bucket that are owned by the bucket owner. These permissions do not apply to objects owned by other AWS accounts.

In its most basic sense, a bucket policy contains the following elements:

- **Resources** – Buckets, objects, access points, and jobs are the Amazon S3 resources for which you can allow or deny permissions. In a policy, you use the Amazon Resource Name (ARN) to identify the resource. For more information, see Amazon S3 resources.
- **Actions** – For each resource, Amazon S3 supports a set of operations. You identify resource operations that you will allow (or deny) by using action keywords.
- **Effect** – What the effect will be when the user requests the specific action—this can be either *allow* or *deny*.

If you do not explicitly grant access to (allow) a resource, access is implicitly denied. You can also explicitly deny access to a resource. You might do this to make sure that a user can't access the resource, even if a different policy grants access. For more information, see IAM JSON Policy Elements: Effect.

- **Principal** – The account or user who is allowed access to the actions and resources in the statement. In a bucket policy, the principal is the user, account, service, or other entity that is the recipient of this permission. For more information, see Principals.
- **Condition** – Conditions for when a policy is in effect. You can use AWS-wide keys and Amazon S3-specific keys to specify conditions in an Amazon S3 access policy.

CHAPTER 2

AIM AND SCOPE OF PRESENT INVESTIGATION

2.1 AIM:

The aim of Amazon S3 is to store and retrieve any amount of data using highly scalable, reliable, fast and inexpensive data storage.

2.2 SCOPE:

Amazon Simple Storage Service (Amazon S3) is an object storage service that offers industry-leading scalability, data availability, security, and performance. Customers of all sizes and industries can use Amazon S3 to store and protect any amount of data for a range of use cases, such as data lakes, websites, mobile applications, backup and restore, archive, enterprise applications, IoT devices, and big data analytics. Amazon S3 provides management features so that you can optimize, organize, and configure access to your data to meet your specific business, organizational, and compliance requirements. Amazon S3 offers features to help you gain visibility into your storage usage, which empowers you to better understand, analyze, and optimize your storage at scale

2.3 HOW MANY AMAZON S3 WORKS:

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. A bucket is a container for objects. To store your data in Amazon S3, you first create a bucket and specify a bucket name and AWS Region. Then, you upload your data to that bucket as objects in Amazon S3. Each object has a key (or key name), which is the unique identifier for the object within the bucket. S3 provides features that you can configure to support your specific use case. For example, you can use S3 Versioning to keep multiple versions of an object in the same bucket, which allows you to restore objects that are accidentally deleted or overwritten. Buckets and the objects in them are private and can be accessed only if you explicitly grant access permissions. You can use bucket policies, AWS Identity and Access Management (IAM) policies, access control lists (ACLs), and S3 Access Points to manage access.

CHAPTER 3

EXPERIMENTAL OR MATERIALS AND METHODS

ALGORITHMS USED

3.1 MATERIAL USED:

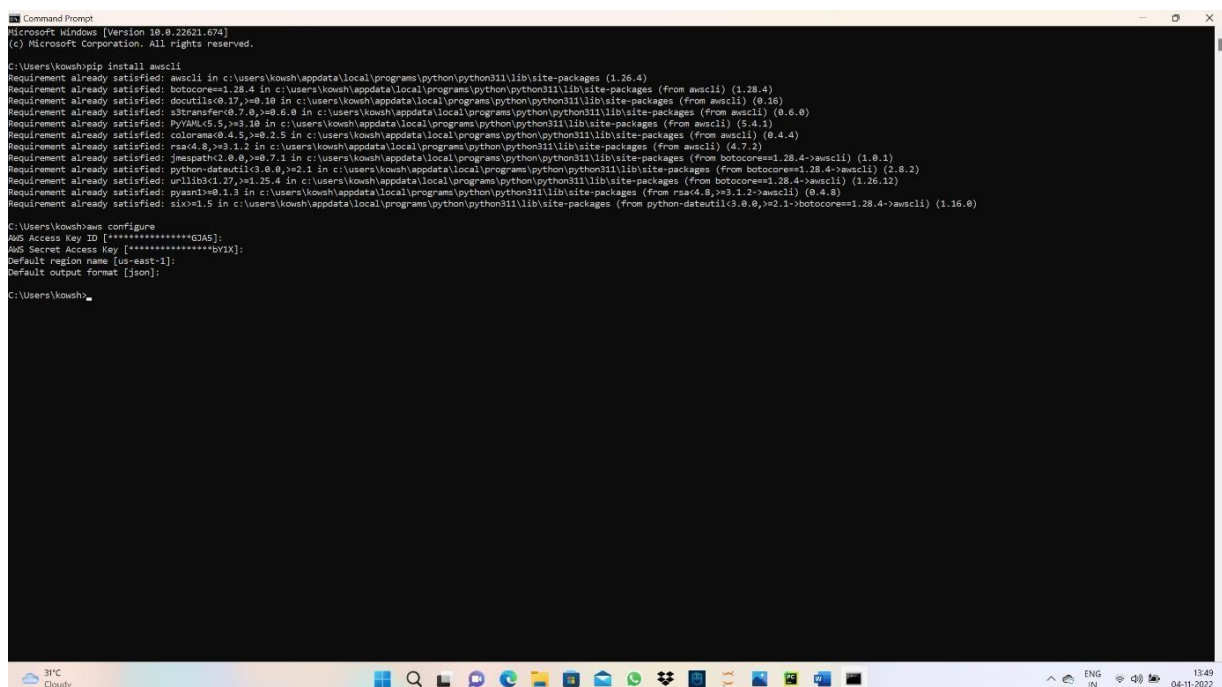
- AWS-CLI (AWS COMMAND LINE INTERFACE)
- IAM (Identify and Access Management)

3.1.1 AWSCLI:

The AWS Command Line Interface (AWS CLI) is a unified tool to manage your AWS services. With just one tool to download and configure, we can control multiple AWS services from the command line and automate them through scripts

3.1.2 IAM:

An AWS Identity and Access Management (IAM) user is an entity that you create in AWS to represent the person application that uses it to interact with AWS.



```
Microsoft Windows [Version 10.0.22621.674]
(c) Microsoft Corporation. All rights reserved.

C:\Users\koush>pip install awscli
Requirement already satisfied: awscli in c:\users\koush\appdata\local\programs\python\python311\lib\site-packages (1.26.4)
Requirement already satisfied: botocore==1.28.4 in c:\users\koush\appdata\local\programs\python\python311\lib\site-packages (from awscli) (1.28.4)
Requirement already satisfied: docutils<0.17,>=0.10 in c:\users\koush\appdata\local\programs\python\python311\lib\site-packages (from awscli) (0.16)
Requirement already satisfied: s3transfer<0.7.0,>=0.6.0 in c:\users\koush\appdata\local\programs\python\python311\lib\site-packages (from awscli) (0.6.0)
Requirement already satisfied: PyYAML<5.5,>=3.10 in c:\users\koush\appdata\local\programs\python\python311\lib\site-packages (from awscli) (5.4.1)
Requirement already satisfied: colorama<0.4.5,>=0.2.5 in c:\users\koush\appdata\local\programs\python\python311\lib\site-packages (from awscli) (0.4.4)
Requirement already satisfied: rsa<4.8,>=3.1.2 in c:\users\koush\appdata\local\programs\python\python311\lib\site-packages (from awscli) (4.7.2)
Requirement already satisfied: jmespath<2.0.0,>=0.7.1 in c:\users\koush\appdata\local\programs\python\python311\lib\site-packages (from botocore==1.28.4->awscli) (1.0.1)
Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in c:\users\koush\appdata\local\programs\python\python311\lib\site-packages (from botocore==1.28.4->awscli) (2.8.2)
Requirement already satisfied: urllib3<1.27,>=1.25.4 in c:\users\koush\appdata\local\programs\python\python311\lib\site-packages (from botocore==1.28.4->awscli) (1.26.12)
Requirement already satisfied: pyasn1<0.1.3 in c:\users\koush\appdata\local\programs\python\python311\lib\site-packages (from rsa<4.8,>=3.1.2->awscli) (0.4.8)
Requirement already satisfied: six>=1.5 in c:\users\koush\appdata\local\programs\python\python311\lib\site-packages (from python-dateutil<3.0.0,>=2.1->botocore==1.28.4->awscli) (1.16.0)

C:\Users\koush>aws configure
AWS Access Key ID [*****]:GJAS
AWS Secret Access Key [*****]:pyIX
Default region name [us-east-1]:
Default output format [json]:

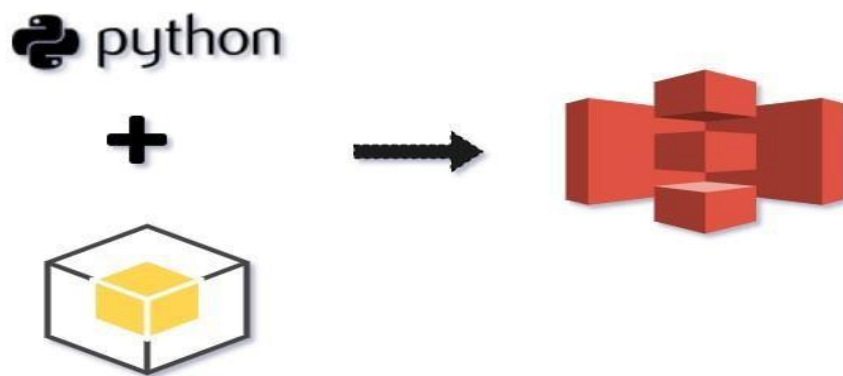
C:\Users\koush>
```

Fig 3.1-installation of awscli and aws configure

3.2 IMPORTED LIBRARIES:

3.2.1 BOTO3:

Boto3 is the Amazon Web Services (AWS) Software Development Kit (SDK) for Python, which allows Python developers to write software that makes use services like Amazon S3 and Amazon EC2.



Using Python's Boto3 Library to access AWS S3 through Python SDK

*****Fig 3.2- boto3

3.2.2 JSON:

Python has a built-in package called json, which can be used to work with JSON data. Bucket policy options available for granting permission to your Amazon S3 resources. Bucket policy is JSON-based access policy language.

3.2.3 GLOB:

The glob (short for global) is used to return all file paths that match a specific pattern. We can use glob to search for a specific file pattern, or perhaps more usefully, search for files where the filename matches a certain pattern by using wildcard characters

```
In [1]: import boto3
import glob
import json
```

Fig 3.3-importing libraries

3.3 BUCKET CREATION:

To upload your data (photos, videos, documents, etc.) to Amazon S3, you must first create an S3 bucket in one of the AWS Regions. A bucket is a container for objects stored in Amazon S3. You can store any number of objects in a bucket and can have up to 100 buckets in your account. To request an increase, visit the Service Quotas Console.

```
In [10]: client = boto3.client('s3')
```

```
In [11]: client.create_bucket(Bucket = 'sathyalady')
```

Fig 3.4-creating bucket

3.4 VERSIONING: You can use S3 Versioning to keep multiple variants object in the same bucket. With S3 Versioning, you can preserve, retrieve, and restore every version of every object stored in your buckets. You can easily recover from both unintended user actions and application failures.

```
import boto3
bucket_name='sathyalady'
s3=boto3.resource('s3')
versioning=s3.BucketVersioning(bucket_name)
```

```
response=versioning.enable()
```

Fig 3.5 – enabling bucket versioning

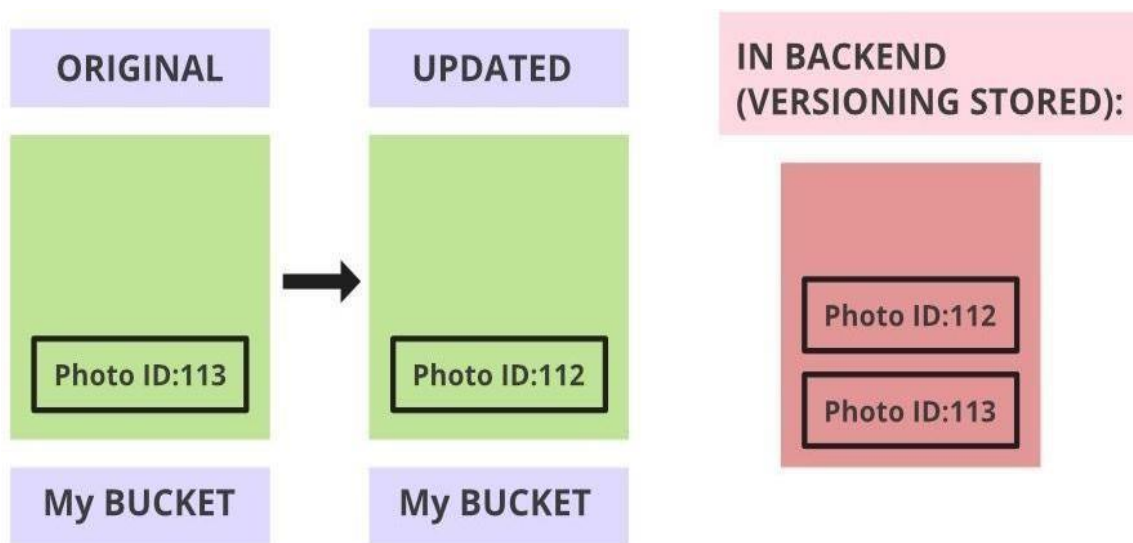


Fig 3.6 – how versioning works

3.5 ENCRYPTION:

Amazon S3 supports both server-side encryption (with three key management options: SSE-KMS, SSE-C, SSE-S3) and client-side encryption for data uploads. Amazon S3 offers flexible security features to block unauthorized users from accessing your data. You can set the default encryption behavior on an Amazon S3 bucket so that all objects are encrypted when they are stored in the bucket. The objects are encrypted using server-side encryption with either Amazon S3-managed keys (SSE-S3) or AWS Key Management Service (AWS KMS) keys.

```
response = client.put_bucket_encryption(
    Bucket="sathyalady",
    ServerSideEncryptionConfiguration={ "Rules":
        [ {"ApplyServerSideEncryptionByDefault"
            : {"SSEAlgorithm": "AES256"}}
        ]
    },
)
```

Fig 3.7 – bucket encryption

3.6 ACL:

Amazon S3 access control lists (ACLs) enable you to manage access to buckets and objects. Each bucket and object has an ACL attached to it as a subresource. It defines which AWS accounts or groups are granted access and the type of access. When a request is received against a resource, Amazon S3 checks the corresponding ACL to verify that the requester has the necessary access permissions.

```
args={'ACL':'public-read','StorageClass': 'STANDARD','ServerSideEncryption': 'AES256'}
for file in files:
    upload_files(file,'sathyalady',args=args)
    print('uploaded',file)
```

Fig 3.8 - acl

3.7 BUCKET POLICY:

A bucket policy is a resource-based AWS Identity and Access Management (IAM) policy that you can use to grant access permissions to your bucket and the objects in it. Only the bucket owner can associate a policy with a bucket. The permissions attached to the bucket apply to all of the objects in the bucket that are owned by the bucket owner. Bucket policies are limited to 20 KB in size. Bucket policies use JSON-based access policy language that is standard across AWS. You can use bucket policies to add or deny permissions for the objects in a bucket. Bucket policies allow or deny requests based on the elements in the policy, including the requester, S3 actions, resources, and aspects or conditions of the request (for example, the IP address used to make the request). -

```
import json
bucket_name='sathyalady'
bucket_policy={
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Principal": "*",
            "Action": ["s3:GetObject","s3:GetObjectVersion"],
            "Resource": [ "arn:aws:s3:::sathyalady/*" ]
        }
    ]
}
bucket_policy=json.dumps(bucket_policy)
```

Fig 3.9- bucket policy

CHAPTER 4

RESULTS AND DISCUSSION, PERFORMANCE ANALYSIS

4.1 MODEL ANALYSIS:

Installation of AWSCLI and adding AWS configuration to system had done successfully. Created a bucket in S3(SIMPLE STORAGE SERVICE) which is provided by AWS Storage. Uploaded files into bucket with some features added to files like encryption, storage class. Added bucket versioning to the bucket which helps to copy the old files when we update a existing file. Encryption is added to the bucket which helps to encrypt the data by not allowing access to unauthorized users to access into our bucket. Because of these types of features provided by the AWS storage many industries and other companies are likely to use AWS Storage. AWS Storage has unlimited storage data that we can store as much data we want and the billing will be done according how much data used.

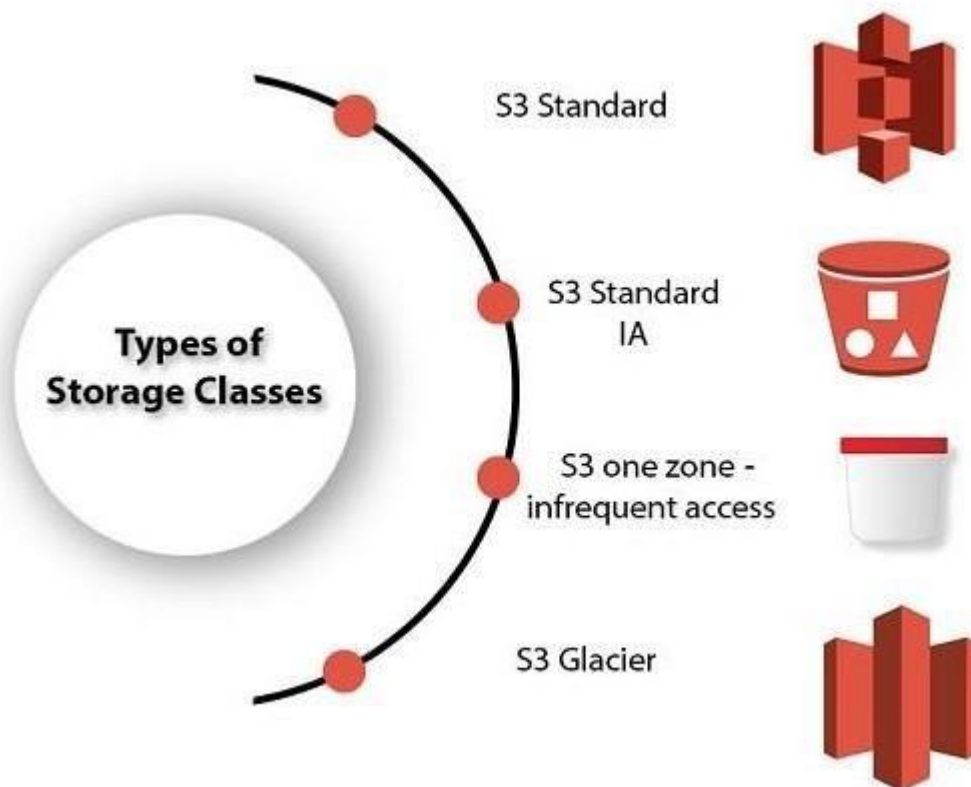


Fig 4.1-diff types of storage classes

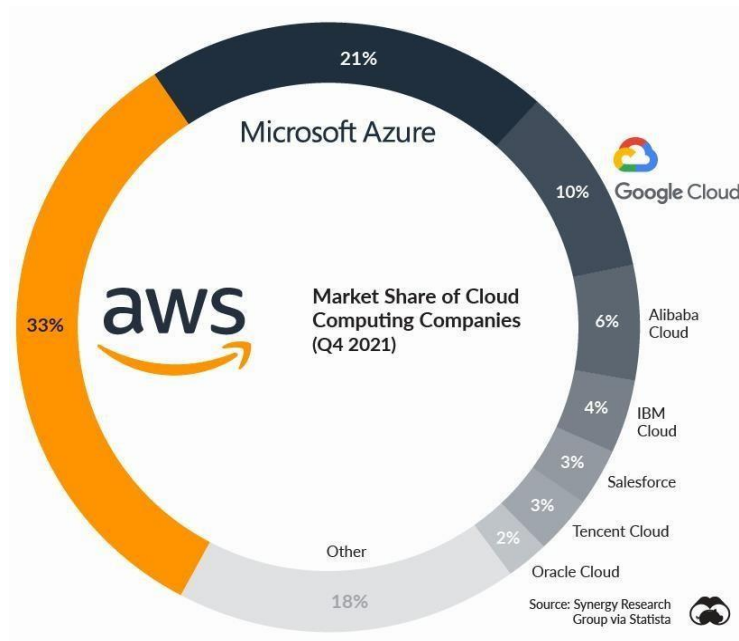


Fig 4.2 – pie chart for usage of different cloud services

CHAPTER 5

SUMMARY AND CONCLUSIONS

- Amazon Simple Storage Service (Amazon S3) is an object storage service that offers industry-leading scalability, data availability, security, and performance. You can use Amazon S3 to store and retrieve any amount of data at any time, from anywhere.
- To get the most out of Amazon S3, you need to understand a few simple concepts. Amazon S3 stores data as objects within buckets. An object consists of a file and optionally any metadata that describes that file. To store an object in Amazon S3, you upload the file you want to store to a bucket. When you upload a file, you can set permissions on the object and any metadata.
- Buckets are the containers for objects. You can have one or more buckets. For each bucket, you can control access to it (who can create, delete, and list objects in the bucket), view access logs for it and its objects, and choose the geographical region where Amazon S3 will store the bucket and its contents.



Fig 5.1 – summary of aws

REFERENCES

[1] AWS Console Management

<https://us-east-1.console.aws.amazon.com/console/home?region=us-east-1>

[2] S3 BOTO3 Documentation

[S3 — Boto3 Docs 1.26.2 documentation - Amazon Web Services](#)

[3] Python Language Reference for s3

[Python, Boto3, and AWS S3: Demystified – Real Python](#)

[4] For Theory Lectures

https://drive.google.com/drive/folders/1gkylkmmnTNUgVz_5toPi_9wxE96gHraw?usp=sharing

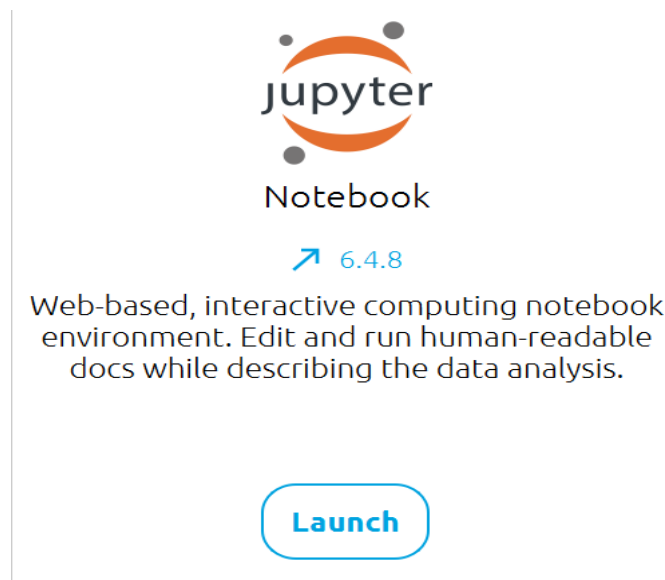
[5] For Practical Lectures

<https://www.youtube.com/watch?v=qsPZL-0QIJg>

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CODING ENVIRONMENT

Jupyter notebook from the anaconda navigator is launched along with all the preinstalled packages for python.



9

A.SCREENSHOTS AND OUTPUTS:

The first screenshot shows the initial setup of an S3 bucket named 'sathyaldy'. The code includes importing boto3, creating an S3 client, and creating a bucket. The output shows the bucket creation details, including the request ID, host ID, and status code 200. The second screenshot shows the upload of a file named 'Sun.jpg' to the bucket. The code also includes setting bucket tagging and configuring bucket encryption. The output shows the upload details, including the request ID, host ID, and status code 200. The third screenshot shows the deletion of the bucket encryption configuration. The code includes deleting the encryption configuration and setting a new bucket policy. The output shows the deletion details, including the request ID, host ID, and status code 200.

```
In [2]: import boto3
import glob
import json

In [3]: client=boto3.client('s3')

In [4]: client.create_bucket(Bucket='sathyaldy')
Out[4]: {'ResponseMetadata': {'RequestId': 'MFC27Y60KQVTRW', 'HostId': 'm0zab03d0p1w0d0g0y0d0e0001c+e11300490qj00houf0w0y13k1255NrcZyn/qi7h3yQ-', 'HTTPStatusCode': 200, 'Headers': {'x-amz-id-2': 'm0zab03d0p1w0d0g0y0d0e0001c+e11300490qj00houf0w0y13k1255NrcZyn/qi7h3yQ-', 'x-amz-request-id': 'MFC27Y60KQVTRW', 'date': 'Sun, 06 Nov 2022 11:17:20 GMT', 'location': '/sathyaldy', 'server': 'AmazonS3', 'content-length': '0'}, 'RetryAttempts': 0}, 'Location': '/sathyaldy'}

In [5]: def upload_files(file_name,bucket,object_name,args=None):
    if object_name is None:
        object_name=file_name
    response = client.upload_file(file_name,bucket,object_name,ExtraArgs=args)
    print(response)

In [6]: args={'StorageClass': 'STANDARD_IA', 'ServerSideEncryption': 'AES256'}
upload_files(r"C:\Users\koush\OneDrive\Pictures\Saved Pictures\Sun.jpg", 'sathyaldy', 'Sunny',args)
None

In [10]: bucket_name='sathyaldy'
s3=boto3.resource('s3')
versioning=s3.BucketVersioning(bucket_name)
versioning.enable()
print(response)

[ResponseMetadata: {'RequestId': '1FAG8V75Q0VQYSH', 'HostId': 'f608gr0rnel-q/TJ3l0ca1Fw4dFTru04M0u1S160KdySuu0P10k47Du0Sla
roK8uYw0c8t07c-', 'HTTPStatusCode': 200, 'Headers': {'x-amz-id-2': 'f608gr0rnel-q/TJ3l0ca1Fw4dFTru04M0u1S160KdySuu0P10k47
Du0Sla-roK8uYw0c8t07c-', 'x-amz-request-id': '1FAG8V75Q0VQYSH', 'date': 'Sun, 06 Nov 2022 11:18:02 GMT', 'server': 'AmazonS3',
'content-length': '0'}, 'RetryAttempts': 0}]

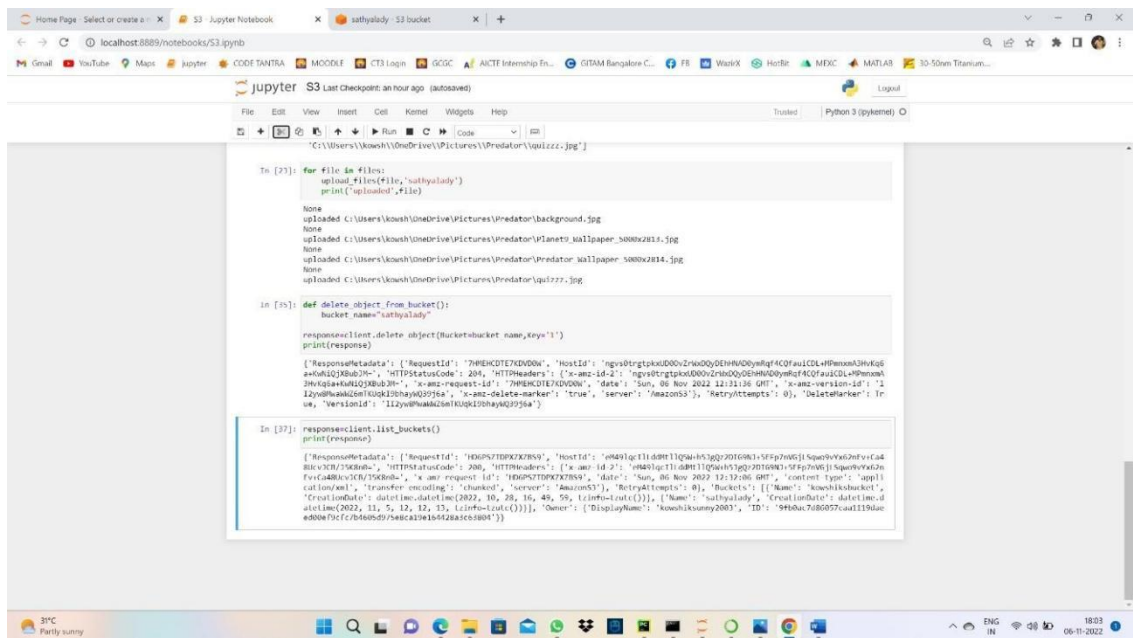
In [11]: bucket_name='sathyaldy'
tagging=s3.BucketTagging(bucket_name)
Set_Tagging.put(Tagging={'TagSet': [{'Key': 'sathyaldy', 'Value': ''}]})

In [18]: response = client.put_bucket_encryption(
    Bucket='sathyaldy',
    ServerSideEncryptionConfiguration={
        "Rules": [ ("ApplyServerSideEncryptionByDefault": ("SSIAAlgorithm": ("AES256")) ) ]
    }
)
print(response)

[ResponseMetadata: {'RequestId': '2k1P9w0t0u1G0K2', 'HostId': 'j0m0g0y0g0y0c0d0c0g0q0a0a0q03ky0u1H0n/tu0p0trul0p04l0w0k1
v0n0c0g0g0c0b0-', 'HTTPStatusCode': 200, 'Headers': {'x-amz-id-2': 'j0m0g0y0g0y0c0d0c0g0q0a0a0q03ky0u1H0n/tu0p0trul0p04
l0w0k1v0n0c0g0g0c0b0-', 'x-amz-request-id': '2k1P9w0t0u1G0K2', 'date': 'Sun, 06 Nov 2022 12:12:27 GMT', 'server': 'AmazonS3',
'content-length': '0'}, 'RetryAttempts': 0}]

In [19]: bucket_name='sathyaldy'
bucket_policy=
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "PublicRead",
      "Effect": "Allow",
      "Principal": "*",
      "Action": [ "s3:GetObject", "s3:PutObject" ],
      "Resource": [ "arn:aws:s3:::sathyaldy/*" ]
    }
  ]
}
bucket_policy=json.dumps(bucket_policy)
client.put_bucket_policy(Bucket=bucket_name,policy=bucket_policy)
client.delete_bucket_policy(Bucket='sathyaldy') we can delete the bucket policy

Out[19]: {'ResponseMetadata': {'RequestId': '3ZYEV4980289V72', 'HostId': 'U04d0Vj0R00w0h0e20u0NoY0n0b0r0a0j0p00u0S012L0HeK+cYxshLR0u0P0Rq0G0U78p04E-',
'HTTPStatusCode': 200,
```



Home Page | Select or create a... | S3 | Jupyter Notebook | sathyalady - S3 bucket

s3.console.aws.amazon.com/s3/buckets/sathyalady?region=us-east-1&tab=objects

Amazon S3

Buckets

Access Points

Object Lambda Access Points

Multi-Region Access Points

Batch Operations

Access analyzer for S3

Block Public Access settings for this account

Storage Lens

Dashboards

AWS Organizations settings

Feature spotlight

AWS Marketplace for S3

Amazon S3 > Buckets > sathyalady

sathyalady Info

Objects | Properties | Permissions | Metrics | Management | Access Points

Objects (5)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Copy S3 URI | Copy URL | Download | Open | Delete | Actions | Create folder | Upload

Find objects by prefix: Show versions

Name	Type	Last modified	Size	Storage class
C:\Users\kows\OneDrive\Pictures\Predator\background.jpg	jpg	November 6, 2022, 17:54:25 (UTC+05:30)	12.0 KB	Standard
C:\Users\kows\OneDrive\Pictures\Predator\Planet9_Wallpaper_5000x2813.jpg	jpg	November 6, 2022, 17:54:26 (UTC+05:30)	5.5 MB	Standard
C:\Users\kows\OneDrive\Pictures\Predator\Predator_Wallpaper_5000x2814.jpg	jpg	November 6, 2022, 17:55:01 (UTC+05:30)	6.1 MB	Standard
C:\Users\kows\OneDrive\Pictures\Predator\quizz.jpg	jpg	November 6, 2022, 17:55:35 (UTC+05:30)	223.8 KB	Standard
Sunny	-	November 5, 2022, 19:04:31 (UTC+05:30)	573.6 KB	Standard-IA

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Home Page | Select or create a... | S3 | Jupyter Notebook | sathyalady - S3 bucket

s3.console.aws.amazon.com/s3/buckets/sathyalady?region=us-east-1&tab=properties

Amazon S3 > Buckets > sathyalady

sathyalady Info

Objects | Properties | Permissions | Metrics | Management | Access Points

Bucket overview

AWS Region
US East (N. Virginia) us-east-1

Amazon Resource Name (ARN)
arn:aws:s3::sathyalady

Creation date
November 5, 2022, 17:42:13 (UTC+05:30)

Bucket Versioning

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. [Learn more](#)

Edit

Bucket Versioning
Enabled

Multi-factor authentication (MFA) delete
An additional layer of security that requires multi-factor authentication for changing Bucket Versioning settings and permanently deleting object versions. To modify MFA delete settings, use the AWS CLI, AWS SDK, or the Amazon S3 REST API. [Learn more](#)

Disabled

Tags (1)

Edit

Feedback Looking for language selection? Find it in the new Unified Settings

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Home Page | Select or create a... | S3 - Jupyter Notebook | sathyalady - S3 bucket

s3.console.aws.amazon.com/s3/buckets/sathyalady?region=us-east-1&tab=properties

Services Search [Alt+S]

Bucket Versioning

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. [Learn more](#)

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Bucket Versioning
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Multi-factor authentication (MFA) delete
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Disabled

Tags (1)

Track storage cost or other criteria by tagging your bucket. [Learn more](#)

Edit

Key	Value
sathyalady	

Default encryption

Automatically encrypt new objects stored in this bucket. [Learn more](#)

Edit

Default encryption
Enabled

Encryption key type
Amazon S3-managed keys (SSE-S3)

Feedback Looking for language selection? Find it in the new [Unified Settings](#)

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Home Page | Select or create a... | S3 - Jupyter Notebook | sathyalady - S3 bucket

s3.console.aws.amazon.com/s3/buckets/sathyalady?region=us-east-1&tab=permissions

Services Search [Alt+S]

Individual block Public Access settings for this bucket

Bucket policy

The bucket policy, written in JSON, provides access to the objects stored in the bucket. Bucket policies don't apply to objects owned by other accounts. [Learn more](#)

Edit Delete

Public access is blocked because Block Public Access settings are turned on for this bucket
To determine which settings are turned on, check your Block Public Access settings for this bucket. [Learn more about using Amazon S3 Block Public Access](#)

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "PublicRead",
      "Effect": "Allow",
      "Principal": "*",
      "Action": [
        "s3:GetObject",
        "s3:GetObjectVersion"
      ],
      "Resource": "arn:aws:s3:::sathyalady/*"
    }
  ]
}
```

Copy

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

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B.SOURCE CODE

```
import boto3
import glob
import json
client=boto3.client('s3')
client.create_bucket(Bucket='sathyalady')
def upload_files(file_name,bucket,object_name=None,args=None):
    if object_name is None:
        object_name=file_name

    response = client.upload_file(file_name,bucket,object_name,ExtraArgs=args)
    print(response)
args={'StorageClass':'STANDARD_IA','ServerSideEncryption':'AES256'}
upload_files(r'C:\Users\kowsh\OneDrive\Pictures\Saved
Pictures\ho.png','sathyalady','SunnyK',args=args)
bucket_name='sathyalady'
s3=boto3.resource('s3')
versioning=s3.BucketVersioning(bucket_name)
response=versioning.enable()
print(response)

#we can suspend the versioning by versioning.suspend() command#
bucket_name='sathyalady'
tagging=s3.BucketTagging(bucket_name)
Set_Tag=tagging.put(Tagging={'TagSet':[{'Key':'sathyalady','Value':''}]})
response = client.put_bucket_encryption(
    Bucket="sathyalady",
    ServerSideEncryptionConfiguration={
        "Rules": [ {"ApplyServerSideEncryptionByDefault": {"SSEAlgorithm":
"AES256"}} ]
    }
)
print(response)
```

```

#response =client.delete_bucket_encryption(Bucket="sathyalady") we can delete the
encryption#
bucket_name='sathyalady'
bucket_policy={
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "PublicRead",
            "Effect": "Allow",
            "Principal": "*",
            "Action": ["s3:GetObject", "s3:GetObjectVersion"],
            "Resource": [ "arn:aws:s3:::sathyalady/*"]
        }
    ]
}
bucket_policy=json.dumps(bucket_policy)
client.put_bucket_policy(Bucket=bucket_name,Policy=bucket_policy)
#client.delete_bucket_policy(Bucket='sathyalady') we can delete the bucket policy#
files=glob.glob(r'C:\Users\kowsh\OneDrive\Pictures\Predator/*')
files
for file in files:
    upload_files(file,'sathyalady')
    print('uploaded',file)
def delete_object_from_bucket():
    bucket_name="sathyalady"

response=client.delete_object(Bucket=bucket_name,Key='1')
print(response)
response=client.list_buckets()
print(response)

```

-----THE END-----