Course: SBL: Cloud Computing
Course code: CSL605
Year: TE SEM: VI

Experiment No.05
AIM:- To study and Implement Storage as a Service using AWS S3.
Name:
Roll Number:
Date of Performance:
Date of Submission:

Evaluation

Performance Indicator	Max. Marks	Marks Obtained
Performance	5	
Understanding	5	
Journal work and timely submission.	10	
Total	**20**	

Performance Indicator	Exceed Expectations (EE)	Meet Expectations (ME)	Below Expectations (BE)
Performance	5	3	2
Understanding	5	3	2
Journal work and timely submission.	10	8	4

Checked by

Name of Faculty : **Ichhanshu Jaiswal**

Signature :

Date :

Experiment No. 5

Aim: To study and Implement Storage as a Service using AWS S3.

Theory:

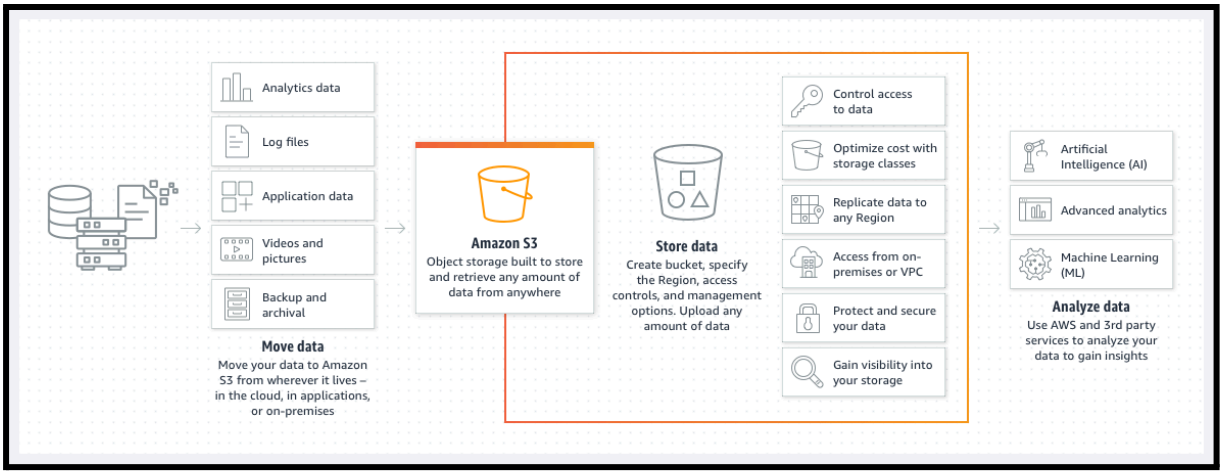
Storage as a Service (SaaS) is the practice of using public cloud storage resources to store your data. Using SaaS is more cost efficient than building private storage infrastructure, especially when you can match data types to cloud storage offerings.

Storage as a Service or STaaS is cloud storage that you rent from a Cloud Service Provider (CSP) and that provides basic ways to access that storage. Enterprises, small and medium businesses, home offices, and individuals can use the cloud for multimedia storage, data repositories, data backup and recovery, and disaster recovery. There are also higher-tier managed services that build on top of STaaS, such as Database as a Service, in which you can write data into tables that are hosted through CSP resources.

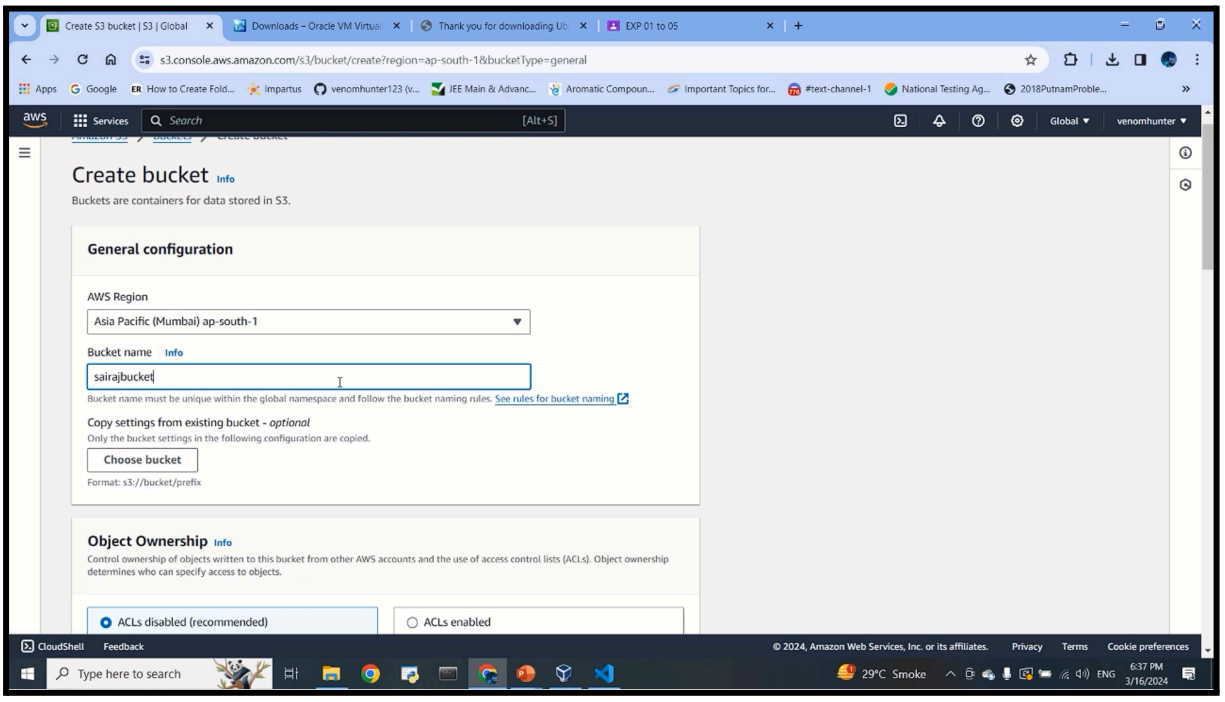
The key benefit to STaaS is that you are offloading the cost and effort to manage data storage infrastructure and technology to a third-party CSP. This makes it much more effective to scale up storage resources without investing in new hardware or taking on configuration costs. You can also respond to changing market conditions faster. With just a few clicks you can rent terabytes or more of storage, and you don't have to spin up new storage appliances on your own.

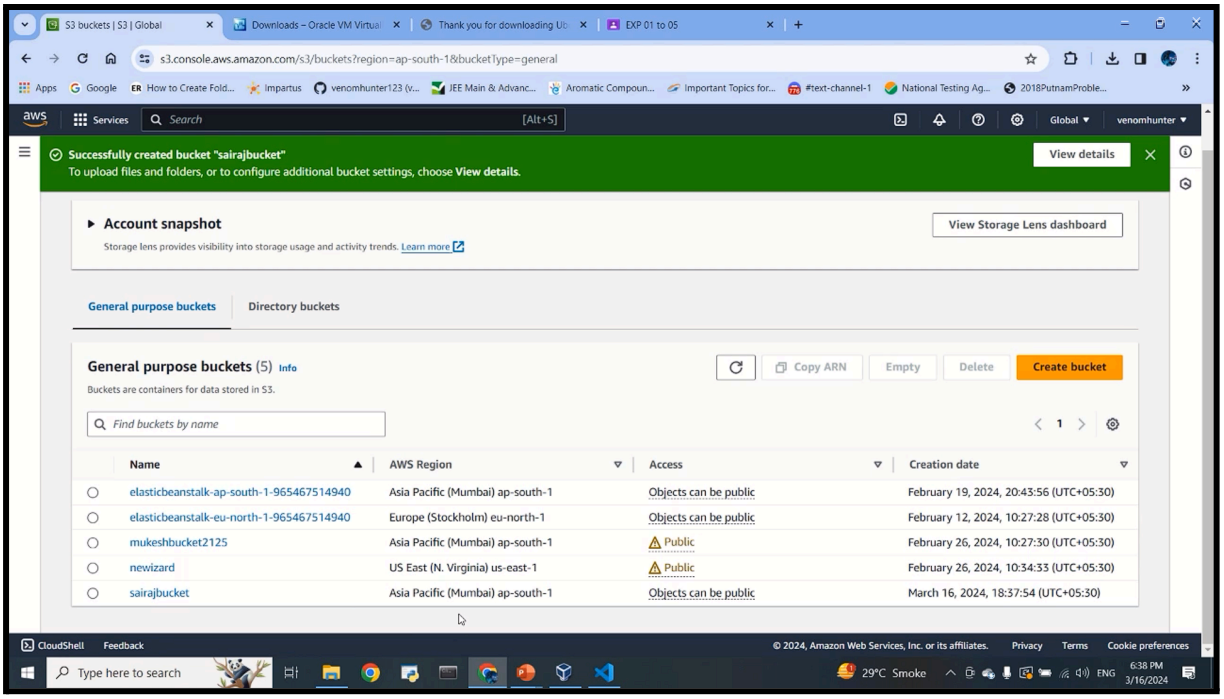
AWS S3:

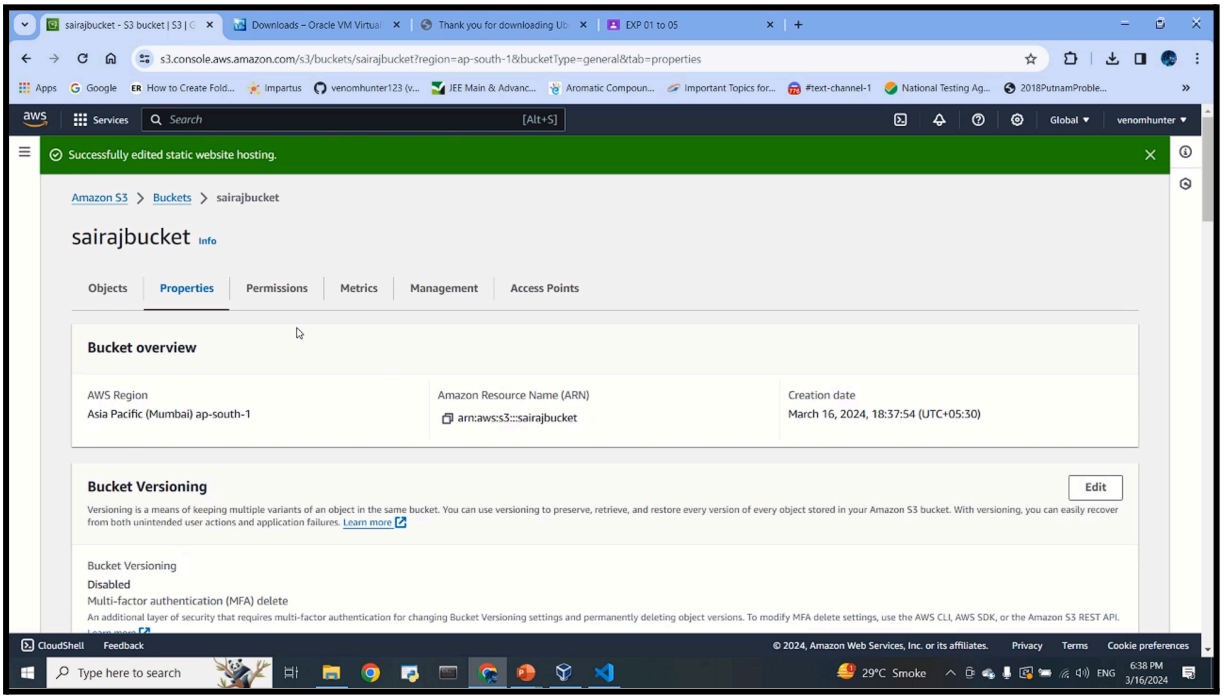
Amazon Simple Storage Service (Amazon S3) is an object storage service offering industry-leading scalability, data availability, security, and performance. Customers of all sizes and industries can store and protect any amount of data for virtually any use case, such as data lakes, cloud-native applications, and mobile apps. With cost-effective storage classes and easy-to-use management features, you can optimize costs, organize data, and configure fine-tuned access controls to meet specific business, organizational, and compliance requirements.

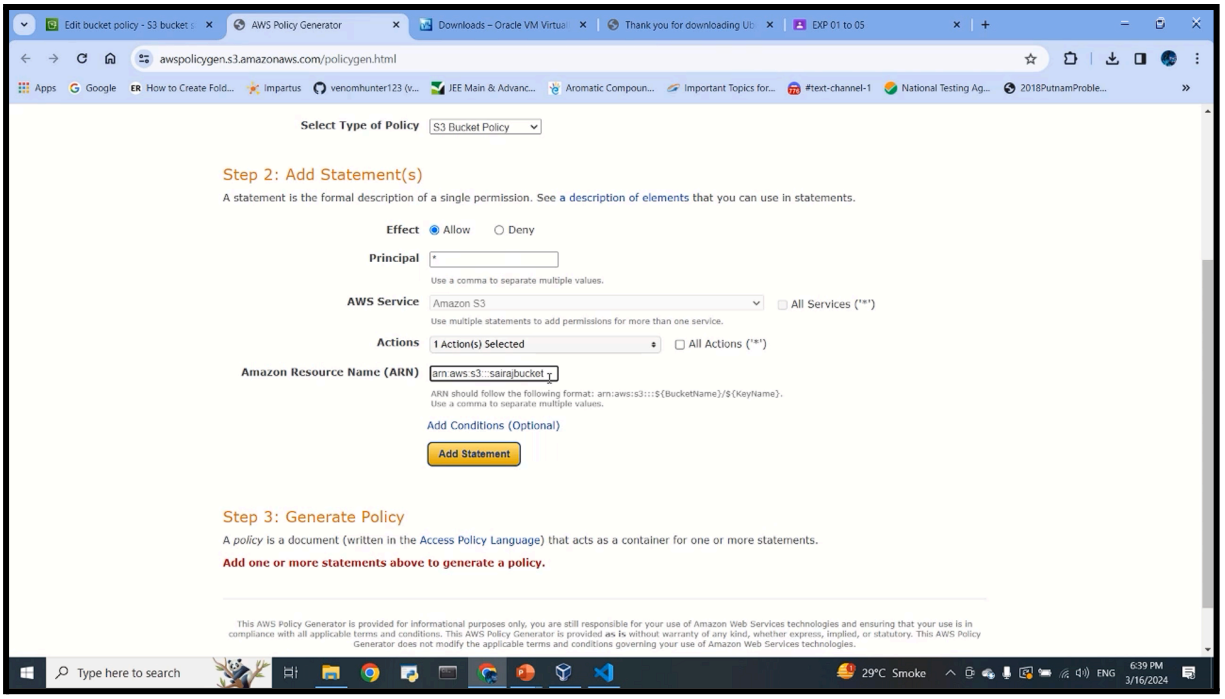


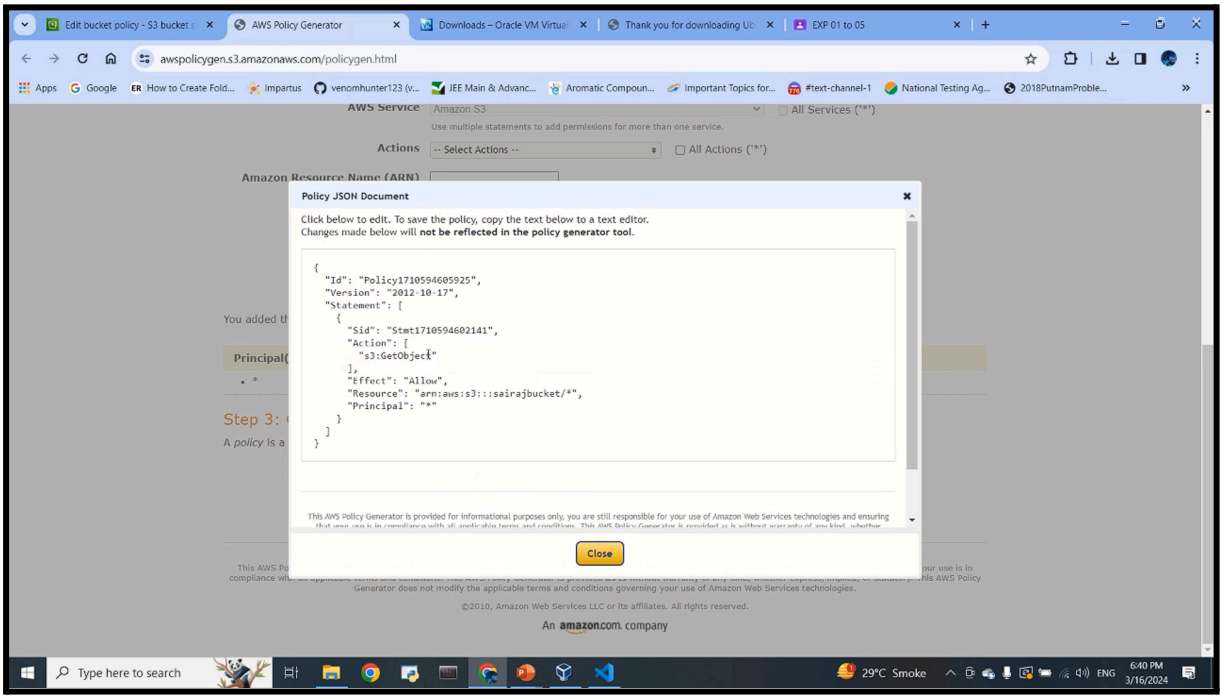
Snapshots of implementation :

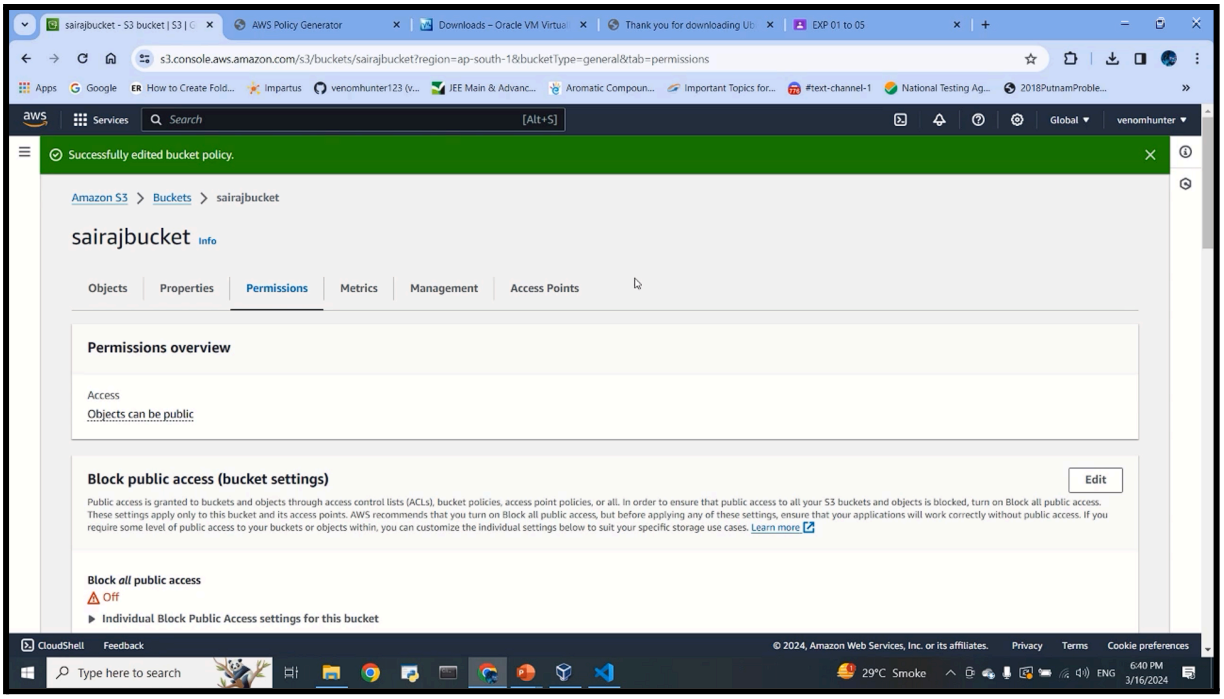


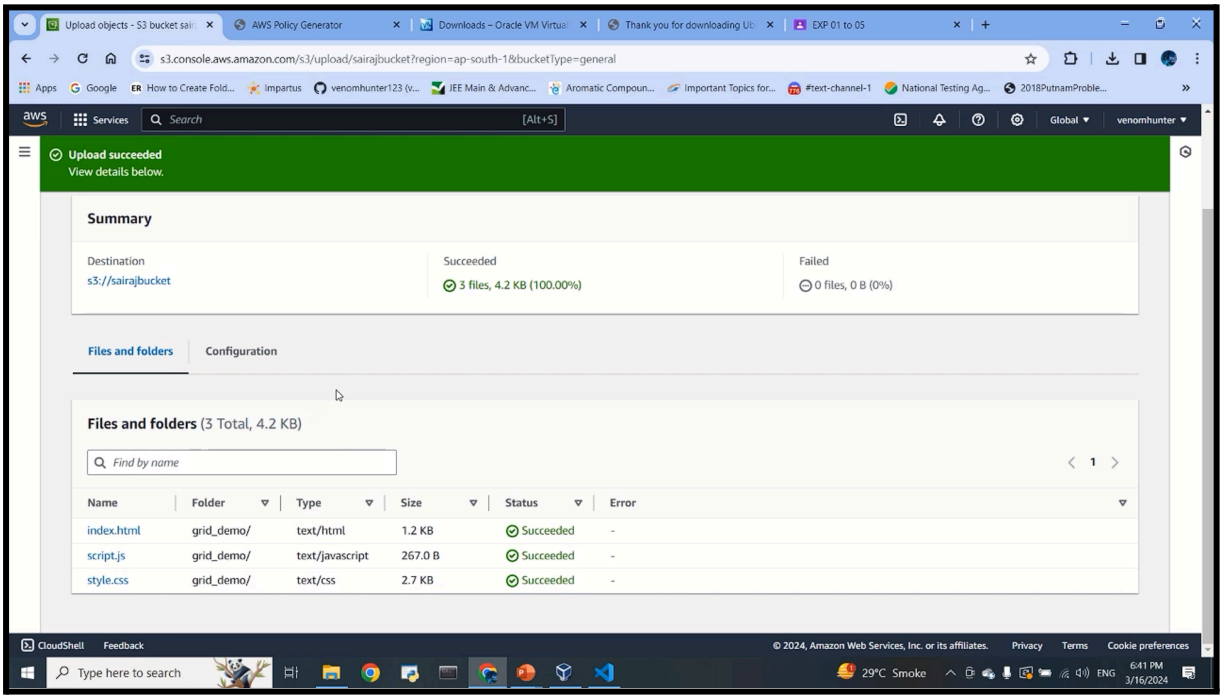

Successfully created bucket "sairajbucket"
To upload files and folders, or to configure additional bucket settings, choose View details.
View details
Account snapshot
View Storage Lens dashboard
General purpose buckets
Directory buckets
General purpose buckets (5) Info
Copy ARN
Empty
Delete
Create bucket
Find buckets by name
Name
AWS Region
Access
Creation date
elasticbeanstalk-ap-south-1-965467514940
Asia Pacific (Mumbai) ap-south-1
Objects can be public
February 19, 2024, 20:43:56 (UTC+05:30)
elasticbeanstalk-eu-north-1-965467514940
Europe (Stockholm) eu-north-1
Objects can be public
February 12, 2024, 10:27:28 (UTC+05:30)
mukeshbucket2125
Asia Pacific (Mumbai) ap-south-1
Public
February 26, 2024, 10:27:30 (UTC+05:30)
newizard
US East (N. Virginia) us-east-1
Public
February 26, 2024, 10:34:33 (UTC+05:30)
sairajbucket
Asia Pacific (Mumbai) ap-south-1
Objects can be public
March 16, 2024, 18:37:54 (UTC+05:30)

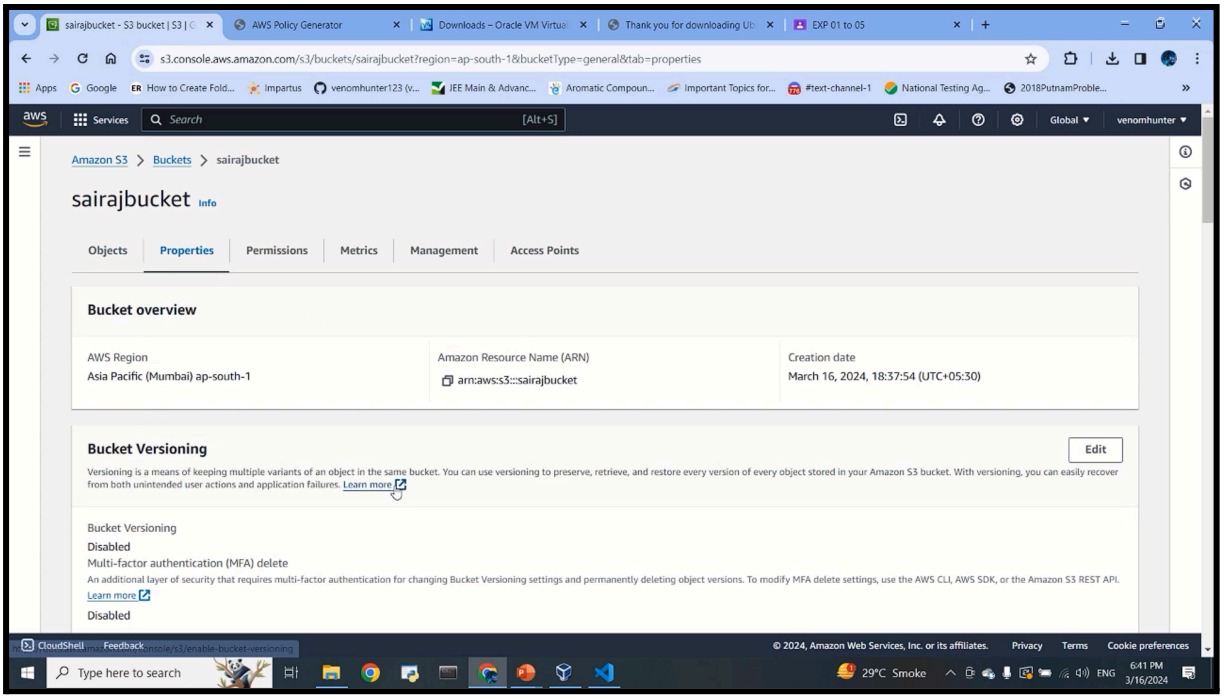

Successfully edited static website hosting.
Amazon S3 > Buckets > sairajbucket
sairajbucket Info
Objects
Properties
Permissions
Metrics
Management
Access Points
Bucket overview
AWS Region
Asia Pacific (Mumbai) ap-south-1
Amazon Resource Name (ARN)
arn:aws:s3:::sairajbucket
Creation date
March 16, 2024, 18:37:54 (UTC+05:30)
Bucket Versioning
Edit
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
Bucket Versioning
Disabled
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.

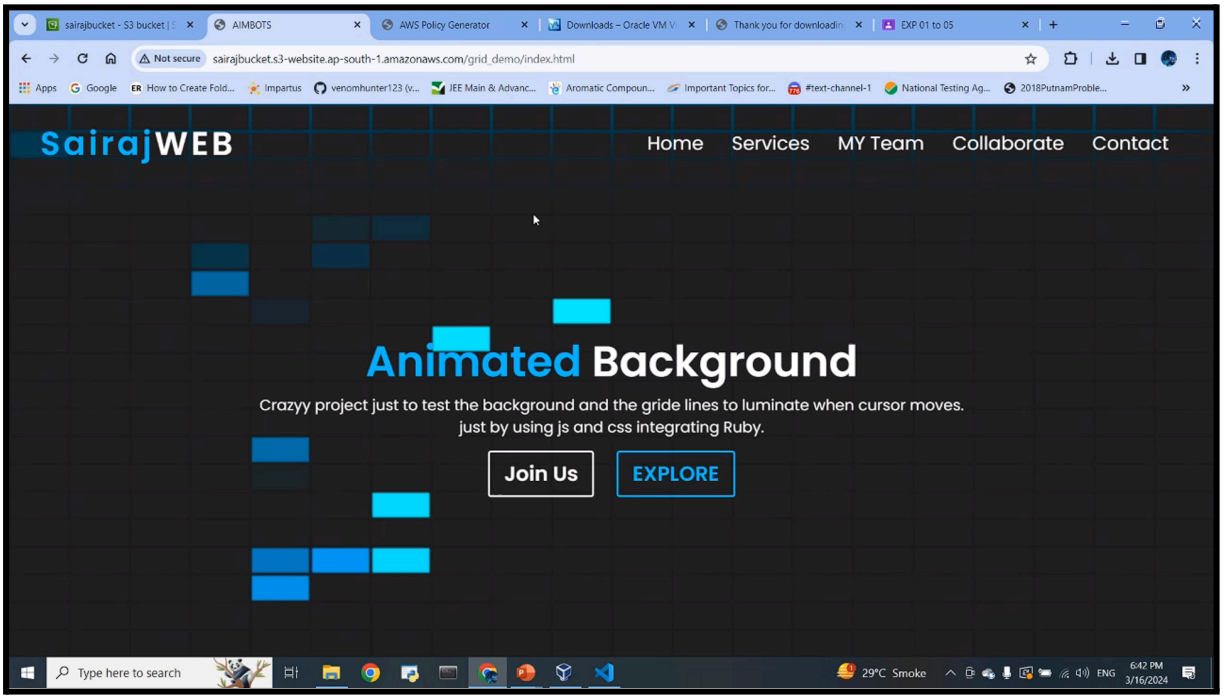

Edit bucket policy - S3 bucket
AWS Policy Generator
Downloads – Oracle VM Virtual
Thank you for downloading Ub
EXP 01 to 05
awspolicygen.s3.amazonaws.com/policygen.html
Select Type of Policy
S3 Bucket Policy
Step 2: Add Statement(s)
A statement is the formal description of a single permission. See a description of elements that you can use in statements.
Effect
Allow
Deny
Principal
Use a comma to separate multiple values.
AWS Service
Amazon S3
All Services ('*')
Use multiple statements to add permissions for more than one service.
Actions
1 Action(s) Selected
All Actions ('*')
Amazon Resource Name (ARN)
arn:aws:s3:::sairajbucket
ARN should follow the following format: arn:aws:s3:::${BucketName}/${KeyName}.
Use a comma to separate multiple values.
Add Conditions (Optional)
Add Statement
Step 3: Generate Policy
A policy is a document (written in the Access Policy Language) that acts as a container for one or more statements.
Add one or more statements above to generate a policy.
This AWS Policy Generator is provided for informational purposes only, you are still responsible for your use of Amazon Web Services technologies and ensuring that your use is in compliance with all applicable terms and conditions. This AWS Policy Generator is provided as is without warranty of any kind, whether express, implied, or statutory. This AWS Policy Generator does not modify the applicable terms and conditions governing your use of Amazon Web Services technologies.
Type here to search
29°C Smoke
ENG
6:39 PM
3/16/2024


Edit bucket policy - S3 bucket
AWS Policy Generator
awspolicygen.s3.amazonaws.com/policygen.html
AWS Service
Amazon S3
All Services ('*')
Use multiple statements to add permissions for more than one service.
Actions
-- Select Actions --
All Actions ('*')
Amazon Resource Name (ARN)
Policy JSON Document
Click below to edit. To save the policy, copy the text below to a text editor.
Changes made below will not be reflected in the policy generator tool.
{
"Id": "Policy1710594605925",
"Version": "2012-10-17",
"Statement": [
{
"Sid": "Stmt1710594602141",
"Action": [
"s3:GetObject"
],
"Effect": "Allow",
"Resource": "arn:aws:s3:::sairajbucket/*",
"Principal": "*"
}
]
}
Close
Generator does not modify the applicable terms and conditions governing your use of Amazon Web Services technologies.
©2010, Amazon Web Services LLC or its affiliates. All rights reserved.
An amazon.com company
Type here to search
29°C Smoke
ENG
6:40 PM
3/16/2024


Successfully edited bucket policy.
Amazon S3 > Buckets > sairajbucket
sairajbucket Info
Objects
Properties
Permissions
Metrics
Management
Access Points
Permissions overview
Access
Objects can be public
Block public access (bucket settings)
Edit
Block all public access
Off
Individual Block Public Access settings for this bucket


Upload succeeded
View details below.
Summary
Destination
s3://sairajbucket
Succeeded
3 files, 4.2 KB (100.00%)
Failed
0 files, 0 B (0%)
Files and folders
Configuration
Files and folders (3 Total, 4.2 KB)
Find by name
Name
Folder
Type
Size
Status
Error
index.html
grid_demo/
text/html
1.2 KB
Succeeded
script.js
grid_demo/
text/javascript
267.0 B
Succeeded
style.css
grid_demo/
text/css
2.7 KB
Succeeded





Video Link: **Dhanashree_Thakur_56_Exp5.mp4**

Conclusion: Describe in short the working of S3 for storage of data

Ans: Amazon Simple Storage Service (S3) is a highly scalable object storage service provided by Amazon Web Services (AWS). Here's a brief overview of how S3 works

Object Storage: S3 stores data as objects within containers called "buckets." Each object consists of data, metadata (attributes such as name, size, content type), and a unique identifier.

API Access: Users interact with S3 using a simple REST API provided by AWS. This API allows users to perform operations such as uploading, downloading, and deleting objects, as well as managing buckets and setting access permissions.

Durability and Availability: S3 is designed for 99.999999999% (11 nines) durability, meaning that data stored in S3 is highly resilient to hardware failures and data corruption. It achieves this durability by automatically replicating objects across multiple geographically dispersed data centers.

Scalability: S3 is massively scalable, capable of storing virtually unlimited amounts of data. It can handle a wide range of workloads, from small-scale personal storage to large-scale enterprise data lakes.

Data Protection: S3 offers multiple features to protect data, including encryption at rest and in transit, access control lists (ACLs), and bucket policies. Users can encrypt their data using server-side encryption with AWS-managed keys (SSE-S3) or their own keys (SSE-C).

Overall, S3 provides a reliable, scalable, and cost-effective solution for storing and managing data in the cloud, making it a fundamental component of many AWS-based architectures and applications.