

CLOUD COMPUTING ARCHITECTURE LAB

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BATCH- 05

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EXPERIMENT-8

1. Differentiate between EBS, EFS and S3 storage?

<u><i>Amazon S3</i></u>	<u><i>Amazon EBS</i></u>	<u><i>Amazon EFS</i></u>
Can be publicly accessible	Accessible only via the EC2 Machine	Accessible via several EC2 machine and AWS services
It has a Web interface	It has a file system interface	It has both interfaces web based and file system based
Has Object Storage	Has Block Storage	Has File Storage
Its Scalable	Its hardly scalable	Its Scalable
Slowest	Fastest	Faster than S3 but slower than EBS
Good for backups	Good as an internal harddrive of an instance	Good for sharable applications and workloads

Stored across multiple AZ's	Stored in a single AZ	Stored across multiple AZ's
Only manual scaling	Only manual scaling	Provides Auto-scaling

2. List the features of S3 storage?

Some of the key features of Amazon S3 storage:

- Object Storage: S3 provides object-based storage for a wide range of data types, including documents, images, videos, and application backups. S3 allows for easy and efficient storage and retrieval of large objects, with virtually unlimited capacity.
- Durability: S3 offers high durability of objects, ensuring that data is protected against hardware failures, errors, and data corruption. S3 automatically stores multiple copies of each object across different devices and facilities to provide 11 nines of data durability.
- Security: S3 provides a range of security features, including encryption at rest and in transit, access control via bucket policies and Access Control Lists (ACLs), and multi-factor authentication (MFA) for object deletes.
- Accessibility: S3 can be accessed from anywhere using a web-based console, command line interface (CLI), or APIs. S3 also

provides a range of integrations with other AWS services, including AWS Lambda, Amazon EMR, and Amazon Redshift.

- Scalability: S3 is designed to be highly scalable and can support virtually unlimited storage and access requests. S3 can automatically scale to handle large-scale data transfer and analytics workloads.
- Performance: S3 offers high-performance object retrieval, with low-latency retrieval times and high request rates. S3 also provides configurable data transfer acceleration to improve data transfer speeds over long distances.
- Cost-Effective: S3 offers pay-as-you-go pricing, with no upfront costs or long-term commitments. S3 provides multiple storage classes to meet different performance and cost needs, including Standard, Intelligent-Tiering, Infrequent Access, and Glacier.

3. What are the different types of storage classes available in S3?

Amazon S3 provides a range of storage classes that are optimized for different use cases and access patterns. The following are the different types of storage classes available in S3:

- S3 Standard: This is the default storage class for S3 and is designed for frequently accessed data. It provides low-latency and

high-throughput performance, with high durability and availability.

- S3 Intelligent-Tiering: This storage class automatically moves objects between two access tiers based on changing access patterns. It provides cost savings for data with unknown or changing access patterns.
- S3 Standard-Infrequent Access (S3 Standard-IA): This storage class is designed for data that is accessed less frequently, but still requires rapid access when needed. It provides the same low latency and high throughput performance as S3 Standard, but with lower storage costs.
- S3 One Zone-Infrequent Access (S3 One Zone-IA): This storage class is similar to S3 Standard-IA, but stores data in a single availability zone, instead of replicating data across multiple zones. It provides a lower cost option for data that can be recreated or easily reproduced.
- S3 Glacier: This storage class is designed for data that is rarely accessed, but requires long-term retention. It provides a low-cost option for archiving and backup data with retrieval times ranging from minutes to hours.
- S3 Glacier Deep Archive: This storage class is the lowest-cost storage option in S3 and is designed for data that is accessed once

or twice a year. It provides a cost-effective option for long-term archival storage, with retrieval times ranging from 12 to 48 hours.

4. Explain the lifecycle management in S3 & different action associated with it.

Amazon S3 provides a lifecycle management feature that allows you to automatically transition objects to different storage classes or delete them based on predefined rules. This feature can help you optimize your storage costs by moving data to the most cost-effective storage class and deleting data that is no longer needed.

The lifecycle management feature in S3 involves the following actions:

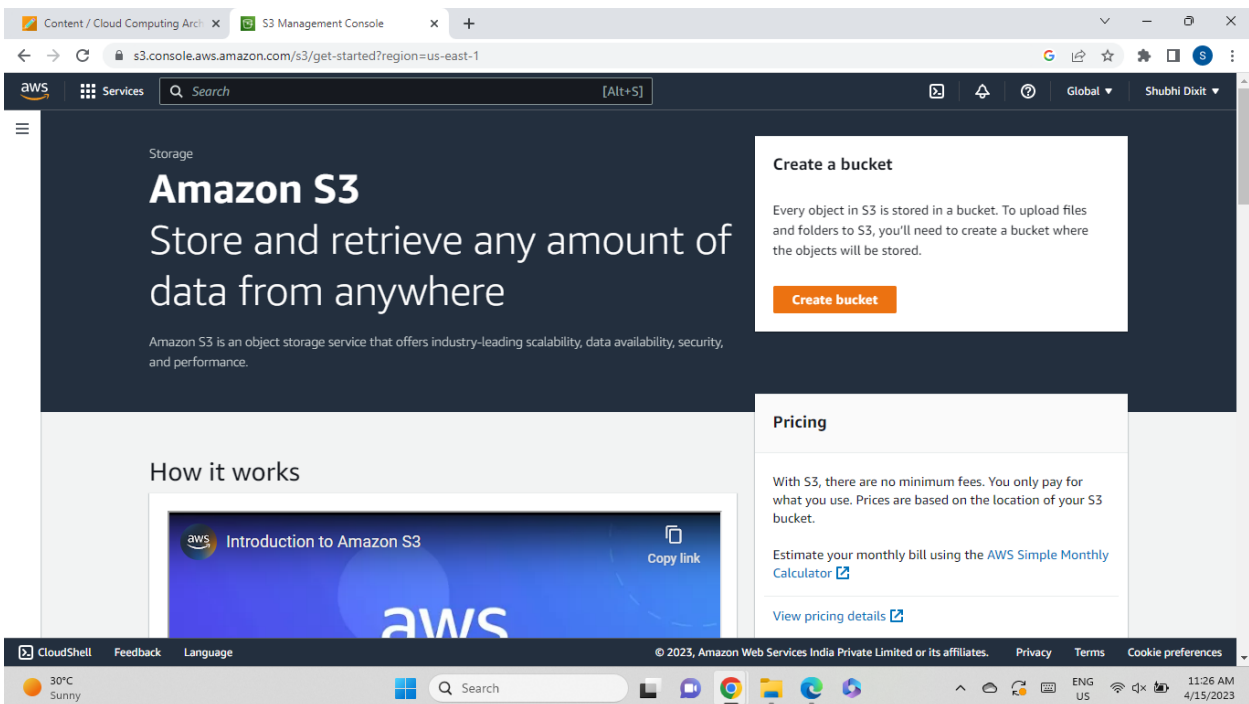
- Transition actions: This action is used to transition objects between storage classes. For example, you can set a rule to transition objects from S3 Standard to S3 Standard-IA after 30 days, or from S3 Standard-IA to S3 Glacier after 60 days. This helps to reduce storage costs by moving objects to a lower-cost storage class when they are less frequently accessed.
- Expiration actions: This action is used to delete objects that are no longer needed. For example, you can set a rule to delete objects after a specific period of time, such as 90 days or 1 year. This helps to reduce storage costs and ensure that you are not paying for storage of unnecessary data.

- S3 Intelligent-Tiering automatic tiering: This action is used to automatically move objects between two access tiers based on changing access patterns. For example, you can set a rule to move objects to the infrequent access tier when they have not been accessed for 30 days. This helps to optimize costs for data with unknown or changing access patterns.
- Object tagging: This action is used to apply lifecycle rules to objects with specific tags. For example, you can set a rule to transition objects with a specific tag to a different storage class or delete them after a specific period of time. This helps to apply lifecycle rules to specific objects based on their attributes.

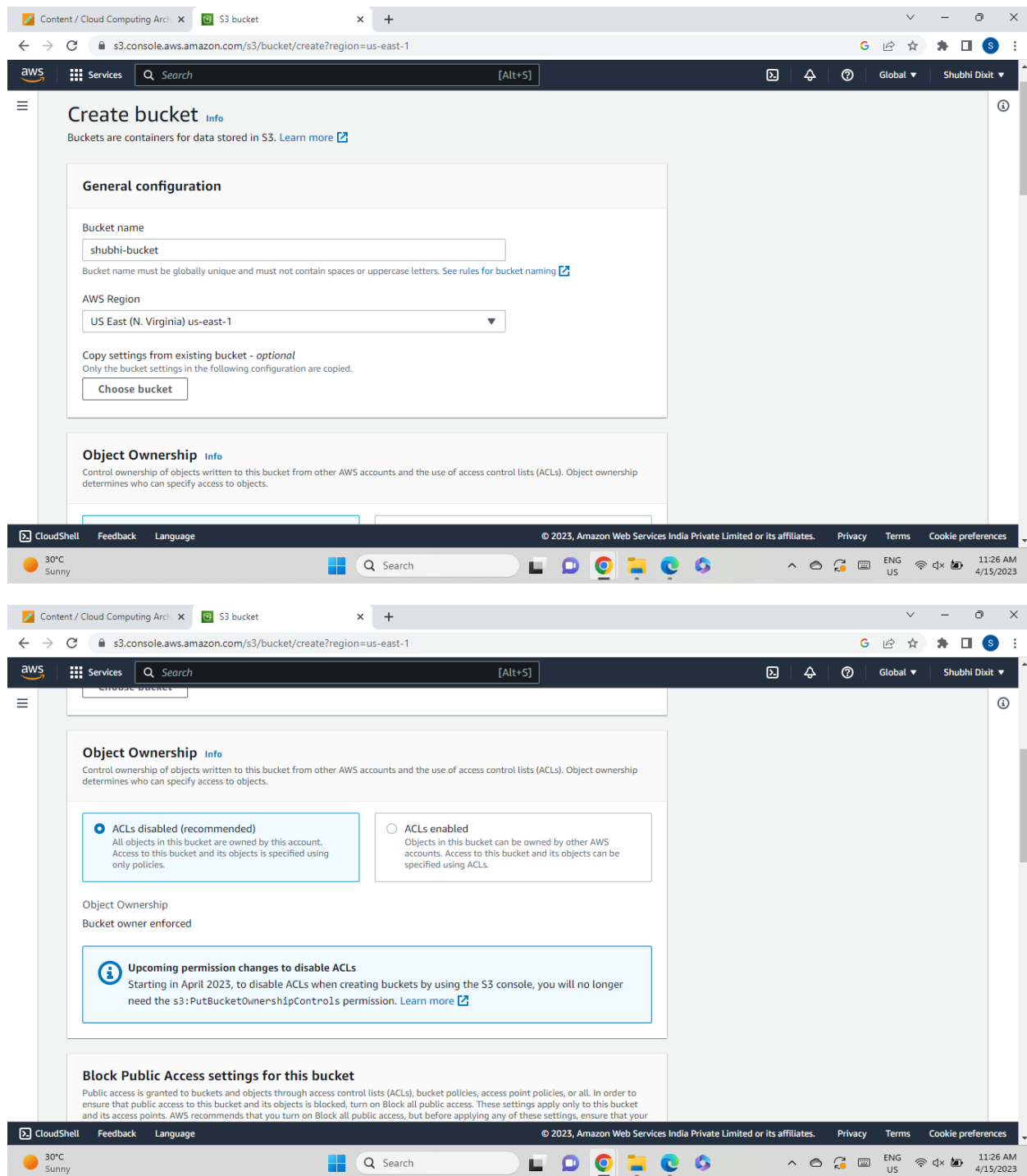
S3 in AWS

- i) **Create a bucket, add an object to the bucket and delete the bucket. Make the object publicly accessible**
- ii) **Host a static website on S3**

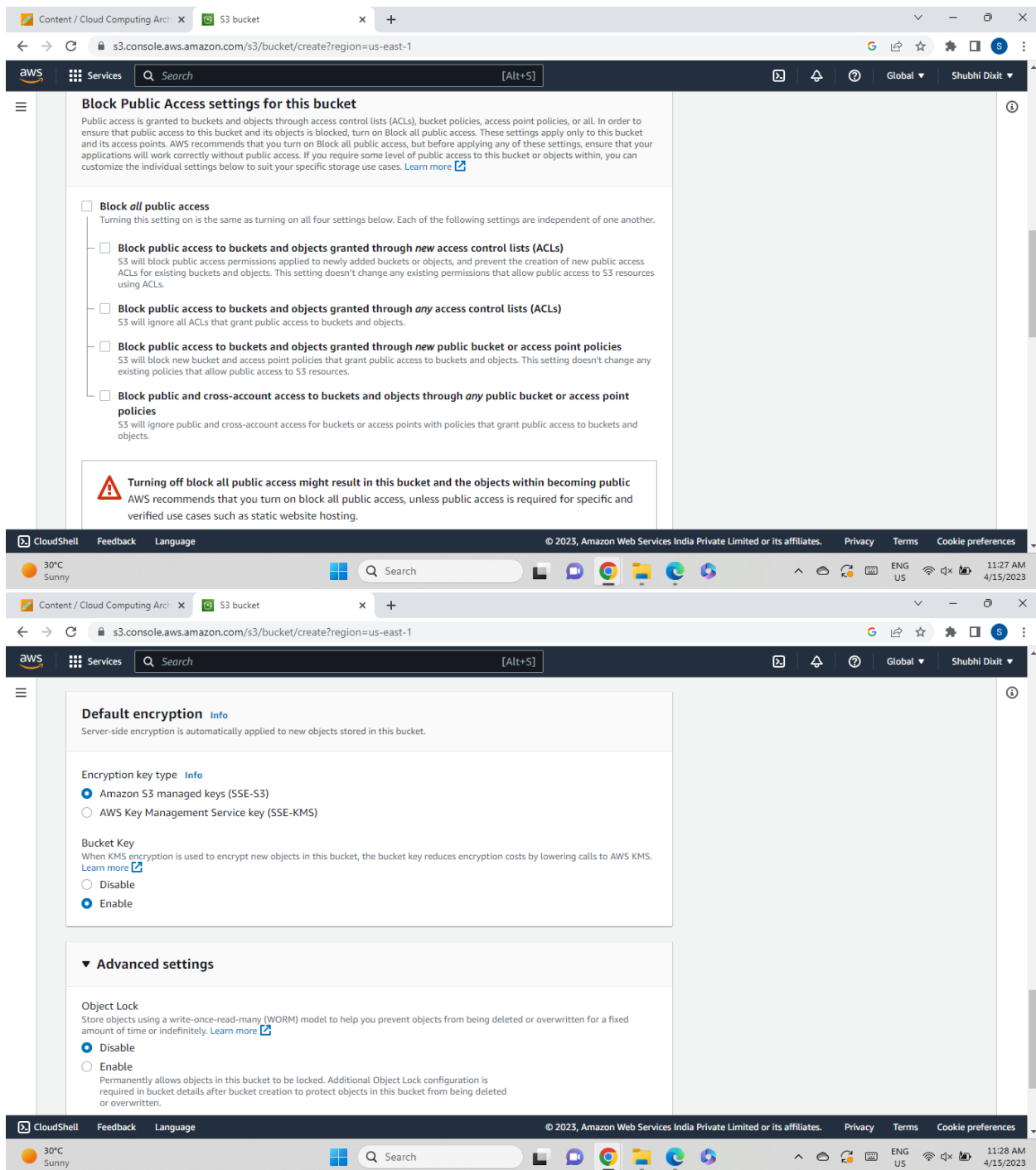
- i) **Step 1: Log into the aws console and goto S3 bucket**



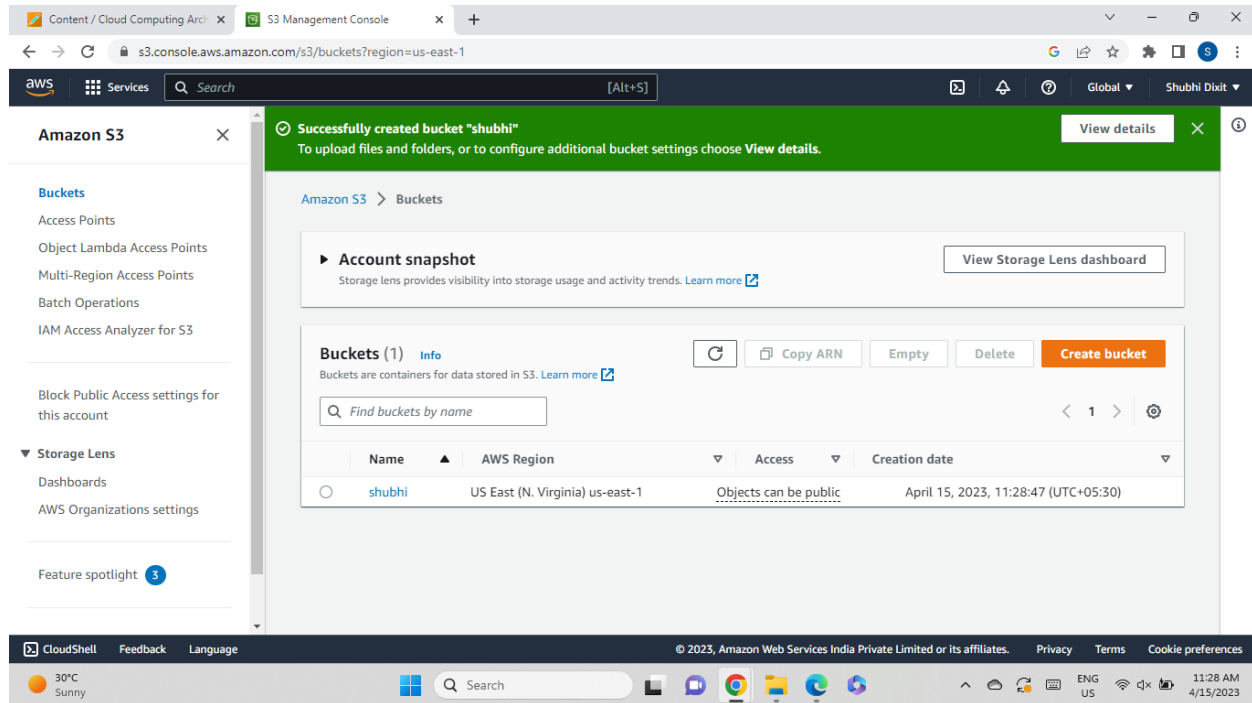
- ii) **Step 2: Click on create bucket and assign a unique name to the bucket**



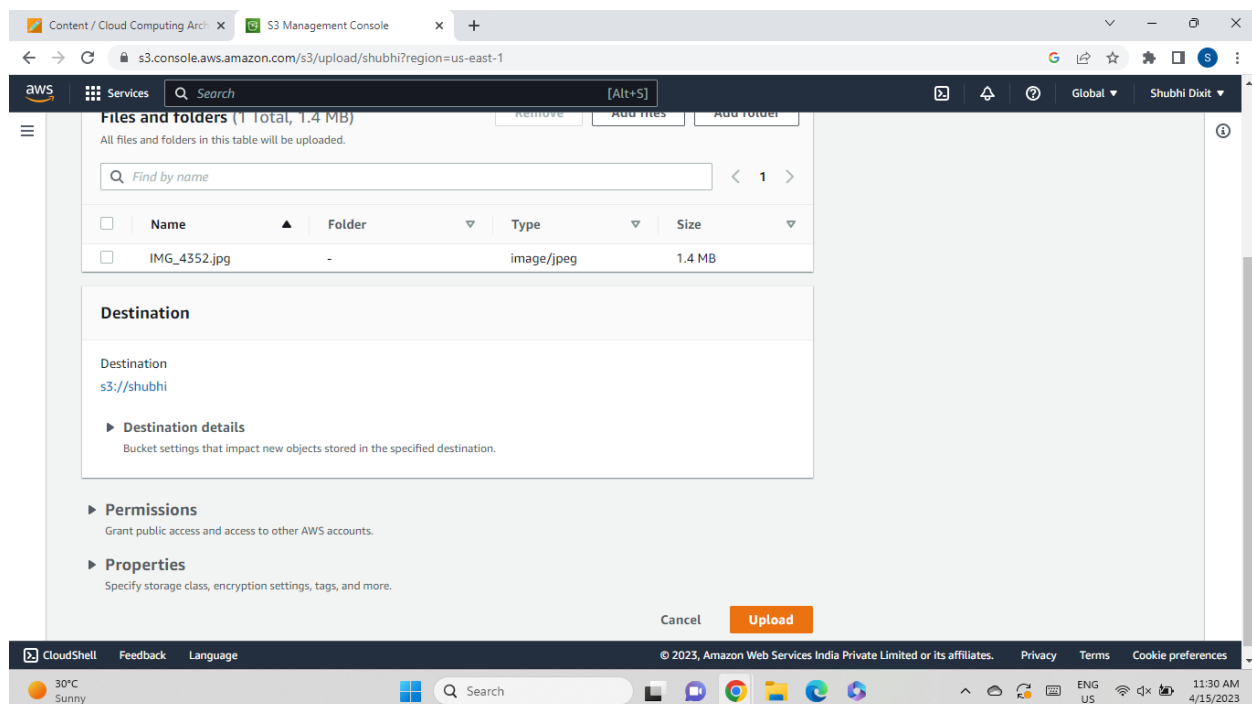
iii) Step 3: Uncheck Block all public access to the bucket



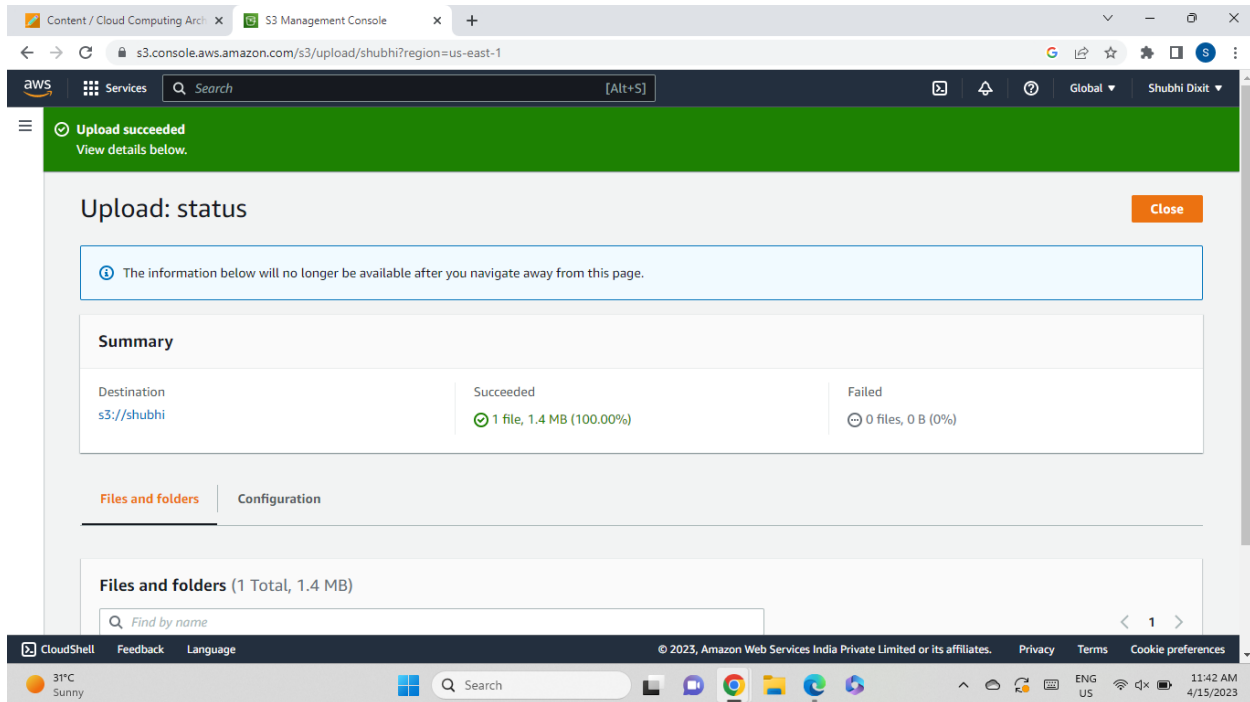
iv) Step 4: Click on create bucket and bucket will be created



v) Step 5: Select the bucket created and upload any image and click on upload

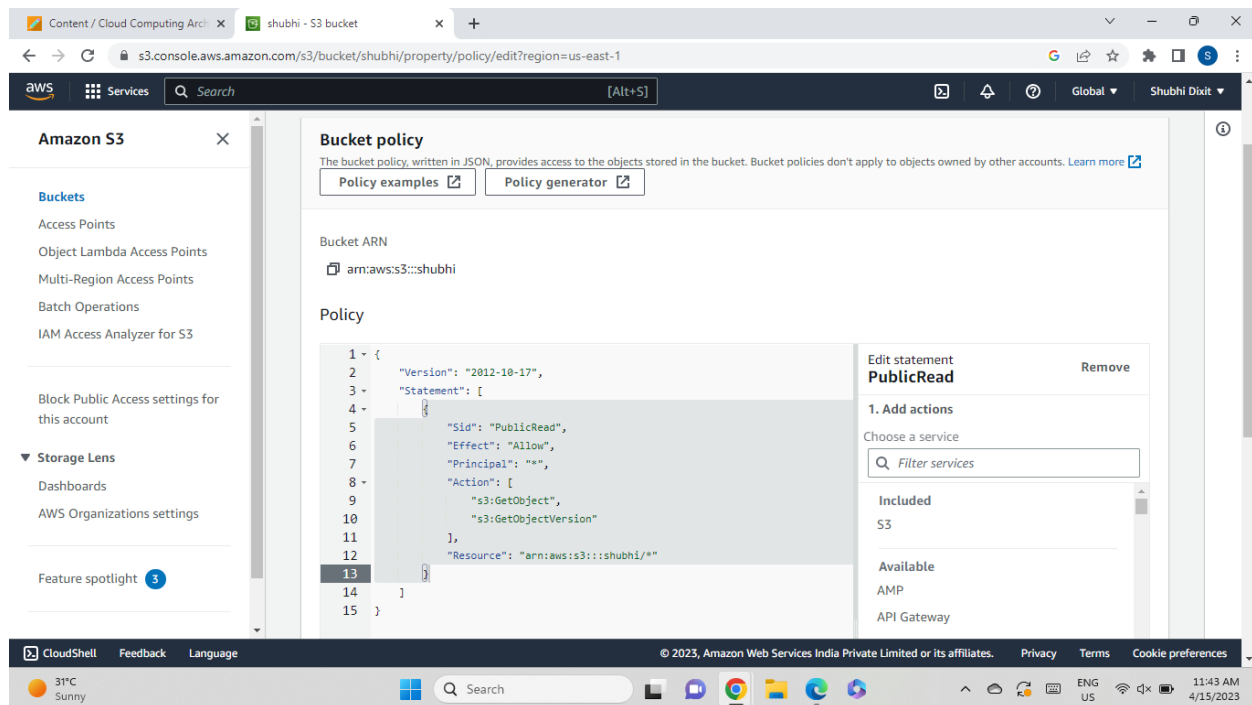


vi) Step 7: Finally upload the file

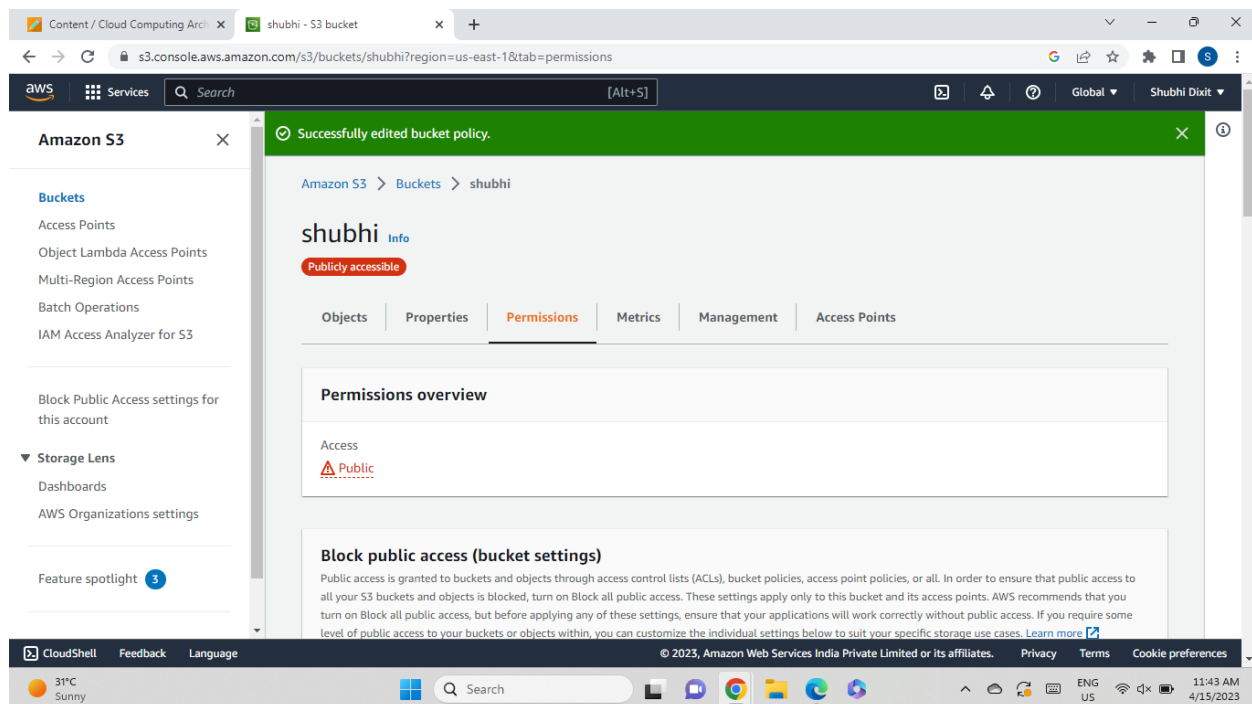


vii) Step 8: Select the bucket, goto bucket policy and click edit

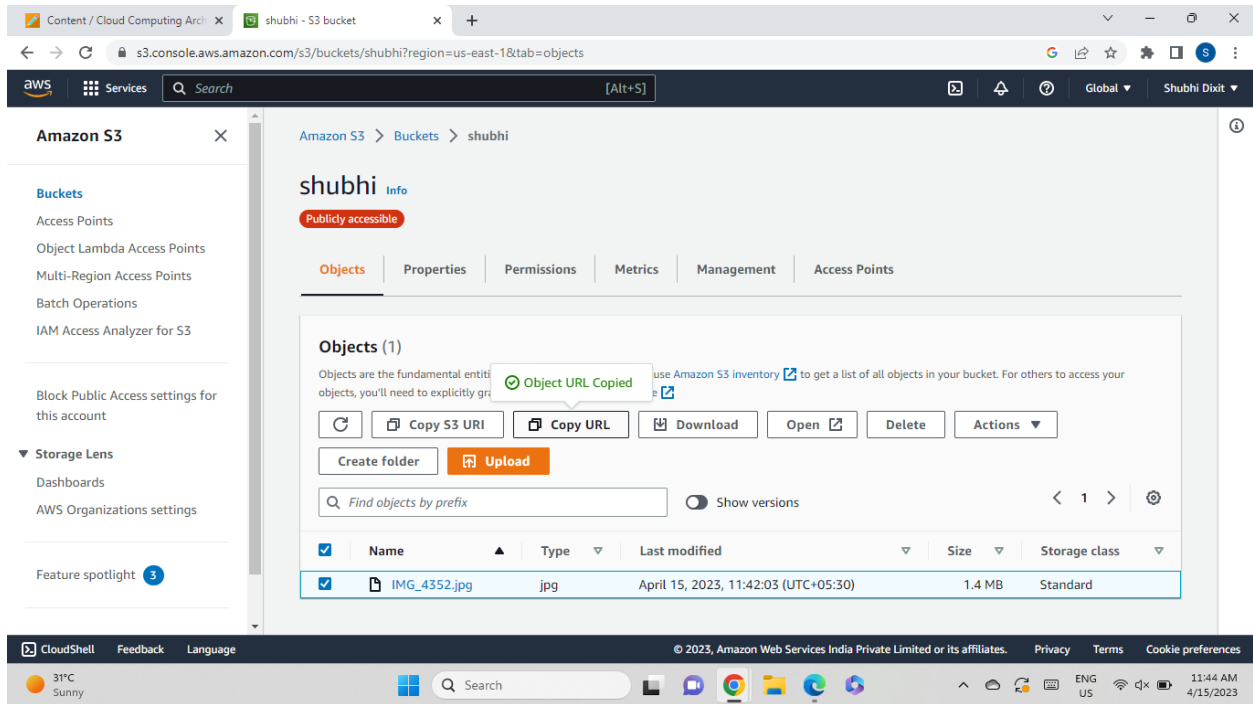
viii) Step 9: Enter a json policy and upload it



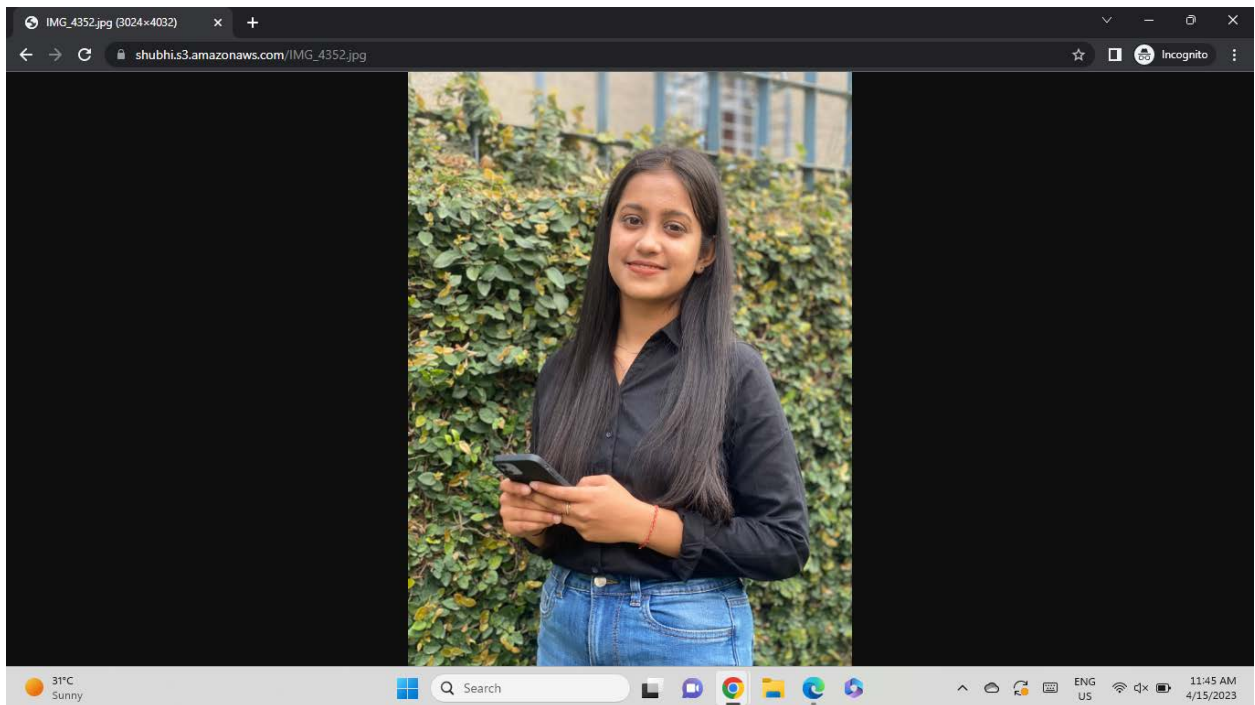
As earlier we have unchecked the “block all public access” box so that’s why it is showing publicly accessible.



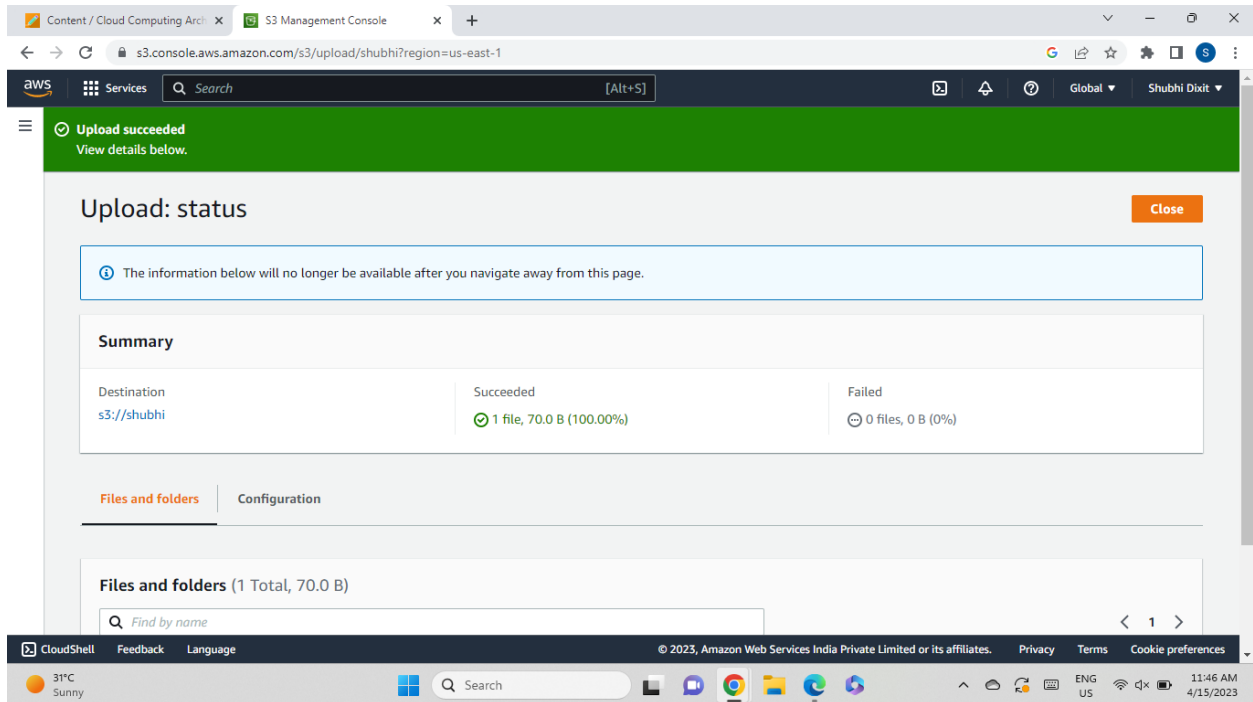
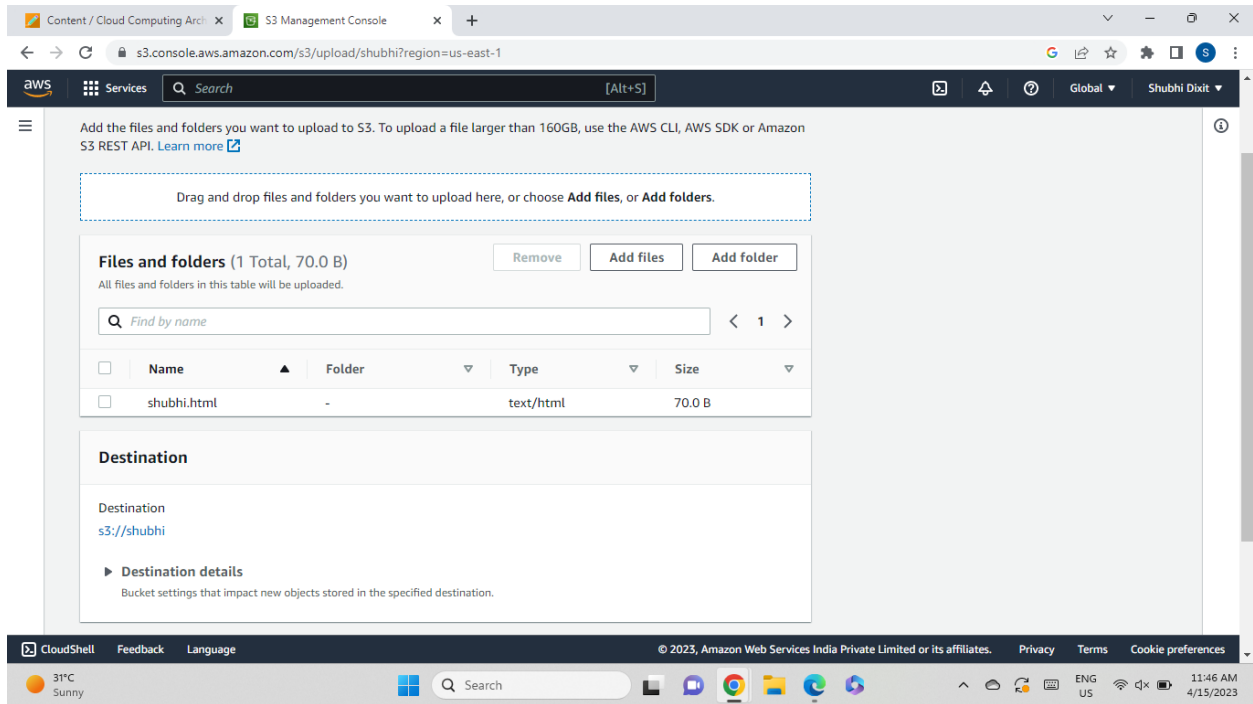
ix) Step 12: Use the bucket url to visit the website created

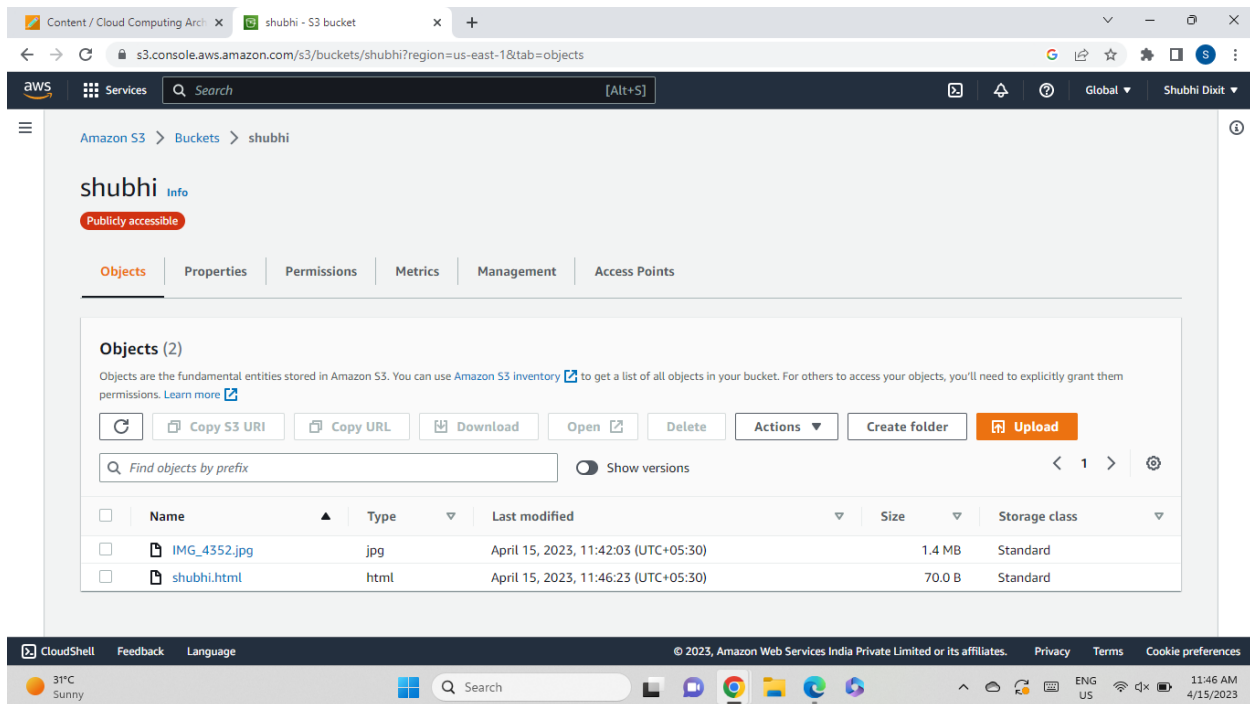


x) Step 13: Paste the url in an incognito window

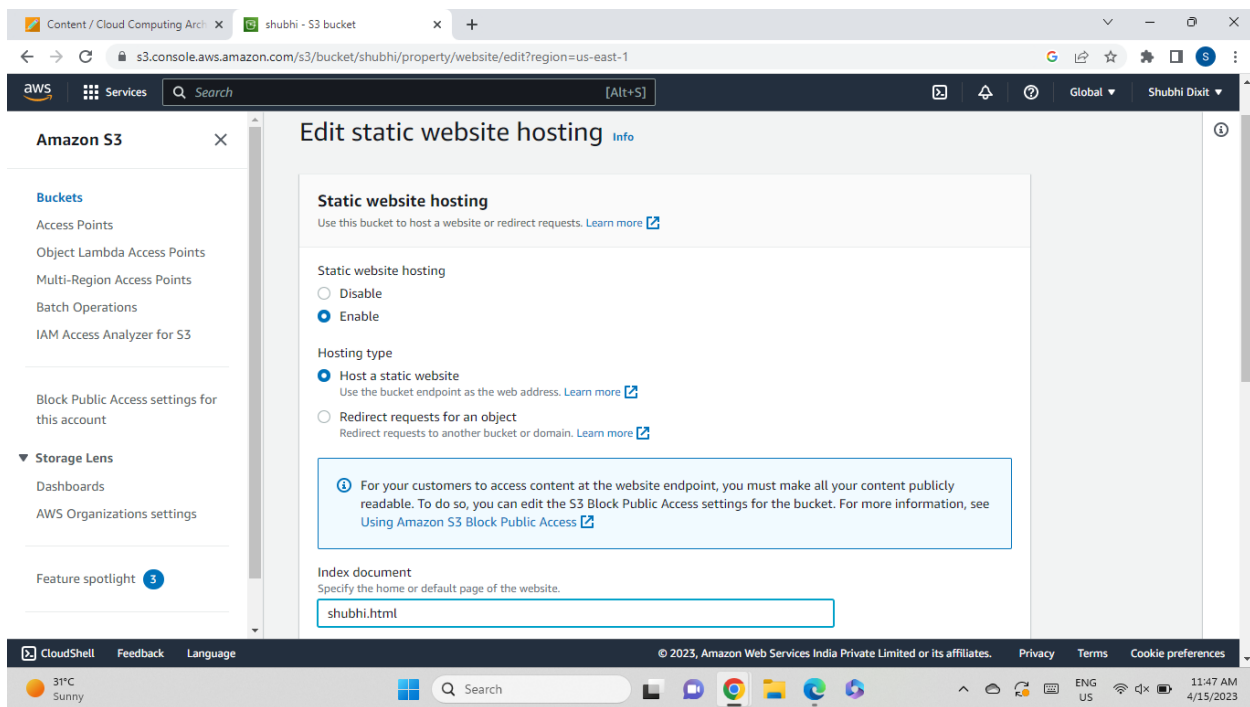


Now in the same bucket upload any html file.

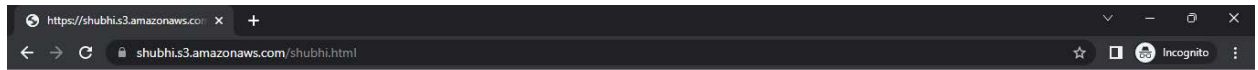




Enable static website hosting and write the name of html file.



Copy the url of static website and paste it in incognito window.



Hello World

