Experiment 05 - Cloud Computing

December 21, 2022

Aim

Create S3 bucket and store objects in the bucket. Implement Version Control and Static Website hosting.

Theory

- **S3** : Amazon S3 or Amazon Simple Storage Service is a service offered by Amazon Web Services that provides object storage through a web service interface. Amazon S3 uses the same scalable storage infrastructure that Amazon.com uses to run its e-commerce network. Some important features of S3 are Storage management and monitoring, Storage analytics and insights, Storage classes, Access management and security, Data processing, Query in place, Data transfer and Performance consistency.
- **Versioning** : The versioning in Amazon S3 is a means of keeping multiple variants of an object in the same bucket. You can use the S3 Versioning feature to preserve, retrieve, and restore every version of every object stored in your buckets.
- **Cloudfront** : Amazon CloudFront is a content delivery network operated by Amazon Web Services. Content delivery networks provide a globally-distributed network of proxy servers that cache content, such as web videos or other bulky media, more locally to consumers, thus improving access speed for downloading the content.

Results

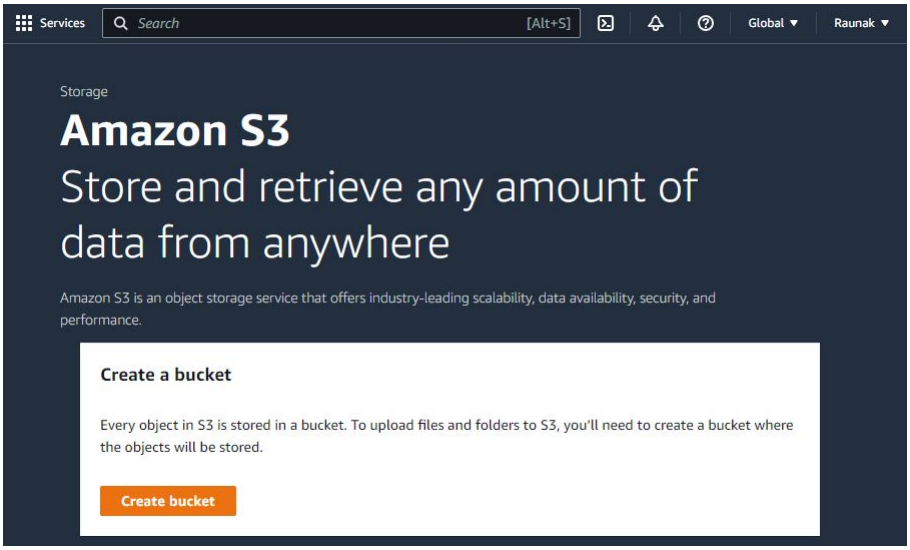

Figure 1: Start by creating a bucket by searching for S3 from the search bar

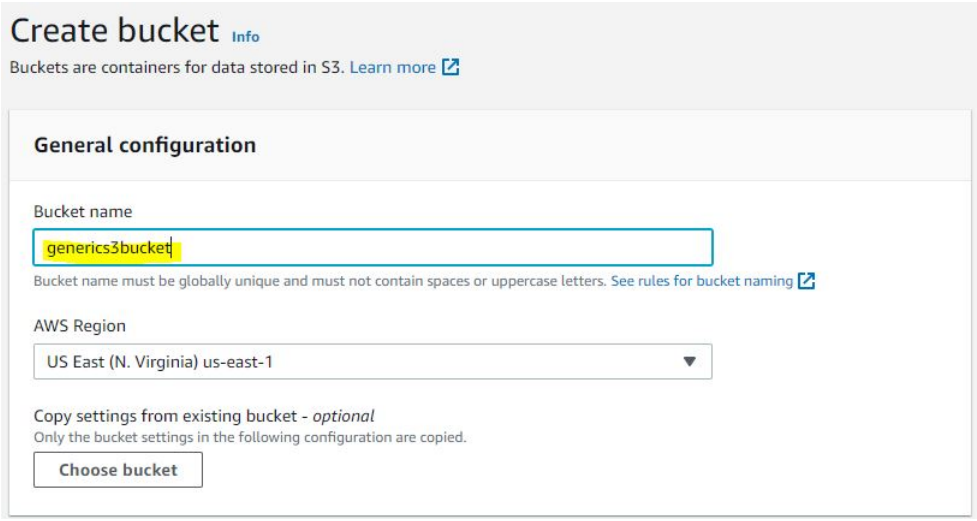

Figure 2: Give you bucket the name you want

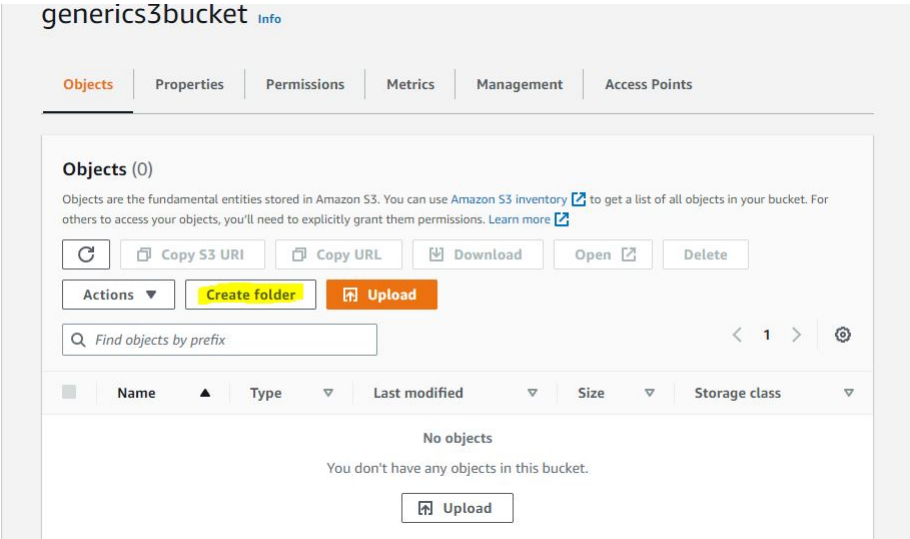

Figure 3: Create a folder after directing to created bucket

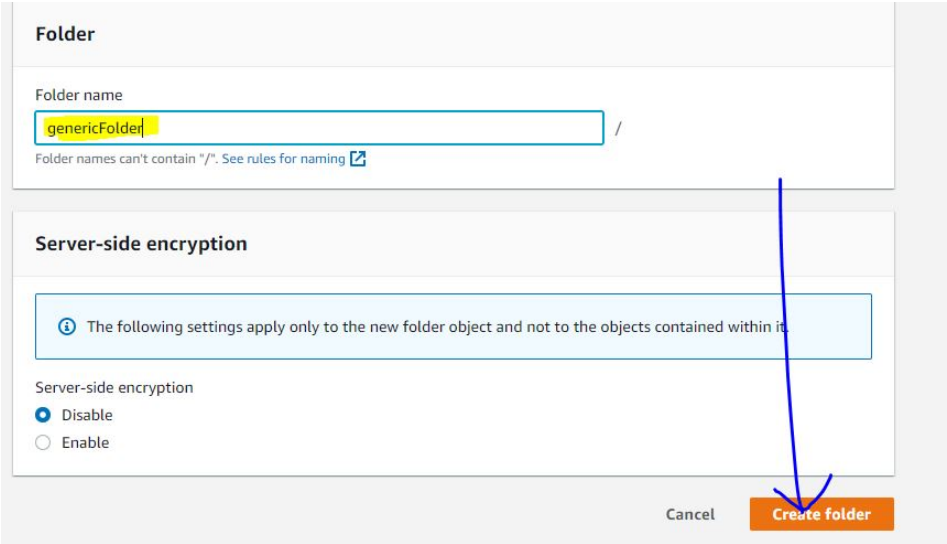

Figure 4: Name the folder whatever you prefer and select the create option

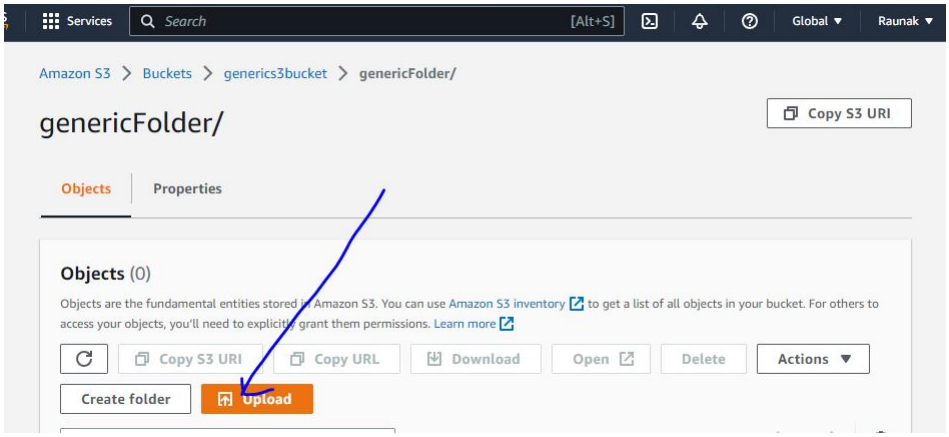

Figure 5: After directing to folder select on upload to upload files

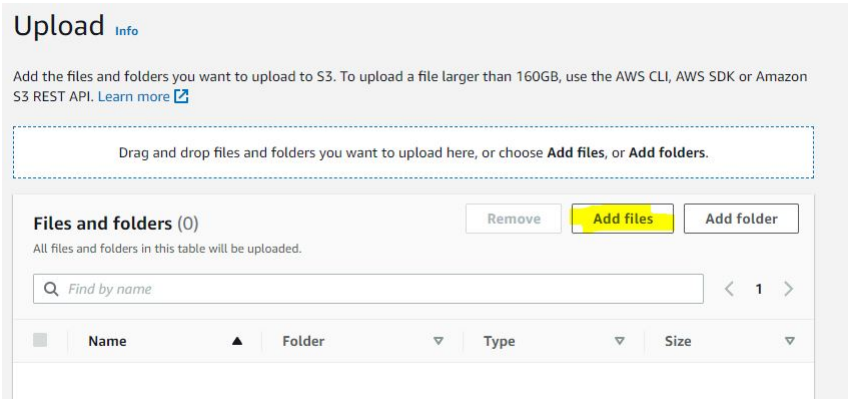

Figure 6: Select add files option

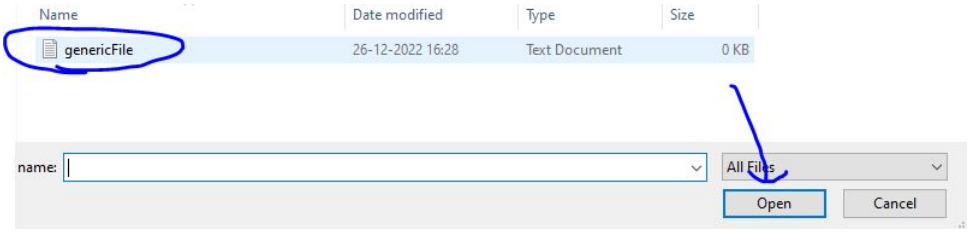

Figure 7: Select the file from upload option the file you wish to upload

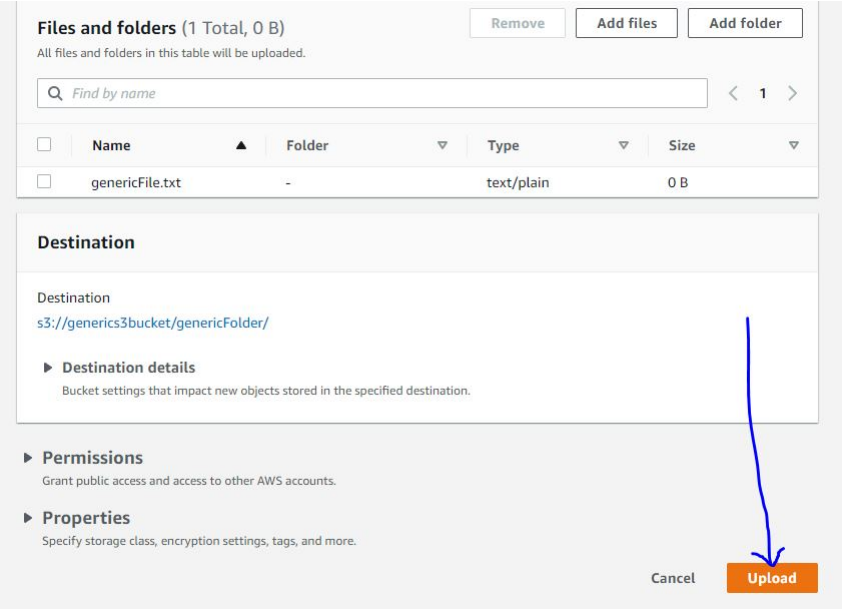

Figure 8: Upload button uploads the selected files from add files option

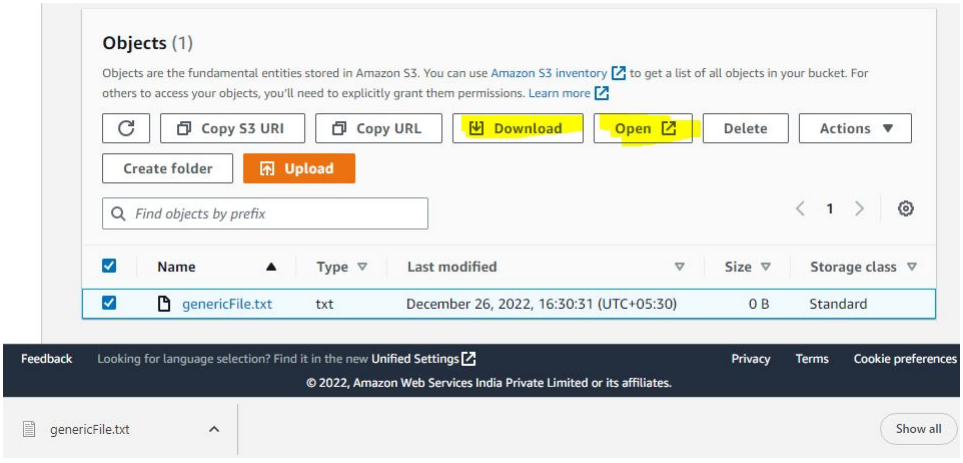

Figure 9: One can either open or download the file once upload is successful

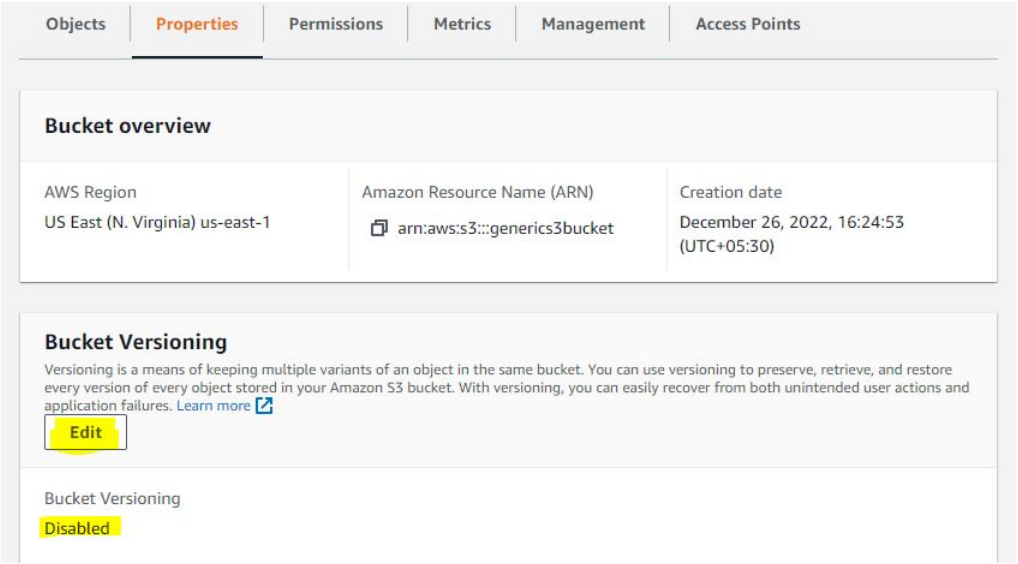

Figure 10: Versioning can be enabled with selecting the properties tab of the created bucket. Select the bucket versioning edit option

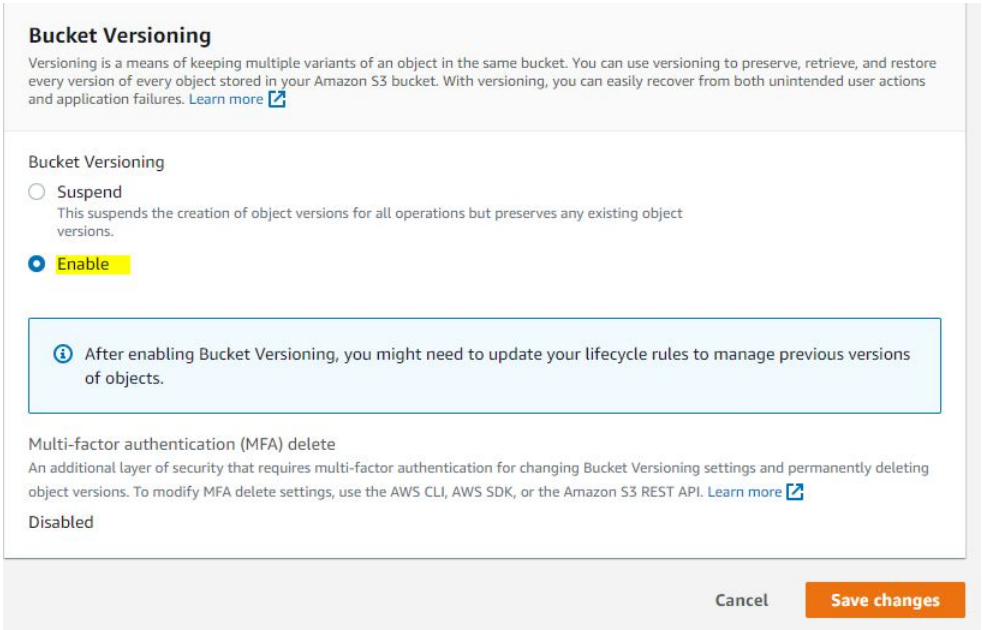

Figure 11: Select the enable radio button to make the versioning changes and save the changes for effect

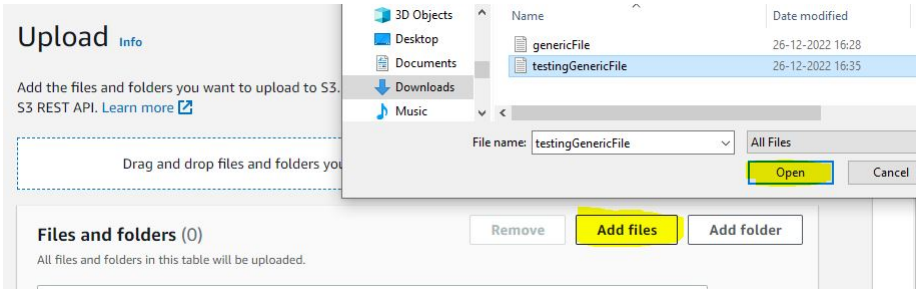

Figure 12: Upload a new file

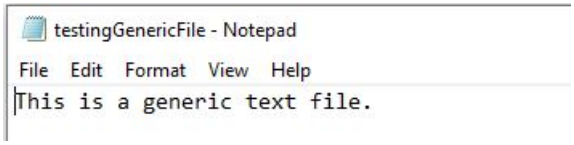

Figure 13: The basic text is available in the file to get started

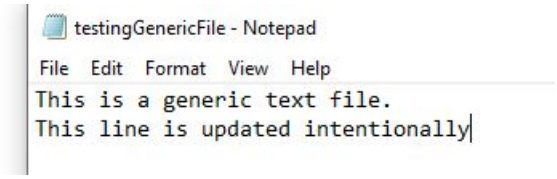

Figure 14: Try to add and edit some text

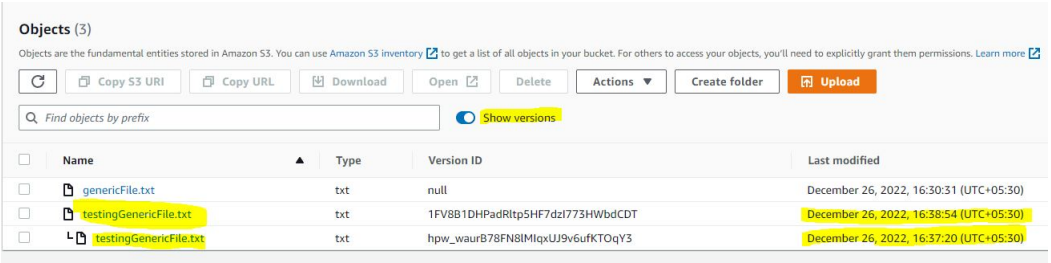

Figure 15: Upload the edited file and select the Show versions option to display the versions

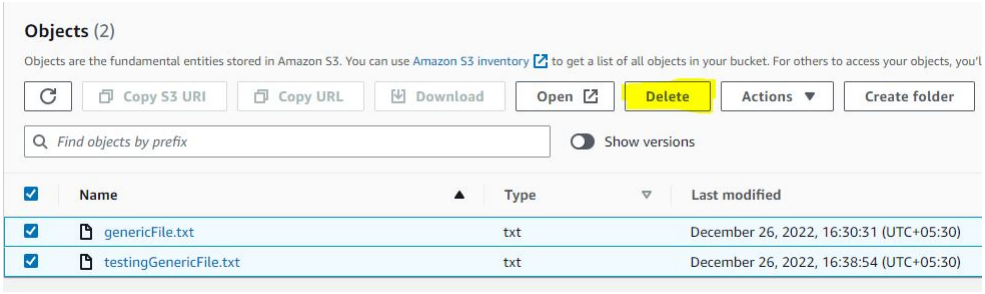

Figure 16: Delete the file by selecting the files

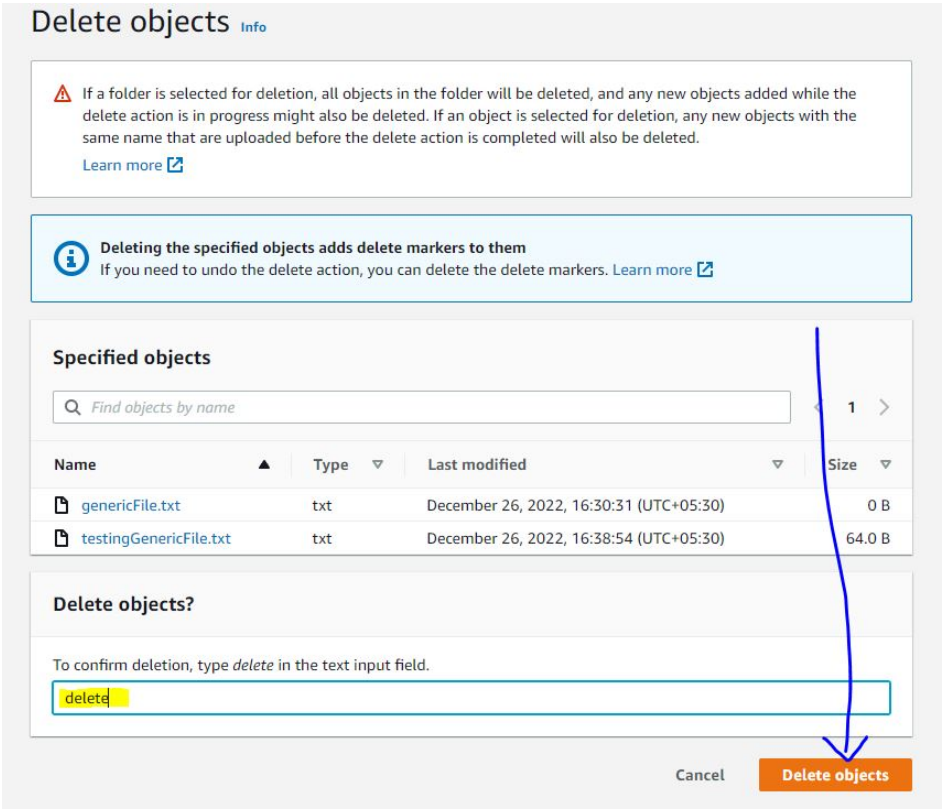

Figure 17: Command delete should be typed to delete the objects

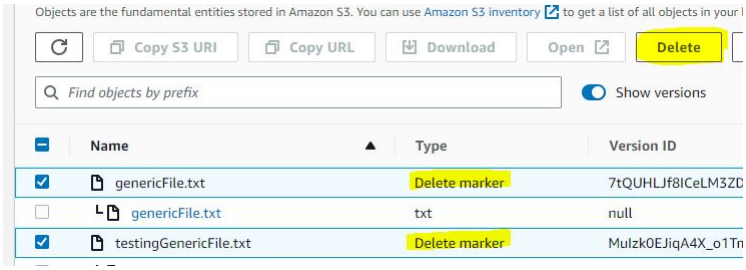

Figure 18: Looking at show versions one can see the delete marker which can be deleted to restore the files

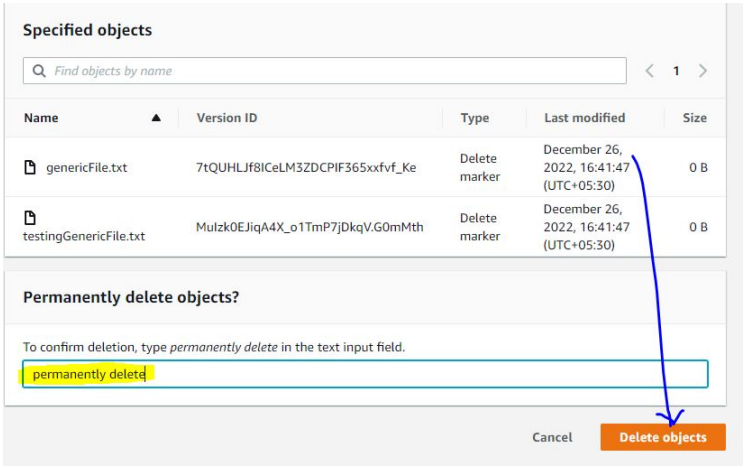

Figure 19: To execute the command successfully permanently delete is necessary

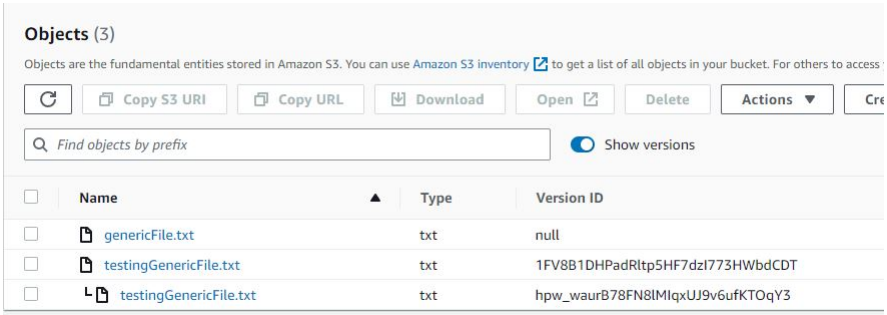

Figure 20: The files are restored in pristine order

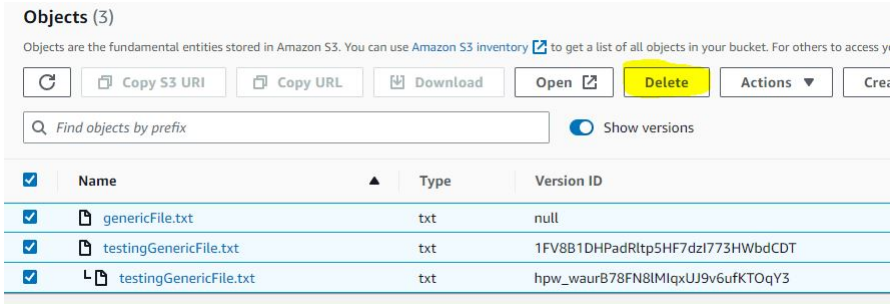

Figure 21: While all versions are displayed select all the files to delete them permanently

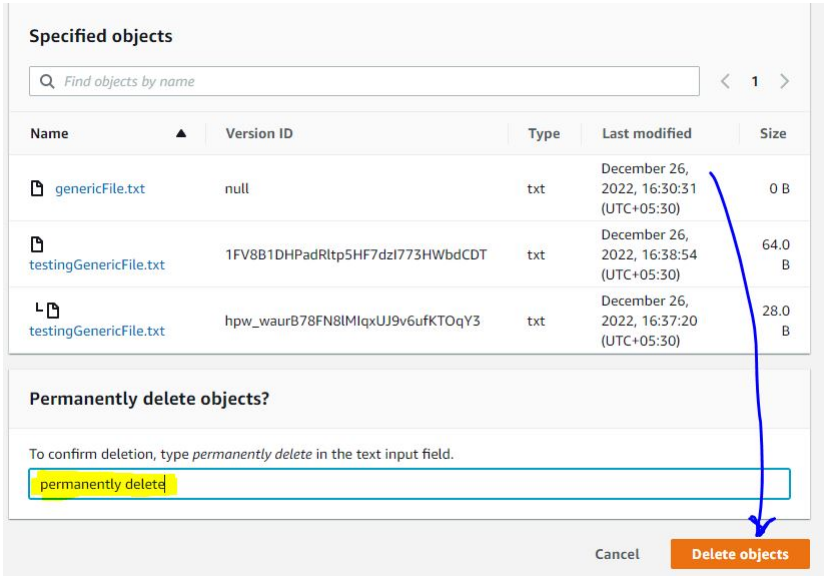

Figure 22: The execution requires permanently delete option to successfully finish the process

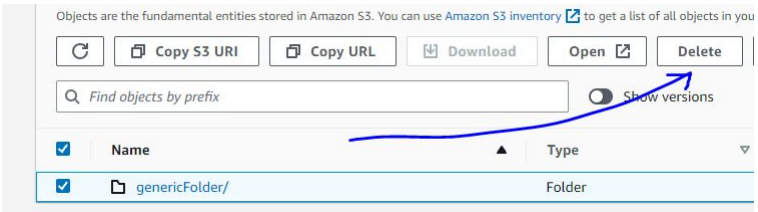

Figure 23: Deletion of folder is a very straight-forward process

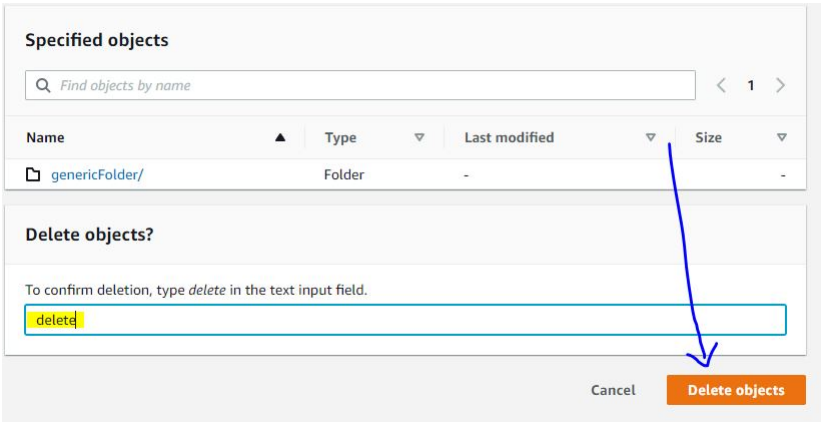

Figure 24: The folder can be deleted with delete command to finish the process

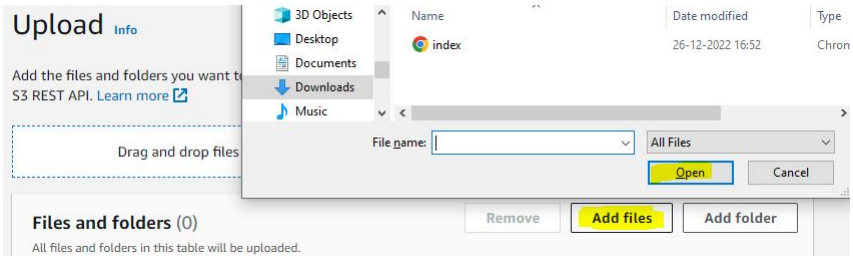

Figure 25: Static website hosting can be done on S3. This can be done by uploading the website files. Here I upload one single generic HTML file

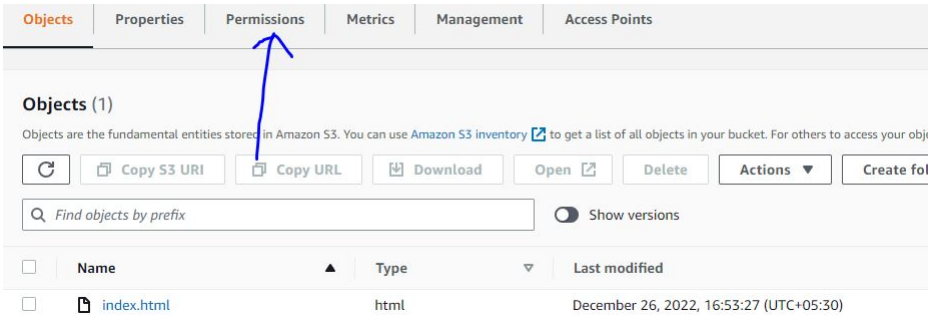

Figure 26: Selecting the permissions for the bucket, the setup for static website can be done

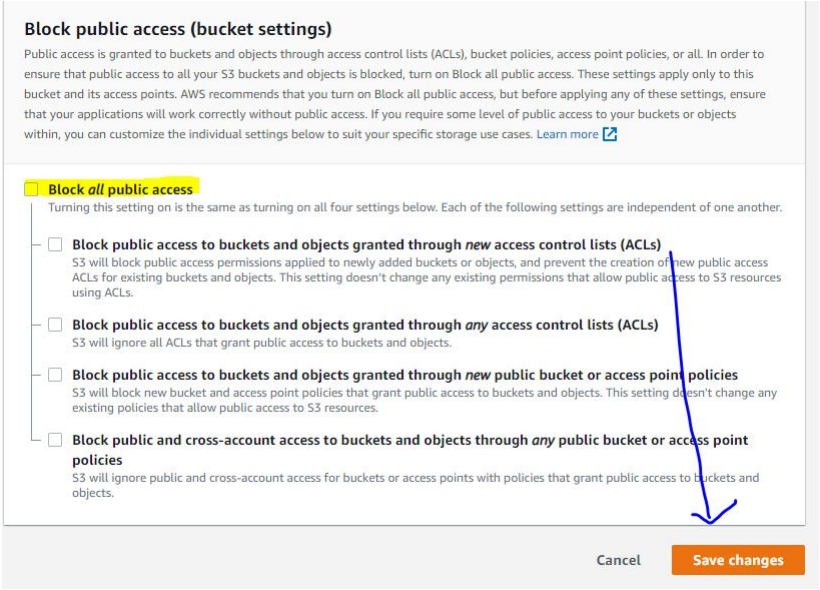

Figure 27: Uncheck the block all public access option and save the changes

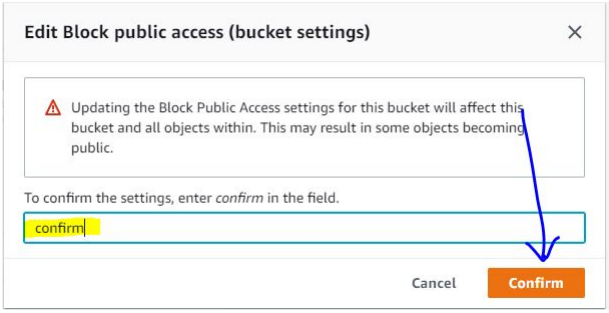

Figure 28: The confirm command is required to complete the execution

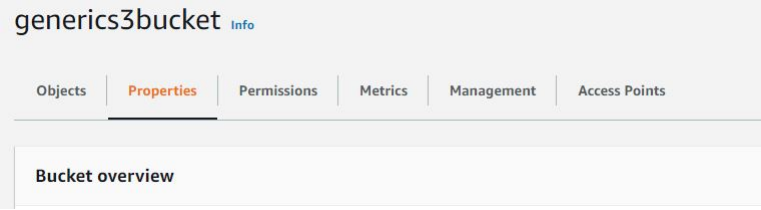

Figure 29: Now head to properties for further hosting options

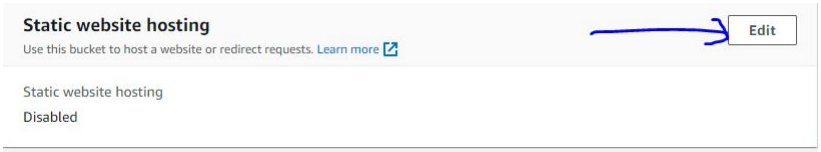

Figure 30: Scroll down and reach to static website hosting option and select Edit

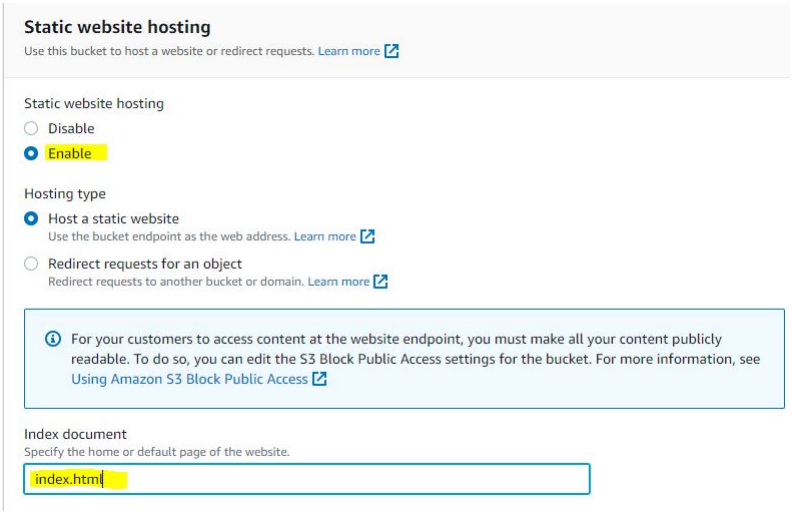

Figure 31: Enable the website hosting and type the name of main file of system and save

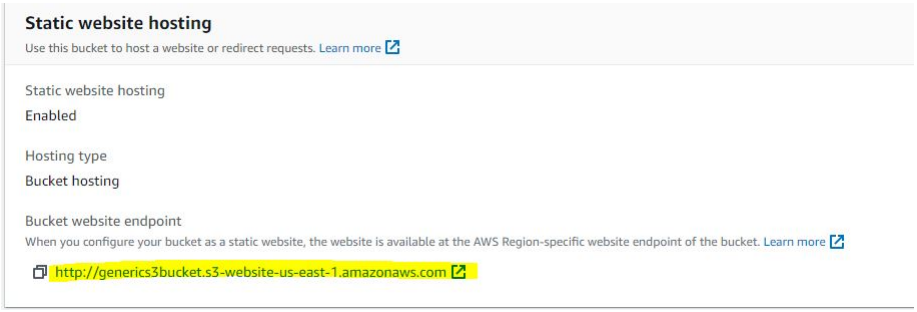

Figure 32: The link can be followed for viewing the page

Figure 33: Page rams into a 403 Forbidden error which can be tackled by making some changes

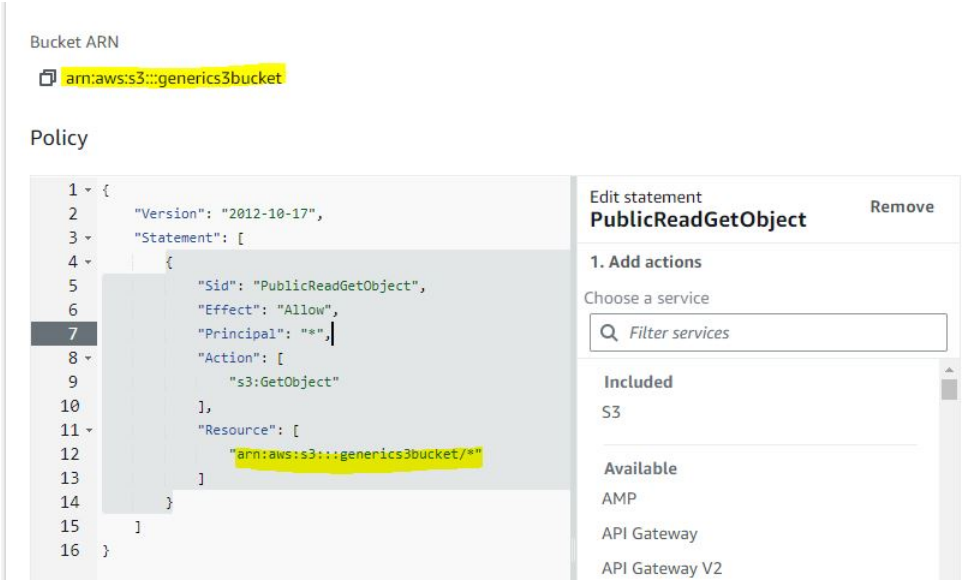

Figure 34: Type the bucket policy and mention the ARN provided by the bucket

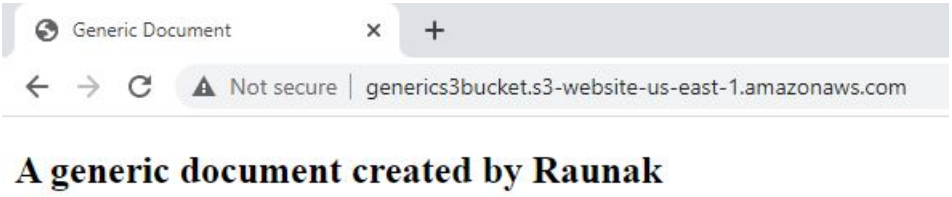

Figure 35: The link is now accessible to host the static page

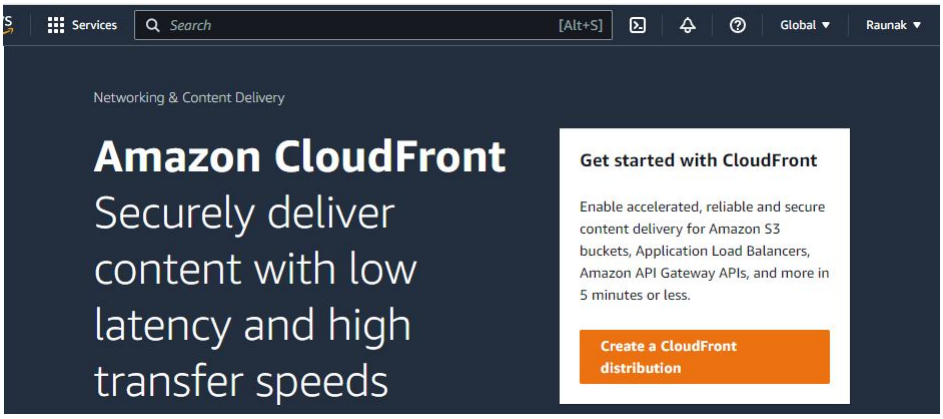

Figure 36: Using cloudfront to safe-gaurd the direct access to S3. Before starting this delete the bucket policy and disable the public sharing access to bucket directly

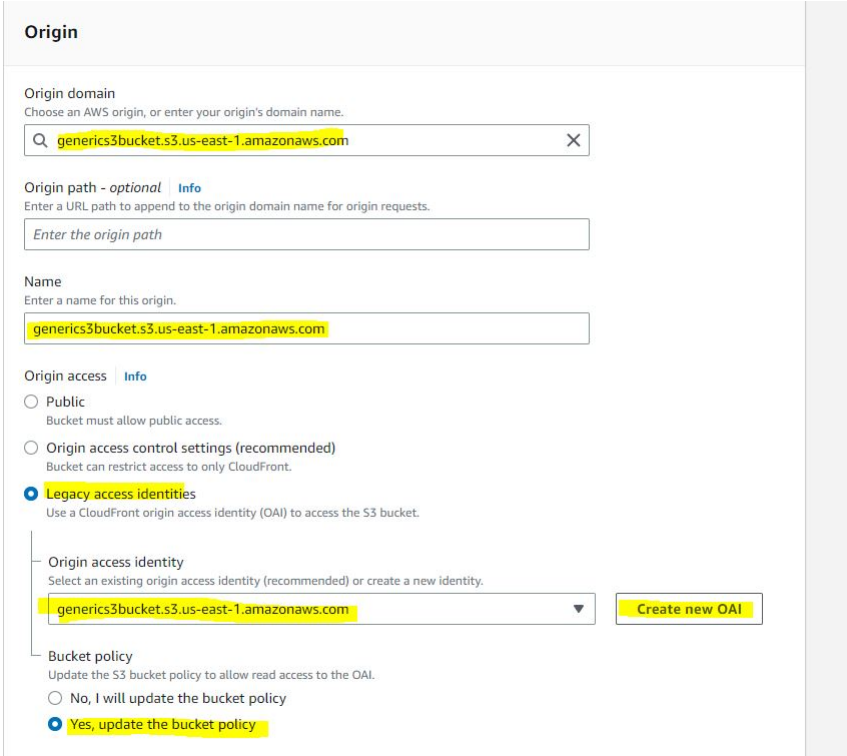

Figure 37: Select all the highlighted options from the image and follow accordingly. This is initial creation process of cloudfront. Do not change anything apart from given options in the image

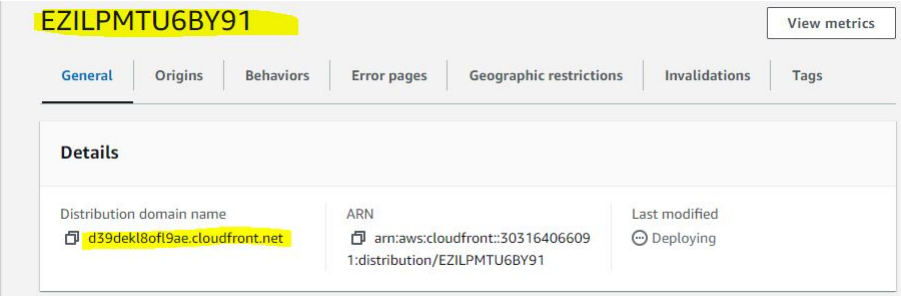

Figure 38: The distribution is available on the cloudfront access link with its own domain

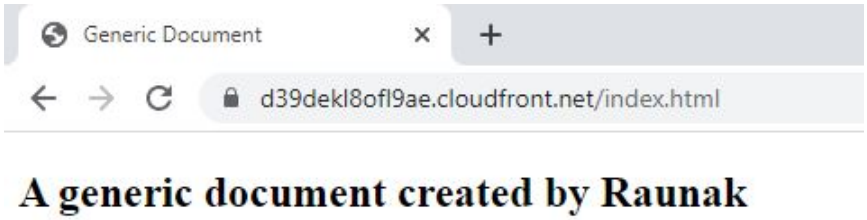

Figure 39: Successful hosting of the website using CloudFront

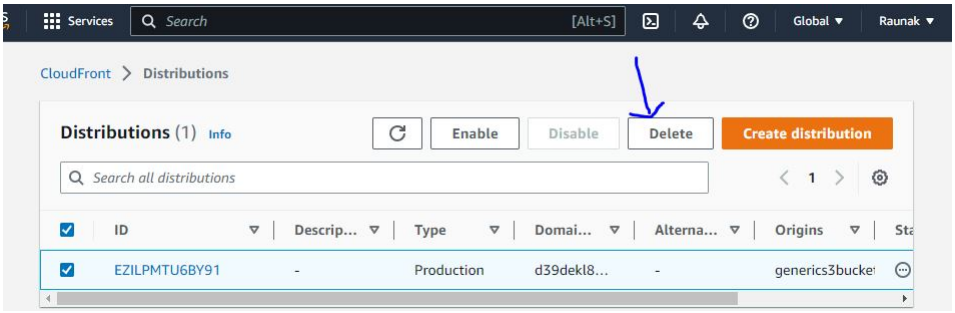

Figure 40: Disable the distribution service and delete the created distribution once experiment performed effectively

Conclusion

This experiment is successful demonstration of many facets associated with Amazon S3 Bucket. The S3 can be used to upload the files as well leverage the versioning abilities of it to keep track of the files. The deletion process can be done along with restoration and permanent deletion. The latter can be used to host a static website. Although the process is seamless but not recommended, the cloud front is another service provided by Amazon and can be used to create a distinguish hosting platform of the website hosted on S3. The service acts as a barrier between the basic files of the S3 and the public users. The cloud front provides its domain for distribution of the site. The execution of the all the process has been successfully shown in the results section of this experiment respectively.