REVA UNIVERSITY
Bengaluru, India

SCHOOL OF COMPUTER SCIENCE AND APPLICATIONS

A Project Synopsis
on

Create a s3 Bucket and show the process of Static website Creation. Deploy the objects into bucket and objects must be Public Access.

Bachelor of Science (Honors) in Computer Science -
Cloud Computing and Big Data

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2. Existing System and Proposed System

Existing System

- **Existing System**: No S3 bucket exists for hosting the static website. Website files are stored locally or hosted on a different platform.
- **Traditional Web Hosting**: In the traditional web hosting model, websites are hosted on dedicated servers or virtual machines.

Proposed System:

- **Create S3 Bucket**: Go to the AWS Management Console and navigate to the S3 service. Click "Create bucket", choose a unique name, select the region, and configure options like versioning (if needed). Click "Create" to finish.
- **Configure Bucket for Static Website Hosting**: Select the newly created bucket and go to the "Properties" tab. Click on "Static website hosting”. Choose "Use this bucket to host a website”. Enter the index document (e.g., index.html) and error document (if any). Click "Save”.
- **Upload Website Files to the Bucket**: Go to the "Overview" tab of the bucket. Click "Upload" and select the website files from your local machine. Ensure all files including HTML, CSS, JavaScript, images, etc., are uploaded.
- **Set Public Access Permissions**: Select all the files in the bucket. Click on the "Actions" dropdown and choose "Make public" to grant public read access to the objects.
- **Accessing the Website**: After uploading the files, find the "Endpoint" URL provided in the "Static website hosting" section. This URL can be used to access your static website.

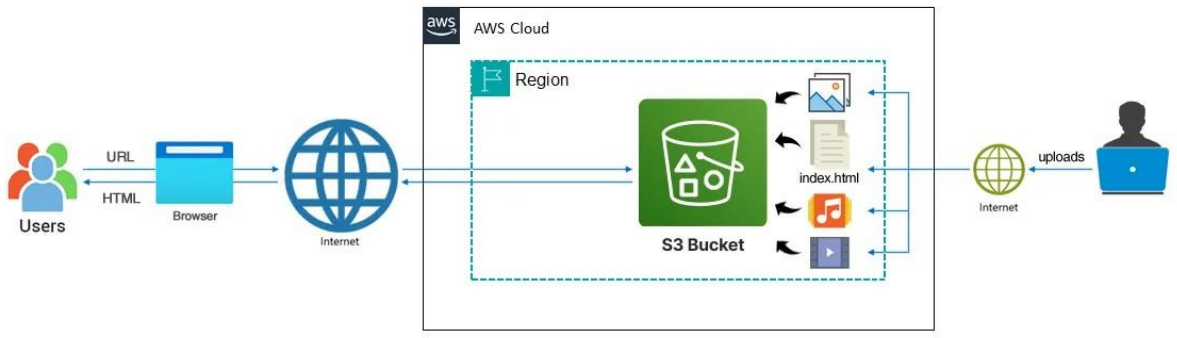
3. Advantages of Proposed System

- **Scalability**: S3 can handle any amount of traffic, ensuring your website scales effortlessly.
- **Cost-Effective**: S3 offers cost-effective storage and pricing models, making it ideal for hosting static websites.
- **High Availability**: Websites hosted on S3 benefit from AWS's high availability, ensuring reliability and minimal downtime.
- **Security**: AWS provides robust security features, including encryption and access controls, to protect your website and data.
- **Easy Management**: S3's intuitive interface and management tools simplify the process of hosting and managing static websites.
- **Static Website Hosting**: S3 can be used to host static websites directly, providing low-latency content delivery with built-in support for custom domain names and SSL encryption.
- **Easily Indexed by Google:** There are also some SEO benefits to static websites. Since static websites run on relatively simple code, Google can index static websites faster.

4. Methodology Used

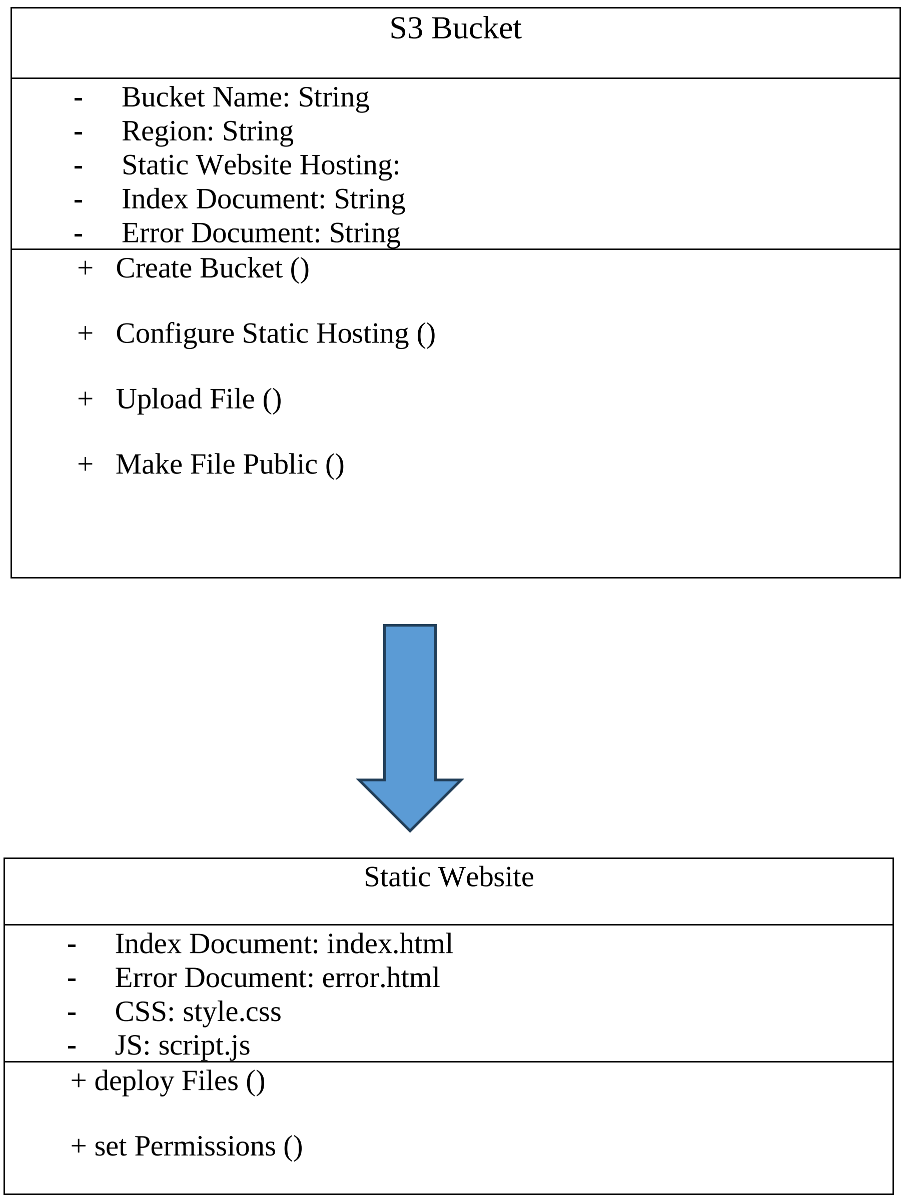
- The methodology used here is Infrastructure as Code (IaC), where you define and manage your infrastructure using code or scripts (e.g., AWS CloudFormation, Terraform).
- With IaC, you can version control your infrastructure, make it reproducible, and automate the deployment process.

5. **Architecture Diagram**



- **Amazon S3 Bucket**: The S3 bucket serves as the storage for your static website files. It’s configured for static website hosting, allowing it to serve HTML, CSS, JavaScript, and other static assets.
- **Static Website Files**: These are the files that make up your website, including HTML, CSS, JavaScript, images, etc.
- **Bucket Policies or Access Control Lists (ACLs):** Bucket policies or ACLs are used to control access to the objects in the S3 bucket.
- **DNS Service:** You can configure a custom domain for your static website using a DNS service like Amazon Route 53 or another DNS provider.
- **Content Delivery Network (CDN) (Optional):** For improved performance and scalability, you can use a CDN like Amazon CloudFront to cache and deliver your website content globally.
- **Monitoring and Logging**: You can enable logging for your S3 bucket to track access to your website files.

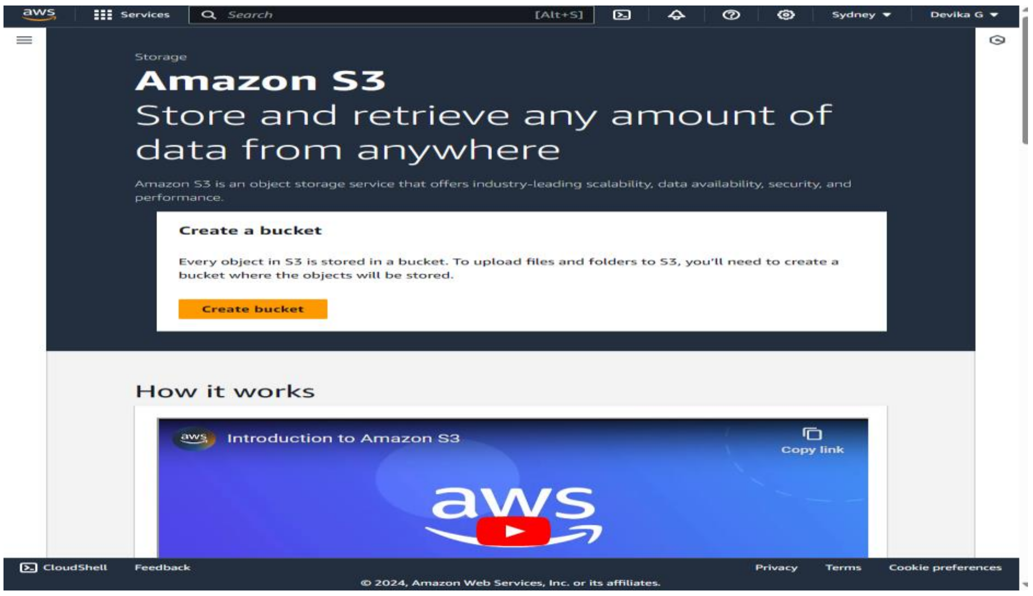
6. Class Diagram



7. Testing Strategy

Create an S3 bucket and static website, deploy the objects into bucket policy objects must be public access.

Step 1: Loging to AWS console.



Amazon S3

Store and retrieve any amount of data from anywhere

Amazon S3 is an object storage service that offers industry-leading scalability, data availability, security, and performance.

Create a bucket

Every object in S3 is stored in a bucket. To upload files and folders to S3, you'll need to create a bucket where the objects will be stored.

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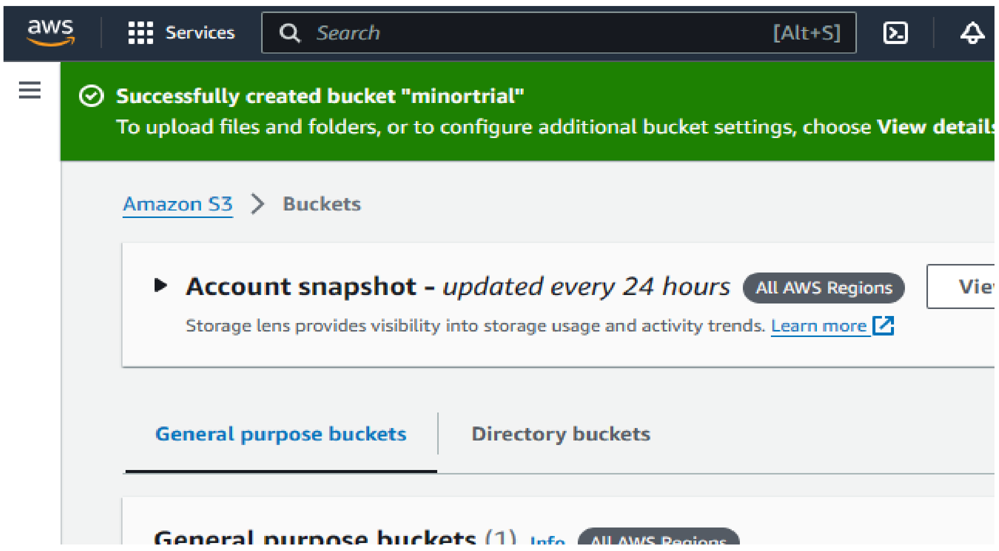
Step 2: Click on S3 and create a Bucket.



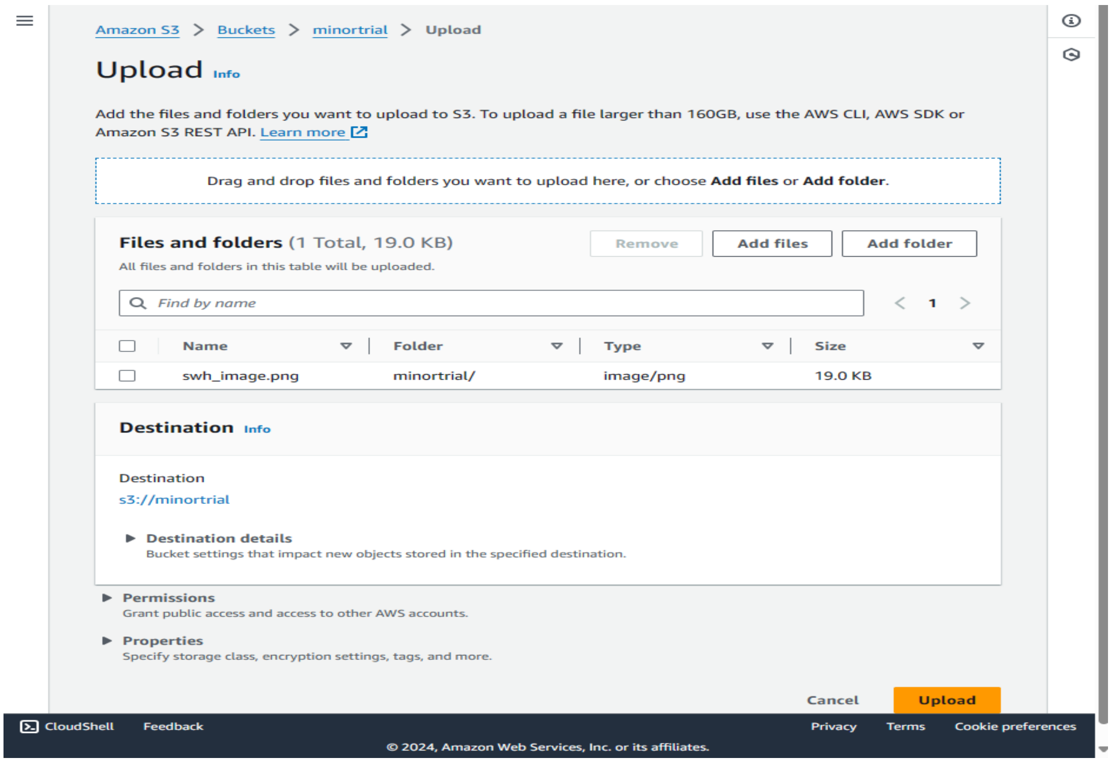
Successfully created bucket "minortrial"

To upload files and folders, or to configure additional bucket settings, choose **View detail**

Account snapshot - *updated every 24 hours*

Storage lens provides visibility into storage usage and activity trends. Learn more

Step 3: Upload an image file in objects and give public access to objects.


Amazon S3 > Buckets > minortrial > Upload

Upload Info

Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API. Learn more

Drag and drop files and folders you want to upload here, or choose **Add files** or **Add folder**.

Files and folders (1 Total, 19.0 KB)

All files and folders in this table will be uploaded.

Remove | Add files | Add folder

Find by name

Name	Folder	Type	Size
swh_image.png	minortrial/	image/png	19.0 KB

Destination Info

Destination

s3://minortrial

▶ **Destination details**

Bucket settings that impact new objects stored in the specified destination.

▶ **Permissions**

Grant public access and access to other AWS accounts.

▶ **Properties**

Specify storage class, encryption settings, tags, and more.

Cancel | Upload

CloudShell | Feedback | Privacy | Terms | Cookie preferences

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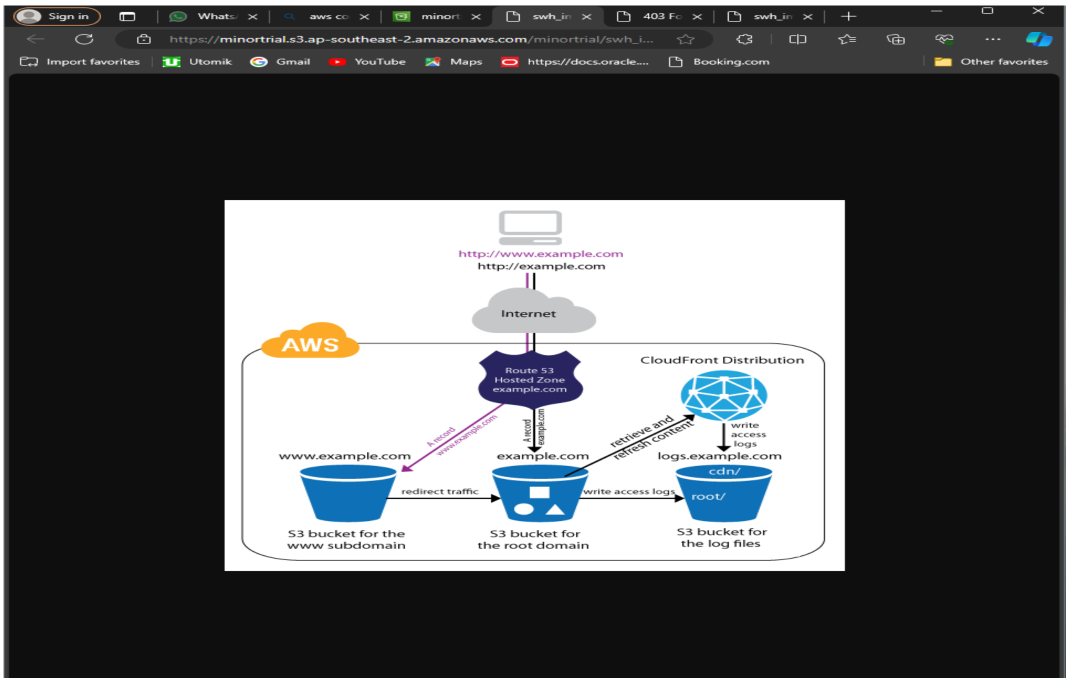
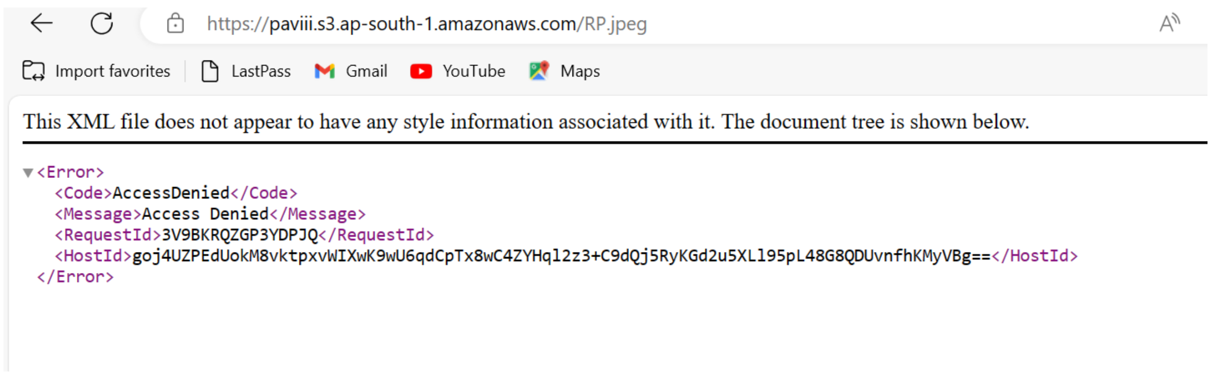
Step 4: Select a file and click on open, the image will be visible which has been uploaded.



Step 5: Select a file and click on copy URL option, paste the URL in a browser.

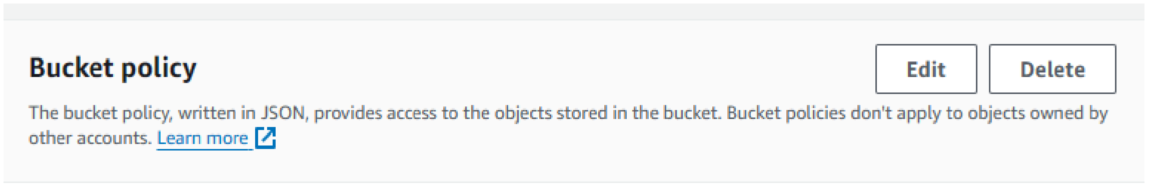


This XML file does not appear to have any style information associated with it. The document tree is shown below.

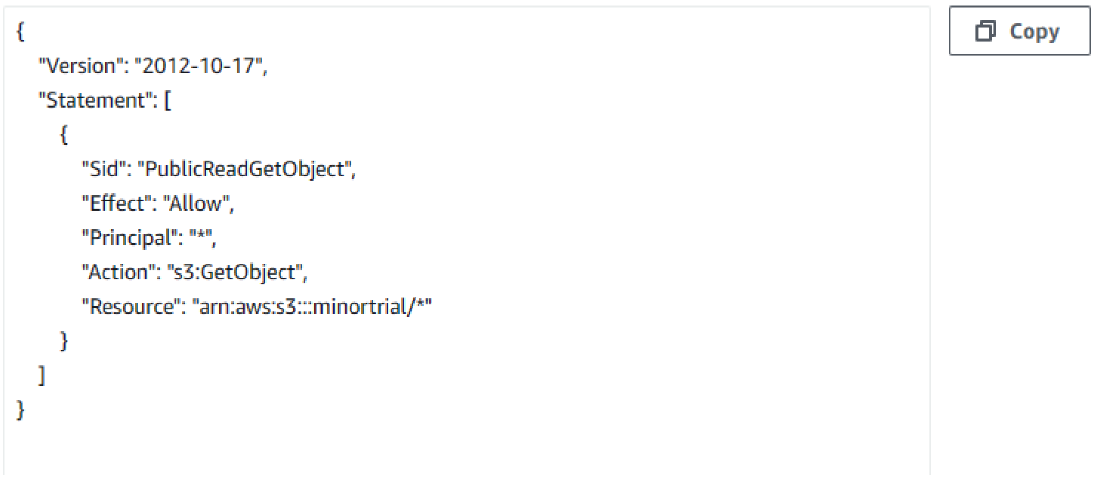
```
▼<Error>
   <Code>AccessDenied</Code>
   <Message>Access Denied</Message>
   <RequestId>3V9BKRQZGP3YDPJQ</RequestId>
   <HostId>goj4UZPEdUokM8vktpxvWIXwK9wU6qdCpTx8wC4ZYHql2z3+C9dQj5RyKGd2u5XLl95pL48G8QDUvnfhKMyVBg==</HostId>
 </Error>
```

Its show’s Error, then we have to give a permission to the bucket policy.

Step 6: Click on permissions and select a “Bucket Policy”, click on edit and paste the given code on bucket policy.

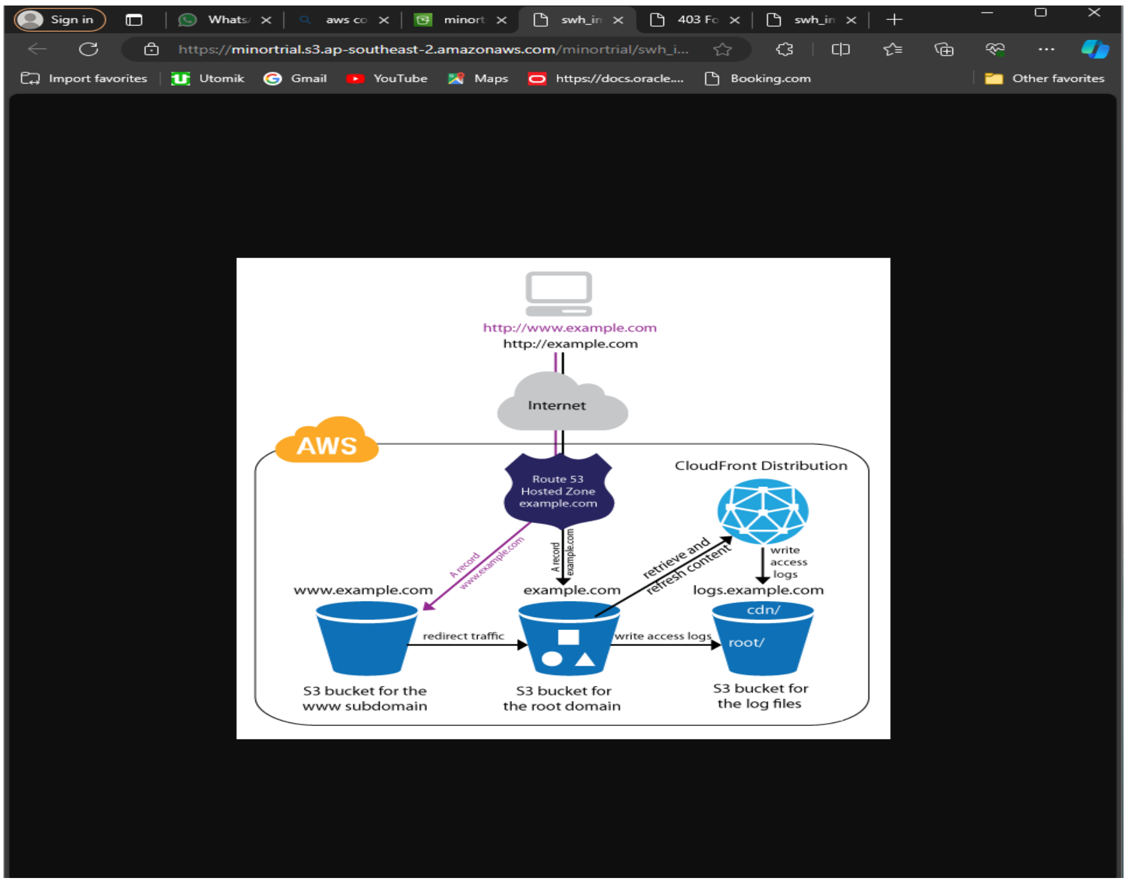


The bucket policy, written in JSON, provides access to the objects stored in the bucket. Bucket policies don't apply to objects owned by other accounts. Learn more



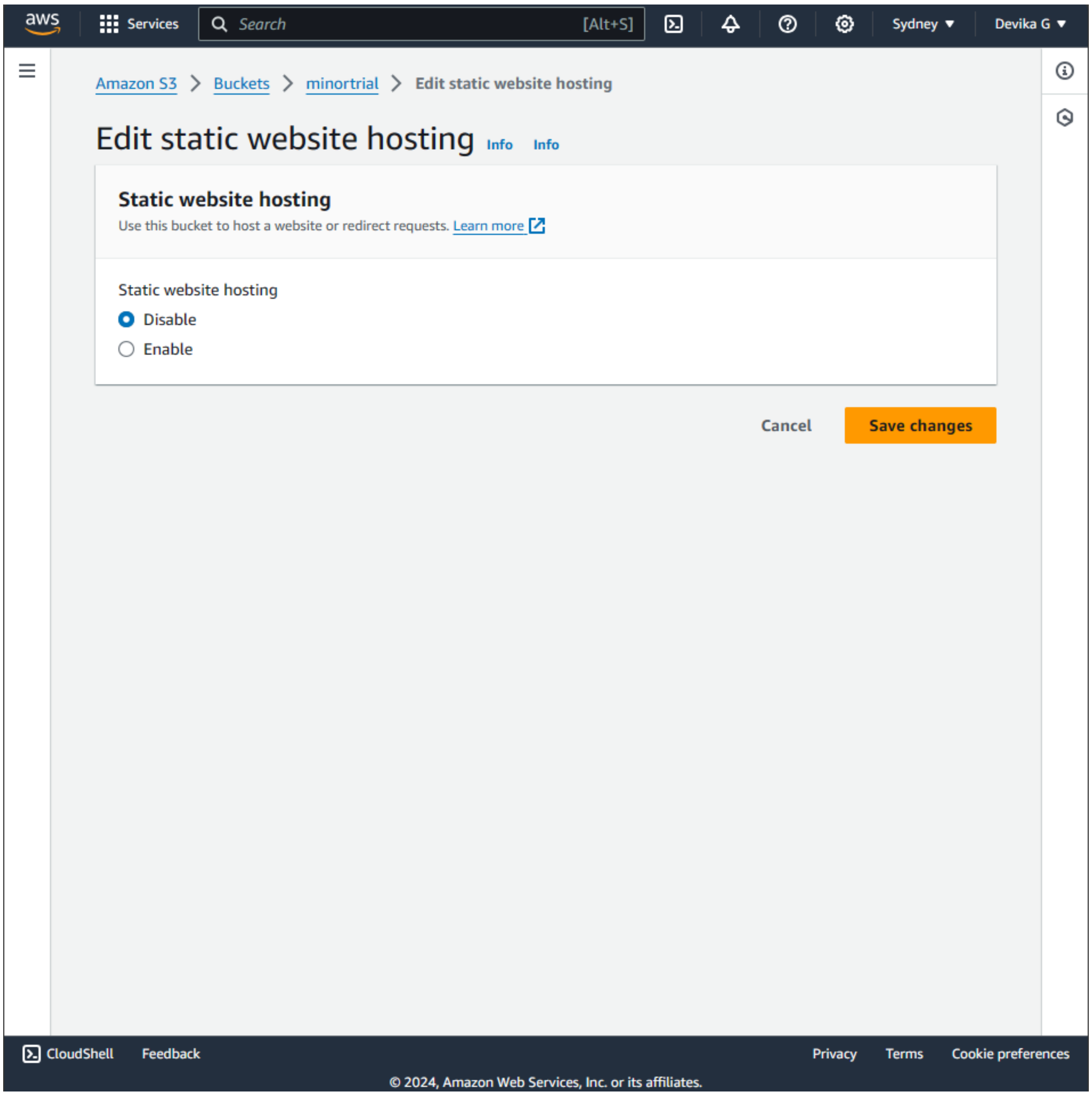
```
{
   "Version": "2012-10-17",
   "Statement": [
     {
        "Sid": "PublicReadGetObject",
        "Effect": "Allow",
        "Principal": "*",
        "Action": "s3:GetObject",
        "Resource": "arn:aws:s3:::minortrial/*"
     }
   ]
}
```

Step7: Once again, copy the URL link paste in a browser.



Step 8: After creation of S3 bucket now host a static website.

Step 9: Click on properties and edit the static website hosting, give "Enable" enter a file name in index document, save changes.



Amazon S3 > Buckets > minortrial > Edit static website hosting

Edit static website hosting Info Info

Static website hosting

Use this bucket to host a website or redirect requests. Learn more

Static website hosting

(●) Disable

( ) Enable

8. Implementation

- Create an AWS account and log in to AWS account.
- Create an S3 bucket and upload a file to a bucket.
- Objects must be in public access.
- Create a static website and host a static website.

9. Result

Overall, we have defined the platform we are using in this project by comparing it to another platform. We successfully created a static website hosted on Amazon S3 with public access to its objects. This approach is suitable for hosting simple websites, applications with ease and scalability.

10. Future Enhancement

- **Custom Domain Name**: Use Amazon Route 53 to configure a custom domain name for your static website.

- **HTTPS for Secure Access**: Use Amazon CloudFront to serve your static website over HTTPS.

- **Automatic Deployment:** Set up CI/CD pipelines using AWS Code Pipeline and Code Build to automatically deploy changes to your S3 bucket whenever you update your website's source code.

- **Logging and Monitoring**: Enable server access logging to track requests for your bucket. Use AWS CloudWatch to monitor and log access metrics.

- **Advanced Access Control**: Use AWS Identity and Access Management (IAM) policies to control access to your bucket.

- **Error Handling and Custom Error Pages**: Customize error handling by setting up detailed error pages for different HTTP status codes (e.g., 404, 500).

- **Optimize Content Delivery**: Use Amazon CloudFront's caching features to optimize content delivery for faster load times.