

4R/ 2022-23

A Report On

“AWS S3 Bucket”

Submitted

In partial fulfillment of the requirements for the

Degree of Bachelor of Engineering

in

Computer Science and Engineering

Sant Gadge Baba Amravati University

Submitted by

Adish Nitin Raipure

Bhavesh Mittal

Gagan Wanjari

Ritesh Manusmare

Under the esteemed guidance of

Prof. C.M Mankar



Department of Computer Science and Engineering

Shri Sant Gajanan Maharaj College of Engineering, Shegaon,

Dist.- Buldhana – 444 203 (Maharashtra)

(2022 - 2023)

LETTER OF TRANSMITTAL

December 12, 2022

Prof. C.M Mankar

CC – Course Instructor

SSGMCE, Shegaon

Respected Sir,

This is a report based on topic “AWS S3 Bucket”, as requested by yourself, is being submitted as a part of our TEC. The report has been prepared keeping in mind the topic Cloud Computing and covers one such IAAS application with a web application, workflow and deployment.

This report is constructed by a group members, name and roll numbers are listed below.

- 1) Adish Raipure (36)
- 2) Bhavesh Mittal (43)
- 3) Gagan Wanjari (45)
- 4) Ritesh Manusmare (58)

ACKNOWLEDGEMENT

It is our proud privilege and duty to acknowledge the kind of help and guidance received from several people in preparation for this report. It would not have been possible to prepare this seminar in this form without their valuable help, cooperation and guidance.

We express my sincere gratitude to our guide, **Prof. C.M. Mankar**, for guiding us in investigations for this assignment and in carrying out relevant work. Our numerous discussions were extremely helpful. We received his esteem guidance, encouragement and inspiration.

Place: Shegaon

Date:

CONTENTS

S. NO.	TITLE	PAGE NO.
	LIST OF FIGURES	ii
1.	INTRODUCTION	01
1.1	Overview	01
1.2	AWS S3 Bucket	01
2.	WORKFLOW FOR APP	02
2.1	Requirements	02
2.2	Creating a S3 Bucket	02
2.3	Working of Project	04
3.	SCOPE OF AWS	05
4.	CONCLUSION	06

LIST OF FIGURES

Fig 2.1	AWS Console	3
Fig 2.2	Bucket Configuration	4
Fig 2.3	Login Form	5
Fig 2.4	Main Page	5
Fig 2.5	Uploading File to S3 Bucket	6

1. INTRODUCTION

1.1 Overview

Amazon Web Services (AWS), a subsidiary of Amazon.com, has invested billions of dollars in IT resources distributed across the globe. These resources are shared among all the AWS account holders across the globe. These account themselves are entirely isolated from each other. AWS provides on-demand IT resources to its account holders on a pay-as-you-go pricing model with no upfront cost. Amazon Web services offers flexibility because you can only pay for services you use or you need. Enterprises use AWS to reduce capital expenditure of building their own private IT infrastructure (which can be expensive depending upon the enterprise's size and nature). AWS has its own Physical fiber network that connects with Availability zones, regions and Edge locations. All the maintenance cost is also bared by the AWS that saves a fortune for the enterprises. Few AWS services are as follows:

- 1) Amazon EC2 (Elastic Compute Cloud)
- 2) Amazon RDS (Relational Database Services)
- 3) Amazon S3 (Simple Storage Service)
- 4) Amazon Lambda
- 5) Amazon CloudFront

AWS provides various functionalities and S3 is one of them. AWS labels the service of AWS S3 Bucket as IAAS. There have been debates about the functionality provided by the S3 which seems close to PAAS.

1.2 AWS S3 Bucket

Amazon S3 bucket is a user-friendly object repository, that is used for storing and recovering various data from anywhere on the web. As an Amazon Web Service (AWS), it allows creators to store, transfer, or process large amounts of data. The AWS offers a wide range of storage options: from simple static files to more complex applications like websites, mobile apps, machine learning algorithms, etc.

Among all of them S3 stands for Simple Storage Service, it is object storage that is provided by AWS as a cloud service that will charge for only what you will use. Some of the advantages of Amazon S3 include creating buckets, storing data, downloading data, granting or denying permissions, etc.

2. WORKFLOW FOR APP

2.1 Requirements

Project requires the following libraries to run:

- 1) Node.js - It is an open-source and cross-platform runtime environment built on Chrome's V8 JavaScript engine for executing JavaScript code outside of a browser. You need to recollect that NodeJS isn't a framework, and it's not a programming language. It provides an event-driven, non-blocking (asynchronous) I/O and cross-platform runtime environment for building highly scalable server-side applications using JavaScript.
- 2) Express.js - Express.js is a small framework that works on top of Node.js web server functionality to simplify its APIs and add helpful new features. It makes it easier to organize your application's functionality with middleware and routing. It adds helpful utilities to Node.js HTTP objects and facilitates the rendering of dynamic HTTP objects.

Configure your local environment as follows:

- 1) Install Node.js on your local pc using the .msi file provided on
<https://nodejs.org/en/download/>
- 2) After installing Node.js clone the repository using following command:
`git clone https://github.com/ad158h/project2f1.git`
- 3) For installing all libraries navigate to the repository using terminal and run:

`npm install`

- 4) Create a AWS account.

<https://aws.amazon.com/free/sign-up>

- 5) Create a IAM user for API calls to S3 Bucket.

- 6) Configure the server with Public and Private Key in config.js file in.

`server/src/config.js`

2.2 Creating a S3 Bucket

Follow these steps to create a bucket in your Amazon Simple Storage Service:

Step 1: Log on to your AWS Console. If you don't have an account, you can create it absolutely free as Amazon provides a 1-year free tier to its new users.

Step 2: In the search bar located at the top of your AWS Management Console, type "Amazon S3".

Step 3: Click on "S3 – Scalable Storage in the Cloud" and proceed further.

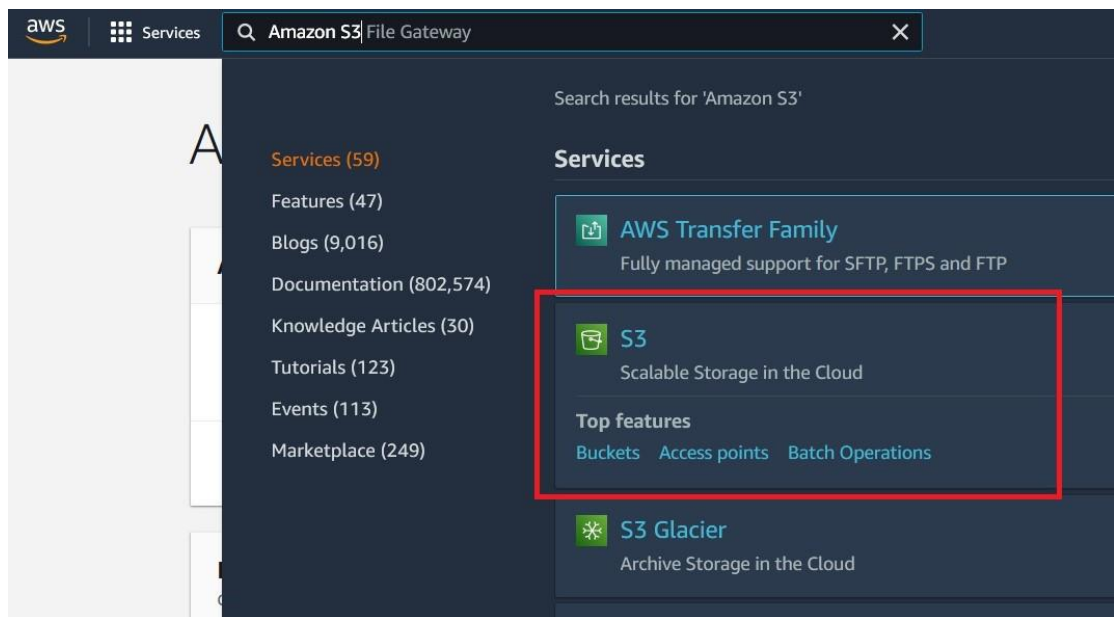


Fig 2.1: AWS Console

Step 4: Click on “Create Bucket”. A new pane will open up, where you have to enter the details and configure your bucket.

Step 5: Enter the name of your bucket. The following are some rules for naming a bucket in Amazon S3:

- 1) A bucket name should be unique across all Amazon S3 buckets.
- 2) Bucket names must be between 3 and 63 characters long.
- 3) Bucket names can consist only of lowercase letters, numbers, dots (.), and hyphens (-).
- 4) You cannot write a bucket name as an IP Address like 192.168.0.1.
- 5) Bucket names must begin and end with a letter or number.
- 6) Bucket names should not contain two adjacent dots (..).
- 7) Bucket names should not end with -s3alias.
- 8) Bucket names should not start with xn--.

Step 6: Next, choose an AWS region nearest to your location or where you want your data to reside. In our case, it is [Asia Pacific (Mumbai) ap-south-1].

In the Object Ownership category, leave it as recommended. We use it for controlling the access of the files by specifying roles. If ACLs are disabled, the bucket owner automatically owns and has full control over every object in the bucket.

In Block Public Access settings for this bucket category, ensure that BLOCK ALL PUBLIC ACCESS has been checked. If you want to host your static website in this bucket, you can change the settings later.

Fig 2.2: Bucket Configurations

In the Bucket Versioning category, choose Disabled. Bucket versioning is helpful when you want to track any changes in the file made, intentionally or unintentionally. You can see the previous versions of a file, retrieve it, restore it or preserve it. Leave other advance settings as default.

Step 7: Click on Create Bucket. In this way the bucket is created.

Step 8: Create a new IAM user and then elevate its permission for API Calls to the bucket for project.

2.3 Working of Project

Project contains two parts: Frontend and Backend

The flow of project is as follows:

Step 1: Configure the config.js file inside sever with adding private and public key of user created. They can be found in IAM in Aws console.

Step 2: Open terminal and run command to start the server. The command will start a development server.

npm test

Step 3: Navigate to frontend folder and the use VS-Code to start the port for html development for development. The HTML files can be run directly.

Step 4: Once the site is up and running you can access the main.html file to login to the account using following credentials:

Email – *admin@admin.com*

Password – *admin123*

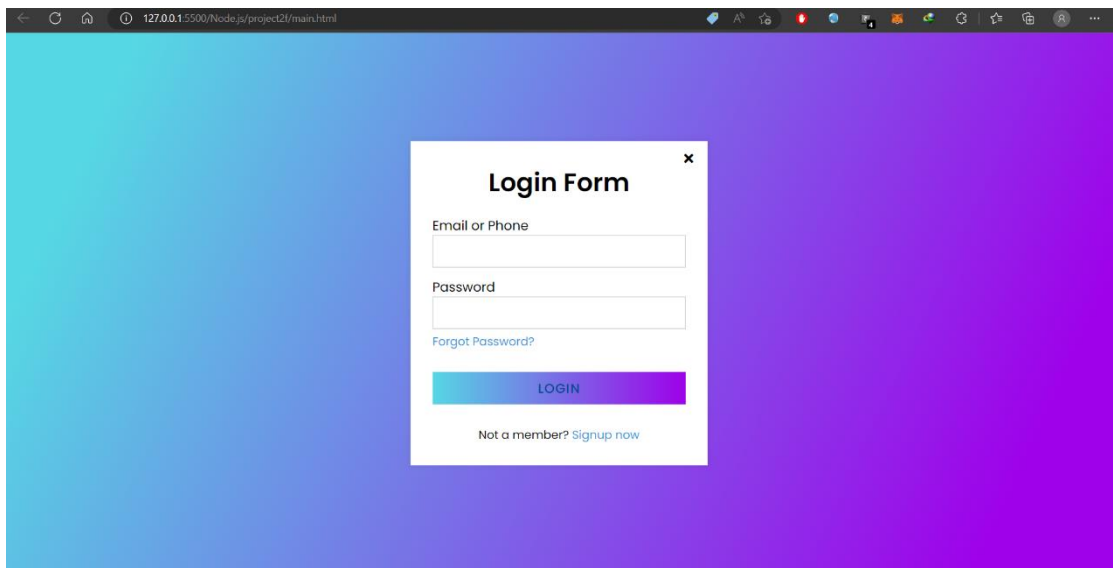


Fig 2.3: Login Form

Step 5: After Logging In you will be direct to a Main page.

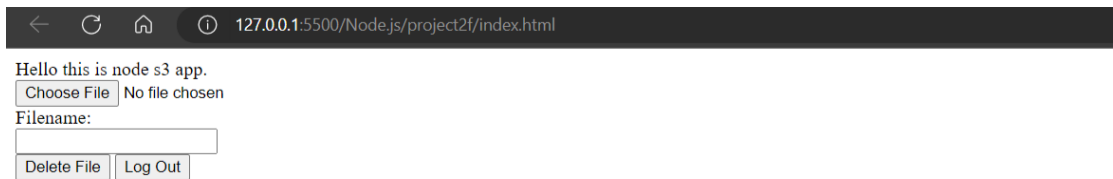


Fig 2.4: Main page

Step 6: To upload a file to S3 Bucket click on “Choose File”. Select the file and click “open”. The file will be uploaded to the bucket.

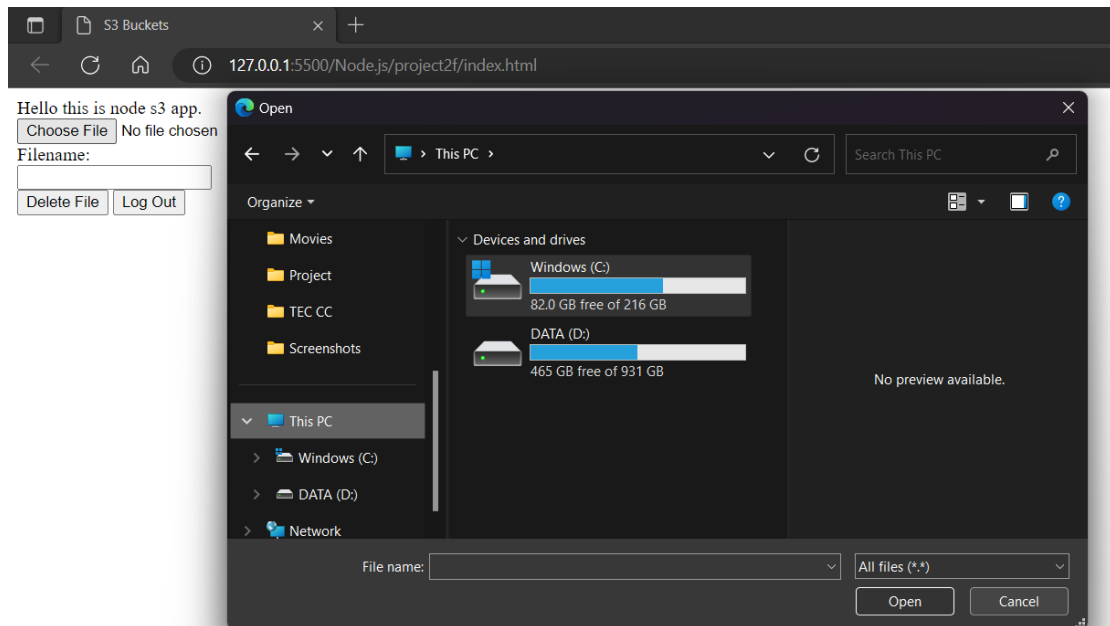


Fig 2.5: Uploading File to S3 Bucket

Step 7: To delete the file put name in the Text Box and click “Delete File” to delete the file from bucket.

Step 8: Click “Logout” Button to log out of the page.

3. SCOPE OF AWS

- 1) With AWS Big Data storage services, they can manage to store their data even if the data limit increases unexpectedly as AWS provides virtually unlimited data storage with scale-in and scale-out options.
- 2) Services like AWS social networking engine, which is powered by TurnKey GNU/Linux (HVM) AMI stack, are used for performance and scalability to help companies build a suitable social networking site and gain profits.
- 3) AWS has been serving many gaming studios. Combining Amazon EC2 and S3 services with CloudFront enables gaming websites to deliver high-quality gaming experiences to their customers regardless of location.
- 4) AWS offers a wide range of website hosting options to create the best website for customers. Its services like Amazon Lightsail have everything, such as a virtual machine, SSD-based storage, data transfer, DNS management, and a static IP, to launch a website in such a way that the user can manage the website easily.
- 5) Examples of AWS applications are Netflix, Airbnb, Expedia, McDonald's etc.

4. CONCLUSION

Cloud computing is outpacing the IT industry.

- Real Business Value can be realized by customers of all sizes.
- Cloud Solutions are simple to acquire, don't require long term contracts and are easier to scale up and down as needed.
- Proper planning and migration are needed to ensure a successful implementation.
- Public and Private Clouds can be deployed together to leverage the best of both.
- Third party monitoring ensure customer are getting the most out of their environment.
- Security compliance and monitoring is achievable with careful planning and analysis.

To summarize, the cloud as AWS provides many options for the everyday computer user as well as businesses. It opens a world of computing to broader range of people. However, thinking of using cloud computing has seen many upsides and down sides. You must be careful of what you are putting on cloud. Data breaches and security risks are no new issue. Cloud become target of many malicious users.

Exploring and using cloud is not a new thing. But identifying what information you put on cloud is a must. Be responsible and choose what's best for you.