PARSHVANATH CHARITABLE TRUST'S

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Department of Computer Engineering

CSL605 SKILL BASED LAB COURSE: CLOUD COMPUTING

Mini Project Report

- **Title of Project** : **NewsGrid**
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1. Abstract

NewsGrid is an online platform designed for reading and uploading news from around the world. The website provides a user-friendly interface that allows individuals to access the latest news and events happening in different parts of the world. NewsGrid aims to provide a reliable and unbiased source of news, making it a valuable resource for journalists, media professionals, and the general public.

The website is hosted on Amazon Web Services (AWS) using Amazon Elastic Compute Cloud (EC2), Identity and Access Management (IAM), and Relational Database Service (RDS). AWS is a cloud-based platform that provides scalable computing resources and tools for building and managing applications. EC2 is a virtual server that enables users to launch and manage virtual machines, while IAM is a security service that provides authentication and access control for AWS resources. RDS is a managed database service that makes it easy to set up, operate, and scale relational databases in the cloud.

By leveraging AWS services, NewsGrid is able to provide a reliable and scalable platform for reading and uploading news from around the world. The use of cloud-based services also allows the website to handle large amounts of traffic and data, ensuring that users have access to the latest news and events as they happen. NewsGrid is a valuable resource for anyone looking to stay informed about current events and trends, making it an essential platform for journalists, media professionals, and the general public alike.

2. Introduction

The internet has transformed the way we access and consume news. Gone are the days when we had to wait for the morning newspaper or the evening news bulletin to get our daily dose of information. Today, with just a few clicks, we can access news from all corners of the world, in real-time.

One platform that has been at the forefront of this revolution is NewsGrid. NewsGrid is an online platform that provides users with a wide range of news and information from around the world. The website is designed to be user-friendly and easy to navigate, making it a valuable resource for journalists, media professionals, and the general public. The platform was founded with the mission of providing a reliable and unbiased source of news. At a time when fake news and misinformation are rampant, NewsGrid is committed to upholding the highest standards of journalism. The website provides news and information from a variety of sources, ensuring that users get a balanced and comprehensive view of current events. One of the key features of NewsGrid is its user-generated content. The platform allows users to upload news and information from their local areas, providing a grassroots perspective on events. This feature makes NewsGrid an important platform for citizen journalism, enabling individuals to contribute to the news cycle and share their stories with the world.

To support this growing platform, NewsGrid later migrated to the cloud, specifically utilizing Amazon Web Services (AWS). AWS is a cloud-based platform that provides a wide range of tools and services for building, deploying, and managing applications in the cloud. NewsGrid leverages several AWS services, including Amazon Elastic Compute Cloud (EC2), Identity and Access Management (IAM), and Relational Database Service (RDS). EC2 is a virtual server that enables users to launch and manage virtual machines, making it a key component in NewsGrid's cloud infrastructure. IAM provides authentication and access control for AWS resources, ensuring that only authorized users have access to the platform. RDS is a managed database service that makes it easy to set up, operate, and scale relational databases in the cloud.

By leveraging these cloud-based services, NewsGrid is able to provide a reliable and scalable platform for reading and uploading news from around the world. The use of cloud-based services also allows the website to handle large amounts of traffic and data, ensuring that users have access to the latest news and events as they happen. One of the benefits of using a cloud-based platform is that it provides flexibility and agility. NewsGrid can easily scale up or down based on demand, allowing the platform to handle spikes in traffic or unexpected events. This flexibility is particularly important in the world of news, where events can unfold quickly and unpredictably.

In addition to its user-generated content, NewsGrid also partners with a variety of news organizations to provide users with the latest news and analysis. These partnerships ensure that users have access to a wide range of perspectives and opinions, further strengthening NewsGrid's commitment to unbiased reporting.

Overall, NewsGrid is an important platform for anyone looking to stay informed about current events and trends. With its user-generated content and partnerships with news organizations, the website provides a comprehensive and balanced view of the news. And with its cloud-based infrastructure, NewsGrid is able to provide a reliable and scalable platform for accessing and sharing news

3. Problem Defination

Our newsgrid website aims to solve the problem of information overload and the difficulty in accessing diverse and reliable news sources. With the increasing amount of information available on the internet, it can be challenging for users to filter through the noise and find relevant and trustworthy news content. Our newsgrid website solves this problem by aggregating news content from various sources and presenting it in an organized and visually engaging format. It allows users to access news from a range of sources, including traditional news outlets, social media, and user-generated content, and provides real-time updates on breaking news stories.

Moreover, a this website aims to address the issue of media bias and the filter bubble, where users may be exposed only to news that confirms their existing beliefs and opinions. By providing diverse and balanced news content from a range of sources, a newsgrid website helps users to broaden their perspectives and stay informed about different viewpoints on important issues.

4. Objective and Scope

The objective of our newsgrid website is to provide users with a comprehensive and balanced news platform that aggregates news content from a wide range of sources, including traditional news outlets, social media, and user-generated content. The website aims to present news in an easily accessible and visually engaging format that allows users to stay informed about the latest developments on a wide range of topics.

The scope of a our newsgrid website vary depending on the specific goals and target audience of the website. However, some common features and scope could include:

- Aggregation and curation of news content from various sources: The website should gather news content from different sources and present it in a single location.

- Real-time updates and notifications: Users should receive real-time updates and notifications on breaking news stories, allowing them to stay informed about the latest developments.

- Personalized news feeds: The website should provide users with customizable news feeds based on their preferences and interests.

- Search functionality: Users should be able to search for specific news topics or keywords to find relevant news content.

- Multimedia content: The website should provide users with access to multimedia content, including photos, videos, and podcasts.

- Community engagement features: The website could include features such as polls, comments, and ratings to encourage community engagement and discussion.

- User-friendly design: The website should be easy to navigate and visually engaging, with a responsive design that works well on both desktop and mobile devices.

5. Description

3.1. Cloud Services Used

1. EC2

Amazon Elastic Compute Cloud (EC2) is a web service provided by Amazon Web Services (AWS) that enables users to rent virtual computing resources in the cloud. EC2 provides resizable compute capacity in the cloud, allowing users to quickly and easily scale their computing resources up or down as needed.

Users can launch virtual machines, known as instances, in EC2 and choose from a range of operating systems and software configurations. EC2 instances can be customized to meet specific computing requirements, including memory, CPU, and storage capacity.

EC2 is a key component of cloud computing infrastructure, providing users with flexible, scalable, and cost-effective computing resources. EC2 is commonly used for a variety of applications, including web hosting, data processing, and big data analytics. With EC2, users only pay for the computing resources they use, making it a cost-effective solution for businesses and organizations of all sizes.

2. IAM

Identity and Access Management (IAM) is a web service provided by Amazon Web Services (AWS) that allows users to manage access to AWS resources securely. IAM enables users to create and manage users, groups, and permissions to control who can access AWS resources and what actions they can perform. IAM provides a centralized control panel for managing access across multiple AWS accounts and services.

IAM also supports multi-factor authentication (MFA) and integration with external identity providers, such as Active Directory, making it a flexible and powerful solution for managing access to AWS resources. By using IAM, users can improve security and compliance, reduce risk, and simplify access management for their AWS infrastructure.

3. RDS

Amazon Relational Database Service (RDS) is a web service provided by Amazon Web Services (AWS) that makes it easy to set up, operate, and scale relational databases in the cloud. RDS provides a fully managed database service that supports multiple database engines, including MySQL, PostgreSQL, Oracle, SQL Server, and MariaDB.

RDS simplifies database administration tasks such as software installation, backups, and patching, allowing users to focus on their applications and data. RDS also provides automated scaling, allowing users to quickly and easily increase or decrease their database capacity based on demand.

RDS is a highly available and fault-tolerant service, providing automatic failover and recovery, and automated backups to ensure data durability. RDS also supports read replicas, enabling users to scale read-heavy workloads and improve performance.

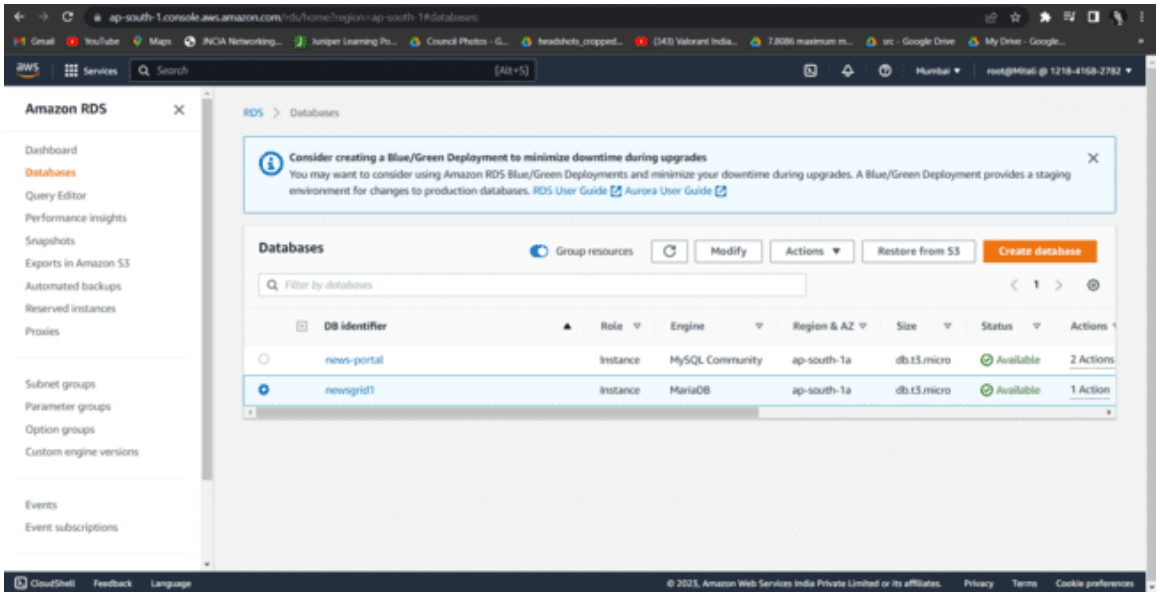
Overall, RDS is a powerful and flexible solution for managing relational databases in the cloud, providing users with a reliable, scalable, and cost-effective database infrastructure.

6. Implementation details with screen-shots (stepwise)

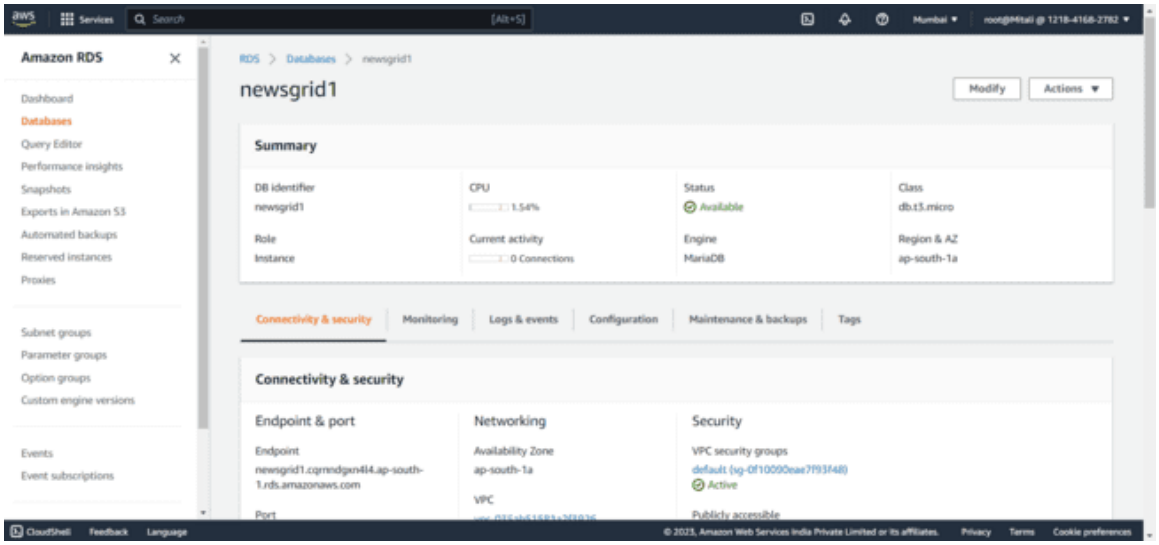
3. RDS

Here are the general steps to implement RDS:

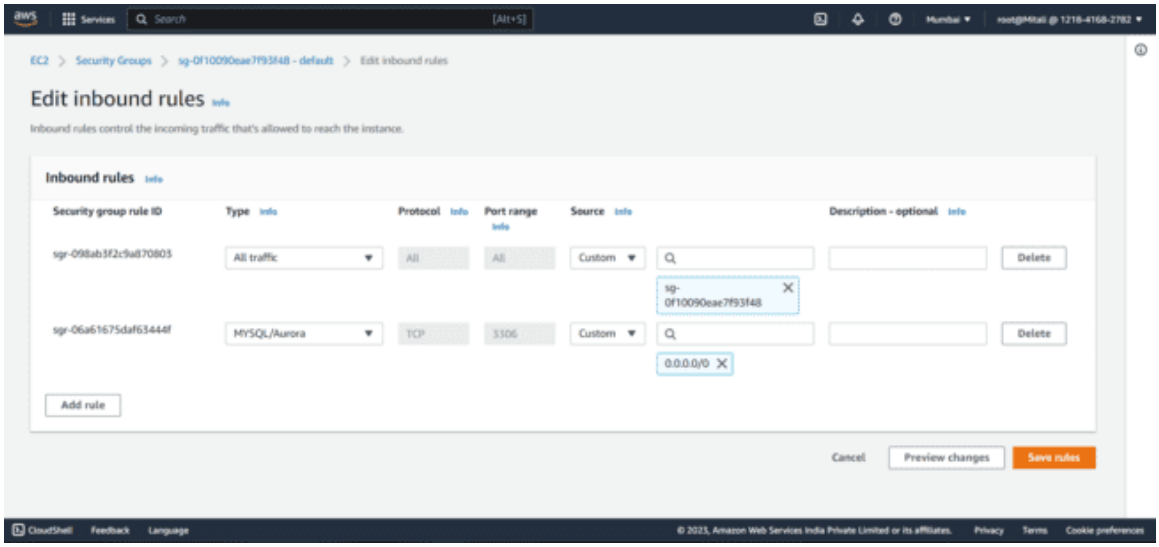
Step 1: Choose the database engine



Step 2: Launch an RDS instance

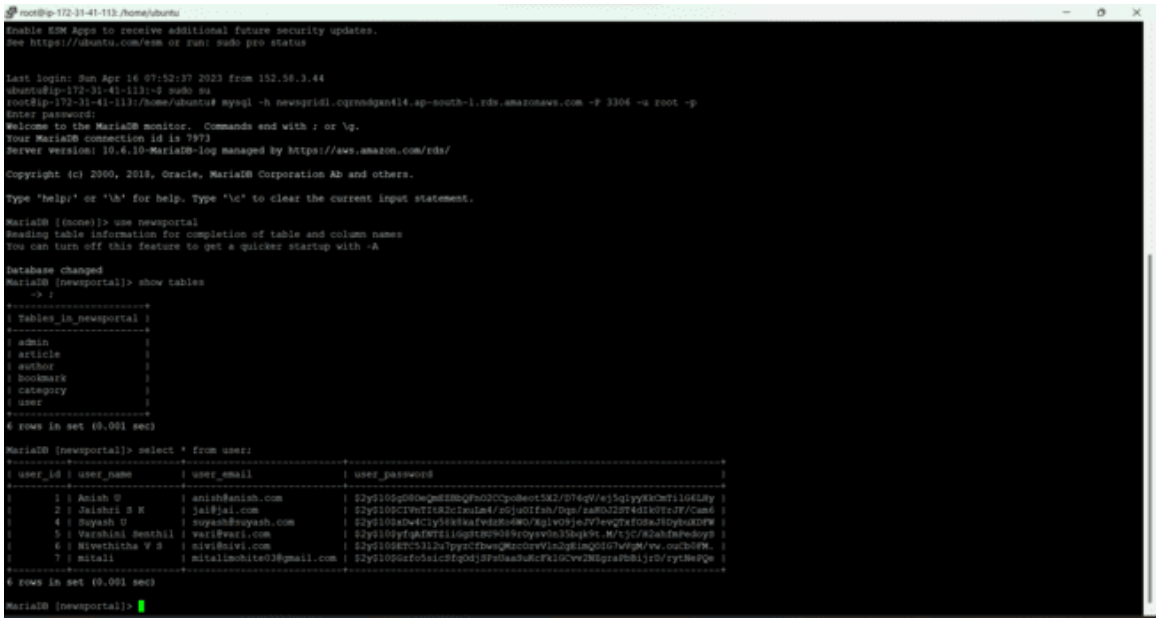


Step 3: Configure security



Similarly, edit outbound rules.

Step 4: Create databases and tables



Step 5: Connect to the database

root@ip-172-31-41-113: /var/www/html/NewsGrid/includes

```php
<?php

// Development Connection
// Server name or IP Address
$host = "newsgrid1.cqrnndgxn414.ap-south-1.rds.amazonaws.com";

// MySQL Username
$user = "root";

// MySQL Password
$pass = "password";

// Default Database name
$db = "newsportal";

$port = '3306';

// Creating a connection to the DataBase
$con = mysqli_connect($host,$user,$pass,$db,$port);

/* Deployment Connection

$host = "SERVER_URL";
$user = "USERNAME";
$pass = "PASSWORD";
$db = "DATABASE_NAME";
$port = 'PORT_NO';

$con = mysqli_connect($host, $user, $pass, $db, $port);
*/

// Checking If the connection is obtained
if (!$con) {
  die("Database Connection Error");
}
~
~
```

7.Learning Outcome

The cloud mini project called NewsGrid, that provides users with a wide range of news and information from around the world uploaded on Aws Web service, Amazon EC2, and using RDS for database and IAM user .

- Understanding the fundamentals of cloud computing and how AWS Web Services can be used to build, deploy, and manage web applications on the cloud.

- We learned how to set up and manage a web server using Amazon EC2, including how to configure server parameters, deploy web applications, and monitor server performance.

- We learned how to set up and manage user authentication and authorization using IAM, including how to create and manage user accounts, assign permissions, and manage access keys.

- We learned how to set up and manage a database using Amazon RDS, including how to configure database parameters, backup and restore databases, and monitor database performance.