**Knowledge Transfer( Setting RDS Database )**

**Dated : 21/08/2023**

**\*\*Challenge :\*\***

Hey Geeks, I have brought you some new thrilling challenge In this challenge, you will Design and create an SQL database on AWS...Excited...

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**\*\*Task :\*\***

Ticket: You have to create SQL Database

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**\*\*Solution :\*\***

WOW !!! I have completed the challenge and I have done it using RDS service where I created SQL database using it, it is very easy to do and i really njoy doing it…

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**\*\*Pre-requisites:\*\***

• Have a good knowledge about RDS

• Knowing the knowledge about SQL

• Have knowledge about EC2

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**\*\*Objective:\*\***

The objective is to create a database to store the information...

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**\*\*Description:\*\***

**Database :**

A database is a structured collection of organized and interconnected data. It serves as a repository for storing, managing, and retrieving information in a structured and efficient manner. Databases are crucial for various applications and industries, ranging from e-commerce and finance to healthcare and logistics. They ensure data integrity, security, and scalability, allowing businesses to make informed decisions based on accurate and consistent data.

**SQL (Structured Query Language) :**

SQL, or Structured Query Language, is a domain-specific language used for managing and manipulating relational databases. It provides a standardized way to interact with databases, enabling users to perform tasks such as creating, querying, updating, and deleting data. SQL operates through various commands, including SELECT for data retrieval, INSERT for data insertion, UPDATE for data modification, and DELETE for data removal. SQL's versatility and power make it a fundamental tool for database administrators, developers, and analysts to interact with data and ensure efficient data management.

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**\*\*Steps:\*\***

# In this we are going to create SQL database using RDS , So let’s get started…

**Step 1 ( Creating Database )**

# Firstly we have to search RDS on AWS management console...

# After coming to RDS dashboard follow the steps…

* On the left side you will see databases click on it
* Now click on create database
* Next select standard in database creation method
* Now select SQL in engine option
* Then select the SQL version from engine version drop-box

# You can select which ever SQL version you are confortable with there are old to latest all versions available…

* Now free-tier in the templates sections

# There are 2 more options Production and dev/test which will be used in company for now you have to select FREE only otherwise charges will added of that…

* Now come down to setting section and give your database name in DB-Instance
* Next give your username in Master username
* Now give the password in Master Password

# This password will be your SQL password which will used for login SQL

#Note – The password should be fully ASCII character no special symbols are allowed…

* Now in storage autoscaling section disable the auto-scaling option
* Now scroll down till public access section and click yes

# It only practice purpose you have to click YES but in real time public access will always be NO…

* Next select create new in VPC security group
* Now enter the VPC name

# If you have your existing which is secure you can use that also otherwise create new one..

* Now scroll down and click create database

# Now wait till the database is created…

# After Successfully created database a credential pop-up will appear with master username, master password and endpoint link…

**Step 2 ( Creating EC2 Instance )**

# You can create the instance by following the instructions on EC2 Dashboard like we have previously…

**Step 3 ( Connecting SQL )**

# After launching the instance connect it and Follow the commands…

* sudo yum update
* Sudo yum install mysql
* Mysql –h (HOST ID) –u (Master Username) –p

**# Here in above command replace the following things…**

**( HOST ID ) = Replace it with database endpoint**

**( Master Username ) = Replace it username you have given in the credentials**

**# IT WILL LOOK LIKE THIS –**

Mysql –h mydatabse.c9ryztre4ci1.eu-west-3.rds.amazonaws.com –u admin –p

* Next you have to enter you SQL password

# Don’t worry while typing password will be hidden you should type and hit enter

# Now your SQL Database is ready to use…

**#### THE END ####**

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**\*\*Explanation:\*\***

Setting up a MySQL database in Amazon RDS and establishing a connection to an EC2 instance involves a series of structured steps within the AWS ecosystem. The process begins with accessing the AWS Management Console and navigating to the Amazon RDS service. There, you initiate the creation of a new database instance by selecting "Create Database" and opting for the "Standard Create" method. Choosing the MySQL database engine and specifying its version is essential in this stage.

Customizing the instance details, such as the type of instance and storage, along with determining whether multi-AZ deployment is needed, contributes to the configuration of the RDS environment. Assigning a master username and password is crucial for security and access management. In terms of networking, configuring the Virtual Private Cloud (VPC) settings, security groups, and other network-related parameters ensures a seamless integration with other AWS resources.

Once the RDS instance becomes active, the next phase entails connecting to it through a MySQL client, such as MySQL Workbench or the command-line client. Within this connection, you utilize SQL commands to create databases, define tables, and establish the schema according to the specifications of your application. Ensuring proper communication between the RDS instance and the EC2 instance involves configuring security groups to allow incoming connections from the EC2 instance's security group.

Moving on to the EC2 instance, you launch it within the same Virtual Private Cloud (VPC) as the RDS instance. Here, you select an appropriate Amazon Machine Image (AMI) and instance type, aligning with the requirements of your project. To establish the connection between the EC2 instance and the RDS instance, you SSH into the EC2 instance using an SSH client. In this environment, you install the MySQL client if not already present, allowing you to utilize MySQL commands. Through the MySQL client, you establish a connection to the RDS instance by utilizing the RDS endpoint, master username, and password that you previously configured.

Ensuring that the connection is functioning correctly involves running basic SQL queries on the EC2 instance to verify successful interaction with the MySQL database in RDS. Tools like MySQL Workbench can also be utilized to validate the connection and execute essential database operations. Throughout this process, adhering to AWS's best practices for security, backups, and maintenance is crucial to maintaining a robust and secure database environment in the cloud. Always consult the official AWS documentation and MySQL documentation for accurate and up-to-date guidance tailored to your specific needs.