Notes


# AWS Project Documentation

# Visualize a Relational Database Using AWS Quicksight


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Notes

# AWS RDS :

AWS RDS (Relational Database Service) is a managed service by Amazon Web Services that simplifies the setup, operation, and scaling of relational databases in the cloud. It supports multiple database engines and automates time-consuming tasks like backups, software patching, and hardware provisioning. Here's an overview:

Key Features of AWS RDS

1. Multi-Database Engine Support:
    - Amazon Aurora (MySQL and PostgreSQL-compatible)
    - MySQL
    - PostgreSQL
    - MariaDB
    - Oracle Database
    - Microsoft SQL Server
2. Scalability:
    - Scale compute and storage independently as per your needs.
3. High Availability:
    - Supports Multi-AZ (Availability Zone) deployments for failover protection.

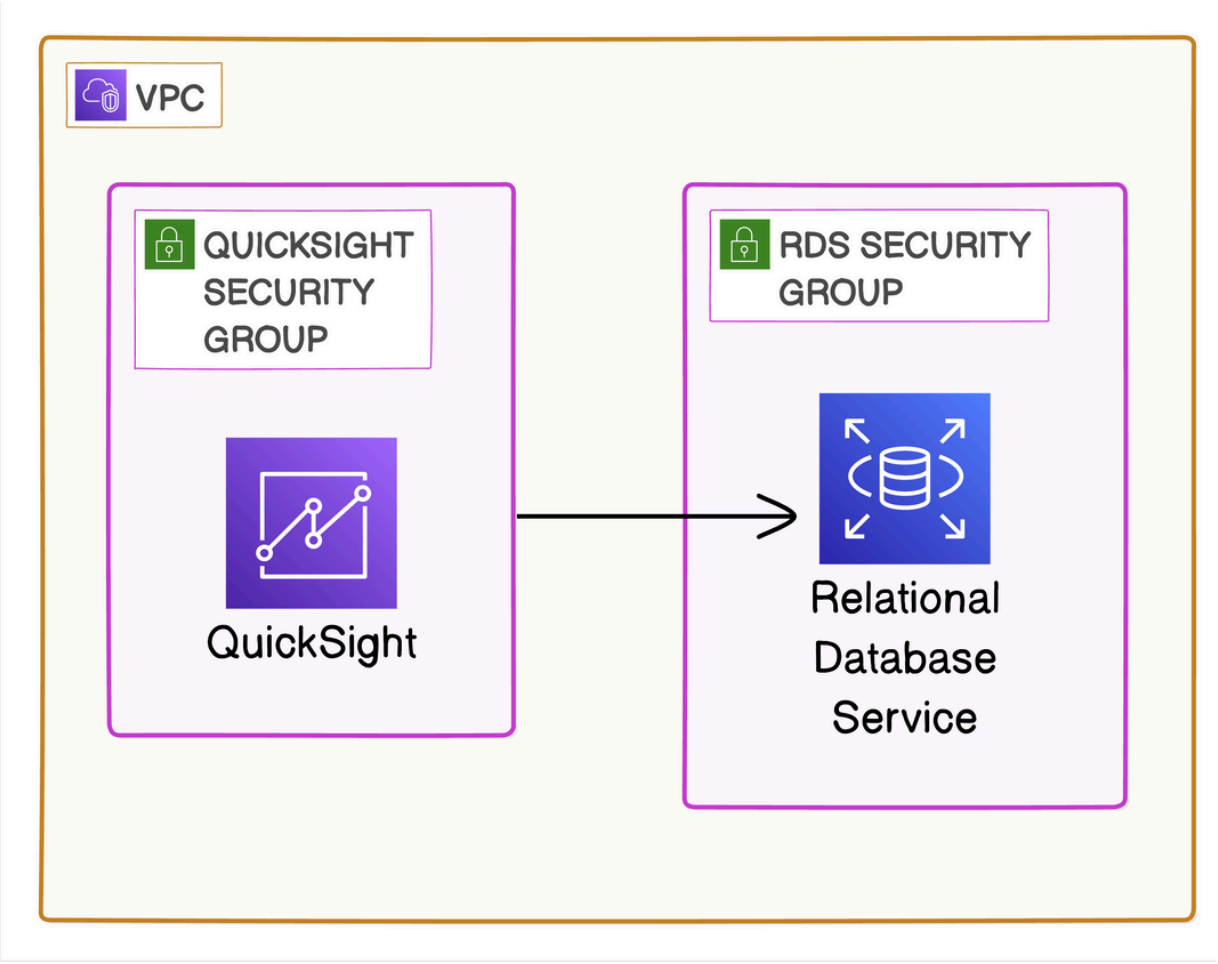
4.Backup and Restore:
   a. Automated backups and point-in-time recovery.
   b. Manual snapshots for data retention.
5.Security:
   a. Data encryption at rest and in transit using AWS KMS.
   b. Network isolation with VPC (Virtual Private Cloud).
   c. IAM integration for access management.
6.Performance:
   a. Read replicas for read-heavy workloads.
   b. Performance insights to monitor and optimize.
7.Cost Management:
   a. Pay-as-you-go pricing.
   b. Reserved instances for cost savings.

**Common Use Cases :**

- Web and mobile applications with relational data needs.
- Data analytics and reporting.
- Enterprise applications such as CRM, ERP, and e-commerce.
- Development and test environments.

# Notes

## Architecture :




## Steps to build :

Step 1: Create an AWS RDS MySQL Instance

- Log in to AWS Management Console.
  - Go to the RDS Dashboard.
- Create a Database:
  - Click Create Database.
  - Select Standard Create.
  - Choose MySQL as the database engine.
  - Select a version (default or latest recommended version).

- Configure the Instance:
  - Deployment Option: Choose Multi-AZ for high availability or Single-AZ for cost savings.
  - Instance Class: Select an appropriate class (e.g., db.t3.micro for testing).
  - Storage: Set allocated storage (e.g., 20 GB).
- Set up Credentials:
  - Define the Master username and Password.
- Configure Connectivity:
  - Set Public Access to Yes if you want to connect via the internet.
  - Select a VPC, Subnet, and Security Group.
  - Enable or disable encryption as needed.
- Additional Configuration:
  - Enable Automatic Backups.
  - Set the retention period, maintenance window, etc.
- Launch the Instance:
  - Click Create Database.
  - Wait for the database to be in the Available state.

Step 2: Connect RDS to MySQL Workbench

- Install MySQL Workbench:
  - Download and install it from the official website.
- Get RDS Endpoint:
  - Go to the RDS dashboard, select your instance, and copy the Endpoint under the Connectivity & Security tab.

- Set Up Security Group:
  - Edit the security group for your RDS instance.
  - Add an Inbound Rule allowing MySQL/Aurora (port 3306) from your IP address.
- Connect in MySQL Workbench:
  - Open MySQL Workbench and click + to create a new connection.
  - Enter:
    - Connection Name: Any name (e.g., "My RDS").
    - Hostname: RDS Endpoint.
    - Port: 3306.
    - Username: The Master username set during RDS creation.
    - Password: Click Store in Vault and enter the password.
  - Click Test Connection. If successful, click OK.
- Start Using the Database:
  - You can now run SQL queries, create tables, and insert data.
- Step 3: Visualize Data in AWS QuickSight
- Sign Up for AWS QuickSight:
  - Go to the QuickSight dashboard.
  - Complete the sign-up process (choose a Standard or Enterprise edition).
- Set Up a Data Source:
  - In QuickSight, go to Datasets > New Dataset.
  - Choose RDS as the data source.
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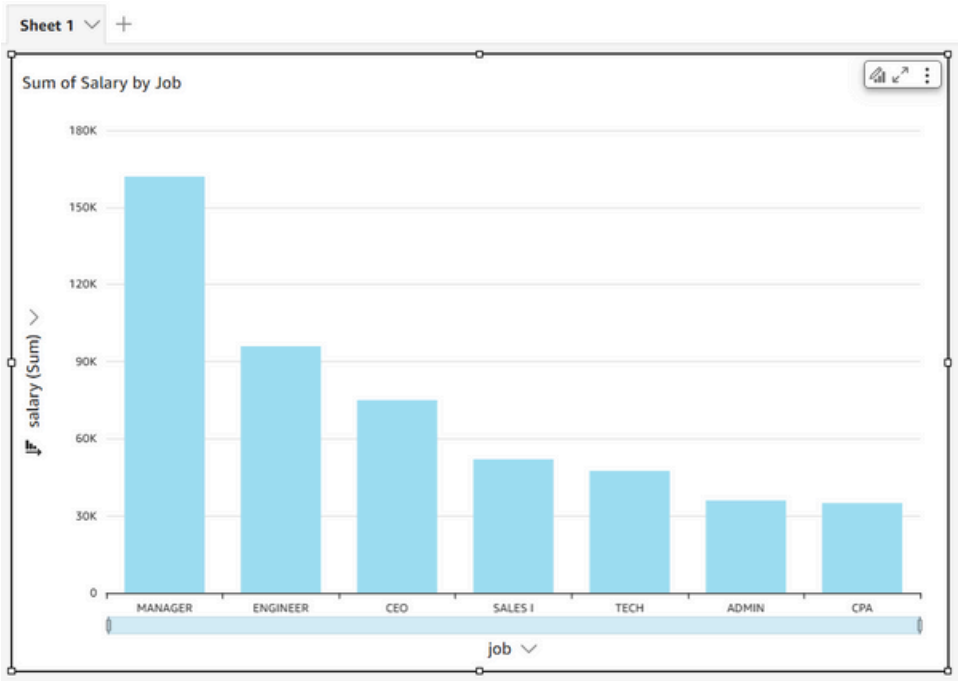
- Connect QuickSight to RDS:
  - Select the RDS instance and provide the database connection details (endpoint, username, password).
  - Grant QuickSight access to the RDS instance (set up VPC and security group permissions if needed).
- Prepare and Visualize Data:
  - Import the tables or write custom queries.
  - Transform the data if necessary.
  - Create dashboards, charts, and visualizations.

## Sample Output:




For Any References :

- https://learn.nextwork.org/projects/aws-databases-rds?track=high
- https://aws.amazon.com/getting-started/hands-on/create-mysql-db/?ref=gsrchandson