
✅ **Steps to Use Amazon RDS via AWS Educate**

1. **Login to AWS Educate**
   Launch the AWS Console from your classroom.
2. **Search for "RDS"** in the AWS Console search bar.
3. **Click "Create database"**.
4. **Choose database creation method**
   - Select “Standard Create” for full customization.
5. **Choose engine**
   - e.g., MySQL, PostgreSQL, Oracle, SQL Server.
   - Pick **MySQL** (commonly used and free-tier eligible).
6. **Choose template**
   - Select “Free tier” (for learning purpose).
7. **Set DB instance identifier, master username & password.**
8. **Choose instance type**
   - Free tier: db.t3.micro.
9. **Storage**
   - Use default settings (20 GB storage, auto scaling optional).
10. **Connectivity**

- Choose default VPC.
- Make sure **Public access = Yes** if you want to access from outside AWS.

11. **Create a new security group** or use default. Allow port **3306** for MySQL.
12. **Click “Create database”**.
13. Wait until the status shows **“Available”**, then connect using a MySQL client like **MySQL Workbench** or **DBeaver** with the endpoint provided.

✅ **Viva Questions and Answers**

🔹 Basics

1. What is Amazon RDS?
Ans: Amazon RDS (Relational Database Service) is a cloud service that makes it easy to set up, manage, and scale a relational database in the cloud.

2. What does "relational database" mean?
Ans: A relational database stores data in tables with rows and columns, and uses SQL to manage and query data.

3. What are the supported databases in RDS?
Ans:

- MySQL
- PostgreSQL
- Oracle
- SQL Server
- MariaDB
- Amazon Aurora

4. What is the use of RDS?
Ans: It's used to host databases without worrying about hardware, patching, or backups. It handles most of the management tasks automatically.

🔹 Database Setup & Connectivity

5. What is DB instance in RDS?
Ans: A DB instance is the database environment you create on RDS. It includes the database engine, storage, and computing capacity.

6. What is a DB endpoint?
Ans: It is the address (like a URL) that you use to connect your application or client to the RDS database.

7. What is a DB identifier?
Ans: It's the name you give to your RDS instance to identify it within your AWS account.

8. Which port is used by MySQL in RDS?
Ans: Port **3306**.

9. How do you connect to your RDS instance?
Ans:
Using a MySQL client (like Workbench) with:

- Hostname (endpoint)
- Port
- Username
- Password

🔹 **Security & Performance**

10. What is a security group in RDS?
Ans: It's like a firewall that controls which devices or IPs can access your database.

11. What is Multi-AZ deployment?
Ans: It creates a standby copy of your database in another zone for high availability. If one zone fails, your DB still works.

12. What is storage autoscaling in RDS?
Ans: It automatically increases the storage capacity if needed.

13. How does RDS handle backups?
Ans: RDS automatically creates daily backups during the backup window and stores transaction logs.

14. Can you access RDS from the internet?
Ans: Yes, if you enable **public access** and configure the security group properly.

🔹 **Cost and Free Tier**

15. Is RDS part of the AWS Free Tier?
Ans: Yes, for new accounts:

- 750 hours/month of db.t3.micro
- 20 GB of storage
- 20 GB for backups

16. What happens if you go beyond free tier limits?
Ans: You'll be charged based on AWS pricing.

🔹 **Advanced Concepts**

17. What is Amazon Aurora?
Ans: Aurora is a high-performance RDS database engine developed by AWS. It's faster than MySQL and PostgreSQL but still compatible.

18. What's the difference between RDS and EC2-hosted databases?
Ans:

- **RDS**: Managed by AWS, easier to use.
- **EC2 DB**: Fully manual setup, more flexible but requires more work.

19. What is Read Replica in RDS?
Ans: It is a copy of your DB used to offload read operations and improve performance.

20. What is the difference between snapshot and backup in RDS?
Ans:

- **Snapshot**: Manual backup that you can create anytime.
- **Automated backup**: Done by AWS daily, can be restored within a retention period.
