AWS Databases

CLARUSWAY
WAY TO REINVENT YOURSELF

Today's Takeaways

▸ Introduction to Database

▸ Amazon RDS

▸ MySQL Workbench

CLARUSWAY
WAY TO REINVENT YOURSELF

1 Introduction to Database
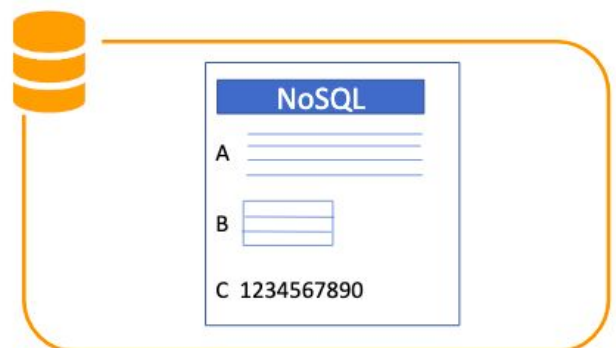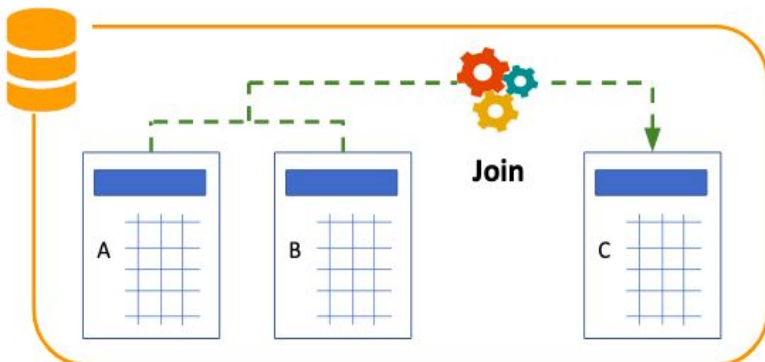
Introduction to Database

What is Database?

Introduction to Database
Type of Database?

Relational/SQL

Non-Relational/NoSQL

Introduction to Database
Type of Database?

Relational/SQL
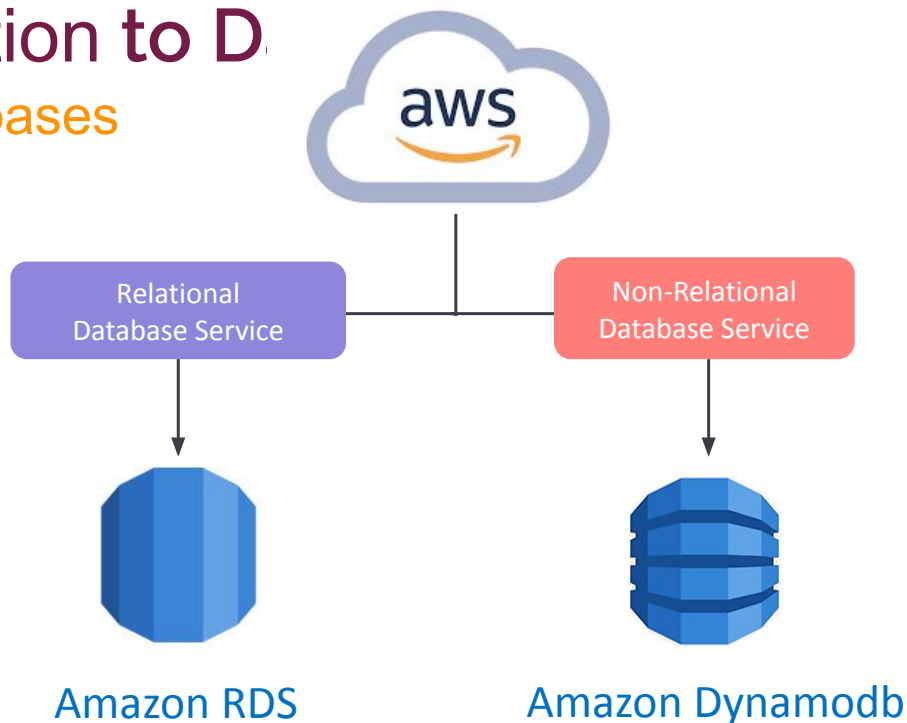
Non-Relational/NoSQL

Introduction to Database

Type of Database?

Introduction to D

AWS Databases

Amazon RDS

Amazon Dynamodb

Introduction **to Database**
SQL vs. NoSQL ?

SQL	NoSQL
Relational	Non-Relational
Table-based	Document-based, key-value pairs, graph databases or wide-column stores
Predefined Schema	Dynamic Schema
Uses SQL	As the name suggest, it doesn't use SQL
Used for complex queries	Used for simple queries
Available for **Join** function	Not available for **Join** function

2 Amazon RDS

RDS

What is RDS?

Amazon RDS

RDS

Basic Components

Amazon RDS

EC2

PostgreSQL
MariaDB

Database Engines
DB Instance
Storage Disk
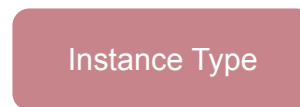
db.t2.micro

AMI
Instance Type
Storage Disk/ Root Volume

Red Hat   Amazon Linux

t2.micro

RDS
Database Engines

Amazon Aurora

ORACLE

MariaDB

PostgreSQL

Microsoft SQL Server

MySQL

RDS
Database Instance

RDS

Pricing

D — On Demand Instance

R — Reserved Instance

Purpose

M — Memory Optimized

G — General Purpose

B — Burstable

RDS
Instance Storage
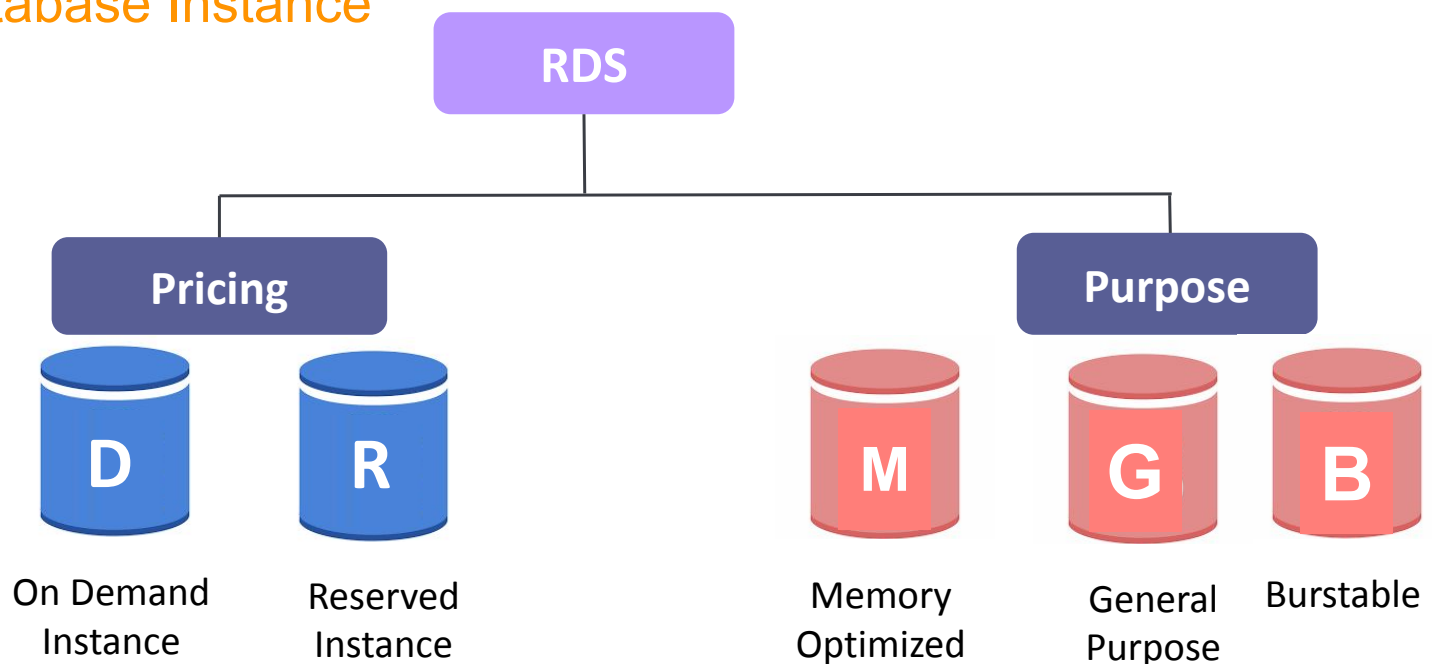
```
            ┌──────────────────┐
            │   Amazon RDS     │
            │     Storage      │
            └──────────────────┘
                     │
     ┌───────────────┼───────────────┐
┌─────────────┐ ┌─────────────┐ ┌─────────────┐
│General Purpose│ │Provisioned IOPs│ │  Magnetic   │
│(SSD) Storage │ │(SSD) Storage │ │   Storage   │
└─────────────┘ └─────────────┘ └─────────────┘
```
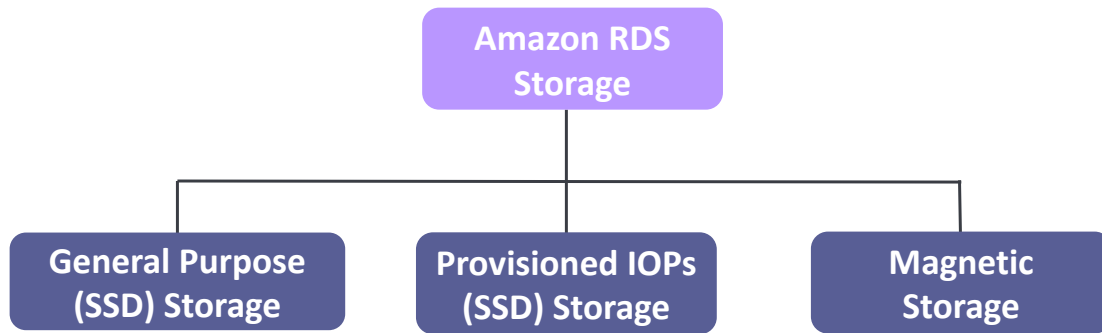
Cost-effective   **Fast and consistent I/O**   **Not recommended**

There is an important factor in the databases as much as CPU and RAM power, which is the value of IOPs of storage
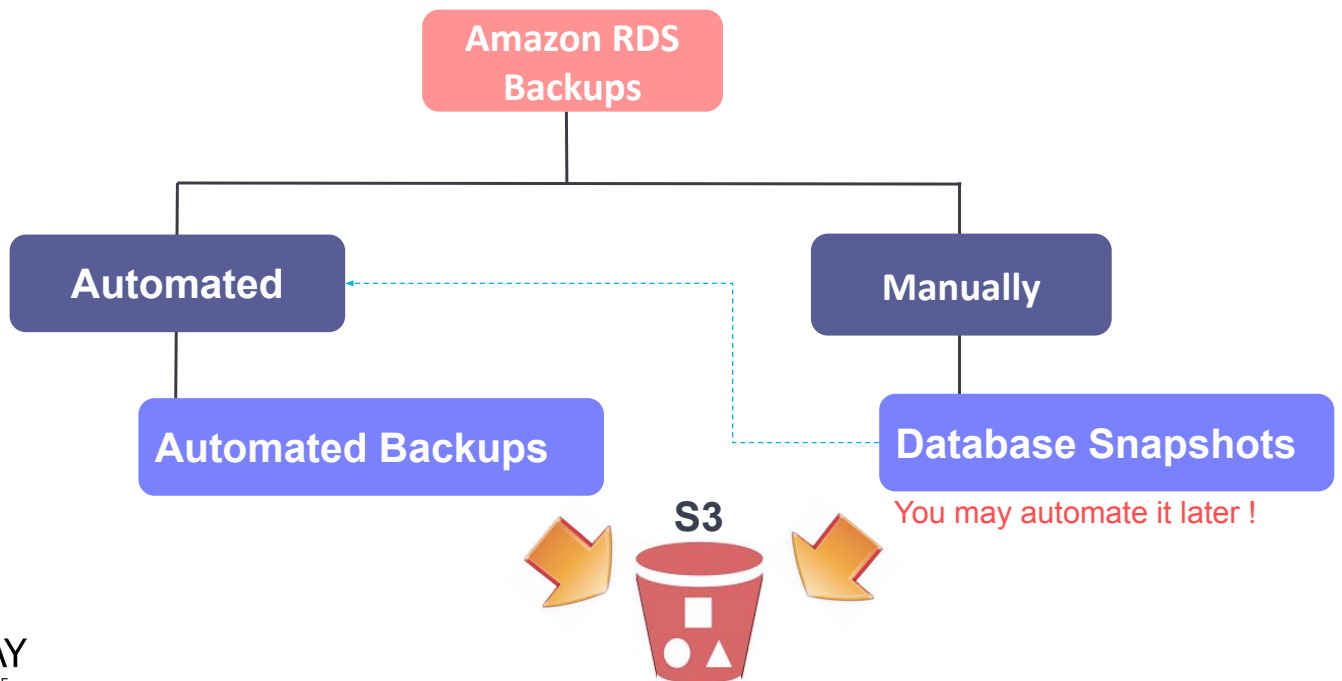
RDS
MySQL Workbench

MySQL Workbench   DB Instance

MySQL Workbench = Graphical tool for working with MySQL databases.

RDS

DB Instance Backups

Amazon RDS Backups

Automated — Automated Backups

Manually — Database Snapshots

You may automate it later !

S3

RDS

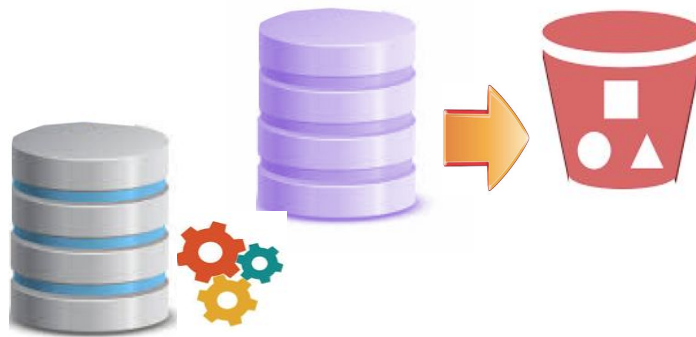### DB Instance Automated Backups

35 days

TRANSACTION LOG
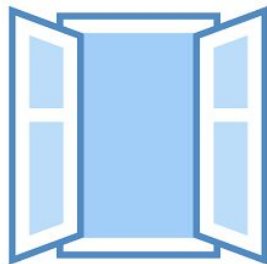
5 minutes

RDS
DB Instance Snapshot

RDS
RDS Multi-AZ Deployment

Which database will respond ?

No   Failover   Yes

M
Primary DB Instance

S
Standby DB Instance

Availability Zone-A

Availability Zone-B

Read   Write

Read   Write
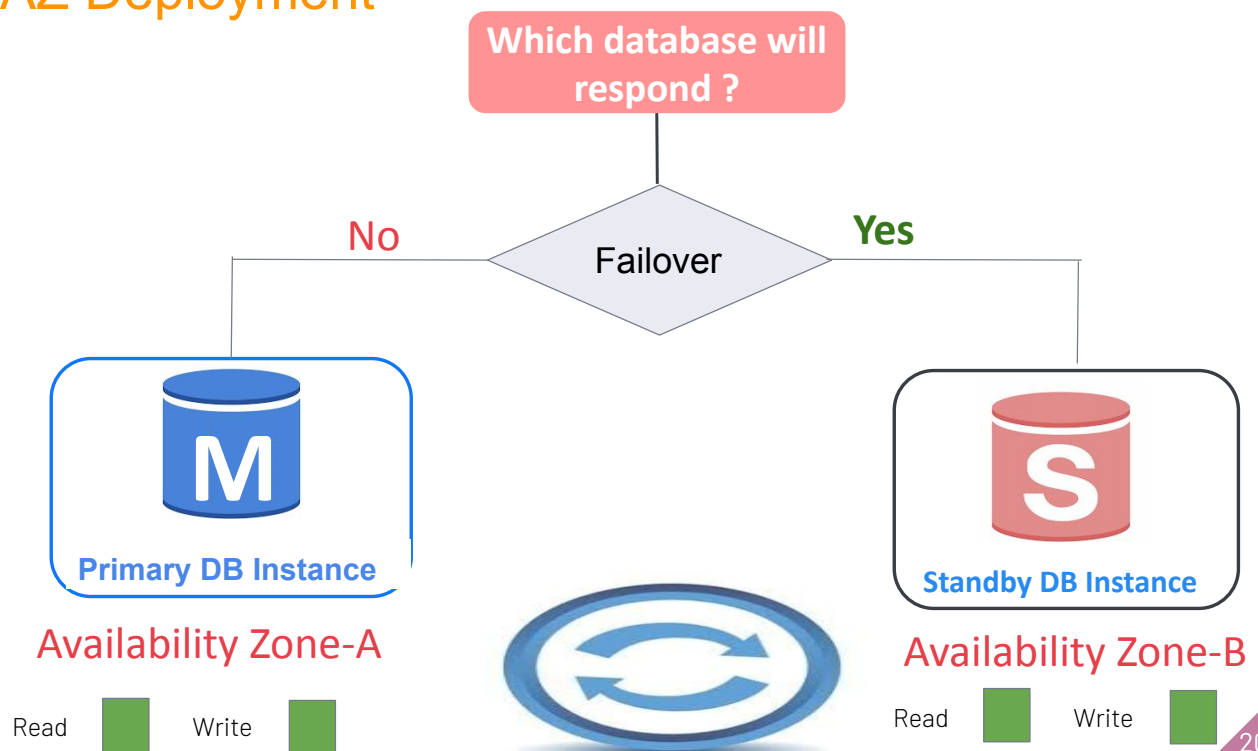
RDS
RDS Multi-AZ Deployment Life Cycle

Upon the failure

AZ-1a

Primary

New Standby in AZ-1a

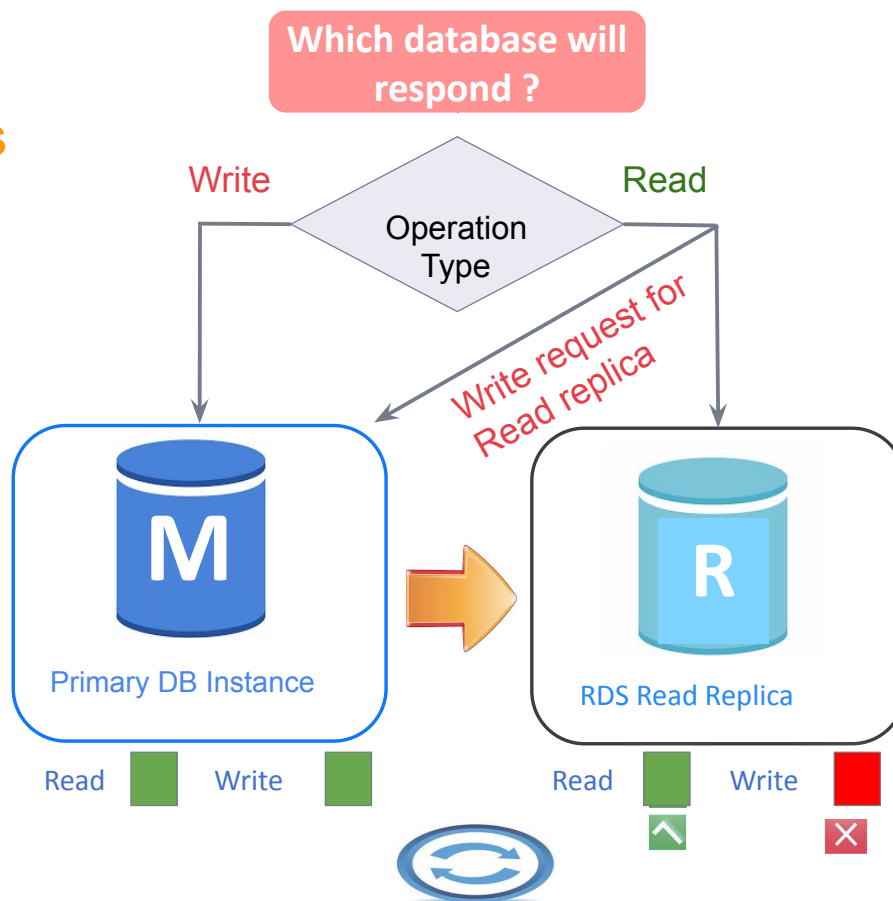**AZ-1b**

Standby

Promoted to the Primary DB

RDS
Read Replicas

Which database will respond ?

Write

Read

Operation Type

Write request for Read replica

M
Primary DB Instance

R
RDS Read Replica

Read   Write

Read   Write

RDS

Aurora Multi-Master clusters

Read   Write

Operation Type

Read   Write

First DB Instance

Second DB Instance

Read   Write

Read   Write

CLARUSWAY
WAY TO REINVENT YOURSELF

RDS

Let's get our hands dirty!

- Creating a RDS Instance
- Connecting DB via MySQL Workbench

CLARUSWAY
WAY TO REINVENT YOURSELF

THANKS!

Any questions?