

AWS Certified Cloud Practitioner
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AWS Services Overview

Database Services

AWS Database Services Overview

- Amazon RDS
- Amazon Aurora
- Amazon DynamoDB
- Amazon ElastiCache



Database

RDS

DynamoDB

ElastiCache

Neptune

Amazon Redshift

Amazon DocumentDB

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Introduction to Relational Databases (SQL)

Introduction to Relational Databases

- What is a Database ?
- A Database is just a location to store and retrieve data
- Microsoft Excel is a great example, think of spreadsheets in Excel where information is stored in columns and rows
- RDBs can use information from multiple tables and combine it (create relations between tables), helping you to create complex database systems

Relational Databases Example

F12								
	A	B	C	D	E	F	G	H
1	Courses			Students			Registration	
2	Course Name	Course ID		Student Name	Student ID		Registration ID Number	
3	Math	123		Mary	135		Course ID	
4	History	234		John	246		Student ID	
5	Physics	456		Gabriel	357			
6								

Course Table

Courses	
Course Name	Course ID
Math	123
History	234
Physics	456

Students Table

Students	
Student Name	Student ID
Mary	135
John	246
Gabriel	357

Registration Table

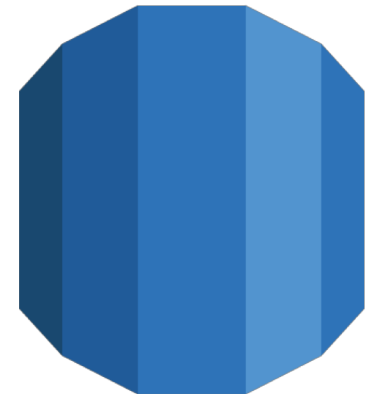
Registration	
Registration ID Number	
Course ID	
Student ID	

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Amazon RDS – Relational Database Service

Amazon RDS – Relational Database Service

- AWS Relational Database Service (RDS) makes it easy to set up, operate & scale a relational database in the cloud
- It provides cost-efficient and resizable capacity while managing time-consuming database administration tasks, freeing you up to focus on your applications and business
- Amazon RDS is fast and easy to administer, highly scalable, available and durable, inexpensive and secure



Amazon RDS

Amazon RDS – Relational Database Service

Step 1

Select engine

Step 2

Specify DB details

Step 3

Configure advanced
settings

RDS > Create database

Select engine

Engine options

☒ Amazon Aurora

Amazon
Aurora

☐ MySQL



☐ MariaDB



☐ PostgreSQL



☐ Oracle

ORACLE®

☐ Microsoft SQL Server



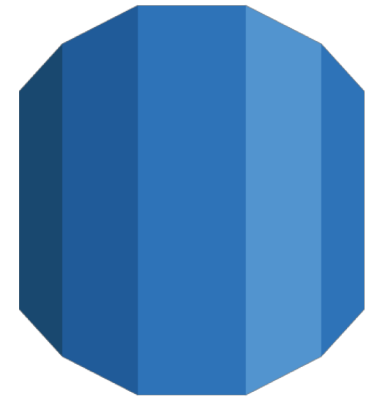
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Amazon Aurora

Amazon Aurora

- Amazon Aurora is a MySQL and PostgreSQL compatible relational database engine that combines the speed and availability of high-end commercial databases with the simplicity and cost-effectiveness of open source DBs
- AWS Aurora is highly scalable (32vCPU, 244 Gb RAM), highly available (99.99%), highly secure(encryption at rest and in transit-SSL) MySQL and PostgreSQL compatible and it is fully managed by AWS



Amazon Aurora

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Introduction to Non-Relational Databases (NoSQL)

Introduction to NoSQL Databases

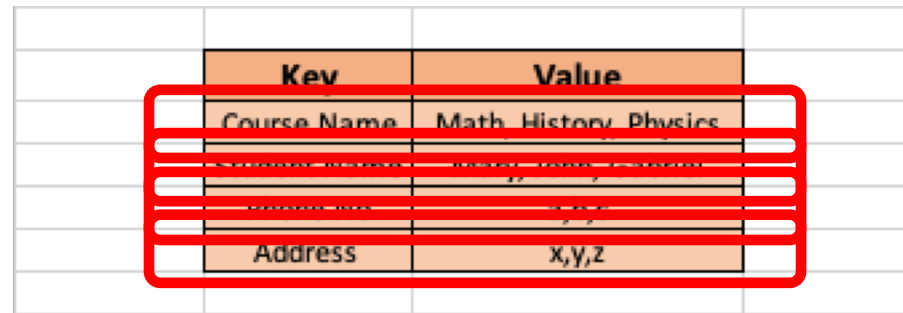
- With relational databases you need to have DB structure defined before you consume data (insert data)

F12								
	A	B	C	D	E	F	G	H
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5	Physics	456		Gabriel	357			
6								

- Where to insert Student phone number ?
- Field not available; define a new column and start populating the DB with new information as required

Introduction to NoSQL Databases

- With NoSQL databases, you are given the flexibility to use data and insert it in your DB as you go, without prior defining the “column”, as in the previous example
- An example of NoSQL databases is using key/value pairs



Key	Value
Course Name	Math, History, Physics
Address	x,y,z

- NoSQL databases are widely recognized for their ease of development, functionality, and performance at scale

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Amazon DynamoDB

Amazon DynamoDB

- Amazon DynamoDB is a fast and flexible NoSQL database service for all applications that need consistent, single-digit millisecond latency at any scale
- Amazon DynamoDB is fast (single digit latency), highly scalable, fully managed by AWS, flexible (supports multiple NoSQL DB types), event-driven programming (AWS Lambda) and flexible user access control (IAM)



Amazon DynamoDB

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Amazon ElastiCache

Amazon ElastiCache

- AWS ElastiCache is a web service that makes it easy to deploy, operate and scale in-memory cache in the cloud
- The service improves the performance of web applications by allowing you to retrieve information from fast, managed, in-memory caches, instead of relying entirely on slower disk-based DBs
- Amazon ElastiCache supports two open-source in-memory caching engines: Redis and Memcached



Amazon ElastiCache

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Thank you