

Databases
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Research Assignment
AWS (Amazon Elastic Beanstalk)

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Introduction:

AWS (Amazon Elastic Beanstalk) is a Platform as a Service (PaaS) provider that offers a variety of data stores to its users. These data stores include:

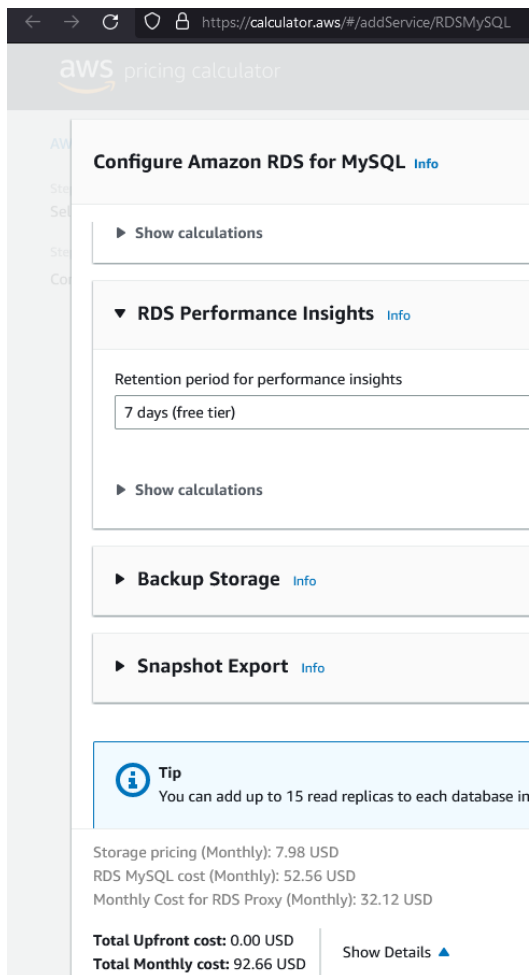
1. **Amazon RDS:** Amazon Relational Database Service (RDS) is a fully-managed database service that makes it easy to set up, operate, and scale a relational database in the cloud. Amazon RDS supports multiple database engines, including Amazon Aurora, PostgreSQL, MySQL, MariaDB, Oracle Database, and SQL Server.
2. **Amazon DynamoDB:** Amazon DynamoDB is a fully-managed NoSQL database service that provides fast and predictable performance with seamless scalability. DynamoDB supports both document and key-value data models and automatically scales throughput capacity to meet the needs of any application.

Performance and Cost Analysis:

In terms of performance, Amazon RDS is a good choice for applications that require a relational database, while Amazon DynamoDB is a good choice for applications that require a flexible and scalable NoSQL database. Both data stores offer high availability, durability, and security.

For cost analysis, let's consider a hypothetical application scenario for relatively small application. We can get such result from [AWS.Calculator](#)

1. Amazon RDS:



The screenshot shows the AWS Pricing Calculator interface for configuring Amazon RDS for MySQL. The browser address bar displays <https://calculator.aws/#/addService/RDSMySQL>. The page title is "aws pricing calculator". The main heading is "Configure Amazon RDS for MySQL" with an "Info" link. Below this, there are several expandable sections: "Show calculations", "RDS Performance Insights" (expanded), "Backup Storage", and "Snapshot Export". The "RDS Performance Insights" section shows a retention period of "7 days (free tier)". A "Tip" box states: "You can add up to 15 read replicas to each database instance". At the bottom, the pricing summary is displayed:

Category	Cost (Monthly)
Storage pricing	7.98 USD
RDS MySQL cost	52.56 USD
Monthly Cost for RDS Proxy	32.12 USD
Total Upfront cost	0.00 USD
Total Monthly cost	92.66 USD

A "Show Details" link is available next to the total monthly cost.

Monthly cost = 92.66 USD. Thus, yearly cost = $92.66 \times 12 = \$1111.92$ (approximately)

2. Amazon DynamoDB: 📌

← → ↻ 🔒 https://calculator.aws/#/addService/DynamoDB

aws pricing calculator

Configure Amazon DynamoDB [Info](#)

0

Baseline read rate
Enter the number of reads per second that your workload needs during off-peak periods.
100

Peak read rate
Enter the maximum number of reads per second your workload needs during peak periods.
400

Duration of peak read activity
Enter the number of hours per month when your read workload operates at peak.
72

Percentage of baseline reads covered by reserved capacity
The reserved capacity also applies to your peak read rate.
100

Read reserved capacity term
1 year

► Show calculations

Monthly write cost (Monthly): 27.85 USD
Monthly read cost (Monthly): 3.37 USD
Upfront write cost (Upfront): 178.00 USD
Upfront read cost (Upfront): 35.60 USD

Total Upfront cost: 213.60 USD | [Show Details ▲](#)
Total Monthly cost: 31.22 USD

From aws calculator, we can see monthly cost = 31.22 USD. Thus, yearly cost = $31.22 \times 12 = 374.24$ USD.