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Question:

Out of DynamoDB, MySQL, and Redis, if you're building a leaderboard for a game, which database would you choose? Explain the pros and cons of each database.

Answer:

Leaderboard stores the score of the top ranked players and it requires updates frequently. It contains only about 10 to 100 entry points. Thus, performance should be the top priority. After careful consideration, Redis should be the best pick out of the three options.

Amazon DynamoDB has many advantages, which include but not limited to scalability and performance (SSD storage). However, it requires the global network. Despite the fact that today's network is no longer a bottleneck, if the local system is capable of handling the workload, local system is still a better choice. Thus, comparing the three options, MySQL and Redis are the better choice because they don't require global network.

Redis holds its database entirely in memory, using the disk only for persistence. Thus, it gives the advantage of performance. Despite the fact that Redis isn't the first choice to hold data with large size, it should not be a concern here because the leaderboard only contains about 10 to 100 entry points. Thus, comparing to MySQL, Redis is a better choice in this case.

	Pro	Con
Amazon DynamoDB	Scalability/performance	Require public network
Redis	Performance	Not ideal for large data size
MySQL	Popularity	Not as fast as Redis