Database 2

Precious Oziwo

My computer Specification

- HP Pavillion
- Intel(R)Core(TM)i7-1065G7 CPU @ 1.30GHz 1.50GHz
- 8.00GB RAM
- 64-bit OS

Software

- Visual Studio 2022
- Mongo DB compass
- SQL Server 18

Summary:

There are 2 database that was tested for CRUD Operation for rows of 1, 1,000, 100,000 and 1,000,000.

ADO.NET was the fastest in terms of Inserting and Reading data, however there was some issues with the server timing out when updating over 1,000 rows and deleting 1,000,000 rows.

MongoDb on the other hand was slower than ADO.NET when inserting and reading data but seems to have complete all crud execution even though it took more time, there was no server time issues.

Entity Framework was faster when inserting, reading, reading and updating less than 1,000 rows however it took to long to show results of over 100,000.

CREATE

Number of Rows	NoSQL Speed	ADO.NET	Entity Framework
1	0.07 millisec	0.00459 millisec	0.006 millisec
1,000	1 sec	2 sec	0.007 millisec
100,000	59 sec	55 sec	Took too long
1,000,000	7:25 (8 min 25 sec)	5:40 (5 min 40 sec)	Took too long

Read

Number of Rows	NoSQL Speed	ADO.NET	Entity Framework
1	0.9 millisec	0.00643 millisec	0.001millisec
1,000	13 sec	1 sec	0.003millisec
100,000	22 sec	13 sec	1secs

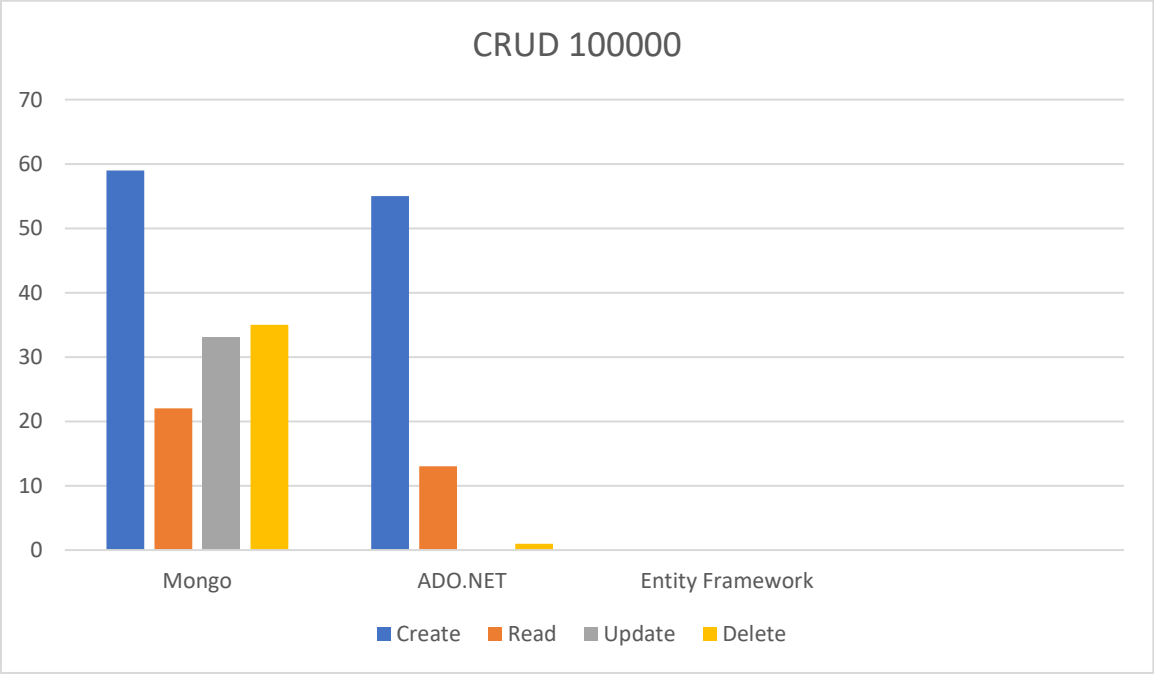
1,000,000	1:45 (1 min 45 sec)	1:39 (1 min 39 sec)	Took too long

Update

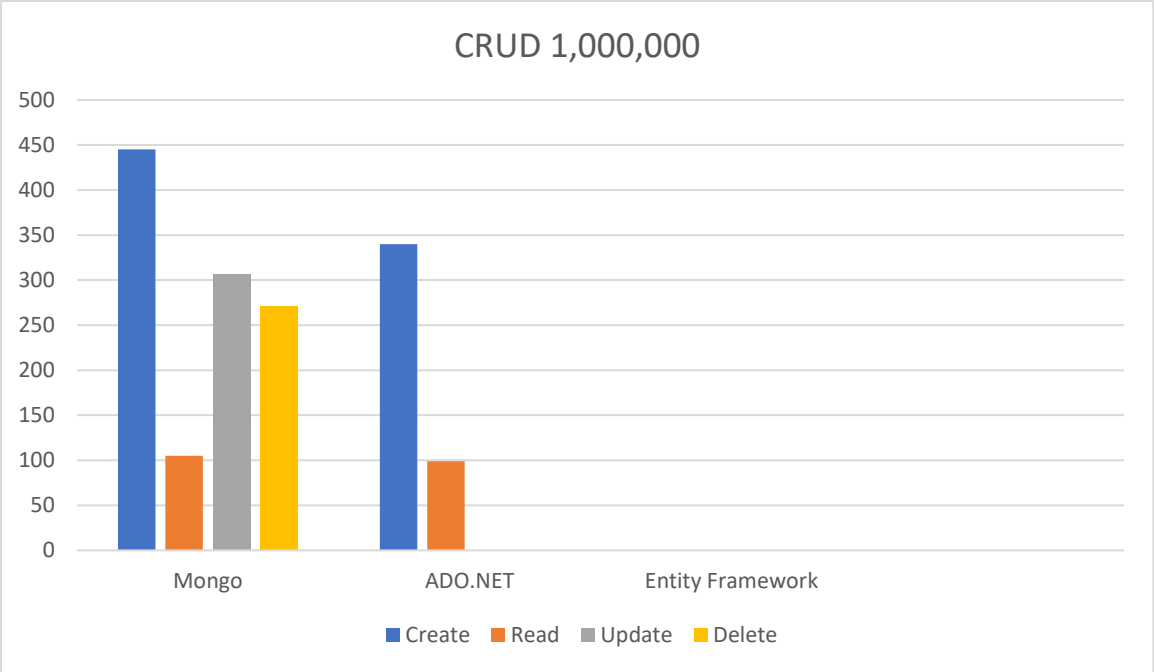
Number of Rows	NoSQL Speed	ADO.NET	Entity Framework
1	0.9 millisec	12 sec	0.004millisec
1,000	0.6 millisec	Took too long	0.006millisec
100,000	33 sec	Took too long	Took too long
1,000,000	5:06 (5 mins 6 sec)	Took too long	Took too long

Delete

Number of Rows	NoSQL Speed	ADO.NET	Entity Framework
1	0.7 millisec	15 sec	0.003millisec
1,000	0.7 millisec	0.001924 millisec	0.005millisec
100,000	35 sec	1 sec	Took too long
1,000,000	4:31 (4 mins 31 sec)	Took too long	Took too long



For creating 100,000 rows, ADO.NET was the fastest with execution time of 55 seconds, Mongo took around 59 seconds while Entity framework took too long. For Reading data and delete data, ADO.NET was faster than Mongo and Entity Framework with 13 and 1 seconds respectively. Mongo read and delete data took around 22 and 35 seconds while Entity Framework took too long. The ADO.NET Update timed out while Entity Framework took too long, however mongo Update took 33 seconds to excute.



For creating and Reading 1,000,000 rows, ADO.NET took lesser time to finish execution compared to Mongo. ADO.NET could not complete the Update and Delete because of Server timed out. Mongo on the other hand was able to complete it execution for Update and Delete data around 306 seconds and 271 seconds respectively. Entity Framework took too long to complete thereby has undetermined result.