Will the NoSQL revolution spell the end to the relational data model? Support your answer by reading and citing 3 online articles that discuss NoSQL over SQL.

The NoSQL revolution has shone a light on the limitations of SQL in a growing world of digital information. It is difficult to ignore the differences between relational and non-relational models when directly comparing them. One article from student researchers at the University of Rochester features a comparative analysis of performance between two NoSQL programs and MySQL (Wang & Yang, 2017). BerkleyDB, a key-value store non-relational model, has faster reads and writes than MongoDB, a document store non-relational model, and MySQL, an RDBMS. MySQL reads are significantly worse than MongoDB; however, MongoDB demonstrates slightly worse performance with writes. SQL takes a lot of time to ensure consistency in the database. SQL better ensures and maintains data integrity (Anderson & Nicholson, 2022). Regardless of the platform, SQL supports ACID transactions, which allow for multiple users to access and update the database without interfering with consistency. Integrity constraints also help ensure the database is accurate. These constraints are essential in certain applications that need to prioritize accuracy and consistency over fast availability. Although MongoDB now supports ACID transactions, most non-relational databases do not, so SQL, overall, has the advantage in these applications. SQL can still handle complex queries better than NoSQL databases. On top of that, schema designs in relational models may be more understandable and require less of a learning curve for developers and users.

One article from LearnSQL.com argues SQL will remain due to its popularity, importance in AI, and growing use of SQL cloud programs (Romanowski, 2025). According to Stack Overflow 2024 Annual Survey, the top four databases used by respondents were all relational database management systems. (2024 Developer Survey 2.0 Technology, 2024). The article cites the 2024 Forrester Report on AI to defend SQL as integral to AI development; however, the link to the source that is provided does not support such claim. Instead, it suggests that pipelines to leverage unstructured data, such as social media posts, will become increasingly valuable to companies (Khater, 2023). The report predicts that the amount of unstructured data managed by enterprises will double throughout 2024. A predicted heavier focus on unstructured data suggests that an increase in investment in NoSQL technology will follow. While the 2024 McKinsey & Company Enterprise Data Management Report does suggest the use of cloud-based infrastructure, it does not specifically suggest using SQL on Azure for AI. Instead, it suggests “architectures that support real-time analytics; and flexible database/data-model tooling to support querying of unstructured data” (The data-driven enterprise of 2025, 2022). Additionally, it highlights the importance of leveraging NoSQL databases and “a modern data architecture that supports flexible data stores” (The data-driven enterprise of 2025, 2022). Overall, although this article tries to make the case for SQL in the present day, its sources to support its argument seem to point to the increasing interest in non-relational database models.

The various advantages of NoSQL in the age of Big Data are plentiful, and it is easy to get caught up in the hype. NoSQL has already changed the ways data can be stored and accessed. Whether we know it or not, it has impacted our lives across the many technologies we use regularly. Businesses and developers across the country are rushing to invest in the implementation of non-relational database systems due to the increasing need for flexible databases that efficiently store and quickly supply large amounts of data that exist in a variety of forms. NoSQL, however, is relatively new; it is young compared to its relational counterpart, which has existed for decades. SQL will not be forgotten. It is still used by professionals and taught to students. It will continue to be used by professionals and taught to students. NoSQL is unable to provide all the advantages that SQL does, nor does it correct all the disadvantages of SQL. RDBMSs have the upper hand in data integrity and structured data. SQL is better designed for complex queries, aggregations, and join operations. I expect that we will see less and less of SQL as NoSQL matures, but the relational model will never disappear.

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Possible sources for Project 2?

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