Reflection on Emerging Database Technologies

As technology improves, new trends in data storage are helping systems become faster and smarter. Two important trends today are distributed databases and machine learning-integrated (ML-integrated) databases. These technologies could help make our Record and Student Management System (RSMS) more powerful and useful.

Distributed databases store data in different locations instead of one place. This helps the system stay available even if one server has a problem. For example, if RSMS is used in different university branches or departments, each one can have access to the data without delays. This makes the system faster and more reliable. It's also helpful for backups and large amounts of users.

However, using distributed databases also has challenges. It's harder to manage because you need to make sure that data is the same in all locations. This can be confusing and takes more time and effort to set up. Also, small teams like ours might not have the resources or experience to build this kind of system from the start.

Another trend is ML-integrated databases. These use machine learning to give smart suggestions or predict future outcomes based on past data. In RSMS, this could be used to find students who might fail a subject, suggest subjects they might like, or alert teachers if a student is at risk of dropping out. These features can help teachers and staff make better decisions.

But there are also downsides. ML features need a lot of good-quality data to work well. If the system doesn't have enough student records, the predictions may not be correct. Also, setting up machine learning is more complicated and may require tools and skills that we don't yet have.

In summary, distributed databases and ML-integrated databases are very useful and could make RSMS better in the future. But right now, they may be too complex or costly for a student project. They are better for bigger systems with more users and data.