When reading the articles in the Blackboard module the article titled “Data Relationships in MongoDB” by studytonight.com listed three types of relationships used in databases which are one-to-one, one-to-many and many-to-many. A one-to-one relationship according to the docs.progress.com’s article titled “One-to-one relationship” exists when each row in one table has one related row in a second table. Examples they use is when a business decides to assign one office to exactly one employee or another example would be when a business decides to hire only one manager for a department. The docs.progress.com website goes on to explain one-to many relationships as “existing when each row in one table has one or many related rows in a second table.” The examples they give for this type of relationship is one customer can place many orders or a sales representative can have many customer accounts. The last relationship, many-to-many “exists when a row in one table has many related rows in a second table. Likewise, those related rows have many rows in the first table” according to docs.progress.com. The examples they gave for this relationship are an order can contain many items, and an item can appear in many different orders, or another example is an employee can work on many projects and a project can have many employees working on it.

Priya Pedamkar wrote in her article titled "Relational Database Advantages” on educba.com that

one of the major benefits of using a relational database is that this type of database allows the user to simply classify the data into different categories and store them efficiently. This arrangement can be further fetched using queries and filters. After creating the new database, any set of data under dissimilar categories can be included in the database, without any alteration to the existing system (Pedamkar, 2021).

Pedamkar also went on to give eight top advantages of a relational database which include, simple model, data accuracy, easy access to data, data integrity, flexibility, normalization, high security and feasible for future modifications. The article titled “Relational Database Benefits and Limitations (Advantages & Disadvantages)” on databasetown.com gives the reader six limitations to relational databases, maintenance problem, cost, physical storage, lack of scalability, complexity in structure and decrease in performance over time.

Lucas Olivera authored an article for dev.to titled “Everything you need to know about NoSQL databases” that gives advantages and disadvantages of a NoSQL database. The advantages that Olivera gives are elastic scalability, big data applications, economy, dynamic schemas, auto-sharding, replications, and integrated caching. Disadvantages Olivera gives are NoSQL databases do not have the reliability functions which relational databases have (do not support ACID) so to support ACID developers will have to implement their won code, making their system more complex (Olivera, 2019). He also goes on to states that NoSQL is not compatible with SQL and NoSQL are very new compared to relational databases, which mean that they are far less stable and may have a lot less functionalities (Olivera, 2019). Looking at the two different database types, NoSQL is usually the cheaper option that can manage massive amounts of data, while relational databases take planning, but has easy access to data and it is quite easy to read.

Three features of MySQL are that it is free to download, it is scalable and GUI support according to javatpoint.com. With MySQL being free to download this allows anyone with a computer and internet connection to go to MySQL official website and download it without any cost to them. According to javatpoint.com “MySQL supports multi-threading that makes it easily scalable. It can handle almost any amount of data, up to as much as fifty million rows or more. The default file size limit is about 4 GB. However, we can increase this number to a theoretical limit of 8 TB of data.” MySQL also has a graphical user interface tool named MySQL Workbench that “provides SQL development, data modeling, data migration, and comprehensive administration tools for server configuration, user administration, backup, and many more” according to javatpoint.com.

Three features of MongoDB are support ad hoc queries, indexing, and replication according to the website javatpoint.com. In MongoBD support for ad hoc queries means you can search by field; range query and it also supports regular expression searches. With the indexing feature, you can index any field in a document. Javatpoint.com states that MongoBD supports Master Slave replication. “A master can perform Reads and Writes and a Slave copies data from the master and can only be used for reads or back up (not writes).”

References

Akhtar, Z. (2021, August 2). *Relational database benefits and limitations (Advantages & disadvantages)*. DatabaseTown. Retrieved October 22, 2022, from https://databasetown.com/relational-database-benefits-and-limitations/

n/a, n/a. (n.d.). *Data relationships in mongodb*. Studytonight.com. Retrieved October 22, 2022, from https://www.studytonight.com/mongodb/relationships-in-mongodb

na, na. (2017, April 12). *Many-to-many relationship*. Progress documentation. Retrieved October 22, 2022, from https://docs.progress.com/bundle/openedge-database-essentials-117/page/Many-to-many-relationship.html

na, na. (2017, April 12). *One-to-many relationship*. Progress documentation. Retrieved October 22, 2022, from https://docs.progress.com/bundle/openedge-database-essentials-117/page/One-to-many-relationship.html

na, na. (2017, April 12). *One-to-one relationship*. Progress documentation. Retrieved October 22, 2022, from https://docs.progress.com/bundle/openedge-database-essentials-117/page/One-to-one-relationship.html

na, na. (n.d.). *Learn mongodb tutorial - javatpoint*. www.javatpoint.com. Retrieved October 22, 2022, from https://www.javatpoint.com/mongodb-tutorial

na, na. (n.d.). *MySQL features - javatpoint*. www.javatpoint.com. Retrieved October 22, 2022, from https://www.javatpoint.com/mysql-features

Olivera, L. (2019, June 5). *Everything you need to know about nosql databases*. DEV Community 👩‍💻👨‍💻. Retrieved October 22, 2022, from https://dev.to/lmolivera/everything-you-need-to-know-about-nosql-databases-3o3h

Pedamkar, P. (2021, March 4). *Relational database advantages: 8 advantages of Relational database*. EDUCBA. Retrieved October 22, 2022, from https://www.educba.com/relational-database-advantages/