In the context of relational databases, relationships are ties made between tables within the database. There are three types of relationships that can be made between tables – one-to-many, many-to-many, or one-to-one. These relationships are made using primary and foreign keys that definitively tie the tables together in order to allow for data to be maintained independently; however related together during queries. For example, perhaps you have a table with a list of employees who all have a unique identifier of an employee ID. That employee ID, since it’s unique can be used as the primary/foreign key to join to a separate table where employee home addresses are stored.

One advantage of a relational database is the ability to do complex, repeatable, queries. Relational databases give you the ability to analyze data from a very large number of tables. Relational databases have also been around a long time, which means their design can be very well optimized for certain types of applications. There are decades of expertise available to design a system and structure queries that are efficient and fast.

One disadvantage to relational databases in mySQL is the lack of scalability. While it can be done, it is not without cost. Upgrading servers to add more processing power or memory is expensive, and there are limits to how much any server can be upgraded before you have to just buy a whole new one. Another disadvantage is speed. Relational databases essentially go through tables line by line, looking for matches to the query. If there are hundreds of thousands or millions of records to sort through, that can take a long time. The more complicated the query, the longer it will take, too.

One feature of MySQL 8.0 is the ability to do JSON documentation validation. This checks to make sure specific keys are present, in the correct data type, and in proper range [3]. JSON documentation validation keeps data clean by rejecting bad JSON data [3].

1. A Quick-Start Tutorial on Relational Database Design. (n.d.). Retrieved May 01, 2020, from https://www3.ntu.edu.sg/home/ehchua/programming/sql/Relational\_Database\_Design.html
2. Editor. (2019, October 15). Comparing Database Management Systems: MySQL, PostgreSQL, MSSQL Server, MongoDB, Elasticsearch and others. Retrieved May 01, 2020, from https://www.altexsoft.com/blog/business/comparing-database-management-systems-mysql-postgresql-mssql-server-mongodb-elasticsearch-and-others/
3. Stokes, D., Høydalsvik, G., & Soares, L. (n.d.). 5 MySQL features you need to know. Retrieved May 01, 2020, from https://opensource.com/article/20/3/mysql-features
4. What is application state?
5. What is resource state?
6. Create two simple diagrams depicting the flow of application and resource state.

An application state keeps track of an end user’s interaction with a web application. The application state can also be called HttpApplication state. Every time you interact with a web application, its state changes. This state is tracked on the server. [1]

Resource state doesn’t have to do with the interaction between an end user (aka client) and the web application (server). Resource state tracks the state of a resource on a server. [2]

1. What is an Application State? - Definition from Techopedia. (n.d.). Retrieved May 01, 2020, from <https://www.techopedia.com/definition/25339/application-state-net>
2. REST. (n.d.). Retrieved May 01, 2020, from https://restfulapi.net/statelessness/