1. In the context of relational databases, what are relationships? Provide an example.
2. What are the advantages of relational databases? What are the advantages of NoSQL databases?
3. What are the disadvantages of relational databases? What are the disadvantages of NoSQL databases?
4. Identify at least two features of MySQL and two features of MongoDB, and describe what they are and how they are used.
5. Relationships in relational databases consist of a primary key and a foreign key. This determines how a data element interacts with another data element. The primary key allows a relationship to form with other foreign data keys from another table. An example would be an employee ID as a primary key. The employee ID identifies the person, salary, address, etc. A foreign key could be the salary information of the employee. A query could be created to find employees whose salary is above $50,000.
6. Relational databases have several advantages. They include categorizing data, accuracy, ease of use, collaboration, and security. NoSQL advantages include flexible scalability, flexible data types, large amounts of data storage, and simplicity with less code.
7. Relational databases have several disadvantages. It includes structure, maintenance issues, inflexibility, lack of scalability. NoSQL databases are less flexible, less mature, and isn’t designed to scale by itself.
8. Two features of MySQL are Client/Server Architecture, and it is scalable. Two features of Mongo DB are Sharding and Load Balancing
   1. MySQL: Client/Server Architecture
      1. Contains a database server that can be used by many different users. The users communicate with the server by query data.
   2. MySQL: Scalable
      1. Can handle more than 50 million rows or more due to multi-threading
   3. MongoDB: Sharding
      1. The process of splitting larger datasets across multiple distributed collections which helps distribute and better execute queries
   4. MongoDB: Load Balancing
      1. Uses horizontal scaling features to support large-scale load balancing. Ensures that every user has a consistent view and quality experience.

References

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