7086 CEM - Data Management Systems - Reflections

Course Work

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Reflections:
Collaborating on all elements of the equipment company's database project yielded great insights into database design, SQL programming, MapReduce implementation, and research report preparation. Working closely with my colleague, we approached each element of the project with dedication and ingenuity, eventually offering a comprehensive solution to meet the company's objectives.

During the conceptual modeling step (Part A), we carefully examined the offered scenario and created an ER diagram that appropriately described the entities, connections, and characteristics involved. Allocating relevant attributes to each entity guaranteed that the conceptual model was comprehensive and accurate, setting the groundwork for future database development.

Moving on to SQL programming (Part B), we converted our conceptual model into practical code by building tables, entering data, and writing queries to extract useful information from the database. Collaborating on SQL queries allowed us to improve our grasp of the data and evaluate the efficacy of our database architecture.

The implementation of MapReduce for flight delay analysis (Part C) demonstrated our capacity to use distributed computing approaches to manage large-scale data processing. By breaking down the task into mapping, shuffling, and reducing processes, we were able to rapidly analyze complex datasets in parallel, showcasing the capability of decentralized processing.

Finally, our study paper on Craigslist's migration from MySQL to MongoDB (Part D) shed light on the obstacles and advantages of moving from a relational to a NoSQL database. Through extensive research and analysis, we demonstrated the benefits of MongoDB's flexible structure, horizontal scalability, and high performance in fulfilling Craigslist's changing data management requirements.

Throughout the endeavor, collaboration was critical to our success. We were able to create a robust solution and insights that can benefit organizations experiencing similar database management difficulties by leveraging our combined knowledge and various viewpoints.