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Importance of Time and Space Complexities

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CS410-T301 Algorithm Design and Analysis

3/24/2024

Time and space complexities are important for efficiency, resource management, scalability, and comparative analysis. When it comes to efficiency, time and space complexity helps you evaluate the efficiency of your program, which is important especially when dealing with large data sets or very time-sensitive time frames. Resource management helps you use your memory more effectively especially when using embedded systems, mobile devices, or server applications. Scalability is important for making sure your algorithm is able to be used for large inputs with growing demands. Comparative analysis is used to compare different algorithms and help you solve more complex problems and improve the efficiency of your code. Time and space complexities affect the real-world performance of applications in keeping web pages responsive, make embedded systems more efficient, helping improve database query performance, and reduce training time and memory requirements for machine learning.

Sources:

Das, M. (2023, October 26). *Time complexity and space complexity💻*. https://www.linkedin.com/pulse/time-complexity-space-manoj-das-qtckf/