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Importance and Applicability

Of Network Flow and Linear Programming

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CS410-T301 Algorithm Design and Analysis

5/19/2024

Linear programming can be very useful in food, agriculture, engineering, optimization, and manufacturing. Farmers use linear programming in their work to find what crops they should grow, the quantity of the crops they are planning to grow, and how to increase their revenue from their farms. Linear programming is also used in engineering to solve design and manufacturing problems, such as learning when to use airfoil meshes and how to shape those meshes in an optimal, aerodynamic way so that they can be shock-free. Linear programming is also used for time efficiency and to lower costs when creating routes for buses and trains.

Network flow is important in computer networks, energy and utility networks, manufacturing, and production. It is important to use network flow in computer networks so that load balances, traffic engineering, and routing protocols can produce efficient usage of network resources through managing network congestion, the optimization of data transmission paths, and improving the performance of computer networks. These network flows are also used for optimal management and usage of resources in power grids, water distribution systems, and natural gas pipelines. Network flow is useful in manufacturing and production for production planning, inventory management, and in facility layout optimization so that resources can be used efficiently.

Source:

*Five areas of application for linear programming techniques*. (2019, March 2). Sciencing. <https://sciencing.com/five-application-linear-programming-techniques-7789072.html>

*Exploring network flow Algorithms: Efficiently channeling information*. (2023, June 12). Cloud Native Journey. <https://cloudnativejourney.wordpress.com/2023/06/12/exploring-network-flow-algorithms-efficiently-channeling-information/>