Abstract—In this paper, we propose and solve several queries called common influence region queries. They are related to the simultaneous influence, i.e. capacity of attracting customers, of two sets of facilities of different type. In them a facility of the first type competes with the other facilities of the first type and cooperates with several facilities of the second type. The studied queries find applications, for example, in decision making support systems. We present GPU parallel algorithms, designed under CUDA architecture, for approximately solving the studied queries and provide and discuss experimental results showing the efficiency and scalability of our approach.

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