On analysis of input data for jobs shop scheduling problem with respect to workers productivity

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Abstract

© 2016,International Journal of Pharmacy and Technology. All rights reserved.We explore one kind of Job shop scheduling problem,where productivity of workers depends on previous behavior. We consider two parts in "working day": working period and time-off period. Worker increase their efficient on working period and time-off period. Playing with schedule give us different productivity for workers. We consider big input data,which size does not allow use brute-force search or back-tracking algorithm. It means we should use a heuristic solutions. We suggest linear-time solution which works for specific input data structure. We analyze the input and describe the conditions which allow to apply our solution. Considered conditions was following: length of periods,number of jobs,number of "small" and "big" jobs,speed of productivity increasing and decreasing,number of workers,minimal and maximal productivity and others. We compare our solutions with greedy algorithmic solution,which just assign free worker to first available job,and we have benefit about 15 percents with respect to that greedy algorithmic solution.

Keywords

Efficient productivity, Job shop scheduling, Shop scheduling problem