عنوان مقاله:

A Case Study in Interurban Bus Driver Scheduling Problem

محل انتشار:

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خلاصه مقاله:

Scheduling problem is one of the major topics in operational research which aims finding optimum resource allocation given time period considering constraints. In this work, bus driver scheduling problem is modeled in interurban transportation by finding minimum number of bus driver scheduling for certain trips weekly. Work, break, layover duration, legal rights, are theconstraints in the system. Problem solution consists of two-stages. First, Set Covering Problem (SCP), is utilized to locate feasible region. SCP results with a feasible region by obtaining all feasible duties. Duties consist of pieces-of-work which are parts of the trips driver changes occur. In the second stage, a metaheuristic optimization approach is applied so as to minimize total driver numbers. Among multiple metaheuristics algorithms, Genetic Algorithm (GA) is chosen due to its strong diversity ability arising from mutation and cross-over strategies with asimple and intuitive implementation. In this study, we propose a GA-based bus driver scheduling framework for solving this problem in efficient way. We present the efficiency of our approach by testing it on a pilot dataset provided by one of leading transportation companies. The results clearly indicate the success of our framework

کلمات کلیدی:

Optimization, Genetic Algorithm, Bus Driver Scheduling, Set Covering Problem