

SOLVING TRANSPORTATION PROBLEMS WITH MIXED CONSTRAINTS IN ROUGH ENVIRONMENT

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Abstract

A new method namely, rough slice-sum method for solving fully rough integer interval transportation problems is proposed. The solution obtained by the proposed method provides a plan having minimum unit shipping rough cost for the given problem. The values of decision rough variables and rough objective function for the given problem obtained by the rough slice-sum method are rough integer intervals. Numerical example is presented to understand the solution procedure of the proposed method.

AMS Subject Classification: 90B06, 90C08.

Key Words and Phrases:Transportation problem, Rough integer intervals, Unit shipping cost, Rough slice-sum method.

1 Introduction

Transportation problem is one of the popular and most important applications of the linear programming problem. Many efficient algorithms [3, 5] have been developed for solving transportation problems having deterministic parameters. In many real life situations, some or all parameters of the transportation problem are

Solving Transportation Problem With Mixed Constraints

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More-for-Less Solutions in Fuzzy Transportation Problems Tanveen Kaur Bhatia, Amit Kumar, Srimantoora S. Appadoo, 2023-06-13 This book describes a set of methods for finding more for less solutions of various kind of fuzzy transportation problems Inspired by more for less approaches to the basic transportation problem initiated by Abraham Charnes and his collaborators during 1960s and 1970s this book describes new methods developed by the authors to solve different types of problems including symmetric balanced fuzzy transportation problems symmetric intuitionistic fuzzy transportation problems with mixed constraints and symmetric intuitionistic fuzzy linear fractional transportation problems with mixed constraints It offers extensive details on their applications to some representative problems and discusses some future research directions

Combinatorial Optimization Under Uncertainty Ritu Arora, Shalini Arora, Anand Kulkarni, Patrick Siarry, 2023-05-12 This book discusses the basic ideas underlying principles mathematical formulations analysis and applications of the different combinatorial problems under uncertainty and attempts to provide solutions for the same Uncertainty influences the behaviour of the market to a great extent Global pandemics and calamities are other factors which affect and augment unpredictability in the market The intent of this book is to develop mathematical structures for different aspects of allocation problems depicting real life scenarios The novel methods which are incorporated in practical scenarios under uncertain circumstances include the STAR heuristic approach Matrix geometric method Ranking function and Pythagorean fuzzy numbers to name a few Distinct problems which are considered in this book under uncertainty include scheduling cyclic bottleneck assignment problem bilevel transportation problem multi index transportation problem retrieval queuing uncertain matrix games optimal production evaluation of cotton in different soil and water conditions the healthcare sector intuitionistic fuzzy quadratic programming problem and multi objective optimization problem This book may serve as a valuable reference for researchers working in the domain of optimization for solving combinatorial problems under uncertainty The contributions of this book may further help to explore new avenues leading toward multidisciplinary research discussions

Integer Programming and Related Areas R.v. Randow, 2012-12-06

Proceedings of the Second Congress on Control, Robotics, and Mechatronics Pradeep Kumar Jha, Prashant Jamwal, Brajesh Tripathi, Deepak Garg, Harish Sharma, 2024-11-13 This book features high quality research papers presented at the International Conference of Mechanical and Robotic Engineering Congress on Control Robotics and Mechatronics CRM 2024 jointly organized by SR University Warangal India and Soft Computing Research Society India during 3 4 February 2024 This book discusses the topics such as combustion and fuels controls and dynamics fluid mechanics I C engines and automobile engineering machine design mechatronics rotor dynamics solid mechanics thermodynamics and combustion engineering composite material aerodynamics aerial vehicles missiles and robots automatic design and manufacturing artificial intelligence unmanned aerial vehicles autonomous robotic vehicles evolutionary robotics humanoids hardware architecture industrial robotics intelligent

control systems microsensors and actuators multi robots systems neural decoding algorithms neural networks for mobile robots space robotics control theory and applications model predictive control variable structure control and decentralized control

On the Transportation Problem with Mixed Constraints Amani Omar,1986 **Advances in Mathematical Modelling, Applied Analysis and Computation** Jagdev Singh,George A. Anastassiou,Dumitru Baleanu,Devendra Kumar,2025-07-11 This book is a collection of research papers from the 7th International Conference on Mathematical Modelling Applied Analysis and Computation organized by Lebanese American University Beirut Lebanon from April 18 20 2024 This proceeding contains research papers related with fundamental mathematical theory and methods in a very suitable manner and useful for handling various contemporary issues of physical chemical and engineering sciences The aim of this conference is to foster cooperation among mathematicians and scientists working in these areas This book is a very useful resource for mathematicians scientists and engineers working in the field of applied mathematics analysis and computation for solving real life problems of different domains

Engineering Science and Technology: Innovations for the Future Reeja S. R.,Bore Gowda,Y. S. Rammohan,Ganesan Prabu Sankar,G. Jayalatha,2025-10-22 The International Conference on Recent Innovations in Engineering Science Technology ICRIET 2025 hosted by KSIT Bengaluru brought together researchers and experts from around the world to present 225 peer reviewed papers across four engineering domains With keynote sessions on AI energy harvesting and sustainable manufacturing the conference promoted interdisciplinary dialogue and cutting edge innovation It served as a dynamic platform for academic exchange fostering collaboration between academia and industry ICRIET 2025 stands as a testament to KSIT s commitment to advancing research and technological progress

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The Transportation Problem with Mixed Constraints D. Klingman,R. Russell,TEXAS UNIV AUSTIN CENTER FOR CYBERNETIC STUDIES.,1973 A generalization of the standard transportation model in which the origin and destination constraints consist not only of equality but also of greater than or equal to or less than or equal to type constraints is considered It is shown that the model is equivalent to a standard transportation problem having only one additional origin and destination Author

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