An Integer Programming Model for Gate Assignment Problem at Airline Terminals

By: Chun, CK (Chun, Chong Kok)[1], Nordin, SZ (Nordin, Syarifah Zyurina)[1]

MALAYSIAN JOURNAL OF FUNDAMENTAL AND APPLIED SCIENCES
Volume: 11 Issue: 2 Pages: 81-86
DOI: 10.11113/mjfas.v11n2.349
Published: APR-JUN 2015
Document Type: Article

Abstract
In this paper, we concentrate on a gate assignment problem (GAP) at the airlines terminal. Our problem is to assign an arrival plane to a suitable gate. There are two considerations needed to take. One of its is passenger walking distance from arrival gate to departure gate while another consideration is the transport baggage distance from one gate to another. Our objective is to minimize the total distance between the gates that related to assign the arrival plane to the suitable gates. An integer linear programming (ILP) model is proposed to solve this gate assignment problem. We also conduct a computational experiment using CPLEX 12.1 solver in AIMMS 3.10 software to analyze the performance of the model. Results of the computational experiments are presented. The efficiency of flights assignment is depends on the ratio of the weight for both total passenger traveling distances and total baggage transport distances.

Keywords
Author Keywords: Gate Assignment Problem; Integer Linear Programming

Author Information
Reprint Address: Nordin, SZ (reprint author)  

Addresses:
E-mail Addresses: szyurina@utm.my

Funding

<table>
<thead>
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<th>Funding Agency</th>
<th>Grant Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOE</td>
<td></td>
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<tr>
<td>Universiti Teknologi Malaysia (UTM)</td>
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<td>GUP</td>
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