Universiti Teknologi MARA

Optimising Police Officer Schedule at Ibu Pejabat Polis Daerah (IPD) Kuala Muda Using Goal Programming

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Report submitted in fulfillment of the requirements for Bachelor of Science (Hons.) Management Mathematics
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January 2021

STUDENT'S DECLARATION

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

……Atikah……

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JANUARY 27, 2021

ABSTRACT

Some workplaces are faced with a problem in the allocation of workers to meet changing hours and day demands. Shifts of 28 police officers on a 4-week schedule in a 24-hour criminal unit in Ibu Pejabat Polis Daerah (IPD) Kuala Muda must be well organised to satisfy the preferences of police officers. The objective of this study is to obtain the best and most systematic schedules for police officers while considering all the constraints using goal programming method. The sub-objectives of this study are to formulate the best model for the shift sequence of the police officers and to find the best way to optimise the police scheduling related to the requirements of the police station and the preferences of the police. Lingo software is used to run the model. Only one of the three goals set for the study was achieved. Pursuant to the new schedule, Goal 1 was met where all police officers in the schedule pattern have the same working days value, which is 21 days in the 28-day planning period. The new schedule produced is better than the previous manual schedule. But it is therefore suggested that a hybrid swarm-based optimisation algorithm and a few methods be used to solve scheduling problems instead of goal programming as they provide efficiency and flexibility on the generated schedules.

Keywords: shifts; constraints; police officer's schedule; goal programming; Lingo software.

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