

Renando Sugiarto, 2012, **Penyelesaian Airport Gate Assignment Problem (AGAP) Menggunakan Whale Optimization Algorithm (WOA)**. Skripsi ini dibimbing oleh Dr. Herry Suprajitno, M.Si. dan Asri Bekti Pratiwi, M.Si. Departemen Matematika, Fakultas Sains dan Teknologi, Universitas Airlangga

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#### ABSTRAK

Skripsi ini bertujuan untuk menyelesaikan permasalahan *Airport Gate Assignment Problem* dengan menggunakan *Whale Optimization Algorithm*. *Airport Gate Assignment Problem* merupakan salah satu permasalahan yang sering dihadapi pihak bandara dimana mereka harus mengatur gerbang mendarat tiap – tiap maskapai. *Whale Optimization Algorithm* adalah sebuah metode heuristik yang mengadopsi dari tingkah laku Paus Bungkuk. Hasil solusi yang dihasilkan dari *Whale Optimization Algorithm* akan diuji pada data berskala kecil dan data berskala besar. Skripsi ini menunjukkan bahwa *Whale Optimization Algorithm* memiliki kemampuan untuk menemukan solusi dari *Airport Gate Assignment Problem*. Solusinya berupa total jarak yang ditempuh seluruh penumpang pada setiap penerbangan di suatu bandara. Semakin banyak iterasi yang dilakukan solusi yang dihasilkan oleh program *Whale Optimization Algorithm* juga semakin baik. Semakin banyak calon solusi yang dibangkitkan, solusi yang dihasilkan juga semakin baik.

*Kata Kunci: Bandara, Pesawat, Airport Gate Assignment Problem, Whale Optimization Algorithm*

Renando Sugiarto, 2012, **Solving the Airport Gate Assignment Problem (AGAP) by Using Whale Optimization Algorithm(WOA)**). This bachelor thesis is under the guidance of Dr. Herry Suprajitno, M.Si. dan Asri Bekti Pratiwi, M.Si. Mathematics Department, Science and Technology Faculty, Airlangga University.

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### ABSTRACT

The aims of this study is to solve airport gate assignment problem with whale optimization algorithm. Airport Gate Assignment Problem is one of many problems that is often faced by the airport where they have to set the landing gates for each airplane. Whale Optimization Algorithm is a heuristic method that adopts the behavior of the Humpback Whales. The results of the solutions are generated from the Whale Optimization Algorithm. It will be tested on small scale data and large scale data. This thesis shows that the Whale Optimization Algorithm has the ability to find solutions to Airport Gate Assignment Problems. The solution is in the form of the total distance traveled by all passengers on each flight at an airport. The more iterations the solution produced by the Whale Optimization Algorithm program is also getting better. The more prospective solutions are raised, the better the resulting solution.

*Keywords: Airport, Airplane, Whales, Airport Gate Assignment Problem, Whale Optimization Algorithm.*