

Aplikasi algoritma genetika hibrida pada vehicle routing problem with time Windows = An Application of hybrid genetic algorithm for vehicle routing problem with time Windows

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Abstrak

Vehicle Routing Problem with Time Windows (VRPTW) adalah masalah penentuan rute kendaraan dalam pendistribusian barang/jasa ke sejumlah pelanggan yang memiliki biaya minimum dengan tambahan kendala time windows, biaya direpresentasikan oleh total jarak yang ditempuh kendaraan dari depot dan kembali ke depot.

Pada tugas akhir ini, digunakan algoritma genetika hibrida untuk menyelesaikan VRPTW. 50% populasi awal dibentuk dengan menggunakan metode Push Forward Insertion Heuristic (PFIH) dilanjutkan dengan -Interchange, dan 50% lainnya dibentuk secara acak. Tiga operator utama algoritma genetika yang digunakan adalah ranking based selection, merge-heuristic crossover, dan sequence based mutation. Pada tugas akhir ini juga akan diimplementasikan algoritma genetika hibrida pada VRPTW dengan perangkat lunak.

Vehicle Routing Problem with Time Windows (VRPTW) is a problem of determining the route of vehicles that has minimum cost in the distribution of goods /services to a number of customers with addition of time constraint, the cost is represented by the total distance traveled by vehicles from depot and returned to depot.

In this final project, a hybrid genetic algorithm used to solve VRPTW. 50% of initial population is generated by Push Forward Insertion Heuristic (PFIH) and then -Interchange, and the other 50% is randomly generated. Three major operator that used in this final project are ranking based selection, merge-heuristic crossover, and sequence based mutation. Hybrid genetic algorithm is implemented on Solomon's benchmark data of VRPTW.