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DEPARTEMENT OF COMPUTER SCIENCE

End of studies DISSERTATION
Presented to obtain the MASTER'S Degree
Domain: Mathematics and Computer Science
Branch: Computer Science
Specialty: Advanced Information Systems

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SUBJECT

**Optimization of container movements in a terminal
container**

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ملخص : الهدف من هذا العمل هو تحقيق برنامج للعثور على أفضل وقت لنقل الحاويات، والتي تهدف أيضا إلى عملية اسناد من اجل كل حاوية الى وسيلة نقل (شاحنة و رافعة). إنه يقدم قدرا كبيرا من الخدمة و يساهم في تسهيل عملية شحن الحاويات في الميناء، و من بين الأساليب المختلفة لحل مشاكل الوقت في الميناء فقد إختارنا احد الخوارزمية المتبعة في حل مشاكل التحسين و هي "الخوارزم الجيني" لحل هذه المشكلة. البيانات هي: عدد الحاويات، عدد وسائل النقل المشاركة وكذلك السفينة الهدف. النتائج المتحصل عليها هي: الوقت اللازم لتحريك كل الحاويات و الوسيلة المستعملة لنقل كل حاوية. و نتيجة عملنا هذا تتجسد في "برنامج البحث عن الإدارة المثلى للمحطة الميناء مع اقل وقت لتحريك الحاويات" الذي قمنا ببرمجته باستعمال لغة البرمجة جافا (تبييز) وقاعدة بيانات DB4O.

كلمات المفاتيح :

الحاويات, شاحنة, رافعة, عملية شحن الحاويات, الميناء, الخوارزم الجيني, جافا, تبييز, DB4O.

Abstract : The objective of this work is the realization of a software to find the best Time of container movement, which also aims to affect a machine to move (yard and truck). It presents a great deal of work for loading container, and different methods of solving time of movement problems in port. An optimization algorithm "Genetic algorithm" has been used to solve this problem. The data are: number of container and number of machine to move also the ship goal. The results obtained are: the minimum time of movement and machines used to move any container. A contribution in this work is a software named "Search for Optimal Management of Terminals With minimum time to move containers" produced by JAVA (NetBeans) language and DB4O data base.

Keywords : container , yard, truck, loading container, Genetic algorithm, JAVA, NetBeans, DB4O.

Résumé : L'objectif de ce travail est la réalisation d'un logiciel qui permet de trouver le minimum time de mouvement des conteneurs, qui vise par ailleurs à minimiser le temps de mouvement et d'affecter les outils de mouvement (camion et crain). On présente une grande partie du travail sur pour le chargement des conteneurs, parmi les différentes méthodes de résolution des problèmes de mouvement de conteneurs. Un algorithme d'optimisation heuristique « Génétique algorithmique » a été utilisé pour résoudre ce problème. Les données sont : le nombre des conteneur à mouver, le nombre des machine de mouvement et le navire utilisée. Les résultats obtenus sont : le minimum temps de mouvement et la machine utilisée pour mouver un conteneur. Une contribution dans ce travail est un logiciel nommé « Logiciel de rechercher d'une gestion optimale des terminaux avec le minimum temps de mouvement des conteneurs » réalisé par le langage de programmation JAVA (NetBeans) et une base de données DB4O.

Mots-clés : container, crain, camion, chargement des conteneurs, génétique algorithmique, JAVA, NetBeans, DB4O.