



Arab Academy for Science and Technology and Maritime Transport  
College of Engineering and Technology  
Department of Computer Engineering

# ***Intelligent Electronic Commerce Using Case-Based Reasoning***

Thesis submitted in partial fulfillment of the requirements for the  
Degree of Master of Science in Computer Engineering

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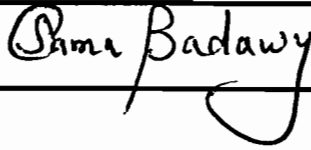
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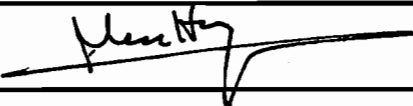
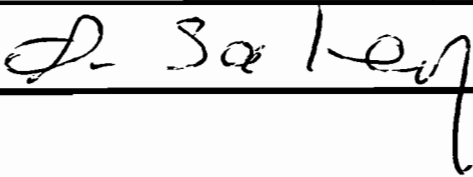
# DECLARATION

We certify that we have read the present work and that in our opinion it is fully adequate in scope and quality as a dissertation towards the partial fulfillment of the Master degree requirements in Computer Engineering from the Arab Academy for Science and Technology and Maritime Transport.

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I praise and thank الله for providing me the energy and patience to conclude this dissertation

I dedicate this work to my parents, my dearest wife, daughters, sisters and my supervisor.

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# Abstract

The Internet has evolved from a communications medium for elite researchers and scientists to a highly sophisticated commercial marketing medium. All business sectors are seeking strong presence on the Internet by providing electronic catalogs of their products and services empowered with a strong search engine to help customers.

In spite of this, online customers find it a painstaking task to find the products or services they require between large collections of products with various specifications. After feeding the search engine with the required specifications, sometimes the search engine returns too many, or no product is found to satisfy the required specifications. In a real store, a shop assistant would guide customers to find products similar to required specifications. Search engines can not do the same, since they lack the knowledge and intelligence usually contained in a real store sales assistant. Case-based Reasoning (CBR) can help solve this problem by acquiring the knowledge of real world sales assistants and intelligently guide customers find the products that satisfy their demands between numerous available products.

## **Abstract (cont.)**

In this dissertation a CBR E-Commerce prototype system is built to implement ideas presented in this dissertation. The prototype system operates over the Internet to provide intelligent customer sales support in the domain of online travel. The system will collect potential online vacationer preferences to search between available vacation packages to present the ten best matching vacations. The system consists of a CBR similarity component on top of a relational database system in a client/server architecture. The system is implemented using the Java programming language, while communication between distributed system components using Extensible Markup Language (XML) and Structured Query Language (SQL).

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## List of Abbreviations

CAD	Computer Aided Design
CBR	Case based Reasoning
CBR-WORKS	A CBR tool from TecInno, Germany.
CGI	Common Gateway Interface
DTD	Document Type Definition
E-Commerce	Electronic Commerce
EDI	Electronic Data Interchange
ER Diagram	Entity-Relation Diagram
HTML	Hyper Text Markup Language
HTTP	Hyper Text Transport Protocol
HVAC	Heating Ventilation and Air Conditioning
IR	Information Retrieval
JDBC	Java Database Connectivity
MIT	Massachusetts Institute of Technology
NN	Neural Networks
PSS	Parametric Search Server
SQL	Structured Query Language
XML	eXtensible Markup Language
U.S.A	United States of America