AN APPROACH TO DOMAIN DRIVEN WEB APPLICATION DEVELOPMENT

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MSC IN COMPUTER SCIENCE

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This dissertation was submitted to the Department of Computer Science and Engineering of the University of Moratuwa in partial fulfillment of the requirement for the Degree of MSc in Computer Science.

Department of Computer Science and Engineering
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Sri Lanka

October, 2007

Declaration

I hereby declare that the work included in this dissertation has not been submitted in part or whole for any other academic qualification at any institution.

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.....

Mr. Chandika Mendis

(Supervisor)

Abstract

Over the past years programming languages have evolved from machine languages to assembly language and to high level languages. All this time the development abstraction has steadily moved up towards the domain. Today through Domain Driven Development (DDD) the application developer significantly benefits from the ease of application creation and maintenance. Thus DDD has become a very promising new area of research.

However in DDD more information is needed in the domain model and more effort is needed in the subsequent transformation to the other end. The model needs to capture and represent all the necessary information of the business solution and the transformation should transform it to the target feature rich IT solution. This concept of "programming" at the domain level fundamentally differs from mere code generation. The focus here is on creating complete, readily executable applications from the model.

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This paper presents a framework and methodology for rich web application development based on the domain model. This includes a UML profile for web application modeling, XMI based model serialization, model transformation logic utilizing XSLT/XPath, a web application utilizing a component based web framework with a wide range of emerging technologies and a tool as proof-of-concept which can effectively be used for domain driven web application development.

Acknowledgments

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List of Symbols, Notations, Abbreviations and Acronyms

AJAX	Asynchronous JavaScript
CRUD	Create Retrieve Update Delete
DDD	Domain Driven Development
DI	Diagram Interchange
DTD	Document Type Definition
GUI	Graphical User Interface
HTML	Hyper Text Markup Language
JAXP	Java API for XML Processing
JMI	Java Metadata Interchange
MDA	Model Driven Architecture
MDE	Model Driven Engineering
MOF	Meta Object Facility
OCL	Object Constraint Language
OMG	Object Management Group
ORM	Object Relational Mapping
PIM	Platform Independent Model
POJO	Plain Old Java Object
PSM	Platform Specific Model
QVT	Query View Transform
UI	User Interface
UML	Unified Modeling Language
W3C	World Wide Web Consortium
XMI	XML Metadata Interchange
XSD	XML Schema Definition
XSL	Extensible Stylesheet Language
XSLT	Extensible Stylesheet Language Transformation

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