

**APPLICATION OF TECHNOLOGY ACCEPTANCE MODEL
ON DATABASE NORMALIZER**

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APPLICATION OF TECHNOLOGY ACCEPTANCE MODEL ON DATABASE NORMALIZER

**A project submitted to Dean of the Awang Had Salleh Graduate School
of Arts and Sciences in partial Fulfillment of the requirements for the
degree Master of Science of Information Technology
Universiti Utara Malaysia**

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ABSTRACT

Normalization is one of the most important activities in database designing. The good database design is the database that meets user requirements and designed its structure carefully. Therefore, this study focused on developing a database normalization application that helps database designers to perform the normalization process automatically and improves the database designing by avoiding the problems of carrying out normalization manually which has many drawbacks such as time consuming, prone to errors and requires more than one skilled user. The main objective of this study is to develop a database normalizer application to normalize the database tables up to the third normal form (3NF). This study provides a normalization algorithm to perform the 1NF, 2NF, and 3NF automatically based on Microsoft Access and SQL Server databases. Experiment was conducted to check the functionality in performing the normalization process. The experiment result showed that the prototype achieved the result successfully as expected and fulfills the requirements and rules of normalization processes. Moreover, a questionnaire based on the Technology Acceptance Model technique has been adopted to ensure of the prototype level in terms of easiness of use, and satisfaction.

Dedication

*Specially dedicated to
My beloved father and mother
To my siblings and family
Thanks for all the encouragement and support*

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TABLE OF CONTENTS

| | |
|---------------------------------------|----------|
| PERMISSION OF USE | .I |
| ABSTRACT | II |
| DEDICATION | III |
| ACKNOWLEDGEMENT | IV |
| TABLE OF CONTENT | V |
| LIST OF TABLES | VIII |
| LIST OF FIGURES | IX |
| LIST OF APPENDICES | X |
| LIST OF ABBREVIATIONS | XI |
| | |
| CHAPTER ONE: INTRODUCTION | 1 |
| 1.1 Background | 1 |
| 1.2 Problem Statement | 2 |
| 1.3 Research Questions | 3 |
| 1.4 Objectives | 3 |
| 1.5 Significance of the Study | 3 |
| 1.6 Scope of the Study | 3 |
| 1.7 Organization of the Report | 4 |
| | |
| CHAPTER TWO: LITERATURE REVIEW | 5 |
| 2.1 Introduction to Database | 5 |
| 2.2 Database Normalization | 7 |
| 2.2.1 First Normal Form (1NF) | 8 |
| 2.2.2 Second Normal Form (2NF) | 9 |
| 2.2.3 Third Normal Form (3NF) | 10 |
| 2.2.4 Boyee Code Normal Form | 11 |
| 2.3 Related Works | 13 |
| 2.4 Summary | 18 |

| | |
|--|----|
| CHAPTER THREE: RESEARCH METHODOLOGY | 19 |
| 3.1 Problem Understanding | 20 |
| 3.2 Prototype Design | 21 |
| 3.2.1 Data Input (Unnormalized form) | 22 |
| 3.2.2 Normalization Algorithm | 23 |
| 3.2.2.1 Select Database Table Function | 23 |
| 3.2.2.2 Select Primary Keys Function | 24 |
| 3.2.2.3 First Normal Form Algorithm (1NF) | 24 |
| 3.2.2.4 Second Normal Form Algorithm (2NF) | 25 |
| 3.2.2.5 Third Normal Form Algorithm (3NF) | 26 |
| 3.2.3 Graphical User Interface (GUI) Design | 27 |
| 3.3 Prototype Development | 29 |
| 3.4 Experiment Design | 29 |
| 3.5 Evaluation | 30 |
| 3.6 Summary | 31 |
| | |
| CHAPTER FOUR: ANALYSIS OF THE SYSTEM AND DESIGN | 32 |
| 4.1 Introduction | 32 |
| 4.2 Tools for System Design | 32 |
| 4.2.1 Unified Modeling Language (UML) | 32 |
| 4.2.2 Rational Rose 2010 | 33 |
| 4.3 Database Normalizer Prototype Requirements | 33 |
| 4.3.1 Functional Requirements of DBNP | 34 |
| 4.3.2 Non-Functional Requirements of DBNP | 35 |
| 4.4 Modeling and System Design | 35 |
| 4.4.1 Use Case Diagram | 36 |
| 4.4.2 Use Case Specification | 36 |
| 4.4.3 DBNP Sequence Diagram | 40 |
| 4.4.4 Class Diagram | 43 |
| 4.5 Prototype Implementation | 43 |
| 4.6 Graphical User Interface | 44 |
| 4.7 Summary | 51 |

| | |
|--|--------|
| CHAPTER FIVE: RESULTS AND FINDINGS | 52 |
| 5.1 Introduction | 52 |
| 5.2 Experiment Design | 52 |
| 5.2.1 Experiment Result | 59 |
| 5.3 Questionnaire | 59 |
| 5.3.1 Questionnaire Analysis | 60 |
| 5.3.2 Easiness Evaluation | 62 |
| 5.3.3 Satisfaction Evaluation | 63 |
| 5.3.4 Reliability Statistics | 65 |
| 5.3.4.1 Reliability Statistics for Easiness Evaluation | 65 |
| 5.3.4.2 Reliability Statistics for Satisfaction Evaluation | 65 |
| 5.3.4.3 Reliability Statistics for All sections | 66 |
| 5.3.4.4 Item-Total Statistics | 66 |
| 5.4 Summary | 67 |
| CHAPTER SIX: CONCLUSION AND FUTURE WORK | 68 |
| 6.1 Conclusion | 68 |
| 6.2 Research Contribution | 69 |
| 6.3 Problems and Limitations | 69 |
| 6.4 Future Work | 70 |
| 6.5 Summary | 70 |
| REFERENCES | 71 |
| APPENDICES | 75 |

LIST OF TABLES

| | |
|--|----|
| Table 2.1: ClientRental unnormalized data table. | 8 |
| Table 2.2: 1NF ClientRental data table. | 9 |
| Table 2.3: 2NF tables derived from ClientRental data table. | 10 |
| Table 2.4: 3NF tables derived from propertyOwner table. | 11 |
| Table 4.1: Functional Requirements | 34 |
| Table 4.2: Apply First Normal Form use case specification | 37 |
| Table 4.3: Apply Second Normal Form use case specification | 38 |
| Table 4.4: Apply Third Normal Form use case specification | 39 |
| Table 5.1: Experimentation standard relations | 53 |
| Table 5.2: Experimentation expected results | 57 |
| Table 5.3: Descriptive Statistics (Easiness of use) | 63 |
| Table 5.4: Descriptive Statistics (Satisfaction) | 64 |
| Table 5.5: Reliability Statistics (Easiness of use) | 65 |
| Table 5.6: Reliability Statistics (Satisfaction) | 66 |
| Table 5.7: Reliability Statistics for all sections | 66 |
| Table 5.8: Item-Total Statistics | 67 |

LIST OF FIGURES

| | |
|---|----|
| Figure 2.1: Functional dependency diagram. | 5 |
| Figure 2.2: Student relation example. | 6 |
| Figure 2.3: Normalization process diagram. | 12 |
| Figure 2.4: Linked list Node structure. | 13 |
| Figure 2.5: Graphical, Matrix and Directed graph Representation. | 14 |
| Figure 2.6: A screenshot run of JMathNorm tool for 3NF decomposition. | 15 |
| Figure 2.7: A screenshot of the main window of the web-based normalization tool. | 17 |
| Figure 3.1: Methodology flowchart of the database normalization prototype. | 20 |
| Figure 3.2: Structure of Report relation. | 22 |
| Figure 3.3: Sample of relation in UNF to be normalized by the prototype. | 22 |
| Figure 3.4: Database Normalizer Prototype GUI. | 27 |
| Figure 3.5: Database Normalizer Architecture. | 28 |
| Figure 4.1: DBNP use case Diagram. | 36 |
| Figure 4.2: Apply 1NF Sequence Diagram. | 40 |
| Figure 4.3: Apply 2NF Sequence Diagram. | 41 |
| Figure 4.4: Apply 3NF Sequence Diagram. | 42 |
| Figure 4.5: DBNP class diagram. | 43 |
| Figure 4.6: Database Normalizer Home Page. | 45 |
| Figure 4.7: Selecting database to be normalized. | 45 |
| Figure 4.8: Selecting table primary keys to be normalized. | 46 |
| Figure 4.9: Performing the 1NF operation. | 47 |
| Figure 4.10: Performing the 2NF operation. | 48 |
| Figure 4.11: Performing the 3NF operation and selecting the table transitive keys. | 49 |
| Figure 4.12: Shows the tables that been created at 1NF, 2NF and 3NF levels. | 50 |
| Figure 4.13: Shows the automatically created normalized tables in SQL Server database. | 50 |
| Figure 5.1: Type of participants. | 61 |
| Figure 5.2: Age of the participants. | 61 |
| Figure 5.3: Participants educational background. | 62 |
| Figure 5.4: Evaluation result | 64 |

LIST OF APPENDICES

| | |
|-------------------|----|
| Appendix A | 75 |
| Appendix B | 77 |
| Appendix C | 80 |

LIST OF ABBREVIATIONS

| | |
|-------------|-------------------------------|
| 1NF | First Normal Form |
| 2NF | Second Normal Form |
| 3NF | Third Normal Form |
| 4NF | Fourth Normal Form |
| 5NF | Fifth Normal Form |
| BCNF | Boyce-Codd Normal Form |
| DB | Database |
| DBMS | Database Management System |
| DBNP | Database Normalizer Prototype |
| ERD | Entity-Relationship Diagram |
| FD | Functional Dependency |
| GUI | Graphical User Interface |
| IT | Information Technology |
| TAM | Technology Acceptance Model |
| UML | Unified Modelling Language |
| UNF | Un-Normalized Normal Form |
| UUM | Universiti Utara Malaysia |

CHAPTER ONE

INTRODUCTION

1.1 Background

Data has become one of the important strategic resources for many organizations from industry, and government. The tradition data resource had been managed by a file processing system that requires no special data management techniques. Now, data has been stored and manipulated through database management systems (DBMS) as the need for information processing has become necessary.

In 1972, Relational databases has been proposed by Dr. Codd as stated in Connolly and Begg (2004) which are widely used in almost commercial applications to store, manipulate and use huge data for a specific enterprises and decision making. The success of relational database modeled for any enterprise is depending on the design of relational schema (Bahmani, Naghibzadeh, & Bahmani, 2008). Process of designing databases is referring to the activities that are related to the design of the database structure for storing and managing end-user data. The good database design is that database which meets all user requirements and designed its structure carefully (Rob & Coronel, 2009). Database design is an essential phase of working with databases where it affects a good DBMS to work poorly with a badly designed database. Therefore, to have a proper database design, database designer should identify exactly the expected use of database such as process of designing a data warehouse database that requires identifying the historical data also designing a centralized database involve using a centralized approach which is differs from that one in distributed database (Rob & Coronel, 2009).

The contents of
the thesis is for
internal user
only

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