YOUR THESIS TITLE

THE AUTHOR

A thesis submitted in fulfilment of the
requirements for the award of the degree of
Doctor of Philosophy (Software Engineering)

Advanced Informatics School
Universiti Teknologi Malaysia

SEPTEMBER 2017

I declare that this thesis entitled "title of the thesis" is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature : . . . .

Name : . . . .

Date : . . . .

This nation, turning 100 years old, had no Odyssey, *no St. George slaying the dragon, no Prometheus. The emerging American genius for making a lot of money was a poor substitute for King Arthur and his knights (although the Horatio Alger myth of rags to riches was good for a lot of mileage). Without a mythology and set of ancient heroes to call its own, America had to manufacture its heroes. So the mythmaking machinery of nineteenth-century American media created a suitable heroic archetype in the cowboys of the Wild West. The image was of the undaunted cattle drivers living a life of reckless individualism, braving the elements, staving off brutal Indian attacks. Or of heroic lawmen dueling with six-guns in the streets at high noon. This artificial Wild West became America's Iliad.*

ACKNOWLEDGEMENT

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In his article "The Concept of a Meta-Font", Knuth sets forth for the first time the underlying philosophy of METAFONT, as well as some of its products. Not only is the concept exciting and clearly well executed, but in my opinion the article is charmingly written as well. However, despite my overall enthusiasm for Knuth's idea and article, there are some points in it that I feel might be taken wrongly by many readers, and since they are points that touch close to my deepest interests in artificial intelligence and esthetic theory, I felt compelled to make some comments to clarify certain important issues raised by "The Concept of a Meta-Font".

ABSTRACT

Imagine trying to live in a world dominated by dihydrogen oxide, a compound that has no taste or smell and is so viable in its properties that it is generally benign but at other times swiftly lethal. Depending on its state, it can scald you or freeze you. In the presence of certain organic molecules it can form carbonic acids so nasty that they can strip the leaves from trees and eat the faces off statuary. In bulk, when agitated, it can strike with a fury that no human edifice could withstand. Even for those who have learned to live with it, it is often murderous substance. We call it water.

ABSTRAK

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LIST OF ABBREAVIATIONS

RTFM   –   Read The Fine Manual

YMMV   –   Your Mileage May Vary

LIST OF SYMBOLS

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CHAPTER 1

INTRODUCTION

1.1   Introduction

You probably should RTFM (Read The Fine Manual) before taking any actions. Donald Knuth has spent the past several years working on a system allowing him to control many aspects of the design of his forthcoming books—from the typesetting and layout down to the very shapes of the letters! Seldom has an author had anything remotely like this power to control the final appearance of his or her work. Knuth's TeX typesetting system has become well-known and as available in many countries around the world. By contrast, his METAFONT system for designing families of typefaces has not become as well known or as available.

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1.2   Problem Statement

(Chang et al., 2008) We thrive in information–thick worlds because of our marvelous and everyday capacity to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense, reduce, boil down, choose, categorize, catalog, classify, list, abstract, scan, look into, idealize, isolate, discriminate, distinguish, screen, pigeonhole, pick over, sort, integrate, blend, inspect, filter, lump, skip, smooth, chunk, average, approximate, cluster, aggregate, outline, summarize, itemize, review, dip into, flip through, browse, glance into, leaf through, skim, refine, enumerate, glean, synopsize, winnow the wheat from the chaff and separate the sheep from the goats.

1.3   Project Research Aim

(Han et al., 2011) The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

1.4   Objectives

Imagine trying to live in a world dominated by dihydrogen oxide, a compound that has no taste or smell and is so viable in its properties that it is generally benign but at other times swiftly lethal. Depending on its state, it can scald you or freeze you. In the presence of certain organic molecules it can form carbonic acids so nasty that they can strip the leaves from trees and eat the faces off statuary. In bulk, when agitated, it can strike with a fury that no human edifice could withstand. Even for those who have learned to live with it, it is often murderous substance. We call it water.

1.5 Research Scope

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1.6 Research Contribution

I used a similar illustration in one of my Royal Institution Christmas Lectures in 1991. I said I had reason to believe that among my audience was a psychic, clairvoyant individual, capable of influencing events purely by power of thought. I would try to flush this individual out. "Let's first establish," I said, "whether the psychic is in the left half or the right half of the lecture hall." I invited everybody to stand up while my assistant tossed a coin. Everybody on the left of the hall was asked to 'will' the coin to come down heads. Everybody on the right had to will it to be tails. Obviously one side had to lose, and they were asked to sit down. Then those that remained were divided into two, with half 'willing' heads and the other half tails. Again the losers sat down. And so on by successive halvings until, inevitably, after seven or eight tosses, one individual was left standing. "A big round of applause for our psychic." He must be psychic, mustn't he, because he successfully influenced the coin eight times in a row?

1.7 Report Organization

If [in 2600] you stacked all the new books being published next to each other, you would have to move at ninety miles an hour just to keep up with the end of the line.

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Figure 1.1   Sample dummy image

Of course, by 2600 new artistic and scientific work will come in electronic forms, rather than as physical books and paper. Nevertheless, if the exponential growth continued, there would be ten papers a second in my kind of theoretical physics, and no time to read them.

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Table 1.1   Sample dummy table

LITERATURE REVIEW

2.1 First section

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2.1.1   First subsection

We thrive in information–thick worlds because of our marvelous and everyday capacity to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense, reduce, boil down, choose, categorize, catalog, classify, list, abstract, scan, look into, idealize, isolate, discriminate, distinguish, screen, pigeonhole, pick over, sort, integrate, blend, inspect, filter, lump, skip, smooth, chunk, average, approximate, cluster, aggregate, outline, summarize, itemize, review, dip into, flip through, browse, glance into, leaf through, skim, refine, enumerate, glean, synopsize, winnow the wheat from the chaff and separate the sheep from the goats.

2.1.1.1 First subsubsection

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

2.1.1.2 Second subsubsection

Imagine trying to live in a world dominated by dihydrogen oxide, a compound that has no taste or smell and is so viable in its properties that it is generally benign but at other times swiftly lethal. Depending on its state, it can scald you or freeze you. In the presence of certain organic molecules it can form carbonic acids so nasty that they can strip the leaves from trees and eat the faces off statuary. In bulk, when agitated, it can strike with a fury that no human edifice could withstand. Even for those who have learned to live with it, it is often murderous substance. We call it water.

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2.2.1   Second subsection

If [in 2600] you stacked all the new books being published next to each other, you would have to move at ninety miles an hour just to keep up with the end of the line. Of course, by 2600 new artistic and scientific work will come in electronic forms, rather than as physical books and paper. Nevertheless, if the exponential growth continued, there would be ten papers a second in my kind of theoretical physics, and no time to read them.

CHAPTER 3

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CHAPTER 4

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REFERENCES

Chang, F., Dean, J., Ghemawat, S., Hsieh, W. C. and Wallach, D. A. et al. (2008). Bigtable: A distributed storage system for structured data. *ACM Transactions on Computer Systems (TOCS), 26*(2), 4.

Han, J., Haihong, E., Le, G. and Du, J. (2011). Survey on nosql database. In *Pervasive computing and applications (ICPCA), 2011 6th international conference on*, pages 363–366.IEEE

APPENDIX A

SAMPLE APPENDIX

APPENDIX B

ANOTHER APPENDIX

APPENDIX C