

# REVERSE ENGINEERING MICROSERVICES

REVERSE ENGINEERING MICROSERVICES FOR ENHANCED  
INSIGHTS

BY  
MUHAMMAD WAQAR UL HASSAN AWAN, M.Eng.

A REPORT  
SUBMITTED TO THE COMPUTING AND SOFTWARE  
AND THE SCHOOL OF GRADUATE STUDIES  
OF MCMASTER UNIVERSITY  
IN PARTIAL FULFILMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
MASTERS OF ENGINEERING

© Copyright by Muhammad Waqar Ul Hassan Awan, Nov 2024

All Rights Reserved

Masters of Engineering (2024)  
(Computing and Software)

McMaster University  
Hamilton, Ontario, Canada

TITLE: Reverse Engineering Microservices for Enhanced Insights

AUTHOR: Muhammad Waqar Ul Hassan Awan  
M.Eng. Computing and Software,  
McMaster University, Hamilton, Canada

SUPERVISOR: Dr. Sébastien Mosser

NUMBER OF PAGES: xii, ??

# Lay Abstract

A lay abstract of not more 150 words must be included explaining the key goals and contributions of the thesis in lay terms that is accessible to the general public.

# Abstract

Abstract here (no more than 300 words)

*Your Dedication*  
*Optional second line*

# Acknowledgements

Acknowledgements go here.

# Contents

<b>Lay Abstract</b>	<b>iii</b>
<b>Abstract</b>	<b>iv</b>
<b>Acknowledgements</b>	<b>vi</b>
<b>Notation, Definitions, and Abbreviations</b>	<b>xi</b>
<b>Declaration of Academic Achievement</b>	<b>xii</b>
<b>1 Introduction</b>	<b>1</b>
<b>2 Your Chapter Title</b>	<b>2</b>
2.1 Referencing . . . . .	2
2.2 Figures . . . . .	2
2.3 Tables . . . . .	3
2.4 Equations . . . . .	3
<b>3 Conclusion</b>	<b>5</b>
<b>A Your Appendix</b>	<b>6</b>





# List of Figures

2.1	Single Figure Environment Listed Title . . . . .	3
2.2	A Multi-Figure Environment . . . . .	4

# List of Tables

2.1	A sample table . . . . .	3
-----	--------------------------	---

# Notation, Definitions, and Abbreviations

## Notation

$A \leq B$       A is less than or equal to B

## Definitions

**Challenge**      With respect to video games, a challenge is a set of goals presented to the player that they are tasks with completing; challenges can test a variety of player skills, including accuracy, logical reasoning, and creative problem solving

## Abbreviations

**AI**      Artificial intelligence

# Declaration of Academic Achievement

The student will declare his/her research contribution and, as appropriate, those of colleagues or other contributors to the contents of the thesis.

# Chapter 1

## Introduction

Every thesis needs an introductory chapter

While you're here, you need to go into `definitions.tex` to set all the information needed for the front matter (e.g. title, author) and page header/footer.

You will also find the School of Graduate Studies' preparation guide (August 2021) for theses and reports. I would give it a quick read so you know what's expected.

# Chapter 2

## Your Chapter Title

This is a sample chapter

If you need to use quotes, type it “like this”.

### 2.1 Referencing

These are some sample references to GAMYGDALA (?) from the `references.bib` file and state effects of cognition (?) from the `references_another.bib` file. These references are not in the same .bib file.

### 2.2 Figures

This is a single image figure (Figure 2.1):

This is a multi-image figure with a top (Figure 2.2a) and bottom (Figure 2.2b) aligned subfigures:



Figure 2.1: This is a single figure environment

## 2.3 Tables

Here is a sample table (Table 2.1):

A	$\longleftrightarrow$	B
C	$\longleftrightarrow$	D

Table 2.1: A sample table

### 2.3.1 Long Tables

A sample long table is shown in Appendix B.

## 2.4 Equations

Here is a sample equation (Equation 2.4.1):

$$y = mx + b \tag{2.4.1}$$





(a) Figure 1



(b) Figure 2

Figure 2.2: A Multi-Figure Environment

## Chapter 3

## Conclusion

Every thesis also needs a concluding chapter

# Appendix A

## Your Appendix

Your appendix goes here.

# Appendix B

## Long Tables

This appendix demonstrates the use of a long table that spans multiple pages.

Col A	Col B	Col C	Col D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D

*Continued on the next page*

*Continued from previous page*

Col A	Col B	Col C	Col D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D
A	B	C	D