# TITLE OF PROJECT

By
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A report submitted in partial fulfillment of the requirements
of SYSC 4907 Engineering Project

Department of Systems and Computer Engineering
Faculty of Engineering and Design
Carleton University

# Abstract

The abstract is a short (about half a page), high-level overview. The abstract should (briefly) identify: the problem, the solution, and the accomplishments. Write this last!

# Acknowledgements

A brief statement to acknowledge anyone who had input that contributed to the project and/or report. The Project supervisor is often acknowledged; however, this is not required. Examples of other people who are often acknowledged include technical support staff who have helped in some way, and people who have answered questions or made suggestions.

# Contents

# List of Figures

# List of Tables

# List of Abbreviations

| | |
|---|---|
| VoIP | Voice over Internet protocol |
| MRI | Magnetic resonance imaging |

# Chapter 1

# Introduction

Provide a general context for the problem (introduce the problem area). This should be brief, since the readers are familiar with the problem area (the supervisor has been involved with the project and the second reader has been selected because they are familiar with the problem area).

For example, a project might deal with some aspect of data communication for a particular application. The introduction would say a bit about the application and the role of data communication in that application.

## 1.1 Problem Motivation

Analyze, or expand on, the introduction to show that one or more problems exist in the problem area. This may include some discussion of related work in the area; however, don't get too detailed here! (Instead of details, give short statements of the relevant points and give citations to references that contain the details.) If more detail needs to be provided to understand your solution or accomplishments, include a relevant technical section or an appendix and give a forward reference to the section or appendix.

## 1.2 Problem Statement

Give a short, clear statement of the problem(s) being solved. The problem(s) must have been identified in the motivation discussion. Make sure that you have identified the problem(s) that your accomplishments have solved. A project often solves only a small part of a larger

problem. In this case, the motivation will identify the larger problem and the sub-problems, while the problem statement must clarify which problem is being solved.

## 1.3 Proposed Solution

Describe the proposed solution to the stated problem. Do not go into details here!

## 1.4 Accomplishments

List your accomplishments towards your solution. Remember, this is crucial information that will be used to determine your final grade. Do not make the reader sift through the entire report to determine what you actually completed.

Sometimes, a project does not completely solve the stated problem. This might be due to unexpected technical problems, or perhaps an initial under-estimation of the amount of work involved. If this is the case, be sure to point this out.

## 1.5 Organization of the Report

Let the reader know what information is included in the report, and where the information is located. Give a brief statement of why the information has been included so the reader will be better prepared to relate the information to the BIG 3 questions:

1. What is the problem being solved?
2. What is your solution to the problem?
3. What did you accomplish?

# Chapter 2

# The Engineering Project

To satisfy the course requirements, all reports must contain a **standard Chapter 2** described below. The size of each section will depend on your particular problem. For example, health and safety considerations are a large factor and should be discussed in depth for healthcare-related projects, but may be of a minor concern for a web-based game. Ask your supervisor for help if needed.

## 2.1 Health and Safety

Using the Health and Safety Guide posted on the course webpage, use this section to explain how you addressed the issues of safety and health in the system that you built for your project.

## 2.2 Engineering Professionalism

Using your course experience of ECOR 4995 Professional Practice, you should demonstrate how your professional responsibilities were met by the goals of their project and/or during the performance of the project.

## 2.3 Project Management

One of the goals of the engineering project is real experience in working on a long-term team project. Explain what project management techniques or processes were used to coordinate,

manage, and perform the project.

## 2.4 Individual Contributions

This section should carefully itemize the individual contributions of each team member. Project contributions should identify which components of work were done by each individual. Report contributions should list the author of each major section of this report.

### 2.4.1 Project Contributions

Give the individual contributions of the each team member towards the project.

### 2.4.2 Report Contributions

Give the individual contributions of the each team member towards writing the final report.

# Chapter 3

# Background Literature Review

Provide only the background information needed to clarify the problem. This might include details of the problem, an analysis of related work, and a clear statement of terminology. Any terminology introduced here should relate to the problem, not your solution.

# Chapter 4

# Technical Solution

Elaborate on the rationale behind your solution, and in particular, give the details of your accomplishments.

Project development is a creative process. Periods of learning, thinking, and experimenting are interspersed with discoveries that clarify many issues but often point out weaknesses and flaws in earlier work. The readers are not interested in the sequence of events in the creative development of a project, or the personal discoveries that helped to clarify issues in your mind. The readers want to know about the results that you are submitting as evidence of solving the problem. Regardless of the order of discoveries during development, present your details in an order that clarifies the results.

An important part of problem solving is the generation and analysis of alternative solutions. If you consider alternative solutions at various points in the project, include brief discussions of the alternatives and why you chose not to pursue the alternatives.

Some technical details do not belong in the body of a report and should be moved to appendices (for example, a user's manual for a software package). These are useful accomplishments that should be included in the report, but placing the details in the body might unnecessarily distract the reader. In such cases, the body should include a summary of the relevant highlights, and refer the reader to the appropriate appendices for further details. When in doubt, ask your supervisor for suggestions about what should not be moved to appendices.

As stated in the project guidelines, all projects must demonstrate elements of engineering requirements, design, implementation, and testing. It is natural that the report reflects this progression. You may want individual sections in this chapter to describe each of these

processes. You will not want to include the documents here (an Appendix would be great for that), but you will want to describe the process your employed and discuss how it worked to develop your solution.

## 4.1 Example Figure

When including figures in your report, be sure to reference them in the text and provide a detailed caption. An example is shown in Figure 1.


Figure 1: Carleton University logo.

## 4.2 Example Table

Similarly, when including tables in your report, be sure to reference them in the text and provide a detailed caption. An example is shown in Table 1. Be consistent in your presentation of tables in terms of their format.

Table 1: This is a great table.

| $k$ | $x_1^k$ | $x_2^k$ | $x_3^k$ | remarks |
|---|---|---|---|---|
| 0 | -0.3 | 0.6 | 0.7 | |
| 1 | 0.47102965 | 0.04883157 | -0.53345964 | * |
| 2 | 0.49988691 | 0.00228830 | -0.52246185 | $s_3$ |
| 3 | 0.49999976 | 0.00005380 | -0.52365600 | |
| 4 | 0.5 | 0.00000307 | -0.52359743 | $\epsilon < 10^{-5}$ |

# Chapter 5

# Conclusions

Briefly summarize the problem, the solution, and your accomplishments towards the solution. (Remember, you want to be very clear about the answers to the BIG 3 questions!) Be sure to point out any features that might make your solution more desirable than other existing solutions to similar problems.

Make suggestions about how the project might be extended or modified to solve bigger or related problems. You do not have to give many details here, but a brief description will help the reader follow your suggestion.

During a project (and particularly near the end), it is not unusual for new alternative solutions to be discovered. Often, the project is committed to a particular solution and too much work would be involved to incorporate the new solution. If this happens, you might want to describe the new solution and recommend that the new solution might be preferable to the one you implemented.

# References

[1] T. Me and R. You, "A great result," *Wonderful Journal*, vol. 5, no. 9, pp. 1–11, 1998.

[2] J. Him and K. Her, "An even better result that you won't believe," *Best Journal Ever*, vol. 4, no. 8, pp. 55–66, 2002.

List all references material that you cite in your report. For each document list: the author(s), title, publisher, relevant pages (if appropriate), and date of publication. Check with your supervisor as to how references citations should appear in the text of your report. Be sure that your table of contents includes an entry for the reference list. Use IEEE publications as a guide to the format for bibliographical entries.

# Appendix A

# Supporting Appendices

Appendices should be labelled with upper case letters rather than numbers (i.e. A, B, ...), and each appendix should have a title. Be sure that all appendices are listed in the table of contents and that each appendix is referenced at least once in the report body.