

Thesis title

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Abstract

The abstract should outline the main approach and findings of the thesis and must not be more than 500 words.

Declaration

Use only one of the following declarations (Standard thesis or Thesis including published works declaration) and remove the other.

Acknowledgements

I would like to thank my pet goldfish for ...

Chapter 1

Introduction

This is where you introduce the main ideas of your thesis, and an overview of the context and background.

In a PhD, Chapter 2 would normally contain a literature review. Typically, Chapters 3–5 would contain your own contributions. Think of each of these as potential papers to be submitted to journals. Finally, Chapter 6 provides some concluding remarks, discussion, ideas for future research, and so on. Appendixes can contain additional material that don't fit into any chapters, but that you want to put on record. For example, additional tables, output, etc.

Again, notice the use of labels and references to automatically generate table numbers.

We present CONTRIBUTE, a pedagogical framework for capstone projects in which students contribute to an existing open source project. The framework was developed across four undergraduate cohorts through iterative cycles of classroom implementation, student feedback, and instructor reflection. Conceptually, it builds on constructivist learning theory as a sensitizing perspective and extends it in several instructional building blocks, specifying practices for collaborating, organizing, navigating, training, regulating, implementing, branching, updating, testing, and evaluating. CONTRIBUTE thereby organizes best practices from the classroom into a coherent, mid-range framework, designed to generalize across projects. It offers instructors a pragmatic pathway to integrate programming, teamwork, and real-world open source software contribution, while integrating the software development work of students in an existing open source project. We thereby support efforts to teach open source software development as an essential skill and contribute to initial efforts to incorporate open source principles and practical software development in the Information Systems curriculum.

Chapter 2

Literature Review

This chapter contains a summary of the context in which your research is set.

Imagine you are writing for your fellow PhD students. Topics that are well-known to them do not have to be included here. But things that they may not know about should be included.

Resist the temptation to discuss everything you've read in the last few years. And you are not writing a textbook either. This chapter is meant to provide the background necessary to understand the material in subsequent chapters. Stick to that.

You will need to organize the literature review around themes, and within each theme provide a story explaining the development of ideas to date. In each theme, you should get to the point where your ideas will fit in. But leave your ideas to later chapters. This way it is clear what has been done beforehand, and what new contributions you are making to the research field.

All citations should be done using markdown notation as shown below. This way, your bibliography will be compiled automatically and correctly.

2.1 Exponential smoothing

Exponential smoothing methods were originally developed in the late 1950s (Brown [1959](#), [1963](#); Holt [1957](#); Winters [1960](#)). Because of their computational simplicity and interpretability, they became widely used in practice.

Empirical studies by Makridakis & Hibon ([1979](#)) and Makridakis et al. ([1982](#)) found little difference in forecast accuracy between exponential smoothing and ARIMA models. This made the family of exponential smoothing procedures an attractive proposition (see Chatfield et al. [2001](#)).

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The methods were less popular in academic circles until Ord, Koehler & Snyder ([1997](#)) introduced a state space formulation of some of the methods, which was extended in Hyndman et al. ([2002](#)) to cover the full range of exponential smoothing methods.

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