Preface

Any B.Sc. or M.Sc. study programme in the computing discipline typically ends with a capstone project. A capstone project builds and tests the skills and the knowledge acquired during the education and is an essential part of the training towards becoming a professional. There is a large number of different terms for these types of projects: capstone project, senior project, final year project, B.Sc./ M.Sc. thesis project, etc. In this book we will use the term 'thesis project', and in some cases, for the sake of simplicity, just 'project'.

This book focuses on thesis projects within the computing discipline. Thus, the type of project discussed in this book is in line with the capstone format described in the ACM/IEEE Computing Curricula 2001 Computer Science (p. 53):

> … an alternative capstone format is a research experience that includes some original work, a review of the scientific literature, and an investigation of a proposed solution, followed by a scientific paper and/or an oral presentation of the results. It is important to remember that these are undergraduates and be realistic about the amount and quality of research expected. Even so, it may be more worthwhile to expose outstanding students to the challenges of research than to have them design and build yet another program

In this book, we present a process for conducting thesis projects with the research-orientation described in the quote above. This process was developed at the University of Skövde, Sweden, and it has been applied successfully at the B.Sc. and M.Sc. levels and to a wide spectrum of projects, addressing many different subjects within computing. Typical subject areas have included, for example, artificial intelligence, theoretical computer science, databases, data communication, distributed systems, human-computer interaction, operating systems, real-time systems, web technologies, software engineering, systems analysis and technology transfer. Some projects have been theoretical and others more empirically oriented, and they have included both science- and technology-oriented projects. In addition to this book, the interested reader can also find additional information on our experiences of these types of projects in the following article:

> Olsson, B., Berndtsson, M., Lundell, B. and Hansson, J. (2003). Running research-oriented final year projects for CS and IS students. In *Proceedings of the 34th SIGCSE Technical Symposium on Computer Science Education*, Reno, Nevada, USA, 19–23 February 2003, pp. 79–83, ACM Press.

Who Should Read This Book?

We have written this book with the aim of meeting the needs of students who are close to finishing a B.Sc. or M.Sc. degree. However, several other categories of readers may find this book a valuable companion. We hope that a number different categories of readers may benefit from the book, as outlined below.

- Students who plan to do a B.Sc. or M.Sc. project in which they are expected to: use scientific methods to solve a problem, work with a research-oriented focus, write a report in the form of a thesis, and/or present and defend their work orally (viva voce examination).
- Supervisors who supervise B.Sc. or M.Sc. projects. It is important that supervisors are familiar with and up to date on questions and issues that students might encounter in the various phases of their B.Sc. and M.Sc. projects.
- Examiners of research-oriented B.Sc. or M.Sc. projects. The book may be particularly useful for anyone who is new in the role as examiner and needs a head start on, for example, assessment criteria.
- Coordinators who are responsible for maintaining and developing course curricula for B.Sc. or M.Sc. projects, as well as other people involved in development of study programmes.

In addition to the general descriptions and advice provided in this book, we want to emphasise that it is important for students to find out the exact requirements at the department where the project is undertaken.

Changes from Previous Edition

- *Terminology*. We have updated the terminology and do not use the term *Final Year Project*. Instead we either use the more term *Thesis Project* or simply just projects.
- *Information-seeking and use*. A new chapter on *Information-seeking and use* and a subsection called *Improve your learning (and grade)* have been added to strengthen the material on how to search for relevant literature and also how to validate it. This material was written by Ola Pilerot, who is lecturer at the Swedish School of Library and Information Science (SSLIS) at Göteborg University and at University College of Borås.
- *Nuts and bolts*. We have fine tuned the text and updated the information wherever appropriate.

Thesis Projects
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