Preface

I believe that computer programming is a skill that is best learned through hands-on experience. While it is valuable for you to read about programming in textbooks and watch teachers create programs at the front of classrooms, it is even more important for you to spend time solving problems that allow you to put the ideas that you have been introduced to previously into practice.

This book is designed to support and encourage hands-on learning about programming. It contains 174 exercises, spanning a variety of academic disciplines and everyday situations, which you can solve using only the material covered in most introductory Python programming courses. Each exercise that you complete will strengthen your understanding and enhance your ability to tackle subsequent programming challenges. I also hope that the connections that these exercises make to other academic disciplines and everyday life will keep you interested as you complete them.

Solutions to approximately half of the exercises are provided in the second half of this book. Most of the solutions include brief annotations that explain the technique used to solve the problem, or highlight a specific point of Python syntax. You will find these annotations in shaded boxes, making it easy to distinguish them from the solution itself.

I hope that you will take the time to compare each of your solutions with mine, even when you arrive at your solution without encountering any problems. Performing this comparison may reveal a flaw in your program, or help you become more familiar with a technique that you could have used to solve the problem more easily. In some cases, it could also reveal that you have discovered a faster or easier way to solve the problem than I have. If you become stuck on an exercise, a quick peek at my solution may help you work through your problem and continue to make progress without requiring assistance from someone else. Finally, the solutions that I have provided demonstrate good programming form, including appropriate comments, meaningful variable names and minimal use of magic numbers. I encourage you to use good programming form so that your solutions compute the correct result while also being clear, easy to understand and easy to update in the future.

Exercises that include a solution are clearly marked with (Solved) next to the exercise name. The length of the sample solution is also indicated for every exercise in this book. While you shouldn't expect your solution length to match the sample

solution length exactly, I hope that providing this information will prevent you from going too far astray before seeking assistance.

This book can be used in a variety of ways. It can supplement another textbook that has a limited selection of exercises, or it can be used as the sole source of exercises when an instructor has decided not to use another textbook. A motivated individual could also learn Python programming by carefully studying each of the included exercises and solutions, though there are probably easier ways to learn the language. No matter what other resources you use with this book, completing the exercises and studying the provided solutions will enhance your programming ability.

Calgary, Canada, November 2014   Ben Stephenson