PREFACE

Setting up a complete development environment using open source tools has always been a challenging task. Although all of the development tools are available in the open source, no comprehensive development environment exists as of today. This book is an effort to enable the reader to set up and use open source to create such an environment. Each chapter of the book is dedicated to a particular component of the development environment.

Chapter 1 provides an introduction to the practical software development life cycle and stages. The chapter also provides information about the documentation required for all serious software development projects. Guidelines are provided about criteria for selecting hardware and software platforms.

Chapter 2 is about using editors. Editors are essential components of any software development system. Selection of a good editor saves time and money in the development life cycle. This chapter provides information about commonly used editors like Emacs, Jed and vim (vi Improved).

Chapter 3 is about the GNU set of compilers commonly known as GCC. The procedure for installation and use of gcc with different languages is presented here.
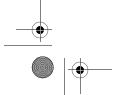
Larger software projects contain hundreds or thousands of files. Compiling these files in an orderly fashion and then building the final executable product is a challenging task. GNU make is a tool used to build a project by compiling and linking source code files. Chapter 4 provides information on how to install and use this important tool.
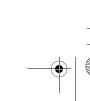
Chapter 5 discusses debuggers. An introduction to commonly used debuggers is provided in this chapter with an emphasis on the GNU debugger gdb.

Chapter 6 introduces CVS, which is the open source revision control system and is most widely used in open source development. Setting up a CVS server is detailed in this chapter. You will learn how to use remote the CVS server in a secure way.

There are tools other than compilers, debuggers and editors. These tools are discussed in Chapter 7. These tools help in building good products.

Open source tools are also widely used in embedded and cross-platform development. Chapter 8 provides information using open source tools in such environments. Remote debugging is an important concept and it is explained in this chapter.
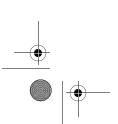
Chapter 9 is the last chapter of the book and it provides a basic introduction to open source Java development.
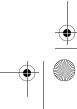
There is one important thing that you must keep in mind while reading this book. It is not a tutorial on any language or programming techniques. It is about development tools and how to use these. You need other books to learn programming languages and techniques.

The book explains the installation procedures of different tools. By the time you read this book, new versions of these tools may be available. The installation procedures will not vary drastically in these versions and you can use the steps explained in this book. In fact, most of the open source tools employ the same compiling and installation procedure that you will note in this book. This process has been consistent and is expected to remain the same in future as well.

After reading this book, we are very much hopeful that the reader will be able to understand different components of a development system. You will also be able to create such a system from scratch using open source tools.

Rafeeq Ur Rehman
Christopher Paul

ABOUT THE CD

This book comes with a CD-ROM. The CD-ROM contains source code of all software and utilities used in this book. You can compile and install these tools as explained in this book. If you need latest versions of these tools, you can download these from the links provided in the book.