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Mastering

Java

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Series Editor

William Buchanan

This book is dedicated to my beautiful wife.

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Preface

Java is one of the fastest growing development languages and has the great advantage that it was developed after the Internet and WWW were created. It is by no means an easy language to learn, but it is relatively easy to create graphics and windows-based programs.

If I were to personally rate the top-ten advantages of Java I would rate them as:

1. Direct WWW/Internet support. Java contains direct support for most of the Internet, such as HTTP, Socket programming, and so on.
2. Runs in a client/server environment. Where the program is run on a server and sends the results to the client.
3. Produces applets which are platform-independent. This allows applets to be run on a PC, a Mac, a Sun workstation, an HP workstation or any other computer which has a browser which support Java applets.
4. It is event-driven rather than procedural-driven. This means that it supports events, such as keypresses, mouse actions, and so on. These make the program more responsive and easier to design. Many programming languages are procedural-based where the code is run in a sequential manner.
5. It has direct support for windows, buttons, menus, and so on. Many software compilers have non-standard add-ons for the support of these objects, which can lead to compiler dependence. Microsoft Windows, though, now has a standard library called Win32 which gives support to C++, Delphi and Visual Basic.
6. Direct support for bit-mapped graphics. Most languages, such as C++ and Pascal, have graphics support as an add-on to the basic language. This again leads to compiler dependence. Microsoft Windows, though, now has a standard library called Win32 which gives support to C++, Delphi and Visual Basic.
7. It is totally object-oriented. Programs are produced by defining classes which are operated on by methods. An instance of a class is known as an object.
8. It produces either stand-alone programs which are run with an interpreter, or applets which run within browsers.
9. It is based on C and C++, but with many enhancements. It also gets rid of many of the difficult areas of C/C++ programming, such as pointers, strings and the lack of strong data type checking.

10. It is freely available over the Internet and it is easy to upgrade and to add to.

This book is intended as an introduction to Java and is practical in its approach. I feel the best way of learning the language is to use practical examples. Many of the chapters also contain project work which is intended to give readers some practical work which requires a degree of thought, planning and testing.

Further information and source code can be found on the WWW page:

http://www.eece.napier.ac.uk/~bill_b/java.html

Help from myself can be sought using the email address:

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I would personally like to thank Suzannah Tipple, Isobel Munday and Christopher Glennie at Macmillan for their hard work and their continued support for the Mastering IT and Computing series. I would also like to thank Olivier Sagner for his excellent researching of Java Sockets. Finally, I would like to thank my family, Julie, Billy, Jamie and David for their love and understanding.

I hope that students, tutors and professionals will find Java as stimulating as I found it when writing this book. Related, and forthcoming, books in this series include: Mastering the Internet, Mastering Intranets, Mastering Global Information Systems, Mastering Network Operating Systems (Windows NT, NetWare and UNIX), Mastering Pascal and Delphi, and Mastering C++. Potential, and existing, authors who are interested in writing in this series should contact either myself or one to the Acquisition Editor at Macmillan.

Dr William Buchanan.