

This work is dedicated to
Minakshi Ghosh
and
Jayanta Kumar Bhattacharjee

ACKNOWLEDGMENTS

The author wishes to record his deep sense of gratitude to his colleagues, friends and associates who helped him prepare the manuscript during the various phases of this work.

Aditya Bagchi	Manika Banerjee	Satyabrata Roy
Atul Gurtu	Monika Mukherjee	Siddhartha Chaudhuri
Ajay Kumar Majhi	Prasanta Kumar Mukherjee	Siddhartha Ray
Debshankar Ray	Purnendu Das	Soumitra SenGupta
Debasis Sengupta	Ramaprasad De	Soumya Chakravarti
Indrajit Basu	Robert Holmes	Swapan Bhattacharjee
Indrani Bose	Sankar Chakravorty	Utpal Chattopadhyay
John Holden	Shankar Prasad Bhattacharyya	
Koushik Ray	Santosh Kumar Samaddar	

Sarbani Saha and Robert Dyson have gone through the entire manuscript. They located typos, errors of various nature and suggested several improvements.

Ardhendu Sekhar Dutta, Sudipta Dutta and Jayita Ghosh of SALIENCE have converted the raw manuscript into this decent form. They have drawn all the diagrams of this book.

The Numerical Algorithms Group Ltd., Oxford, UK provided with a free license to use their Fortran Compiler for one year.

Finally, the author wishes to thank his family – mother Prabha Ray, sister Uma Sen, brother Debabrata Ray, wife Sanghamitra Ray and daughter Sumitra Ray for their encouragement during the preparation of this manuscript.

Last but not least, the author wishes to thank the Laptop which he used almost 12 hours a day for months without a single breakdown during the preparation of this manuscript.

PREFACE

This is a textbook on programming language Fortran/2003 based on the Fortran/2003 report (Working Draft J3/04-007, May 10, 2004). Though the book is written for beginners with very little knowledge about the earlier versions of Fortran, experienced programmers of earlier versions of Fortran may find this book useful if they want to learn the features of Fortran/2003. Such readers can directly look into the appropriate statements. It has been the endeavor of the author to avoid the “forward reference” as far as practicable. Therefore, when a particular statement is introduced, not all the options/attributes are given at one place – the options/attributes are sometimes scattered in different places of the book. This was necessary so that a beginner can start from the first page of the book and can proceed sequentially. A careful reader would find the complete statement after going through the book.

As Fortran is mainly used in solving problems related to science and engineering, standard numerical methods have been used as vehicle to illustrate the application of the language. However, knowledge beyond the level of elementary calculus is not required to understand the numerical examples given in the book. The emphasis of the book is on programming language, not on sophisticated numerical methods. The programming examples given in the book are simple and to keep the code readable, the code is not optimized. It is expected that a reader after proper understanding of the language would be able to write “much more efficient” codes.

Programming tips and programming style have been introduced at appropriate places. These are just guidelines. It is well known that every experienced programmer has his/her own programming style.

All the programs and program segments have been tested with the Fortran compiler provided by The Numerical Algorithms Group Ltd., Oxford, UK.

All the statements of the earlier versions of Fortran are expected to work with standard Fortran/2003 compilers. For example the declaration:

```
INTEGER A
```

is still a valid declaration under Fortran/2003. But the standard Fortran/2003 declaration:

```
INTEGER :: A
```

is used throughout the book. This is true for other Fortran instructions also. Usually Fortran/2003 instructions are more general and contain more attributes than the equivalent statements of earlier versions of Fortran (like Fortran 77).

Some of the instructions of the earlier versions of Fortran have been declared as obsolete though the present Fortran compilers support these features. These have been indicated at the appropriate places. Instructions like arithmetic IF, computed GOTO are normally not used now a days. Yet, these types of instruction are discussed as some of the old running programs may have these instructions and some times one has to read and modify these old programs.

Throughout the book Fortran stands for Fortran/2003 and any deviation from it has been mentioned whenever required.

Sections/chapters marked with asterisk may be skipped during the first reading of the book.

At the time of writing this book (October 2007), the author could not find a Fortran compiler that supports all the features of Fortran/2003 language.

The author may be contacted by e-mail (subratar@gmail.com). Some more information about the book will be made available at the website <http://www.angelfire.com/sc3/subrata/F2003>.

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