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Programming in Visual Basic 2010

This book is an introduction to programming using Microsoft's Visual Basic .NET 2010. It is intended for novice programmers with little or no programming experience or no experience with Visual Basic. The text emphasizes programming logic and good programming techniques with generous explanations of programming concepts written from a nontechnical point of view. It stresses input, processing, and output and sequence, selection, and repetition in code development. File input and output (I/O) and arrays are included. Later chapters introduce objects, event programming, and databases. By taking a slow and steady approach to programming ideas, this book builds new concepts from what the reader has already learned. VB tips and quips inject both humor and insight.

The book includes numerous programming examples and exercises, case studies, tutorials, and "Fixing a Program" sections for an in-depth look at programming problems and tools. Quizzes and review questions throughout each chapter get students to think about the materials and how to use them. Each chapter has a summary and glossary for extra review.

The accompanying web site has code downloads, I/O, and database files from small, simple files to large files with thousands of records, flowcharts, deskchecks, and audits to aid with program design, coding, and debugging, PowerPoint files for every chapter, and hundreds of ideas for programs and projects.

Dr. Jim McKeown has spent more than 20 years at Dakota State University, where he is an Assistant Professor. He currently teaches programming, computer hardware, software testing, and computer applications. He received a master's degree in computer education from Columbia University and holds a Ph.D. in instructional design from the University of Iowa. He has contributed several articles to the *Journal for Computing in Small Colleges* as well as various other publications.

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Programming in Visual Basic 2010

The Very Beginner's Guide

Jim McKeown

Dakota State University

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Quick, who won the Academy Award for Best Screenplay last year? Who won a Grammy last year? Who pitched the last game of the World Series? How often do the rich and famous make headlines for their good work, not their misdeeds? These people don't impact your life so why is society obsessed them? And you certainly don't want to emulate many of them. Look around and find the ones that do impact your life and pay attention to them.

Thank you to the reviewers. Without their hard and sometimes thankless work, this book wouldn't be nearly as good. I especially want to thank Rudy McDaniel for his keen eye and suggestions.

Thank you to Mrs. Heneghen, my first grade teacher, who taught me how to read and write and do arithmetic. She was a wonderful lady. Thank you to Mrs. Short. She instilled in me a love of learning I carry to this day. She's still my neighbor and I've never been able to turn her down when she's asked for a favor. Mrs. Pratt taught me multiplication and division, Mrs. Moulton taught me science, and Mrs. Stuefen first taught me geography. I still love doing math in my head, studying science, and poring over maps. Miss Haggerty – there wasn't a boy in the sixth grade that wasn't in love with her. I admired and respected Mr. Skovlund. Mr. Tordoff taught me typing. I still use it every day, but he taught his best lessons with a whistle in his hand. Mrs. Hefling was my English and speech teacher. I can make my living through writing and speaking because of her. Mr. Magnus taught me algebra and physics and always had time to answer questions. He was a good man. Mr. Vincent was my history teacher and coach. His quiet dignity touched students for nearly forty years. He made me a better person. Dr. Jerry Sweeney was my college advisor. He saw something in this skinny farm boy. Thank you to Anne Vollmer, Nancy Cunniff, and Howard Budin in grad school. Thank you to Dr. Jim Maxey. He was a vice president at ACT but still had time to help me with my dissertation. These teachers made a difference in my life and I'll never forget that.

To Delores. See? Being a computer geek finally paid off. Now, I can start working on the movie.

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April 3, 2009

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Preface

Who Should Use This Book?

This book is written for the newbie. It's not for those who already know programming. If you know the basics of the computer, like word processing, spreadsheets, email, and surfing, then you're ready to go.

What's Included?

This book covers the basics, like variable and assignment statements. It explains programming sequence, selection, and repetition structures – fundamentals to the design of any good program. It explains controls and their uses, the basic tools for designing your interface. Procedures and functions are covered, which are the basic building blocks of larger programs. File input and output (I/O) is introduced. Good programs run on data and I/O is how data get into and out of the computer. From there, arrays are introduced and used to implement more complicated programming logic including control breaks, sorting, and searching. Events make things happen in a program and one chapter is dedicated to events, including drag and drop. Objects are introduced and an understanding of them is crucial for successful developers. For a little fun, there's a chapter on graphics and sound, but you'll need a good foundation in programming sequence, logic, and repetition to get the most from it. The world runs on databases and the last two chapters cover the basics of databases, including an introduction to LINQ to SQL and Crystal Reports. LINQ connects programs to databases. SQL (Structured Query Language) is designed to find, update, and report data, and Crystal Reports is designed for data presentation.

Why Use Visual Basic?

Visual Basic is just one of dozens of programming languages, but it's one of the best and most successful. It's one of the most popular languages in the world. It's popular with business and in education. It's object-oriented and can do almost anything. Visual Basic is simple, the commands are straightforward, and

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the basics are easy to grasp. With it you can write and run a program on your first day. Once you have the fundamentals, you can write programs of your own design. It's powerful – powerful enough to take on almost any development project. Programs written in earlier versions of Visual Basic will almost always convert and run in the latest version.

What Do You Need?

Visual Basic comes in several flavors, from the free Express Edition available as a download from Microsoft to the Professional version that's a part of Visual Studio. It must be installed on your computer and you must know how to start it, navigate through the folders on your system, open and save files, and, in general, use a computer.

You'll also want a place to make backups. A Flash drive works well, but almost any storage drive will do. Take some time to organize your files and folders – I recommend saving them by chapter – and spend a little extra time when naming them. You'll be glad you did when you go looking for that program you wrote a couple of months ago – you know, the one that used loops to calculate and display interest earnings.

Any Advice?

You must write programs to get good at programming. You won't learn Visual Basic by reading the text and running the sample programs. You learn by doing. Write programs. Try things. Test things. Sometimes there's a best way or one right way to write your code, but usually there's more than one way to get things to work. Try things. Play "What if . . . ?" Nearly every chapter has a "Fixing a Program" section or two where a program has bugs that need fixing. These will help you understand the good and the bad in a program. "Potential Problems" sections outline common mistakes and ways to avoid them. "Open and Run" sections have sample programs and demonstrations to help with the code and controls. "On Your Own" provides ideas for programs to write on your own.

Each chapter has several "VB Quiz" questions. Most of them are designed to make you think or to stretch your understanding. The answers for these are at the end of every chapter. There are self-check questions at the end of every chapter, too. The answers are included in Appendix H.

What to Look For

Pay attention to the names used in the book. I grew up with cartoon characters and Bond movies and I'm always looking for a good name. The VB "Quips" and "Tips" inject a little humor and a little insight. A little fun never hurt.

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