



# Introduction to Scientific Computation and Programming

By Daniel T. Kaplan

Brooks/Cole, 2003. Book Condition: New. Brand New, Unread Copy in Perfect Condition. A+ Customer Service! Summary: 1. WHAT IS COMPUTATION? Computation as Transformation. Computation as Reaction to Events. Algorithms. From Algorithms to Software. Exercises. 2. INVOKING A COMPUTATION. Expressions and Commands. Changing State: Assignment. A Variety of Notations. Parsing. Exercises. 3. SIMPLE TYPES: NUMBERS, TEXT, BOOLEANS. The Organization of Computer Memory. Text. Collections of Numbers and Plotting. Booleans: True or False. Logical Operators: Boolean Operators with Boolean Inputs. Example: Measuring Information in Bits. Exercises. 4. NUMBERS AND PRECISION. The Precision of Computer Arithmetic. Example: Global Positioning. Exercises. 5. COLLECTIONS AND INDEXING. Indexing. Matrices. Mixed Data Types. Exercises. 6. FILES AND SCRIPTS. Filenames. File Operators. Importing and Exporting Data. Scripts. Scripts as Computations. Exercises. Project: Time for a Cool Cup of Coffee. 7. FUNCTIONS. Computations without Effects. Creating Functions. Functions as Arguments and Values. Exercises. 8. CONDITIONALS. The if Statement. More Than Two Cases. Completeness and Exclusivity. Switch/Case. Advanced: Parallelization of Conditional Operators. Exercises. Project: The Morse Code. 9. LOOPS. For Loops. Accumulators. Nested Loops. Example: Optimal Matching with Nested Loops. Element-by-Element Operators. Outputs of Unknown Size. Loop Termination. Conditional Looping. Example: Measuring Information II. Dimensions and Arrays. Exercises. Project: Cellular...

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