Bare Essentials

At the end of this chapter you should be able to

1. Edit and run an m-file (both functions and scripts).
2. Identify the key differences between scripts and functions.
3. Create a function with one, two or more input parameters and one, two or more output parameters.
4. Use comment statements to add documentation to scripts and functions.
5. Use `disp` to print a string and a matrix to the command window.
6. Use relational operators (`<`, `<=`, `>`, `>=`, `~=`), and logical operators (`&`, `|`, `~`).
7. Use `if...end`, `if...elseif...end`, and `if...elseif...else...end` constructs.
8. Write a `for` loop to access each element of a vector of arbitrary length.
9. Use a `while` loop to iterate until a convergence tolerance is met.
10. Know the difference between `break` and `return`, and know how and where to use each.
11. Use `disp` to print string messages from within an m-file
12. Use `disp` to print the values in vectors and matrices from within an m-file

An Expanded Core of Knowledge

After mastering the bare essentials you should move on to a deeper understanding of the fundamentals. Doing so involves being able to

1. Use `fprintf` for formatted output.
2. Use a one-line `if...end` construct.
3. Write functions having variable numbers of input and output arguments.
4. Use a `switch` construct.
5. Preallocate memory for matrices, and know why and when this is advantageous.
6. Replace basic loops with vectorized statements.
7. Use colon notation to perform vectorized copy operations.
8. Use `feval`. Know how to pass a function name as an input parameter to another function.

Developing Mastery

Working toward mastery of solving systems of equations you will need to

1. Use global variables
2. Use array indexing instead of loops to select elements from a matrix.
3. Use logical indexing and logical functions instead of loops to select elements from matrix.
4. Use `fprintf` to write data to a file.
5. Use `fprintf` to load data from a file