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.

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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