Contents About ................................................................................................................................................................................... 1 Chapter 1: Getting started with C Language .................................................................................................. 2

Section 1.1: Hello World ................................................................................................................................................. 2 Section 1.2: Original "Hello, World!" in K&R C .............................................................................................................. 4 Chapter 2: Comments ................................................................................................................................................. 6 Section 2.1: Commenting using the pre-processor ...................................................................................................... 6 Section 2.2: /\* \*/ delimited comments ........................................................................................................................ 6 Section 2.3: // delimited comments ............................................................................................................................ 7 Section 2.4: Possible pitfall due to Trigraphs .............................................................................................................. 7 Chapter 3: Data Types ............................................................................................................................................... 9 Section 3.1: Interpreting Declarations .......................................................................................................................... 9 Section 3.2: Fixed Width Integer Types (since C99) ................................................................................................. 11 Section 3.3: Integer types and constants .................................................................................................................. 11 Section 3.4: Floating Point Constants ........................................................................................................................ 12 Section 3.5: String Literals .......................................................................................................................................... 13 Chapter 4: Operators ............................................................................................................................................... 14 Section 4.1: Relational Operators ............................................................................................................................... 14 Section 4.2: Conditional Operator/Ternary Operator ............................................................................................. 15 Section 4.3: Bitwise Operators ................................................................................................................................... 16 Section 4.4: Short circuit behaviour of logical operators .......................................................................................... 18 Section 4.5: Comma Operator ................................................................................................................................... 19 Section 4.6: Arithmetic Operators .............................................................................................................................. 19 Section 4.7: Access Operators ................................................................................................................................... 22 Section 4.8: sizeof Operator ....................................................................................................................................... 24 Section 4.9: Cast Operator ......................................................................................................................................... 24 Section 4.10: Function Call Operator ......................................................................................................................... 24 Section 4.11: Increment / Decrement ......................................................................................................................... 25 Section 4.12: Assignment Operators .......................................................................................................................... 25 Section 4.13: Logical Operators .................................................................................................................................. 26 Section 4.14: Pointer Arithmetic ..................................................................................................................................27 Section 4.15: \_Alignof .................................................................................................................................................. 28 Chapter 5: Boolean .................................................................................................................................................... 30 Section 5.1: Using stdbool.h ........................................................................................................................................ 30 Section 5.2: Using #define .......................................................................................................................................... 30 Section 5.3: Using the Intrinsic (built-in) Type \_Bool ............................................................................................... 31 Section 5.4: Integers and pointers in Boolean expressions .................................................................................... 31 Section 5.5: Defining a bool type using typedef ...................................................................................................... 32 Chapter 6: Strings ....................................................................................................................................................... 33 Section 6.1: Tokenisation: strtok(), strtok\_r() and strtok\_s() .................................................................................. 33 Section 6.2: String literals ........................................................................................................................................... 35 Section 6.3: Calculate the Length: strlen() ................................................................................................................ 36 Section 6.4: Basic introduction to strings .................................................................................................................. 37 Section 6.5: Copying strings ....................................................................................................................................... 37 Section 6.6: Iterating Over the Characters in a String ............................................................................................. 40 Section 6.7: Creating Arrays of Strings ..................................................................................................................... 41 Section 6.8: Convert Strings to Number: atoi(), atof() (dangerous, don't use them) ........................................... 41 Section 6.9: string formatted data read/write ......................................................................................................... 42 Section 6.10: Find first/last occurrence of a specific character: strchr(), strrchr() ............................................... 43 Section 6.11: Copy and Concatenation: strcpy(), strcat() ........................................................................................ 44 Section 6.12: Comparsion: strcmp(), strncmp(), strncasecmp(), strncasecmp() .................................................... 45 Section 6.13: Safely convert Strings to Number: strtoX functions .......................................................................... 47 Section 6.14: strspn and strcspn ................................................................................................................................. 48 Chapter 7: Literals for numbers, characters and strings ...................................................................... 50

Section 7.1: Floating point literals ............................................................................................................................... 50 Section 7.2: String literals ........................................................................................................................................... 50 Section 7.3: Character literals .................................................................................................................................... 50 Section 7.4: Integer literals ......................................................................................................................................... 51 Chapter 8: Compound Literals ............................................................................................................................. 53 Section 8.1: Definition/Initialisation of Compound Literals ...................................................................................... 53 Chapter 9: Bit-fields .................................................................................................................................................. 55 Section 9.1: Bit-fields ....................................................................................................................................................55 Section 9.2: Using bit-fields as small integers .......................................................................................................... 56 Section 9.3: Bit-field alignment .................................................................................................................................. 56 Section 9.4: Don'ts for bit-fields .................................................................................................................................57

Section 9.5: When are bit-fields useful? .................................................................................................................... 58 Chapter 10: Arrays ...................................................................................................................................................... 60

Section 10.1: Declaring and initializing an array ....................................................................................................... 60 Section 10.2: Iterating through an array efficiently and row-major order ............................................................ 61 Section 10.3: Array length ........................................................................................................................................... 62 Section 10.4: Passing multidimensional arrays to a function ................................................................................. 63 Section 10.5: Multi-dimensional arrays ...................................................................................................................... 64 Section 10.6: Define array and access array element ............................................................................................. 67 Section 10.7: Clearing array contents (zeroing) ....................................................................................................... 67 Section 10.8: Setting values in arrays ........................................................................................................................ 68 Section 10.9: Allocate and zero-initialize an array with user defined size ............................................................. 68 Section 10.10: Iterating through an array using pointers ........................................................................................ 69 Chapter 11: Linked lists ............................................................................................................................................. 71 Section 11.1: A doubly linked list ..................................................................................................................................71 Section 11.2: Reversing a linked list ............................................................................................................................ 73 Section 11.3: Inserting a node at the nth position ..................................................................................................... 75 Section 11.4: Inserting a node at the beginning of a singly linked list .................................................................... 76 Chapter 12: Enumerations ...................................................................................................................................... 79 Section 12.1: Simple Enumeration ...............................................................................................................................79 Section 12.2: enumeration constant without type name .......................................................................................... 80 Section 12.3: Enumeration with duplicate value ....................................................................................................... 80 Section 12.4: Typedef Enum ....................................................................................................................................... 81 Chapter 13: Structs ..................................................................................................................................................... 83 Section 13.1: Flexible Array Members ......................................................................................................................... 83 Section 13.2: Typedef Structs ..................................................................................................................................... 85 Section 13.3: Pointers to structs .................................................................................................................................. 86 Section 13.4: Passing structs to functions ................................................................................................................. 88 Section 13.5: Object-based programming using structs ......................................................................................... 89 Section 13.6: Simple data structures .......................................................................................................................... 91 Chapter 14: Standard Math ................................................................................................................................... 93 Section 14.1: Power functions - pow(), powf(), powl() .............................................................................................. 93 Section 14.2: Double precision floating-point remainder: fmod() .......................................................................... 94 Section 14.3: Single precision and long double precision floating-point remainder: fmodf(), fmodl() ............... 94 Chapter 15: Iteration Statements/Loops: for, while, do-while ............................................................ 96

Section 15.1: For loop...................................................................................................................................................96

Section 15.2: Loop Unrolling and Due’s Device ........................................................................................................ 96 Section 15.3: While loop ...............................................................................................................................................97

Section 15.4: Do-While loop ........................................................................................................................................97 Section 15.5: Structure and flow of control in a for loop ......................................................................................... 98 Section 15.6: Infinite Loops ..........................................................................................................................................99

Chapter 16: Selection Statements .................................................................................................................... 100 Section 16.1: if () Statements .....................................................................................................................................100 Section 16.2: Nested if () ...else VS if()..else Ladder .................................................................................................. 100 Section 16.3: switch () Statements ........................................................................................................................... 102 Section 16.4: if () ... else statements and syntax ..................................................................................................... 104 Section 16.5: if () ...else Ladder Chaining two or more if () ... else statements ....................................................... 104 Chapter 17: Initialization ........................................................................................................................................ 105 Section 17.1: Initialization of Variables in C .............................................................................................................. 105 Section 17.2: Using designated initializers ............................................................................................................... 106 Section 17.3: Initializing structures and arrays of structures ................................................................................ 108 Chapter 18: Declaration vs Definition ............................................................................................................ 110

Section 18.1: Understanding Declaration and Definition ....................................................................................... 110 Chapter 19: Command-line arguments ......................................................................................................... 111

Section 19.1: Print the arguments to a program and convert to integer values ................................................. 111 Section 19.2: Printing the command line arguments ............................................................................................. 111 Section 19.3: Using GNU getopt tools ...................................................................................................................... 112 Chapter 20: Files and I/O streams .................................................................................................................. 115

Section 20.1: Open and write to file ......................................................................................................................... 115 Section 20.2: Run process ........................................................................................................................................ 116

Section 20.3: fprintf ................................................................................................................................................... 116

Section 20.4: Get lines from a file using getline() .................................................................................................. 116 Section 20.5: scanf () ................................................................................................................................................ 120 Section 20.6: Read lines from a file ......................................................................................................................... 121 Section 20.7: Open and write to a binary file ......................................................................................................... 122 Chapter 21: Formatted Input/output ............................................................................................................. 124

Section 21.1: Conversion Specifiers for printing ...................................................................................................... 124 Section 21.2: The printf() Function ........................................................................................................................... 125 Section 21.3: Printing format flags ........................................................................................................................... 125 Section 21.4: Printing the Value of a Pointer to an Object .................................................................................... 126 Section 21.5: Printing the Deference of the Values of two Pointers to an Object ............................................... 127 Section 21.6: Length modifiers ................................................................................................................................. 128 Chapter 22: Pointers ................................................................................................................................................ 129 Section 22.1: Introduction ......................................................................................................................................... 129 Section 22.2: Common errors .................................................................................................................................. 131 Section 22.3: Dereferencing a Pointer .................................................................................................................... 134 Section 22.4: Dereferencing a Pointer to a struct .................................................................................................. 134 Section 22.5: Const Pointers ..................................................................................................................................... 135 Section 22.6: Function pointers ................................................................................................................................ 138 Section 22.7: Polymorphic behaviour with void pointers ...................................................................................... 139 Section 22.8: Address-of Operator ( & ) ................................................................................................................. 140 Section 22.9: Initializing Pointers ............................................................................................................................. 140 Section 22.10: Pointer to Pointer .............................................................................................................................. 141 Section 22.11: void\* pointers as arguments and return values to standard functions ....................................... 141 Section 22.12: Same Asterisk, Different Meanings ................................................................................................. 142 Chapter 23: Sequence points .............................................................................................................................. 144 Section 23.1: Unsequenced expressions .................................................................................................................. 144 Section 23.2: Sequenced expressions ..................................................................................................................... 144 Section 23.3: Indeterminately sequenced expressions ......................................................................................... 145 Chapter 24: Function Pointers ........................................................................................................................... 146 Section 24.1: Introduction ..........................................................................................................................................146 Section 24.2: Returning Function Pointers from a Function ................................................................................. 146 Section 24.3: Best Practices ..................................................................................................................................... 147 Section 24.4: Assigning a Function Pointer ............................................................................................................. 149 Section 24.5: Mnemonic for writing function pointers ........................................................................................... 149 Section 24.6: Basics ................................................................................................................................................... 150 Chapter 25: Function Parameters .................................................................................................................... 152 Section 25.1: Parameters are passed by value ...................................................................................................... 152 Section 25.2: Passing in Arrays to Functions .......................................................................................................... 152 Section 25.3: Order of function parameter execution ........................................................................................... 153 Section 25.4: Using pointer parameters to return multiple values ...................................................................... 153 Section 25.5: Example of function returning struct containing values with error codes ................................... 154 Chapter 26: Pass 2D-arrays to functions ..................................................................................................... 156

Section 26.1: Pass a 2D-array to a function ........................................................................................................... 156 Section 26.2: Using flat arrays as 2D arrays .......................................................................................................... 162 Chapter 27: Error handling .................................................................................................................................. 163 Section 27.1: errno .....................................................................................................................................................163 Section 27.2: strerror ................................................................................................................................................. 163 Section 27.3: perror ................................................................................................................................................... 163 Chapter 28: Undefined behaviour ...................................................................................................................... 165 Section 28.1: Dereferencing a pointer to variable beyond its lifetime ................................................................. 165 Section 28.2: Copying overlapping memory .......................................................................................................... 165 Section 28.3: Signed integer overflow ..................................................................................................................... 166 Section 28.4: Use of an uninitialized variable ......................................................................................................... 167 Section 28.5: Data race ............................................................................................................................................ 168 Section 28.6: Read value of pointer that was freed .............................................................................................. 169 Section 28.7: Using incorrect format specifier in printf ......................................................................................... 170 Section 28.8: Modify string literal ............................................................................................................................ 170 Section 28.9: Passing a null pointer to printf %s conversion ................................................................................ 170 Section 28.10: Modifying any object more than once between two sequence points ....................................... 171 Section 28.11: Freeing memory twice ...................................................................................................................... 172 Section 28.12: Bit shifting using negative counts or beyond the width of the type ............................................ 172 Section 28.13: Returning from a function that's declared with `\_Noreturn` or `noreturn` function specifier ............................................................................................................................................................................. 173 Section 28.14: Accessing memory beyond allocated chunk ................................................................................. 174 Section 28.15: Modifying a const variable using a pointer .................................................................................... 174 Section 28.16: Reading an uninitialized object that is not backed by memory .................................................. 175 Section 28.17: Addition or subtraction of pointer not properly bounded ............................................................ 175 Section 28.18: Dereferencing a null pointer ............................................................................................................ 175 Section 28.19: Using push on an input stream ...................................................................................................... 176 Section 28.20: Inconsistent linkage of identifiers ................................................................................................... 176 Section 28.21: Missing return statement in value returning function ................................................................... 177 Section 28.22: Division by zero ................................................................................................................................ 177 Section 28.23: Conversion between pointer types produces incorrectly aligned result .................................... 178 Section 28.24: Modifying the string returned by getenv, strerror, and setlocale functions .............................. 179 Chapter 29: Random Number Generation ................................................................................................... 180

Section 29.1: Basic Random Number Generation .................................................................................................. 180 Section 29.2: Permuted Congruential Generator ................................................................................................... 180 Section 29.3: Xorshift Generation ............................................................................................................................ 181 Section 29.4: Restrict generation to a given range ............................................................................................... 182 Chapter 30: Preprocessor and Macros .......................................................................................................... 183

Section 30.1: Header Include Guards ....................................................................................................................... 183 Section 30.2: #if 0 to block out code sections ........................................................................................................ 186 Section 30.3: Function-like macros .......................................................................................................................... 187 Section 30.4: Source file inclusion ............................................................................................................................ 188 Section 30.5: Conditional inclusion and conditional function signature modification ....................................... 188 Section 30.6: \_\_cplusplus for using C externals in C++ code compiled with C++ - name mangling ............... 190

Section 30.7: Token pasting ..................................................................................................................................... 191 Section 30.8: Predefined Macros ............................................................................................................................. 192 Section 30.9: Variadic arguments macro ............................................................................................................... 193 Section 30.10: Macro Replacement ......................................................................................................................... 194 Section 30.11: Error directive .....................................................................................................................................195 Section 30.12: FOREACH implementation ............................................................................................................... 196 Chapter 31: Signal handling ................................................................................................................................. 199 Section 31.1: Signal Handling with “signal()” ............................................................................................................ 199 Chapter 32: Variable arguments ...................................................................................................................... 201 Section 32.1: Using an explicit count argument to determine the length of the va\_list .................................... 201 Section 32.2: Using terminator values to determine the end of va\_list .............................................................. 202 Section 32.3: Implementing functions with a `printf()`-like interface ................................................................... 202 Section 32.4: Using a format string ......................................................................................................................... 205 Chapter 33: Assertion ............................................................................................................................................. 207 Section 33.1: Simple Assertion .................................................................................................................................. 207 Section 33.2: Static Assertion ................................................................................................................................... 207 Section 33.3: Assert Error Messages ....................................................................................................................... 208 Section 33.4: Assertion of Unreachable Code ........................................................................................................ 209 Section 33.5: Precondition and Post condition ........................................................................................................ 209 Chapter 34: Generic selection ............................................................................................................................ 211 Section 34.1: Check whether a variable is of a certain qualified type .................................................................. 211 Section 34.2: Generic selection based on multiple arguments ............................................................................. 211 Section 34.3: Type-generic printing macro ............................................................................................................ 213 Chapter 35: X-macros ............................................................................................................................................ 214 Section 35.1: Trivial use of X-macros for printfs ..................................................................................................... 214 Section 35.2: Extension: Give the X macro as an argument ................................................................................. 214 Section 35.3: Enum Value and Identifier ................................................................................................................. 215 Section 35.4: Code generation ................................................................................................................................. 215 Chapter 36: Aliasing and effective type ....................................................................................................... 217

Section 36.1: Effective type ....................................................................................................................................... 217 Section 36.2: restrict qualification ............................................................................................................................ 217 Section 36.3: Changing bytes ................................................................................................................................... 218 Section 36.4: Character types cannot be accessed through non-character types ........................................... 219 Section 36.5: Violating the strict aliasing rules ....................................................................................................... 220 Chapter 37: Compilation ....................................................................................................................................... 221 Section 37.1: The Compiler ........................................................................................................................................ 221 Section 37.2: File Types ............................................................................................................................................ 222 Section 37.3: The Linker ............................................................................................................................................ 222 Section 37.4: The Preprocessor ............................................................................................................................... 224 Section 37.5: The Translation Phases ...................................................................................................................... 225 Chapter 38: Inline assembly ................................................................................................................................ 227 Section 38.1: gcc Inline assembly in macros ........................................................................................................... 227 Section 38.2: gcc Basic asm support ...................................................................................................................... 227 Section 38.3: gcc Extended asm support ................................................................................................................ 228 Chapter 39: Identifier Scope ............................................................................................................................... 229 Section 39.1: Function Prototype Scope .................................................................................................................. 229 Section 39.2: Block Scope ......................................................................................................................................... 230 Section 39.3: File Scope ............................................................................................................................................ 230 Section 39.4: Function scope .................................................................................................................................... 231 Chapter 40: Implicit and Explicit Conversions ........................................................................................... 232

Section 40.1: Integer Conversions in Function Calls ............................................................................................... 232 Section 40.2: Pointer Conversions in Function Calls .............................................................................................. 233 Chapter 41: Type Qualifiers ................................................................................................................................ 235 Section 41.1: Volatile variables .................................................................................................................................. 235 Section 41.2: Unmodifiable (const) variables ......................................................................................................... 236 Chapter 42: Typedef .............................................................................................................................................. 237 Section 42.1: Typedef for Structures and Unions ................................................................................................... 237 Section 42.2: Typedef for Function Pointers .......................................................................................................... 238 Section 42.3: Simple Uses of Typedef ..................................................................................................................... 239 Chapter 43: Storage Classes .............................................................................................................................. 241 Section 43.1: auto .......................................................................................................................................................241 Section 43.2: register ................................................................................................................................................ 241 Section 43.3: static .....................................................................................................................................................242

Section 43.4: typedef ................................................................................................................................................ 243 Section 43.5: extern ................................................................................................................................................... 243 Section 43.6: \_Thread\_local .................................................................................................................................... 244 Chapter 44: Declarations .................................................................................................................................... 246 Section 44.1: Calling a function from another C file ............................................................................................... 246 Section 44.2: Using a Global Variable ..................................................................................................................... 247 Section 44.3: Introduction ......................................................................................................................................... 247 Section 44.4: Typedef ............................................................................................................................................... 250 Section 44.5: Using Global Constants ..................................................................................................................... 250 Section 44.6: Using the right-left or spiral rule to decipher C declaration .......................................................... 252 Chapter 45: Structure Padding and Packing ............................................................................................. 256

Section 45.1: Packing structures .............................................................................................................................. 256 Section 45.2: Structure padding .............................................................................................................................. 257 Chapter 46: Memory management ................................................................................................................ 258

Section 46.1: Allocating Memory .............................................................................................................................. 258 Section 46.2: Freeing Memory ................................................................................................................................. 259 Section 46.3: Reallocating Memory ......................................................................................................................... 261 Section 46.4: realloc(ptr, 0) is not equivalent to free(ptr) ..................................................................................... 262 Section 46.5: Multidimensional arrays of variable size ......................................................................................... 262 Section 46.6: alloca: allocate memory on stack .................................................................................................... 263 Section 46.7: User-defined memory management ............................................................................................... 264 Chapter 47: Implementation-defined behaviour ..................................................................................... 266

Section 47.1: Right shift of a negative integer ........................................................................................................ 266 Section 47.2: Assigning an out-of-range value to an integer ............................................................................... 266 Section 47.3: Allocating zero bytes .......................................................................................................................... 266 Section 47.4: Representation of signed integers ................................................................................................... 266 Chapter 48: Atomics ............................................................................................................................................... 267 Section 48.1: atomics and operators ....................................................................................................................... 267 Chapter 49: Jump Statements .......................................................................................................................... 268 Section 49.1: Using return ......................................................................................................................................... 268 Section 49.2: Using goto to jump out of nested loops .......................................................................................... 268 Section 49.3: Using break and continue ................................................................................................................. 269 Chapter 50: Create and include header files ............................................................................................. 271

Section 50.1: Introduction ......................................................................................................................................... 271 Section 50.2: Self-containment ................................................................................................................................ 271 Section 50.3: Minimality ............................................................................................................................................ 273 Section 50.4: Notation and Miscellany .................................................................................................................... 273 Section 50.5: Idempotence ....................................................................................................................................... 275 Section 50.6: Include What You Use (IWYU) ........................................................................................................... 275 Chapter 51: — character classification & conversion ....................................................... 277

Section 51.1: Introduction ..........................................................................................................................................277

Section 51.2: Classifying characters read from a stream ..................................................................................... 278 Section 51.3: Classifying characters from a string ................................................................................................. 279 Chapter 52: Side Effects ....................................................................................................................................... 280 Section 52.1: Pre/Post Increment/Decrement operators ..................................................................................... 280 Chapter 53: Multi-Character Character Sequence .................................................................................. 282

Section 53.1: Trigraphs .............................................................................................................................................. 282 Section 53.2: Digraphs .............................................................................................................................................. 282 Chapter 54: Constraints ........................................................................................................................................ 284 Section 54.1: Duplicate variable names in the same scope .................................................................................. 284 Section 54.2: Unary arithmetic operators .............................................................................................................. 284 Chapter 55: Inlining ................................................................................................................................................. 285 Section 55.1: Inlining functions used in more than one source file ....................................................................... 285 Chapter 56: Unions ................................................................................................................................................... 287 Section 56.1: Using unions to reinterpret values .................................................................................................... 287 Section 56.2: Writing to one union member and reading from another ............................................................. 287 Section 56.3: Deference between strut and union ............................................................................................... 288 Chapter 57: Threads (native) ............................................................................................................................. 289 Section 57.1: Initialization by one thread ............................................................................................................... 289 Section 57.2: Start several threads .......................................................................................................................... 289 Chapter 58: Multithreading ................................................................................................................................. 291 Section 58.1: C11 Threads simple example .............................................................................................................. 291 Chapter 59: Inter process Communication (IPC) ........................................................................................ 292

Section 59.1: Semaphores ......................................................................................................................................... 292 Chapter 60: Testing frameworks ..................................................................................................................... 297 Section 60.1: Unity Test Framework ........................................................................................................................ 297 Section 60.2: CMocka ................................................................................................................................................ 297 Section 60.3: Cpp UTest ............................................................................................................................................. 298 Chapter 61: Valgrind ................................................................................................................................................ 300 Section 61.1: Bytes lost -- Forgetting to free ........................................................................................................... 300 Section 61.2: Most common errors encountered while using Valgrind ................................................................ 300 Section 61.3: Running Valgrind ................................................................................................................................. 301 Section 61.4: Adding flags ......................................................................................................................................... 301 Chapter 62: Common C programming idioms and developer practices ..................................... 302

Section 62.1: Comparing literal and variable .......................................................................................................... 302 Section 62.2: Do not leave the parameter list of a function blank — use void ................................................... 302 Chapter 63: Common pitfalls .............................................................................................................................. 305 Section 63.1: Mixing signed and unsigned integers in arithmetic operations ...................................................... 305 Section 63.2: Macros are simple string replacements .......................................................................................... 305 Section 63.3: Forgetting to copy the return value of realloc into a temporary .................................................. 307 Section 63.4: Forgetting to allocate one extra byte for \0 ................................................................................... 308 Section 63.5: Misunderstanding array decay ......................................................................................................... 308 Section 63.6: Forgetting to free memory (memory leaks) ................................................................................... 310 Section 63.7: Copying too much .............................................................................................................................. 311 Section 63.8: Mistakenly writing = instead of == when comparing ....................................................................... 312 Section 63.9: Newline character is not consumed in typical scanf() call ............................................................ 313 Section 63.10: Adding a semicolon to a #define .................................................................................................... 314 Section 63.11: Incautious use of semicolons ............................................................................................................ 314 Section 63.12: Undefined reference errors when linking ....................................................................................... 315 Section 63.13: Checking logical expression against 'true' ...................................................................................... 317 Section 63.14: Doing extra scaling in pointer arithmetic ....................................................................................... 318 Section 63.15: Multi-line comments cannot be nested ........................................................................................... 319 Section 63.16: Ignoring return values of library functions ..................................................................................... 321 Section 63.17: Comparing floating point numbers ................................................................................................. 321 Section 63.18: Floating point literals are of type double by default ..................................................................... 323 Section 63.19: Using character constants instead of string literals, and vice versa ........................................... 323 Section 63.20: Recursive function — missing out the base condition .................................................................. 324 Section 63.21: Overstepping array boundaries ...................................................................................................... 325 Section 63.22: Passing adjacent arrays to functions expecting "real" multidimensional arrays ................. 326

Credits ............................................................................................................................................................................328

You may also like ...................................................................................................................................................... 333