Chapter	Keyword	Definition
1	Address (of a cell)	a unique location in main memory for each cell
1	Algorithm	a step-by-step problem-solving process in which a solution is arrived at in a finite amount of time
1	American Standard Code for Information Interchange (ASCII)	the most commonly used encoding scheme used on personal computers; the ASCII data set uses seven bits to represent 128 characters, numbered from 0 to 127
1	Analog signal	a continuous wave form used to represent such things as sound
1	Application program	a software program that performs a specific task
1	Assembler	a program that translates a program written in assembly language into an equivalent program in machine language
1	Binary (base 2)	the number system that a computer uses
1	Binary code (binary number)	a sequence of 0s and 1s
1	Binary digit (bit)	the digit 0 or 1
1	Bit	a binary digit 0 or 1
1	Build (Rebuild)	the command that does the linking on Visual C++ and Visual Studio .NET
1	Byte	a sequence of eight bits
1	Central processing unit (CPU)	the brain of the computer and the single most expensive piece of hardware in a personal computer
1	Compiler	a program that translates instructions written in a high-level language into the equivalent machine language
1	Decimal system (base 10)	the number system we use in daily life
1	Digital signal	represents information with a sequence of 0s and 1s
1	High-level language	a programming language that is similar to natural speaking languages
1	Input device	a device that feeds data and programs into a computer
1	Kilobyte (KB)	1024, or 210 bytes
1	Library	includes prewritten code
1	Linker	a program that combines the object program with other programs in the library, and is used in the program to create the executable code
1	Loader	a program that loads an executable program into main memory
1	Machine language	the language of a computer; a sequence of 0s and 1s
1	Main memory	memory that is directly connected to the CPU
1	Memory cells	an ordered sequence of cells in main memory
1	Mnemonic	an instruction that is in an easy-to-remember form
1	Object program	the machine language version of the high-level language program
1	Object-oriented design (OOD)	a programming methodology that identifies components called objects, which form the basis of the solution to a problem
1	Object-oriented programming (OOP) language	a programming language that implements OOD
1	Operating system	monitors the overall activity of the computer and provides services
1	Output device	a device that the computer uses to display results
1	Preprocessor	a program that processes statements in a C++ program that begin with the symbol #
1	Random access memory	memory that is directly connected to the CPU
1	Secondary storage	a device that stores information permanently
1	Source code (source program)	a program that is written in a high-level language
1	Structured design (top-down design, bottom-up design, stepwise refinement, modular programming)	the act of dividing a problem into smaller subproblems
1	Structured programming	the process of implementing a structured design
1	System program	a program that controls the computer

Chapter	Keyword	Definition
2	Arithmetic expression	an expression constructed using arithmetic operators and numbers
2	Assignment operator	=; assigns whatever is on the right side to the variable on the left side
2	Associativity	the associativity of arithmetic operators is said to be from left to right
2	Binary operator	an operator that has two operands
2	Cast operator (type conversion, type casting)	used to explicitly convert one data type to another data type
2	Character arithmetic	arithmetic operation on char data
2	Collating sequence	a predefined ordering for the characters in a set
2	Compound assignment statement	statements that are used to write simple assignment statements in a more concise notation
2	Computer program	a sequence of statements whose objective is to accomplish a task
2	Data type	a set of values together with a set of operations
2	Declaration statements	statements that are used to declare things, such as variables
2	Decrement operator	--; decreases the value of a variable by 1
2	Double precision	values of type double
2	Enumeration	a user-defined data type
2	Executable statements	statements that perform calculations, manipulate data, create output, accept input, and so on
2	Floating-point	a data type that deals with decimal numbers
2	Floating-point (decimal) expression	an expression in which all operands in the expression are floating-point numbers
2	Floating-point notation	a form of scientific notation used to represent real numbers
2	Function (subprogram)	a collection of statements; when activated, or executed, it accomplishes something
2	Identifier	a C++ identifier consists of letters, digits, and the underscore character (_); it must begin with a letter or underscore
2	Implicit type coercion	when a value of one data type is automatically changed to another data type
2	Increment operator	++; increases the value of a variable by 1
2	Initialized	the first time a value is placed in the variable
2	Input (read) statement	a statement that places data into variables using cin and >>
2	Integral	a data type that deals with integers, or numbers, without a decimal part
2	Integral expression	an expression in which all operands are integers
2	Keyword	a reserved word
2	Mixed expression	an expression that has operands of different data types
2	Named constant	a memory location whose content is not allowed to change during program execution
2	Null (empty) string	a string containing no characters
2	Operands	numbers appearing in an arithmetic expression
2	Output statement	an output on the standard output device via cout and <<
2	Post-decrement	has the syntax variable--
2	Post-increment	has the syntax variable++
2	Precision	the maximum number of significant digits
2	Pre-decrement	has the syntax —variable
2	Predefined (standard) function	a function that is already written and provided as part of the system
2	Pre-increment	has the syntax ++variable
2	Preprocessor	a program that carries out preprocessor directives
2	Programming	the process of planning and creating a program
2	Programming language	a set of rules, symbols, and special words
2	Prompt lines	executable statements that inform the user what to do
2	Reserved words (keywords)	word symbols in a programming language that cannot be redefined in any program
2	Run-together word	an identifier that is composed of two or more words that are combined without caps or underscores

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2	Self-documenting identifiers	identifiers that describe the purpose of the identifier through the name
2	Semantic rules	rules that determine the meaning of the instructions
2	Semantics	a set of rules that gives meaning to a language
2	Simple assignment statement	a statement that uses only the assignment operator to assign values to the variable on the left side of the operator
2	Simple data type	the variable or named constant of that type can store only one value at a time
2	Single precision	values of type float
2	Source code	consists of the preprocessor directives and program statements
2	Source code file (source file)	a file containing source code
2	Statement terminator	the semicolon
2	Stream extraction operator	>>; takes information from a stream and puts it into a variable
2	Stream insertion operator	<<; takes information from a variable and puts it into a stream
2	String	a sequence of zero or more characters
2	Syntax rules	rules that describe which statements (instructions) are legal, or accepted by the programming language, and which are not legal
2	Token	the smallest individual unit of a program written in any language
2	Unary operator	an operator that has only one operand
2	Variable	a memory location whose content may change during program execution
2	Walk-through	the process of tracing values through a sequence
3	Arguments (parameters)	values that are passed in a function call in the parentheses after the name of the function
3	Common input	the variable cin is named after this
3	Common output	the variable cout is named after this
3	Dot notation	notation in which a dot separates the input stream variable name from the member, or function name
3	Fail state	the state an input stream enters after input failure in which all further I/O statements using that stream are ignored
3	File	an area in secondary storage used to hold information
3	File stream variables	user-declared variables including ifstream and ofstream used for input and output
3	Function call	an expression that transfers control from the main function to the first statement in the body of the function, such as pow(2,3)
3	Input failure	a situation in which a program either fails to compile, or yields incorrect results, because the input data does not match the corresponding variables in the program
3	Input stream	a sequence of characters from an input device to the computer
3	Input stream variables	variables of the type istream
3	istream member functions	functions that are associated with the data type istream
3	Member access operator	the dot operator in C++
3	Opening a file	associating a file stream variable with an input/output source
3	Output stream	a sequence of characters from the computer to an output device
3	Output stream variables	variables of the type ostream
3	Parameterized stream manipulators	manipulators with parameters
3	Predefined functions	functions that are already defined in C++
3	Stream	a sequence of characters from the source to the destination
3	Stream member functions (stream functions)	I/O functions such as get
3	Stream variables	either an input stream variable or an output stream variable
4	Action statement	the statement following the expression in an if statement
4	Associativity	the order in which operators are grouped and evaluated
4	Compound statement (block of statements)	consists of a sequence of statements enclosed in curly braces, { and }

Chapter	Keyword	Definition
4	Conditional expression	an expression that uses a conditional operator
4	Conditional operator	a ternary operator written as "?:"; the three arguments explain what the condition is, what the result will be if the condition is true, and what the result will be if the condition is false
4	Decision maker	the expression in an if statement which determines whether to execute the statement that follows it
4	Logical (Boolean) expression	an expression that has a value of either true or false
4	Logical (Boolean) operators	operators that enable you to combine logical expressions
4	Logical (Boolean) values	true and false
4	Nested	when one control statement is located within another
4	Pairing an else with an if	the rule stating that an else statement is associated with the most recent incomplete if statement
4	Pseudocode (pseudo)	an informal mixture of C++ and ordinary language used to design an outline of a logical solution to a problem
4	Relational operator	an operator that is used to make comparisons in a program
4	Selector	the expression used in a switch statement that determines which case will be executed
4	Short-circuit evaluation	a process in which the computer evaluates a logical expression from left to right and stops as soon as the value of the expression is known
4	Switch structure	a selection structure that does not require the evaluation of a logical expression
4	Ternary operator	an operator that takes three arguments
5	Counter-controlled while loop	a while loop that is used when you know how many items of data are to be read; the loop will continue until the condition designated by the counter is met or evaluates to false
5	Decision maker	an expression in an if statement, which determines whether to execute the statement that follows it
5	Divisor	suppose that m and n are integers and m is nonzero. Then m is called a divisor of n if n = mt for some integer t; that is, when m divides n, the remainder is 0.
5	End-of-file (EOF)-controlled while loop	a while loop that stops when it reaches the end of the input file
5	Fibonacci number	a number in the Fibonacci sequence
5	Fibonacci sequence	an = an-1 + an-2
5	Flag variable	a Boolean variable used to control the execution of a while loop
5	Flag-controlled while loop	uses a Boolean variable to control the execution of the loop
5	for loop (indexed loop)	used to simplify the writing of counter-controlled loops; consists of an initialization statement, the loop condition, and the update statement
5	for loop control variable	a loop control variable in a for loop; also called an indexed variable
5	Infinite loop	a loop that continues to execute endlessly
5	Loop control variable (LCV)	a variable that controls the end of the loop
5	Nesting	a process that involves putting one control structure inside another
5	Posttest loop	a loop in which the loop condition is evaluated after executing the body of the loop
5	Pretest loop	a loop in which the loop condition is evaluated before executing the body of the loop
5	Sentinel	an arbitrary value used to stop the execution of a loop
5	Sentinel-controlled while loop	a while loop that uses a sentinel value to end the loop
6	Actual parameter	a variable or expression listed in a call to a function
6	Automatic variable	a variable for which memory is allocated at block entry and deallocated at block exit
6	Body (of a function)	the code within the function required to accomplish the task
6	Data type (of a function)	the return type of a value-returning function
6	Definition (of a function)	includes the name of the function, a listing of the parameters if any, the data type of each parameter, the data type of the value returned by the function, and the code required to accomplish the task
6	Different formal parameter lists	when two or more functions with the same name have a different number of formal parameters, or if they have the same number of parameters, the data type of the parameters differs in at least one position

Chapter	Keyword	Definition
6	Driver	a program that tests a function
6	External variable	a global variable declared within a function using the extern reserved word; the keyword extern indicates that the variable is declared elsewhere
6	Formal parameter	a variable declared in the function heading
6	Function header (heading)	includes the name of the function, the number of parameters if any, the data type of each parameter, and the data type of the value returned by the function
6	Function overloading (overloading a function name)	creating several functions with the same name but different formal parameter lists
6	Function prototype	a function heading without the body of the function
6	Global identifier	an identifier declared outside of every function definition
6	Local declaration	a declaration of a variable within a block of code for use only within that block
6	Local identifier	an identifier declared within a function (or block)
6	Local variables	variables declared in the body of a function (or block) for use only within that function (or block)
6	Module	another name for a function
6	Nested block	a block declared within another block
6	Parameter	an identifier in a function header, which acts within the function as a regular local variable; a parameter may be formal or actual
6	Reference parameter	a formal parameter that receives the location (memory address) of the corresponding actual parameter
6	Return type (of a function)	the data type of the value that the function returns; also called the data type of a function
6	Scope	refers to where an identifier is accessible (visible) in a program
6	Scope resolution operator (	): an operator that, when used, causes a global variable declared before the definition of a function (block) to be accessed by the function (or block), even if the function (or block) has an identifier with the same name as the variable
6	Signature (of a function)	consists of the function name and its formal parameter list
6	Static variable	a variable for which memory remains allocated as long as the program executes
6	Stub	a function that is not fully coded
6	Value parameter	a formal parameter that receives a copy of the content of the corresponding actual parameter
6	Value-returning functions	functions that have a return type
6	Void functions	functions that do not have a data type
7	Anonymous type	a data type in which you directly specify values in the variable declaration with no type name
7	Array subscript operator []	used to access an individual character within a string by specifying the character's position within the square brackets
7	Enumeration type	a user-defined simple data type
7	Enumerator	an identifier used in an enumeration type
8	Aggregate operation	any operation on an array that manipulates the entire array as a single unit
8	Array	a collection of a fixed number of elements (called components) in which all of the elements must be of the same data type
8	Array index in bounds	the index is in bounds if it is >= 0 and <= ARRAY_SIZE – 1
8	Array index out of bounds	the index is out of bounds if it is < 0 or > ARRAY_SIZE – 1
8	Array subscripting operator [ ]	used to access the array element at the position number contained within the square brackets
8	Base address	the memory address of the first component in an array
8	Character array	an array whose components are of the type char
8	Column processing	processing of a particular column of a two-dimensional array
8	Dynamic arrays	arrays that are created during program execution using pointers
8	Finding the sum and average of an array	code that finds the sum and average of the values in the array

Chapter	Keyword	Definition
8	Index	any expression whose value is a nonnegative integer and which is used for accessing an array component
8	Initializing	the process of using a loop to initialize every component of the array
8	n-dimensional array	a collection of a fixed number of components arranged in n dimensions (n >= 1)
8	One-dimensional array	an array in which the components are arranged in a list form
8	Parallel arrays	two (or more) arrays with corresponding components holding related information
8	Row order form	refers to the manner in which a two-dimensional array is stored; the first row is stored first, followed by the second row, followed by the third row, and so on
8	Row processing	processing of a particular row of a two-dimensional array
8	Selection sort	a search method in which the array is searched for the smallest value, which is swapped with the value at the top of the array; then repeated for the next smallest value, and so on
8	Sequential or linear search	searches an array sequentially starting with the first element; continues until the item is found or there are no more elements
8	Simple data type	signifies that a variable can store only one value at a time
8	Structured data type	each data item is a collection of other data items
8	Two-dimensional array	a collection of a fixed number of components arranged in rows and columns (that is, in two dimensions), wherein all components are of the same type
9	Member access operator	the dot (.) placed between the struct and the name of one of its members; used to access members of a struct
9	struct	a collection of heterogeneous components in which the components are accessed by the variable name of the struct, the member access operator, and the variable name of the component
10	Abstract data type (ADT)	a data type that specifies the logical properties without the implementation details
10	Abstraction	the process of separating the design details from the implementation
10	Accessor function	a member function of a class that only accesses (that is, does not modify) the value(s) of the member variable(s)
10	Build, rebuild, or make	when applied to a project, commands that tell the system to automatically compile and link all files required to create the executable code
10	Class	a collection of a fixed number of components with the operations you can perform on those components
10	Class object (class instance, object)	a class variable
10	Client	program or software that uses and manipulates the objects of a class
10	Constant function	a member function that cannot modify member variables of the class; its heading includes the reserved word const at the end
10	Default constructor	a constructor without parameters, or a constructor that has default values for all parameters; it is called when a class object comes into scope in a program
10	Domain	a set of values belonging to the ADT
10	Header file (interface file)	a file that contains the specification details of a class
10	Implementation file	contains the implementation details of a class; contained in a separate file from the header file for information hiding
10	Information hiding	the process of hiding the details of the operations on the data
10	Instance variables	non-static data members of a class
10	Member access operator	the dot (period); used to access a member variable or function
10	Members	the components of a class
10	Mutator function	a member function of a class that modifies the value(s) of the member variable(s)
10	Object-oriented design (OOD)	a programming methodology involving the use of objects that contain data members and their operations
10	Objects	components that combine data and their operations into a single unit; also refers to instances of classes that have been created in a program
10	Operations	a set of operations on the data associated with an ADT

Chapter	Keyword	Definition
10	Postcondition	a statement specifying what is true after a function call is completed
10	Precondition	a statement specifying the condition(s) that must be true before a function is called
10	Scope resolution operator (	): used to reference identifiers in a class
10	Type name	the name of an ADT
10	Unified Modeling Language (UML)	a graphical notation to describe a class and its members.
11	Base classes	classes from which you derive new classes
11	Composition (aggregation)	one or more members of a class are objects of another class type; a “has-a” relationship
11	Derived classes	new classes that are created from base classes
11	Encapsulation	the ability to combine data, and operations on that data, in a single unit
11	Inheritance	the ability to create new classes from existing classes; an “is-a” relationship
11	Multiple inheritance	when a derived class is derived from more than one base class
11	Polymorphism	the ability to use the same expression to denote different operations
11	Single inheritance	when an object is derived from a single class
12	Abstract class	a class that contains one or more pure virtual functions
12	Address of operator (&)	a unary operator that returns the address of its operand
12	Compile-time binding (static binding, early binding)	binding in which the necessary code to call a specific function is generated by the compiler
12	Copy constructor	a constructor that performs the default member-wise initialization of a class object; it is provided by the compiler; can be overridden by the programmer to ensure deep copies of a class
12	Dangling pointers	pointer variables that contain the addresses of deallocated memory spaces
12	Deep copy	occurs when two or more pointers of the same type that have their own data
12	Dereferencing operator (indirection operator)	refers to the object to which its operand (a pointer) points
12	Dynamic array	an array created from a pointer variable and the new operator during the execution of a program
12	Dynamic variables	variables that are created during program execution
12	Member access operator arrow (->)	this operator consists of two consecutive symbols: a hyphen and the greater than symbol; it is used to simplify the accessing of class components with a pointer
12	Memory leak	when a previously allocated memory space can no longer be accessed
12	Null pointer	a pointer that has the predefined constant value 0
12	Pointer variable	a variable whose content is a memory address
12	Pure virtual functions	functions with no definition
12	Run-time binding (dynamic binding, late binding)	binding of virtual functions that occurs at program execution time
12	Sequential (linear) search	a search algorithm in which each element must be visited in order until the desired element is identified
12	Shallow copy	occurs when two or more pointers of the same type point to the same memory -- that is, they point to the same data; this occurs when you do not override the default copy constructor for a class containing pointers, and you create the second pointer from the first pointer
12	Virtual destructor	a destructor that is marked as virtual in a base class; this automatically makes the destructor of a derived class virtual
12	Virtual functions	functions that are dynamically bound, allowing the compiler to generate code that selects the correct function at run time