Credits

Cover, © 145 / Corbis
Figure 1.1a, © Alamy
Figure 1.2b, © Alamy
Figure 1.3c, © Alamy
Chapter 1, pg. 2 "The whole of the development and operation of analysis are now capable of being executed by machinery. . . . As soon as an Analytical Engine exists, it will necessarily guide the future course of science." Charles Babbage(1792–1871)
Chapter 1, pg. 12 "The Analytical Engine has no pretensions whatever to originate anything. It can do whatever we know how to order it to perform. It can follow analysis; but it has no power of anticipating any analytical relations or truths. Its province is to assist us in making available what we are already acquainted with." Ada Augusta, Countess of Lovelace (1815–1852)
Chapter 1, pg. 18 "Language is the only instrument of science . . ." Samuel Johnson (1709–1784)
Chapter 1, pg. 29 "And if you take one from three hundred and sixty-five, what remains?" "Three hundred and sixty-four, of course." Humpty Dumpty looked doubtful. "I'd rather see that done on paper," he said." © Lewis Carroll, Through the Looking-Glass
Chapter 2, pg. 40 "Don't imagine you know what a computer terminal is. A computer terminal is not some clunky old television with a typewriter in front of it. It is an interface where the mind and the body can connect with the universe and move bits of it about." © Douglas Adams, Mostly Harmless (the fifth volume in The Hitchhiker's Trilogy)
Chapter 2, pg. 40 "Once a person has understood the way variables are used in programming, he has understood the quintessence of programming." © E. W. Dijkstra, Notes on Structured Programming
Chapter 2, pg. 50 "Garbage in means garbage out." Programmers' Saying
Chapter 2, pg. 60 "They'll never be happy together. He's not her type." Overheard at a cocktail party
Chapter 2, pg. 74 "If you think we're wax-works," he said, "you ought to pay, you know. Wax-works weren't made to be looked at for nothing. Nohow! "Contrariwise," added the one marked "DEE," "if you think we're alive, you ought to speak." © Lewis Carroll, Through the Looking-Glass
Chapter 2, pg. 93 "In matters of grave importance, style, not sincerity, is the vital thing." © Oscar Wilde, The Importance of Being Ernest
Chapter 3, pg. 112 "When you come to a fork in the road, take it." Attributed to Yogi Berra
Chapter 3, pg. 112 "Contrariwise," continued Tweedledee. "If it was so, it might be; and if it were so, it would be; but as it isn't, it ain't. That's logic." © Lewis Carroll, Through the Looking-Glass

Chapter 3, pg. 120 "Would you tell me, please, which way I ought to go from here?" "That depends a good deal on where you want to get to," said the Cat." © Lewis Carroll, Alice in Wonderland
Chapter 3, pg. 139 "It is not true that life is one damn thing after another— It's one damn thing over and over." © Edna St. Vincent Millay, Letter to Arthur Darison Ficke, October 24, 1930
Chapter 3, pg. 155 "Round and round she goes, and where she stops nobody knows." Traditional Carnival Barker's Call
Chapter 4, pg. 182 "There was a most ingenious Architect who had contrived a new method for building Houses, by beginning at the Roof, and working downward to the Foundation." Jonathan Swift, Gulliver's Travels
Chapter 4, pg. 193 "A custom-tailored suit always fits better than one off the rack." My Uncle, The Tailor
Chapter 4, pg. 204 "The cause is hidden, but the result is well known." Ovid, Metamorphoses IV
Chapter 4, pg. 218 "He was a local boy, not known outside his home town." Common saying
Chapter 4, pg. 232 "...— and that shows that there are three hundred and sixty-four days when you might get un-birthday presents —" "Certainly," said Alice. "And only one for birthday presents, you know. There's glory for you!" "I don't know what you mean by 'glory,' " Alice said. Humpty Dumpty smiled contemptuously, "Of course you don't — till I tell you. I mean 'there's a nice knock-down argument for you!' " "But 'glory' doesn't mean 'a nice knock-down argument,' " Alice objected. "When I use a word," Humpty Dumpty said, in rather a scornful tone, "it means just what I choose it to mean — neither more nor less." "The question is," said Alice, "whether you can make words mean so many different things." "The question is," said Humpty Dumpty, "which is to be master — that's all." © Lewis Carroll, Through the Looking-Glass.
Chapter 5, pg. 252 "Everything is possible." Common Maxim
Chapter 5, pg. 273 "My memory is so bad, that many times I forget my own name!" © Miguel de Cervantes Saavedra, Don Quixote
Chapter 5, pg. 281 "I beheld the wretch—the miserable monster whom I had created." Mary Wollstonecraft Shelley, Frankenstein
Chapter 6, pg. 306 "Fish say, they have their stream and pond; But is there anything beyond? © Rupert Brooke, "Heaven" (1913) "As a leaf is carried by a stream, whether the stream ends in a lake or in the sea, so too is the output of your program carried by a stream not knowing if the stream goes to the screen or to a file." © Washroom wall of a computer science department (1995)
Chapter 6, pg. 306 "Good Heavens! For more than forty years I have been speaking prose without knowing it." © Molière, Le Bourgeois Gentilhomme
Chapter 6, pg. 323 "You shall see them on a beautiful quarto page, where a neat rivulet of text shall meander through a meadow of margin." Richard Brinsley Sheridan, The School for Scandal
Chapter 6, pg. 332 "That's all there is, there isn't any more." © Ethel Barrymore (1879–1959)
Chapter 6, pg. 338 "Polonius: What do you read, my lord? Hamlet: Words, words, words." William Shakespeare, Hamlet
Chapter 7, pg. 378 "It is a capital mistake to theorize before one has data." Sir Arthur Conan Doyle, Scandal in Bohemia (Sherlock Holmes)

Chapter 7, pg. 411"Never trust to general impressions, my boy, but concentrate yourself upon details." Sir Arthur Conan Doyle, A Case of Identity (Sherlock Holmes)
Chapter 7, pg. 424 "Two indexes are better than one." Found on the wall of a Computer Science department restroom
Chapter 8, pg. 452 "Polonius: What do you read my lord? Hamlet: Words, words, words." William Shakespeare, Hamlet
Chapter 8, pg. 453 "In everything one must consider the end." Jean de la Fontaine, Fables, Book III (1668)
Chapter 8, pg. 472 "I try to catch every sentence, every word you and I say, and quickly lock all these sentences and words away in my literary storehouse because they might come in handy." Anton Chekhov, The Seagull
Chapter 8, pg. 489 "Well, I'll eat it," said Alice, "and if it makes me grow larger, I can reach the key; and if it makes me grow smaller, I can creep under the door; so either way I'll get into the garden...." © Lewis Carroll, Alice's Adventures in Wonderland
Chapter 9, pg. 508 "Memory is necessary for all the operations of reason." © Blaise Pascal, Pensées.
Chapter 9, pg. 508 "Do not mistake the pointing finger for the moon." Zen saying
Chapter 10, pg. 542 "The time has come," the Walrus said, "To talk of many things: Of shoes—and ships—and sealing wax—Of cabbages—and kings—" © Lewis Carroll, Through the Looking-Glass
Chapter 10, pg. 554 "I don't care to belong to any club that will accept me as a member." Groucho Marx, The Groucho Letters
Chapter 10, pg. 588 "We all know — the Times knows — but we pretend we don't." Virginia Woolf, Monday or Tuesday
Chapter 11, pg. 620 "Give us the tools, and we'll finish the job." © Winston Churchill, Radio Broadcast, February 9, 1941
Chapter 11, pg. 643 "He's a smooth operator." Line from a song by Sade (written by Sade Adu and Ray St. John)
Chapter 11, pg. 667 "With all appliances and means to boot." William Shakespeare, King Henry IV, Part III
Chapter 12, pg. 704 "From mine own library with volumes that I prize above my dukedom." William Shakespeare, The Tempest
Chapter 12, pg. 704 "Your "if " is the only peacemaker; much virtue in "if." William Shakespeare, As You Like It
Chapter 12, pg. 719 "What's in a name? That which we call a rose By any other name would smell as sweet." William Shakespeare, Romeo and Juliet
Chapter 13, pg. 740 "If somebody there chanced to be Who loved me in a manner true My heart would point him out to me And I would point him out to you." Gilbert and Sullivan, Ruddigore
Chapter 13, pg. 765 "But many who are first now will be last, and many who are last now will be first." Matthew 19:30
Chapter 14, pg. 790 "After a lecture on cosmology and the structure of the solar system, William James was accosted by a little old lady. "Your theory that the sun is the center of the solar system, and the earth is a ball which rotates around it has a very convincing ring to it, Mr. James, but it's wrong. I've got a better theory," said the little old lady. "And what is that, madam?" inquired James politely. "That we live on a crust of earth which is on the back of a giant turtle." Not wishing to demolish this absurd little theory by bringing to bear the masses of scientific evidence he had at his command, James decided to gently dissuade his opponent by making her see some of

the inadequacies of her position. "If your theory is correct, madam," he asked, "what does this turtle stand on?" "You're a very clever man, Mr. James, and that's a very good question," replied the little old lady, "but I have an answer to it. And it is this: the first turtle stands on the back of a second, far larger, turtle, who stands directly under him." "But what does this second turtle stand on?" persisted James patiently. To this the little old lady crowed triumphantly. "It's no use, Mr. James—it's turtles all the way down." © J. R. Ross, Constraints on Variables in Syntax

Chapter 14, pg. 791 "I remembered too that night which is at the middle of the Thousand and One Nights when Scheherazade (through a magical oversight of the copyist) begins to relate word for word the story of the Thousand and One Nights, establishing the risk of coming once again to the night when she must repeat it, and thus to infinity." © Jorge Luis Borges, The Garden of Forking Paths

Chapter 14, pg. 804 "To iterate is human, to recurse divine." Anonymous

Chapter 14, pg. 809 "There are two kinds of people in the world: those who divide the world into two kinds of people and those who do not." Anonymous

Chapter 15, pg. 834 "With all appliances and means to boot." William Shakespeare, King Henry IV, Part III

Chapter 15, pg. 834 "If there is anything that we wish to change in the child, we should first examine it and see whether it is not something that could better be changed in ourselves." © Carl Gustav Jung, The Integration of the Personality

Chapter 15, pg. 859 "The devil is in the details." Common saying

Chapter 15, pg. 862 "All experience is an arch, to build upon." Henry Adams, The Education of Henry Adams

Chapter 16, pg. 894 "It's the exception that proves the rule." Common maxim (possibly a corruption of something like: It's the exception that tests the rule.)

Chapter 16, pg. 895 "Well, the program works for most cases. I didn't know it had to work for that case." Computer Science Student, Appealing a Grade

Chapter 16, pg. 914 "Only use this in exceptional circumstances." © Warren Peace, The Lieutenant's Tools

Chapter 17, pg. 926 "All men are mortal. Aristotle is a man. Therefore, Aristotle is mortal. All X's are Y. Z is an X. Therefore, Z is Y. All cats are mischievous. Garfield is a cat. Therefore, Garfield is mischievous." A Short Lesson on Syllogisms

Chapter 17, pg. 939 "Equal wealth and equal opportunities of culture . . . have simply made us all members of one class." © Edward Bellamy, Looking Backward: 2000–1887

Chapter 18, pg. 958 "Libraries are not made; they grow." © Augustine Birrell

Chapter 18, pg. 959 "The White Rabbit put on his spectacles. "Where shall I begin, please your Majesty?" he asked. "Begin at the beginning," the King said, very gravely, "And go on till you come to the end: then stop." © Lewis Carroll, Alice in Wonderland.

Chapter 18, pg. 973 "Put all your eggs in one basket and" —watch that basket Mark Twain, Pudd'n head Wilson

Chapter 18, pg. 991 "Cures consumption, anemia, sexual dysfunction, and all other diseases." Typical claim by a traveling salesman of "snake oil"