Name:_____ Class:_____ Date:_____

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1. An object code must be translated into source code for a computer to read and execute it.
   a. True
   b. False

*ANSWER:* False

2. The hardware component of a computer system consists of programs written in computer languages.
   a. True
   b. False

*ANSWER:* False

3. The arithmetic logic unit and the control unit are part of the Basic Input/Output System.
   a. True
   b. False

*ANSWER:* False

4. A computer with a 32-bit processor can perform calculations with larger numbers better than a 64-bit system.
   a. True
   b. False

*ANSWER:* False

5. ENIAC is an example of a first-generation computer.
   a. True
   b. False

*ANSWER:* True

6. Very-large-scale integration (VLSI) circuits were introduced in fifth-generation computers.
   a. True
   b. False

*ANSWER:* False

7. A byte is a single value of 0 or 1.
   a. True
   b. False

*ANSWER:* False

8. Extended ASCII is a data code that allows the representation of 1024 characters.
   a. True
   b. False

*ANSWER:* False

9. Computers perform all tasks using a combination of arithmetic and logical operations.
   a. True
   b. False

*ANSWER:* False

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10. Computers cannot store massive amounts of data in small spaces.
    a. True
    b. False
*ANSWER:* False

11. Inkjet printers produce characters by projecting onto paper electrically charged droplets of ink that create an image.
    a. True
    b. False
*ANSWER:* True

12. In network-attached storage (NAS), as the number of users increases, its performance increases.
    a. True
    b. False
*ANSWER:* False

13. A server is a set of programs for controlling and managing computer hardware and software.
    a. True
    b. False
*ANSWER:* False

14. Spreadsheet software is more powerful than financial planning software.
    a. True
    b. False
*ANSWER:* False

15. Fourth-generation languages (4GLs) are also called procedural languages.
    a. True
    b. False
*ANSWER:* False

16. A(n) _____ is a step-by-step direction for performing a specific task, which is written in a language the computer can understand.
    a. array
    b. server
    c. cache
    d. program
*ANSWER:* d

17. A _____ is a link between devices connected to a computer.
    a. motherboard
    b. control unit
    c. disk drive
    d. bus
*ANSWER:* d

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18. A(n) _____ enables communication between a video card and memory.
    a. internal bus
    b. keyboard
    c. floppy drive
    d. optical disc

*ANSWER:* a

19. A _____ is a peripheral device for recording, storing, and retrieving information.
    a. disk drive
    b. motherboard
    c. control unit
    d. processor

*ANSWER:* a

20. A(n) _____ is a communication interface through which information is transferred one bit at a time.
    a. serial port
    b. parallel port
    c. extended capability port
    d. enhanced parallel port

*ANSWER:* a

21. A(n) _____ is an interface between a computer and a printer that enables the computer to transfer multiple bits of information to the printer simultaneously.
    a. parallel port
    b. serial port
    c. arithmetic logic unit
    d. control unit

*ANSWER:* a

22. Beginning in the 1940s, first-generation computers used _____.
    a. transistors
    b. vacuum tube technology
    c. integrated circuits
    d. laser technology

*ANSWER:* b

23. Second-generation computers used _____.
    a. vacuum tube technology
    b. transistors
    c. integrated circuits
    d. laser technology

*ANSWER:* b

24. Third-generation computers operated on _____.

a. integrated circuits
b. vacuum tube technology
c. parallel processing
d. optical discs

*ANSWER:* a

25. Which of the following statements is true of gallium arsenide chips?
a. They run at higher speeds than silicon chips.
b. They were used in third-generation computers.
c. They are ideal for mass production.
d. They have low production costs.

*ANSWER:* a

26. Computer designers have concentrated on technology using gallium arsenide instead of silicon because silicon:
a. cannot be used for the mass production of electronic devices.
b. cannot emit light and has speed limitations.
c. is soft and fragile.
d. is expensive.

*ANSWER:* b

27. Gallium arsenide _____ than silicon.
a. is more fragile
b. is more suitable for mass production
c. emits less light
d. operates at lower temperatures

*ANSWER:* a

28. _____ means saving data in computer memory.
a. Stream
b. Retrieval
c. Syndication
d. Storage

*ANSWER:* d

29. In the context of storage measurements, a _____ is the size of a character.
a. nibble
b. decibel
c. byte
d. node

*ANSWER:* c

30. The word computer consists of 64 bits, which is equivalent to _____ bytes.
a. 6
b. 8

c. 16
d. 32

*ANSWER:* b

31. Every character, number, or symbol on the keyboard is represented as a(n) _____ in computer memory.
a. decimal number
b. hexadecimal number
c. octal number
d. binary number

*ANSWER:* d

32. Computers and communication systems use _____ to represent information between computers and network systems.
a. source codes
b. nanotubes
c. data codes
d. servers

*ANSWER:* c

33. In a(n) _____ file, each alphabetic, numeric, or special character is represented with a 7-bit binary number.
a. Extended Binary Code Decimal Interchange Code (EBCDIC)
b. Unicode
c. American Standard Code for Information Interchange (ASCII)
d. Extended ASCII

*ANSWER:* c

34. An American Standard Code for Information Interchange (ASCII) file defines up to _____ characters.
a. 64
b. 128
c. 256
d. 1024

*ANSWER:* b

35. An Extended ASCII data code allows representation of maximum _____ characters.
a. 128
b. 256
c. 512
d. 1024

*ANSWER:* b

36. A petabyte is equal to _____ bytes.
a. 230
b. 240
c. 250
d. 260

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*ANSWER:* c

37. In the context of computer operations, division is a(n) _____.
    a. arithmetic operation
    b. storage operation
    c. logical operation
    d. retrieval operation

*ANSWER:* a

38. Trackballs are ideal for notebook computers because they _____.
    a. occupy less space than a mouse
    b. rely on optical scanning of the data on a notebook
    c. allow faster and more precise cursor positioning than a mouse
    d. rely on light detection to determine which menu item has been selected

*ANSWER:* a

39. Identify an advantage of a mouse over a trackball.
    a. A mouse processes more information than a trackball.
    b. A mouse is more precise in positioning the pointer than a trackball.
    c. A mouse occupies less space than a trackball.
    d. A mouse is stationary, whereas a trackball has to be moved around.

*ANSWER:* b

40. Which of the following is an example of an input device?
    a. A barcode reader
    b. A cathode ray tube
    c. An inkjet printer
    d. An organic light-emitting diode

*ANSWER:* a

41. A _____ is an input device.
    a. plasma display
    b. laser printer
    c. data tablet
    d. inkjet printer

*ANSWER:* c

42. A(n) _____ is an input device used to grade multiple-choice and true/false tests.
    a. optical character reader
    b. magnetic character sensor
    c. magnetic ink character recognition system
    d. optical mark recognition system

*ANSWER:* d

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43. A(n) _____ is a common output device for soft copy.
    a. liquid crystal display
    b. floppy disk
    c. laser printer
    d. electrostatic plotter

*ANSWER:* a

44. A(n) _____ is a common output device for hard copy.
    a. optical character reader
    b. compact disc
    c. laser printer
    d. plasma display

*ANSWER:* c

45. Which of the following statements is true of a high-quality inkjet printer?
    a. It uses multicolor ink cartridges to print digital photographs.
    b. Its output for a mainframe computer is called soft copy.
    c. It uses laser-based technology that creates electrical charges on a rotating drum to attract toner.
    d. It is suitable for office environments that have high-volume and high-quality printing requirements.

*ANSWER:* a

46. Which of the following statements is true of laser printers?
    a. They are most suitable for home users.
    b. They use toners to create high-quality outputs.
    c. They are used to generate three-dimensional outputs.
    d. They use solid ink to generate two-dimensional outputs.

*ANSWER:* b

47. The Clipboard's contents are typically stored in _____.
    a. read-only memory
    b. random access memory
    c. magnetic disks
    d. magnetic tape

*ANSWER:* b

48. Which of the following is a difference between read-only memory (ROM) and random access memory (RAM)?
    a. ROM is volatile memory, whereas RAM is nonvolatile memory.
    b. ROM is secondary memory, whereas RAM is main memory.
    c. ROM is nonvolatile memory, whereas RAM is volatile memory.
    d. ROM is main memory, whereas RAM is secondary memory.

*ANSWER:* c

49. Which of the following is true of memory devices?
    a. The contents of flash memory cannot be reprogrammed.

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b. The contents of random access memory cannot be reprogrammed.
c. The contents of programmable read-only memory cannot be reprogrammed.
d. The contents of cache random access memory cannot be reprogrammed.

*ANSWER:* c

50. _____ holds data when the computer is off or during the course of a program's operation.
a. Random access memory
b. Read-only memory
c. Secondary memory
d. Programmable read-only memory

*ANSWER:* c

51. _____ is an example of a secondary memory device.
a. An inkjet printer
b. An optical disc
c. Random access memory
d. Read-only memory

*ANSWER:* b

52. Which of the following is true of magnetic tape?
a. It is made of metal.
b. It stores data sequentially.
c. It resembles compact discs.
d. It is a main memory device.

*ANSWER:* b

53. A write once, read many (WORM) disc is a common type of _____.
a. magnetic storage
b. optical storage
c. random access memory
d. compact disc read-only memory

*ANSWER:* b

54. In the context of storage devices, CD-ROMs and DVDs are examples of _____.
a. magnetic tape
b. magnetic disks
c. optical discs
d. main memory devices

*ANSWER:* c

55. _____ allows data to be stored in multiple places to improve a system's reliability.
a. A remote access server
b. Network-attached storage
c. Random access memory

d. A redundant array of independent disks

*ANSWER:* d

56. _____, which is used for online storage and backup, involves multiple virtual servers that are usually hosted by third parties.

a. Kernel storage
b. Buffer storage
c. Cache storage
d. Cloud storage

*ANSWER:* d

57. Identify the type of computers that has the highest storage capability.

a. Subnotebooks
b. Notebooks
c. Personal computers
d. Supercomputers

*ANSWER:* d

58. Identify the type of computers that has the highest price.

a. Subnotebooks
b. Notebooks
c. Personal computers
d. Supercomputers

*ANSWER:* d

59. Jacob, a data analyst, is working on a project from home and needs to download some data from his office network. Which of the following server platforms will best serve Jacob's purpose?

a. Remote access servers
b. Web servers
c. Application servers
d. Disk servers

*ANSWER:* a

60. Which of the following best defines an operating system (OS)?

a. It is a set of programs for controlling and managing computer hardware and software.
b. It is a computer and all the software for managing network resources and offering services to a network.
c. It is a collection of disk drives used for fault tolerance and is typically found in large network systems.
d. It is the main circuit board containing connectors for attaching additional boards.

*ANSWER:* a

61. Which of the following is true of the control program of an operating system (OS)?

a. It controls compilers in the OS.
b. It controls interpreter programs in the OS.
c. It generates assembler programs for secondary memory.

d. It generates checksums to verify that data is not corrupted.

*ANSWER:* d

62. Which of the following is true of the supervisor program of an operating system (OS)?
a. It controls compilers in the OS.
b. It prioritizes tasks performed by the CPU.
c. It transfers data among other parts of the computer system.
d. It generates checksums to verify that data is not corrupted.

*ANSWER:* a

63. The supervisor program in an operating system (OS) is also known as the _____.
a. kernel
b. metadata
c. applet
d. cache

*ANSWER:* a

64. UNIX is a type of _____.
a. storage area network
b. application software
c. remote access server
d. operating system

*ANSWER:* d

65. _____ is used for drafting and has replaced traditional tools, such as T-squares, triangles, paper, and pencils.
a. Graphics software
b. Project management software
c. Computer-aided design software
d. Presentation software

*ANSWER:* c

66. _____ consists of a series of 0s and 1s representing data or instructions.
a. Assembly language
b. A fourth-generation language
c. Machine language
d. A fifth-generation language

*ANSWER:* c

67. Java and C++ are examples of _____.
a. assembly language
b. high-level languages
c. machine language
d. compiler languages

*ANSWER:* b

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68. Which of the following is true of fourth-generation languages (4GLs)?
    a. They are the easiest computer languages to use.
    b. They are composed of rigorous command syntaxes.
    c. They contain a series of 0s and 1s representing data or instructions.
    d. They use artificial intelligence technologies, such as knowledge-based systems.

*ANSWER:* a

69. Structured query language (SQL) is an example of a(n) _____.
    a. assembly language
    b. high-level language
    c. fourth-generation language
    d. fifth-generation language

*ANSWER:* c

70. Which of the following is true of fifth-generation languages (5GLs)?
    a. They are the easiest computer languages to use.
    b. They contain a series of 0s and 1s representing data or instructions.
    c. They are machine dependent and need to be changed after every use.
    d. They use artificial intelligence technologies, such as knowledge-based systems.

*ANSWER:* d

71. To make a computer understand a program, the source code must be first translated into _____ code.
    a. ASCII
    b. object
    c. ternary
    d. UTF-8

*ANSWER:* b

72. The _____ is the heart of a computer.
    a. main memory
    b. basic input/output system
    c. central processing unit
    d. serial port

*ANSWER:* c

73. The _____ tells the computer what to do, such as instructing the computer which device to read or send output to.
    a. main memory
    b. motherboard
    c. operating system
    d. control unit

*ANSWER:* d

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74. A(n) _____ is the enclosure containing the computer's main components.
a. disk drive
b. computer chassis
c. expansion slot
d. parallel port
*ANSWER:* b

75. _____ include gallium arsenide chips that run at higher speeds and consume less power than silicon chips and optical technologies.
a. Second-generation computers
b. Third-generation computers
c. Fourth-generation computers
d. Fifth-generation computers
*ANSWER:* d

76. _____bits equal one byte.
a. Six
b. Eight
c. Thirty-two
d. Sixty-four
*ANSWER:* b

77. A _____is an input device for computers.
a. mouse
b. printer
c. monitor
d. speaker
*ANSWER:* a

78. The most common type of main memory is a semiconductor memory chip made of _____.
a. arsenic
b. germanium
c. silicon
d. manganese
*ANSWER:* c

79. A(n) _____, made of Mylar, is used for random-access processing of data in a computer.
a. video adapter
b. optical disc
c. cassette tape
d. magnetic disk
*ANSWER:* d

80. A(n) _____, a memory device, uses laser beams to access and store data.

a. video adapter
b. memory chip
c. optical disc
d. digital card

*ANSWER:* c

81. _____are compatible with the IBM System/360 line introduced in 1965.
a. Minicomputers
b. Mainframe computers
c. Personal computers
d. Super computers

*ANSWER:* b

82. A(n) _____is a type of server that stores computer software, which users can access from their workstations.
a. database server
b. Web server
c. application server
d. file server

*ANSWER:* c

83. Corel Quattro Pro is an example of _____.
a. word-processing software
b. spreadsheet software
c. database software
d. desktop publishing software

*ANSWER:* b

84. Microsoft PowerPoint is the most commonly used _____software.
a. desktop publishing
b. presentation
c. graphics
d. project management

*ANSWER:* b

85. Codes written for one type of computer using _____do not work on another type of computer.
a. assembly language
b. structured query language
c. a fourth-generation language
d. a fifth-generation language

*ANSWER:* a

86. Provide a general description on how to write a computer program.

*ANSWER:* Answers will vary. To write a computer program, first a user must know what needs to be done, and then he or she must plan a method to achieve this goal, including selecting the right language for the task. Many

computer languages are available; the language the user selects depends on the problem being solved and the type of computer he or she is using.

87. Discuss single processor and multiprocessor computers.

*ANSWER:* Answers will vary. Some computers have a single processor; other computers, called multiprocessors, contain multiple processors. Multiprocessing is the use of two or more CPUs in a single computer system. Generally, a multiprocessor computer performs better than a single-processor computer in the same way that a team would perform better than an individual on a large, time-consuming project.

88. Explain the effects of processor size and operating system (OS) on computer performance.

*ANSWER:* Answers will vary. In recent years, 32-bit and 64-bit processors and OSs have created a lot of interest. A 32-bit processor can use 232 bytes (4 GB) of RAM; and, in theory, a 64-bit processor can use 264 bytes (16 EB, or exabytes) of RAM. So a computer with a 64-bit processor can perform calculations with larger numbers and be more efficient with smaller numbers; it also has better overall performance than a 32-bit system. However, to take advantage of this higher performance, you must also have a 64-bit OS.

89. What is a motherboard?

*ANSWER:* Answers will vary. A motherboard is the main circuit board containing connectors for attaching additional boards. In addition, it usually contains the CPU, Basic Input/Output System (BIOS), memory, storage, interfaces, serial and parallel ports, expansion slots, and all the controllers for standard peripheral devices, such as the display monitor, disk drive, and keyboard.

90. Discuss the advantages and disadvantages of gallium arsenide chips.

*ANSWER:* Answers will vary. Because silicon cannot emit light and has speed limitations, computer designers have concentrated on technology using gallium arsenide, in which electrons move almost five times faster than silicon. Devices made with this synthetic compound can emit light, withstand higher temperatures, and survive much higher doses of radiation than silicon devices. The major problems with gallium arsenide are difficulties in mass production. This material is softer and more fragile than silicon, so it breaks more easily during slicing and polishing. Because of the high costs and difficulty of production, the military is currently the major user of this technology. However, research continues to eliminate some shortcomings of this technology.

91. Describe how computer speed is measured.

*ANSWER:* Answers will vary. Typically, computer speed is measured as the number of instructions performed during the following fractions of a second:
a. Millisecond: 1/1,000 of a second
b. Microsecond: 1/1,000,000 of a second
c. Nanosecond: 1/1,000,000,000 of a second
d. Picosecond: 1/1,000,000,000,000 of a second

92. Explain how data is stored in a computer.

*ANSWER:* Answers will vary. Computers can store vast quantities of data and locate a specific item quickly, which makes knowledge workers more efficient in performing their jobs. In computers, data is stored in bits. A bit is a single value of 0 or 1, and 8 bits equal 1 byte. A byte is the size of a character. For example, the word computer consists of 8 characters or 8 bytes (64 bits). Every character, number, or symbol on the keyboard is represented as a binary number in computer memory. A binary system consists of 0s and 1s, with a 1 representing “on” and a 0 representing “off,” similar to a light switch.

93. Discuss the three basic tasks performed by computers.

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*ANSWER:* Answers will vary. Computers can perform three basic tasks: arithmetic operations, logical operations, and storage and retrieval operations.
Computers can add, subtract, multiply, divide, and raise numbers to a power (exponentiation), as shown in these examples:
A + B (addition): 5 + 7 = 12
A ? B (subtraction): 5 - 2 = 3
A * B (multiplication): 5 * 2 = 10
A / B (division): 5 / 2 = 2.5
A ^ B (exponentiation): 5 ^ 2 = 25
Computers can perform comparison operations by comparing two numbers. For example, a computer can compare x to y and determine which number is larger.
Computers can store massive amounts of data in very small spaces and locate a particular item quickly. For example, a person can store the text of more than one million books in a memory device about the size of his or her fist.

94. Describe touch screens.

*ANSWER:* Answers will vary. A touch screen, which usually works with menus, is a combination of input devices. Some touch screens rely on light detection to determine which menu item has been selected, and others are pressure sensitive. Touch screens are often easier to use than keyboards, but they might not be as accurate because selections can be misread or mistouched.

95. What are the most common output devices for soft copy?

*ANSWER:* Answers will vary. Output displayed on a screen is called “soft copy.” The most common output devices for soft copy are cathode ray tube (CRT), plasma display, and liquid crystal display (LCD). Soon, OLED (organic light-emitting diode) displays will replace LCDs. OLED screens are brighter, thinner, and consume less power than LCD technology. However, they are more expensive than LCD technology.

96. What is the most common type of main memory?

*ANSWER:* Answers will vary. The most common type of main memory is a semiconductor memory chip made of silicon. A semiconductor memory device can be volatile or nonvolatile. Volatile memory is called random access memory (RAM), although you could think of it as “read-write memory.” In other words, data can be read from and written to RAM. Some examples of the type of information stored in RAM include open files, the Clipboard’s contents, running programs, and so forth.
A special type of RAM, called cache RAM, resides on the processor. Because memory access from main RAM storage generally takes several clock cycles (a few nanoseconds), cache RAM stores recently accessed memory so the processor is not waiting for the memory transfer.

97. Describe the three main types of secondary memory devices.

*ANSWER:* Answers will vary. There are three main types of secondary memory devices: magnetic disks, magnetic tape, and optical discs.
a. Magnetic disk: A magnetic disk, made of Mylar or metal, is used for random-access processing. In other words, data can be accessed in any order, regardless of its order on the surface. Magnetic disks are much faster but more expensive than tape devices.
b. Magnetic tape: Magnetic tape, made of a plastic material, resembles a cassette tape and stores data sequentially. Records can be stored in a block or separately, with a gap between each record or block, called the interrecord gap (IRG). Magnetic tape is sometimes used for storing backups, although other media are more common now.
c. Optical disc: Optical discs use laser beams to access and store data. Optical technology can store vast amounts of data and is durable. Three common types of optical storage are CD-ROMs, WORM discs, and DVDs.

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98. Describe flash memory.

*ANSWER:* Answers will vary. Flash memory is nonvolatile memory that can be electronically erased and reprogrammed. It is used mostly in memory cards and USB flash drives for storing and transferring data between computers and other devices.

99. Explain how a redundant array of independent disks (RAID) provides fault tolerance and improves performance.

*ANSWER:* Answers will vary. A RAID system is a collection of disk drives used for fault tolerance and improved performance, and it is typically found in large network systems. With RAID, data can be stored in multiple places to improve the system's reliability. In other words, if one disk in the array fails, data is not lost. In some RAID configurations, sequences of data can be read from multiple disks simultaneously, which improves performance.

100. Briefly discuss different classes of computers.

*ANSWER:* Answers will vary. Usually, computers are classified based on cost, amount of memory, speed, and sophistication. Using these criteria, computers are classified as subnotebooks, notebooks, personal computers, minicomputers, mainframes, or supercomputers. Supercomputers are the most powerful; they also have the highest storage capabilities and the highest price.

101. Briefly discuss fax servers, file servers, and mail servers.

*ANSWER:* Answers will vary. A server is a computer and all the software for managing network resources and offering services to a network.
a. Fax servers: Fax servers contain software and hardware components that enable users to send and receive faxes.
b. File servers: File servers contain large-capacity hard drives for storing and retrieving data files.
c. Mail servers: Mail servers are configured for sending, receiving, and storing e-mails.

102. Describe desktop publishing software.

*ANSWER:* Answers will vary. Desktop publishing software is used to produce professional-quality documents without expensive hardware and software. This software works on a "what-you-see-is-what-you-get" concept, so the high-quality screen display gives a user a good idea of what he or she will see in the printed output.

103. Describe financial planning and accounting software.

*ANSWER:* Answers will vary. Financial planning software, which is more powerful than spreadsheet software, is capable of performing many types of analysis on large amounts of data. These analyses include present value, future value, rate of return, cash flow, depreciation, retirement planning, and budgeting. A widely used financial planning package is Intuit Quicken. Using this package, you can plan and analyze all kinds of financial scenarios. In addition to spreadsheet software, dedicated accounting software is available for performing many sophisticated accounting tasks, such as general ledgers, accounts receivable, accounts payable, payroll, balance sheets, and income statements.

104. Describe assembly language.

*ANSWER:* Answers will vary. Assembly language is the second generation of computer languages. It is a higher-level language than machine language but is also machine dependent. It uses a series of short codes, or mnemonics, to represent data or instructions. For example, ADD and SUBTRACT are typical commands in assembly language. Writing programs in assembly language is easier than in machine language.

105. Describe fifth-generation languages (5GLs).

*ANSWER:* Answers will vary. Fifth-generation languages (5GLs) use some of the artificial intelligence technologies, such as knowledge-based systems, natural language processing, visual programming, and a graphical

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approach to programming. Codes are automatically generated and designed to make the computer solve a given problem without a programmer or with minimum programming effort. These languages are designed to facilitate natural conversations between a user and the computer. Imagine that the user could ask his or her computer, “What product generated the most sales last year?” The computer, equipped with a voice synthesizer, could respond, “Product X.” Dragon NaturallySpeaking Solutions is an example of NLP. Research continues in this field because of the promising results so far.