**Chapter 1**

3. What programming language has dominated scientific computing over the past 50  
      years?

      Answer:     Programming language that dominated scientific computing over the past 50  
                        years is FORTRAN. (Source: <http://en.wikipedia.org/wiki/Fortran>)

4.   What programming language has dominated business applications over the past 50  
      years?

      Answer:     Programming language that dominated business computing over the past 50  
                        years is COBOL. (Source: <http://en.wikipedia.org/wiki/Cobol>)

 5.   What programming language has dominated artificial intelligence applications over the  
       past 50 years?

      Answer:     Programming language that dominated business computing over the past 50      
                       years is LISP.

(Source: <http://en.wikipedia.org/wiki/Lisp_(programming_language)>

6.   In what language is most of UNIX written?

      Answer: UNIX is most written in C language.

9.   What is one example of a lack of orthogonality in the design of C?

Answer:     Using pointer in C programming. It should be possible to define a pointer to  
point to any specific type defined in the C language. However, if pointers are not allowed to point to arrays, many potentially useful user-defined data structures cannot be defined.

10. What language used orthogonality as a primary design criterion?

      Answer:     C++ is the language that used orthogonality as a primary design criterion.

13. What does it mean for a program to be reliable?

Answer:     A program is said to be reliable if it performs to its specifications under all  
conditions.

15. What is aliasing?

      Answer:     Aliasing is having two or more distinct names that can be used to access the  
                        same memory cell.

16. What is exception handling?

      Answer:     The ability of a program to intercept run-time errors.

28. What does a linker do?

      Answer:     collecting system programs and linking them to user program which usually  
                        called linking and loading.

Problem Set

Do you believe our capacity for abstract thought is influenced by our language skills? Support your opinion.

Answer:     Yes, I absolutely agree with that. How well we implementing language skills are depends on how well does our logic.

4.   What arguments can you make against the idea of a single language for all        
      programming domains?

      Answer:     There are 3 programming domains (scientific, business, artificial intelligence)   
that absolutely have different requirements. All of those differences couldn’t group in a single language based on their requirements, purpose, and complexity.

6.   What common programming language statement, in your opinion, is most detrimental to  
      readability?

      Answer:     poorly written, unordered, and undocumented programming language is the  
                  most commonly problem that another person will hard to follow and read.

8.   Many languages distinguish between uppercase and lowercase letters in user-defined  
     names. What are the pros and cons of this design decision?

      Answer:    (Pros) the distinguished between uppercase and lowercase can effect for the  
                  quantity of the variable in the programming language. For example, ‘A’ and ‘a’  
                  are the different variable and it has 2 variables.

                  (Cons) the distinguished between uppercase and lowercase can affect the  
                  programmer or even another user. Because it’s make a confusion between  
                  them.

9.   Explain the different aspects of the cost of a programming language.

      Answer:There are 2 aspects of the cost of a programming language. Such as, first, the  
                  cost of testing/running the program. Second, the cost of maintaining and  
                  documenting the program.

12. In your opinion, what major features would a perfect programming language include?

      Answer:     In my opinion Syntax, documentation, and error message are the most  
important features in a perfect programming language.