Chapter 2
Evolution of the Major Programming Languages

- **Genealogy of High-Level Programming Languages**
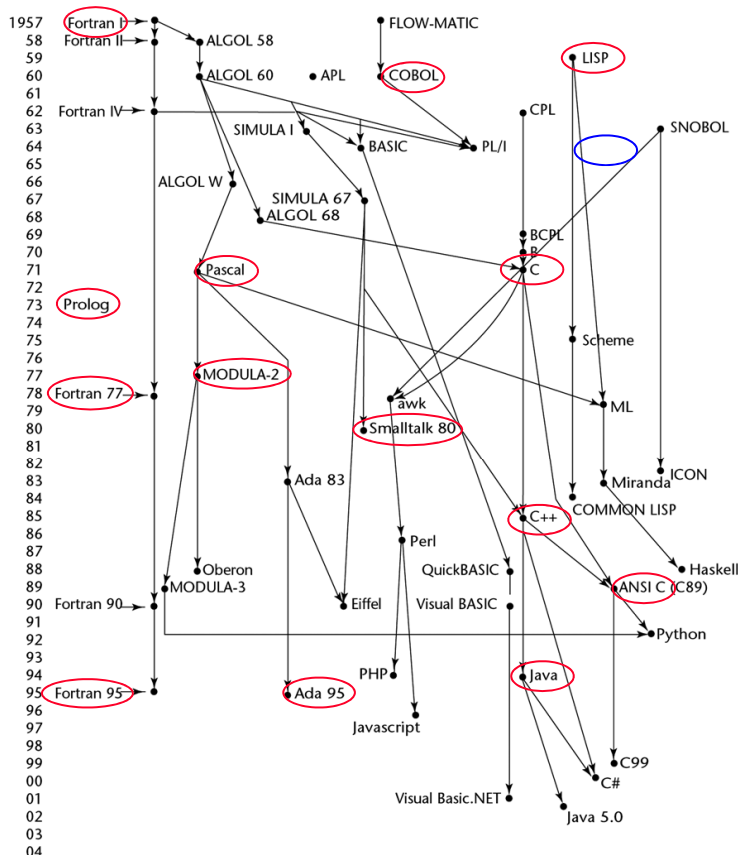
<Homework 1>
Solve the Problems
#7, #12, #14

Figure 2.1 Genealogy of common high-level programming languages

7. LISP began as a pure functional language but gradually acquired more and more imperative features. Why?

12. Describe, in your own words, the concept of orthogonality in programming language design.

14. What are the arguments both for and against the idea of a typeless language?

- **TIOBE Programming Community Index for Feb. 2016**
  - **http://www.tiobe.com/tiobe_index**
  - **gives an indication of the popularity of programming languages.**
    - ⇔ **is updated once a month.**
  - **The ratings are based on the world-wide availability of skilled engineers, courses and third party vendors**

Feb 2016	Feb 2015	Change	Programming Language	Ratings	Change
1	2	^	Java	21.145%	+5.80%
2	1	v	C	15.594%	-0.89%
3	3		C++	6.907%	+0.29%
4	5	^	C#	4.400%	-1.34%
5	8	^	Python	4.180%	+1.30%
6	7	^	PHP	2.770%	-0.40%
7	9	^	Visual Basic .NET	2.454%	+0.43%
8	12	^^	Perl	2.251%	+0.86%
9	6	v	JavaScript	2.201%	-1.31%
10	11	^	Delphi/Object Pascal	2.163%	+0.59%
11	20	^^	Ruby	2.053%	+1.18%
12	10	v	Visual Basic	1.855%	+0.14%
13	26	^^	Assembly language	1.828%	+1.08%
14	4	vv	Objective-C	1.403%	-4.62%
15	30	^^	D	1.391%	+0.77%
16	27	^^	Swift	1.375%	+0.65%
17	18	^	R	1.192%	+0.23%
18	17	v	MATLAB	1.091%	+0.06%
19	13	vv	PL/SQL	1.062%	-0.20%
20	33	^^	Groovy	1.012%	+0.51%