<table>
<thead>
<tr>
<th>Years</th>
<th>Influences and New Technology</th>
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| 1951–55 | **Hardware:** Vacuum-tube computers; mercury delay line memories  
**Methods:** Assembly languages; foundation concepts: subprograms, data structures  
**Languages:** Experimental use of expression compilers |
| 1956–60 | **Hardware:** Magnetic tape storage; core memories; transistor circuits  
**Methods:** Early compiler technology; BNF grammars; code optimization; interpreters; dynamic storage methods and list processing  
**Languages:** FORTRAN, ALGOL 58, ALGOL 60, LISP |
| 1961–65 | **Hardware:** Families of compatible architectures; magnetic disk storage  
**Methods:** Multiprogramming operating systems; syntax-directed compilers  
**Languages:** COBOL, ALGOL 60 (revised), SNOBOL, JOVIAL |
| 1966–70 | **Hardware:** Increasing size and speed and decreasing cost; microprogramming; integrated circuits  
**Methods:** Time-sharing systems; optimizing compilers; translator writing systems  
**Languages:** APL, FORTRAN 66, COBOL 65, ALGOL 68, SNOBOL4, BASIC, PL/I, SIMULA 67, ALGOL-W |
| 1971–75 | **Hardware:** Minicomputers; small mass storage systems; semiconductor memories  
**Methods:** Program verification; structured programming; software engineering  
**Languages:** Pascal, COBOL 74, PL/I (standard), C, Scheme, Prolog |
| 1976–80 | **Hardware:** Microcomputers; mass storage systems; distributed computing  
**Methods:** Data abstraction; formal semantics; concurrent, embedded, and real-time programming techniques  
**Languages:** Smalltalk, Ada, FORTRAN 77, ML |
| 1981–85 | **Hardware:** Personal computers; workstations; video games; local-area networks; ARPANET  
**Methods:** Object-oriented programming; interactive environments; syntax-directed editors  
**Languages:** Turbo Pascal, Smalltalk-80, use of Prolog, Ada 83, Postscript |
| 1986–90 | **Hardware:** Age of microcomputer; engineering workstation; RISC architectures; Internet  
**Methods:** Client/server computing  
**Languages:** FORTRAN 90, C++, SML (Standard ML) |
| 1991–95 | **Hardware:** Very fast inexpensive workstations and microcomputers; massively parallel architectures; voice, video, fax, multimedia  
**Methods:** Open systems; environment frameworks  
**Languages:** Ada 95, Process languages (TCL, PERL), HTML |
| 1996–2000 | **Hardware:** Computers as inexpensive appliances; Personal digital assistants; World wide web; Cable-based home networking; Gigabyte disk storage  
**Methods:** E-commerce  
**Languages:** Java, Javascript, XML |

**Table 1.2.** Some influences on programming language development.