

# Timeline of programming languages

This is a record of historically important programming languages by decade.

## Contents

**Pre-1950**

**1950s**

**1960s**

**1970s**

**1980s**

**1990s**

**2000s**

**2010s**

**See also**

**References**

**External links**

## Pre-1950

Year	Name	Chief developer, company	Predecessor(s)
1943–45	<u>Plankalkül</u> (concept)	<u>Konrad Zuse</u>	none (unique language)
1943–46	<u>ENIAC coding system</u>	<u>John von Neumann</u> , <u>John Mauchly</u> , <u>J. Presper Eckert</u> , <u>Herman Goldstine</u> after <u>Alan Turing</u>	none (unique language)
1946	<u>ENIAC Short Code</u>	<u>Richard Clippinger</u> , <u>John von Neumann</u> after <u>Alan Turing</u>	ENIAC coding system
1946	<u>Von Neumann and Goldstine graphing system</u> (Notation)	<u>John von Neumann</u> and <u>Herman Goldstine</u>	ENIAC coding system
1947	<u>ARC Assembly</u>	<u>Kathleen Booth</u> <sup>[1][2]</sup>	ENIAC coding system
1948	<u>CPC Coding scheme</u>	<u>Howard H. Aiken</u>	Analytical Engine order code
1948	<u>Curry notation system</u>	<u>Haskell Curry</u>	ENIAC coding system
1948	<u>Plankalkül</u> (concept published)	<u>Konrad Zuse</u>	none (unique language)
1949	<u>Short Code</u>	<u>John Mauchly</u> and <u>William F. Schmitt</u>	ENIAC Short Code
Year	Name	Chief developer, company	Predecessor(s)

## 1950s

Year	Name	Chief developer, company	Predecessor(s)
1950	<u>Short Code</u>	William F Schmidt, Albert B. T̃nik, <sup>[3]</sup> J.R. Logan	Brief Code
1950	<u>Birkbeck Assembler</u>	<u>Kathleen Booth</u>	ARC
1951	<u>Superplan</u>	<u>Heinz Rutishauser</u>	Plankalkül
1951	<u>ALGAE</u>	Edward A Voorhees and Karl Balke	none (unique language)
1951	Intermediate Programming Language	<u>Arthur Burks</u>	Short Code
1951	<u>Regional Assembly Language</u>	<u>Maurice Wilkes</u>	EDSAC
1951	<u>Boehm unnamed coding system</u>	<u>Corrado Böhm</u>	CPC Coding scheme
1951	<u>Klammerausdrücke</u>	<u>Konrad Zuse</u>	Plankalkül
1951	<u>OMNIBAC Symbolic Assembler</u>	<u>Charles Katz</u>	Short Code
1951	<u>Stanislaus</u> (Notation)	<u>Fritz Bauer</u>	none (unique language)
1951	<u>Whirlwind assembler</u>	Charles Adams and Jack Gilmore at <u>MIT Project Whirlwind</u>	EDSAC
1951	<u>Rochester assembler</u>	<u>Nat Rochester</u>	EDSAC
1951	<u>Sort Merge Generator</u>	<u>Betty Holberton</u>	none (unique language)
1952	<u>A-0</u>	<u>Grace Hopper</u>	Short Code
1952	<u>Glennie Autocode</u>	<u>Alick Glennie</u> after <u>Alan Turing</u>	CPC Coding scheme
1952	<u>Editing Generator</u>	Milly Koss	SORT/MERGE
1952	<u>COMPOOL</u>	<u>RAND/SDC</u>	none (unique language)
1953	<u>Speedcoding</u>	<u>John W. Backus</u>	none (unique language)
1953	<u>READ/PRINT</u>	Don Harroff, James Fishman, George Ryckman	none (unique language)
1954	<u>Laning and Zierler system</u>	Laning, Zierler, Adams at <u>MIT Project Whirlwind</u>	none (unique language)
1954	<u>Mark I Autocode</u>	<u>Tony Brooker</u>	Glennie Autocode
1954–55	<u>Fortran</u> (concept)	Team led by <u>John W. Backus</u> at <u>IBM</u>	Speedcoding
1954	<u>ARITH-MATIC</u>	Team led by <u>Grace Hopper</u> at UNIVAC	A-0
1954	<u>MATH-MATIC</u>	Team led by Charles Katz	A-0
1954	<u>MATRIX MATH</u>	H G Kahrmanian	none (unique language)
1954	<u>IPL I</u> (concept)	<u>Allen Newell</u> , <u>Cliff Shaw</u> , <u>Herbert A. Simon</u>	none (unique language)
1955	<u>FLOW-MATIC</u>	Team led by <u>Grace Hopper</u> at UNIVAC	A-0
1955	BACAIC	M. Grems and R. Porter	
1955	<u>PACT I</u>	<u>SHARE</u>	FORTTRAN, A-2
1955	<u>Freiburger Code</u> <sup>[4][5]</sup>	<u>University of Freiburg</u>	N/A
1955–56	<u>Sequentielle Formelübersetzung</u>	<u>Fritz Bauer</u> and Karl Samelson	Boehm
1955–56	<u>IT</u>	Team led by <u>Alan Perlis</u>	Laning and Zierler

1955	PRINT	IBM	
1958	<u>IPL II</u> (implementation)	<u>Allen Newell</u> , <u>Cliff Shaw</u> , <u>Herbert A. Simon</u>	IPL I
1956–58	<u>LISP</u> (concept)	<u>John McCarthy</u>	IPL
1957	<u>COMTRAN</u>	<u>Bob Berner</u>	FLOW-MATIC
1957	<u>GEORGE</u>	<u>Charles Leonard Hamblin</u>	none (unique language)
1957	<u>Fortran I</u> (implementation)	<u>John W. Backus</u> at <u>IBM</u>	FORTTRAN
1957–58	UNICODE	Remington Rand UNIVAC	MATH-MATIC
1957	<u>COMIT</u> (concept)		none (unique language)
1958	<u>Fortran II</u>	Team led by <u>John W. Backus</u> at <u>IBM</u>	FORTTRAN I
1958	<u>ALGOL 58</u> (IAL)	ACM/GAMM	FORTTRAN, IT, Sequentielle Formelübersetzung
1958	<u>IPL V</u>	<u>Allen Newell</u> , <u>Cliff Shaw</u> , <u>Herbert A. Simon</u>	IPL II
1959	<u>APT</u>	<u>Douglas T. Ross</u>	
1959	<u>FACT</u>	<u>Fletcher R. Jones</u> , <u>Roy Nutt</u> , <u>Robert L. Patrick</u>	none (unique language)
1959	<u>COBOL</u> (concept)	The <u>CODASYL</u> Committee	FLOW-MATIC, COMTRAN, FACT
1959	<u>JOVIAL</u>	<u>Jules Schwartz</u> at <u>SDC</u>	<u>ALGOL 58</u>
1959	<u>LISP</u> (implementation)	<u>John McCarthy</u>	IPL
1959	<u>MAD</u> – Michigan Algorithm Decoder	<u>Bruce Arden</u> , <u>Bernard Galler</u> , and <u>Robert M. Graham</u>	<u>ALGOL 58</u>
1959	<u>TRAC</u> (concept)	<u>Calvin Mooers</u>	
<b>Year</b>	<b>Name</b>	<b>Chief developer, company</b>	<b>Predecessor(s)</b>

## 1960s

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Year	Name	Chief developer, company	Predecessor(s)
1960	<u>ALGOL 60</u>		ALGOL 58
1960	<u>COBOL 61</u> (implementation)	The <u>CODASYL</u> Committee	FLOW-MATIC, COMTRAN
1961	<u>COMIT</u> (implementation)		none (unique language)
1962	<u>FORTRAN IV</u>	<u>IBM</u>	FORTRAN II
1962	<u>APL</u> (concept)	<u>Kenneth E. Iverson</u>	none (unique language)
1962	<u>Simula</u> (concept)		ALGOL 60
1962	<u>SNOBOL</u>	<u>Ralph Griswold, et al.</u>	FORTRAN II, COMIT
1963	<u>CPL</u>	<u>Barron, Christopher Strachey, et al.</u>	ALGOL 60
1963	<u>SNOBOL3</u>	<u>Griswold, et al.</u>	SNOBOL
1963	<u>ALGOL 68</u> (concept)	<u>Adriaan van Wijngaarden, et al.</u>	ALGOL 60
1963	<u>JOSS I</u>	<u>Cliff Shaw, RAND</u>	ALGOL 58
1964	<u>MIMIC</u>	<u>H. E. Petersen, et al.</u>	MIDAS
1964	<u>COWSEL</u>	<u>Rod Burstall, Robin Popplestone</u>	CPL, LISP
1964	<u>PL/I</u> (concept)	<u>IBM</u>	ALGOL 60, COBOL, FORTRAN
1964	<u>BASIC</u>	<u>John George Kemeny</u> and <u>Thomas Eugene Kurtz</u> at <u>Dartmouth College</u>	FORTRAN II, JOSS
1964	<u>IBM RPG</u>	<u>IBM</u>	FARGO
1964	<u>Mark-IV</u>	<u>Informatics</u>	
1964	<u>Speakeasy-2</u>	<u>Stanley Cohen</u> at <u>Argonne National Laboratory</u>	Speakeasy
1964	<u>TRAC</u> (implementation)	<u>Calvin Mooers</u>	
1964	<u>P''</u>	<u>Corrado Böhm</u>	none (unique language)
1964?	<u>IITRAN</u>		
1965	<u>RPG II</u>	<u>IBM</u>	FARGO, <u>RPG</u>
1965	<u>MAD/I</u> (concept)	<u>University of Michigan</u>	MAD, <u>ALGOL 60</u> , <u>PL/I</u>
1965	<u>TELCOMP</u>	<u>BBN</u>	JOSS
1965	<u>Atlas Autocode</u>	<u>Tony Brooker, Derrick Morris</u> at <u>Manchester University</u>	<u>Algol 60</u> , <u>Autocode</u>
1966	<u>JOSS II</u>	<u>Chuck Baker, RAND</u>	JOSS I
1966	<u>ALGOL W</u>	<u>Niklaus Wirth, C. A. R. Hoare</u>	ALGOL 60
1966	<u>FORTRAN 66</u>		FORTRAN IV
1966	<u>ISWIM</u> (Concept)	<u>Peter J. Landin</u>	LISP
1966	<u>CORAL66</u>		ALGOL 60
1966	<u>APL</u> (implementation) <sup>[6]</sup>	<u>Kenneth E. Iverson</u>	none (unique language)
1967	<u>BCPL</u>	<u>Martin Richards</u>	CPL
1967	<u>MUMPS</u>	<u>Massachusetts General Hospital</u>	FORTRAN, TELCOMP

1967	<u>Simula 67</u> (implementation)	<u>Ole-Johan Dahl</u> , <u>Bjørn Myhrhaug</u> , <u>Kristen Nygaard</u> at <u>Norsk Regnesentral</u>	ALGOL 60
1967	<u>InterLisp</u>	D.G. Bobrow and D.L. Murphy	Lisp
1967	<u>EXAPT</u>	Herwart Opitz, Wilhelm Simon, Günter Spürand Gottfried Stute at <u>RWTH Aachen University</u> and <u>TU Berlin</u>	<u>APT</u>
1967	<u>SNOBOL4</u>	<u>Ralph Griswold</u> , <i>et al.</i>	SNOBOL3
1967	<u>XPL</u>	<u>William M. McKeeman</u> , <i>et al.</i> at <u>University of California Santa Cruz, California</u> <u>J. J. Horning</u> , <i>et al.</i> at <u>Stanford University</u>	PL/I
1967	<u>Space Programming Language (SPL)</u>	<u>System Development Corporation</u>	JOVIAL
1968	<u>ALGOL 68</u> ( <u>UNESCO/IFIP</u> standard)	<u>Adriaan van Wijngaarden</u> , <u>Barry J. Mailloux</u> , <u>John E. L. Peck</u> and <u>Cornelis H. A. Koster</u> , <i>et al.</i>	ALGOL 60
1968	<u>POP-1</u>	<u>Rod Burstall</u> , <u>Robin Popplestone</u>	COWSEL
1968	<u>DIBOL-8</u>	<u>DEC</u>	DIBOL
1968	<u>Forth</u> (concept)	<u>Moore</u>	
1968	<u>LOGO</u>	<u>Wally Feurzeig</u> , <u>Seymour Papert</u> , <u>Cynthia Solomon</u>	LISP
1968	<u>MAPPER</u>	<u>Unisys</u>	CRT RPS
1968	<u>REFAL</u> (implementation)	<u>Valentin Turchin</u>	none (unique language)
1968	<u>TTM</u> (implementation)	<u>Steven Caine</u> and <u>E. Kent Gordon</u> , <u>California Institute of Technology</u>	GAP, GPM
1968	<u>PILOT</u>	<u>John Amsden Starkweather</u> , <u>University of California, San Francisco</u>	Computest
1969	<u>PL/I</u> (implementation)	<u>IBM</u>	ALGOL 60, COBOL, FORTRAN
1969	<u>B</u>	<u>Ken Thompson</u> , with contributions from <u>Dennis Ritchie</u>	BCPL
1969	<u>Polymorphic Programming Language (PPL)</u>	<u>Thomas A. Standish</u> at <u>Harvard University</u>	
1969	<u>SETL</u>	<u>Jack Schwartz</u> at <u>Courant Institute of Mathematical Sciences</u>	
1969	<u>TUTOR</u>	<u>Paul Tenczar</u> & <u>University of Illinois at Urbana-Champaign</u>	
1969	<u>Edinburgh IMP</u>	<u>Edinburgh University</u>	<u>Algol 60</u> , <u>Autocode</u> , <u>Atlas Autocode</u>
Year	Name	Chief developer, company	Predecessor(s)

## 1970s

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Year	Name	Chief developer, company	Predecessor(s)
1970?	<u>Forth</u> (implementation)	<u>Charles H. Moore</u>	
1970	<u>POP-2</u>	<u>Robin Popplestone</u>	POP-1
1970	<u>Pascal</u>	<u>Niklaus Wirth</u> , Kathleen Jensen	ALGOL 60, ALGOL W
1970	<u>BLISS</u>	<u>Wulf, Russell, Habermann</u> at <u>Carnegie Mellon University</u>	ALGOL
1971	<u>KRL</u>	<u>Daniel G. Bobrow</u> at <u>Xerox PARC</u> , <u>Terry Winograd</u> at <u>Stanford University</u>	<u>KM</u> , <u>FRL</u> (MIT)
1971	<u>Sue</u>	<u>Ric Holt</u> <i>et al.</i> at <u>University of Toronto</u>	Pascal, XPL
1971	<u>Compiler Description Language (CDL)</u>	<u>Cornelis H.A. Koster</u> at <u>University of Nijmegen</u>	
1972	<u>Smalltalk</u>	<u>Alan Kay</u> , <u>Adele Goldberg</u> , <u>Dan Ingalls</u> , <u>Xerox PARC</u>	Simula 67
1972	<u>PL/M</u>	<u>Gary Kildall</u> at <u>Digital Research</u>	PL/I, ALGOL, XPL
1972	<u>C</u>	<u>Dennis Ritchie</u>	B, BCPL, ALGOL 68
1972	<u>INTERCAL</u>	<u>Don Woods</u> and <u>James M. Lyon</u>	none (unique language)
1972	<u>Prolog</u>	<u>Alain Colmerauer</u>	2-level W-Grammar
1972	<u>Structured Query language (SQL)</u>	<u>IBM</u>	ALPHA, Quel (Ingres)
1973	<u>COMAL</u>	<u>Børge Christensen</u> , <u>Benedict Løfstedt</u>	Pascal, BASIC
1973	<u>ML</u>	<u>Robin Milner</u>	
1973	<u>LIS</u>	<u>Jean Ichbiah</u> <i>et al.</i> at <u>CII Honeywell Bull</u>	Pascal, Sue
1973	<u>Speakeasy-3</u>	<u>Stanley Cohen</u> , <u>Steven Pieper</u> at <u>Argonne National Laboratory</u>	Speakeasy-2
1974	<u>CLU</u>	<u>Barbara Liskov</u>	ALGOL 60, Lisp, Simula
1974	<u>GRASS</u>	<u>Thomas A. DeFanti</u>	BASIC
1974	<u>BASIC FOUR</u>	MAI BASIC Four Inc.	Business BASIC
1974	<u>PROSE modeling language</u>	<u>CDC 6600 Cybernet Services</u>	SLANG, FORTRAN
1975	<u>ABC</u>	<u>Leo Geurts</u> and <u>Lambert Meertens</u>	<u>SETL</u>
1975	<u>Irvine Dataflow</u> (concept)	Arvind?, University of California, Irvine	
1975	<u>PROSE modeling language Time-Sharing Version</u>	<u>CDC 6400 Cybernet KRONOS Services</u>	SLANG, FORTRAN
1975	<u>Scheme</u>	<u>Gerald Jay Sussman</u> , <u>Guy L. Steele, Jr.</u>	LISP
1975	<u>Altair BASIC</u>	<u>Bill Gates</u> , <u>Paul Allen</u>	BASIC
1975	<u>CS-4</u>	<u>James S. Miller</u> , <u>Benjamin M. Brosgolet</u> <i>et al.</i> at <u>Intermetrics</u>	ALGOL 68, BLISS, ECL, HAL
1975	<u>Modula</u>	<u>Niklaus Wirth</u>	Pascal
1976	<u>Plus</u>	<u>Allan Ballard</u> , <u>Paul Whaley</u> at the <u>University of British Columbia</u>	Pascal, Sue
1976	<u>Smalltalk-76</u>	<u>Xerox PARC</u>	Smalltalk-72
1976	<u>Mesa</u>	<u>Xerox PARC</u>	ALGOL

1976	<u>SAM76</u>	Claude A.R. Kagan	LISP, TRAC
1976	<u>Ratfor</u>	Brian Kernighan	C, FORTRAN
1976	<u>S</u>	John Chambers at Bell Labs	APL, PPL, Scheme
1976	<u>SAS</u>	SAS Institute	
1976	<u>Integer BASIC</u>	Steve Wozniak	BASIC
1977	<u>FP</u>	John Backus	none (unique language)
1977	<u>Bourne Shell (sh)</u>	Stephen R. Bourne	none (unique language)
1977	<u>Commodore BASIC</u>	Jack Tramiel	BASIC
1977	<u>IDL</u>	David Stern of Research Systems Inc	Fortran
1977	<u>Standard MUMPS</u>		MUMPS
1977	<u>Icon (concept)</u>	Ralph Griswold	SNOBOL
1977	<u>Red</u>	Benjamin M. Brosgolet <i>al.</i> at Intermetrics for US Dept of Defense	ALGOL 68, CS-4
1977	<u>Blue</u>	John B. Goodenough <i>et al.</i> at SofTech for US Dept of Defense	ALGOL 68
1977	<u>Yellow</u>	Jay Spitz <i>et al.</i> at SRI International for US Dept of Defense	ALGOL 68
1977	<u>Euclid</u>	Butler Lampson at Xerox Parc, Ric Holt and James Cordy at University of Toronto	
1977	<u>Applesoft BASIC</u>	Marc McDonald and Ric Weiland	BASIC
1978	<u>RAPT</u>	Pat Ambler and Robin Popplestone	APT
1978	<u>C shell</u>	Bill Joy	C
1978	<u>RPG III</u>	IBM	FARGO, RPG, RPG II
1978	<u>HAL/S</u>	designed by Intermetrics for NASA	XPL
1978	<u>Applesoft II BASIC</u>	Marc McDonald and Ric Weiland	Applesoft BASIC
1975	<u>Irvine Dataflow (implementation)</u>	Arvind and Gostelow University of California, Irvine	
1978?	<u>MATLAB</u>	Cleve Moler at the University of New Mexico	Fortran
1978?	<u>SMALL</u>	Nevil Brownlee at the University of Auckland	Algol60
1978	<u>VisiCalc</u>	Dan Bricklin, Bob Frankston marketed by VisiCorp	none (unique language)
1979	<u>Modula-2</u>	Niklaus Wirth	Modula, Mesa
1979	<u>REXX</u>	Mike Cowlishaw at IBM	PL/I, BASIC, EXEC 2
1979	<u>AWK</u>	Alfred Aho, Peter J. Weinberger, Brian Kernighan	C, SNOBOL
1979	<u>Icon (implementation)</u>	Ralph Griswold	SNOBOL
1979	<u>Vulcan dBase-II</u>	Wayne Ratliff	none (unique language)
<b>Year</b>	<b>Name</b>	<b>Chief developer, company</b>	<b>Predecessor(s)</b>

## 1980s

Year	Name	Chief developer, company	Predecessor(s)
1980	<u>Ada 80 (MIL-STD-1815)</u>	<u>Jean Ichbiah</u> at <u>CII Honeywell Bull</u>	Green
1980	<u>C with classes</u>	<u>Bjarne Stroustrup</u> <sup>[7]</sup>	C, Simula 67
1980	<u>Applesoft III</u>	<u>Apple Computer</u>	Applesoft II BASIC
1980	<u>Apple III Microsoft BASIC</u>	Microsoft	Microsoft BASIC
1980–81	<u>CBASIC</u>	<u>Gordon Eubanks</u>	BASIC, Compiler Systems, Digital Research
1981	<u>BBC BASIC</u>	Acorn Computers, <u>Sophie Wilson</u>	BASIC
1981	<u>IBM BASICA</u>	Microsoft	BASIC
1982?	<u>Speakeasy-IV</u>	Stanley Cohen, <i>et al.</i> at <u>Speakeasy Computing Corporation</u>	Speakeasy-3
1982?	<u>Draco</u>	Chris Gray	Pascal, C, ALGOL 68
1982	<u>PostScript</u>	<u>Warnock</u>	<u>InterPress</u>
1982	<u>Turing</u>	<u>Ric Holt</u> and <u>James Cordy</u> , at <u>University of Toronto</u>	<u>Euclid</u>
1983	<u>GW-BASIC</u>	Microsoft	<u>IBM BASICA</u>
1983	<u>Turbo Pascal</u>	<u>Hejlsberg</u> at <u>Borland</u>	<u>Pascal</u>
1983	<u>Ada 83 (ANSI/MIL-STD-1815A)</u>	<u>Jean Ichbiah</u> at <u>Alslys</u>	Ada 80, Green
1983	<u>Objective-C</u>	<u>Brad Cox</u>	Smalltalk, C
1983	<u>C++</u>	Bjarne Stroustrup	C with Classes
1983	<u>True BASIC</u>	John George Kemeny, <u>Thomas Eugene Kurtz</u> at <u>Dartmouth College</u>	BASIC
1983	<u>occam</u>	<u>David May</u>	EPL
1983?	<u>ABAP</u>	<u>SAP AG</u>	<u>COBOL</u>
1983	<u>Korn Shell (ksh)</u>	<u>David Korn</u>	sh
1983	<u>Clascal</u>	<u>Apple Computer Inc.</u>	<u>Pascal</u>
1984	<u>CLIPPER</u>	<u>Nantucket</u>	dBase
1984	<u>Common Lisp</u>	<u>Guy L. Steele, Jr</u> and many others	LISP
1984?	<u>GOM – Good Old Mad</u>	Don Boettner, <u>University of Michigan</u>	<u>MAD</u>
1984	<u>RPL</u>	<u>Hewlett-Packard</u>	<u>Forth</u> , <u>Lisp</u>
1984	<u>Standard ML</u>		ML
1984	<u>Redcode</u>	<u>Alexander Dewdney</u> and <u>D.G. Jones</u>	
1984	<u>OPL</u>	<u>PSION</u>	<u>BASIC</u>
1985	<u>PARADOX</u>	<u>Borland</u>	dBase
1985	<u>QuickBASIC</u>	Microsoft	<u>BASIC</u>
1986	<u>Clarion</u>	Bruce Barrington	
1986	<u>CorVision</u>	Cortex	INFORM
1986	<u>Eiffel</u>	<u>Bertrand Meyer</u>	Simula 67, Ada
1986	<u>GFA BASIC</u>	<u>Frank Ostrowski</u>	<u>BASIC</u>
1986	<u>Informix-4GL</u>	<u>Informix</u>	



1986	<a href="#">LabVIEW</a>	<a href="#">National Instruments</a>	
1986	<a href="#">Miranda</a>	<a href="#">David Turner at University of Kent</a>	
1986	<a href="#">Oberon-07</a>	<a href="#">Wirth<sup>[8]</sup></a>	<a href="#">Oberon</a>
1986	<a href="#">Object Pascal</a>	<a href="#">Apple Computer Inc.</a>	<a href="#">Pascal</a>
1986	<a href="#">PROMAL</a>		<a href="#">C</a>
1986	<a href="#">Erlang</a>	<a href="#">Joe Armstrong and others inEricsson</a>	<a href="#">Prolog</a>
1987	<a href="#">Ada ISO 8652:1987</a>	<a href="#">ANSI/MIL-STD-1815A unchanged</a>	<a href="#">Ada 83</a>
1987	<a href="#">Self (concept)</a>	<a href="#">Sun Microsystems Inc.</a>	<a href="#">Smalltalk</a>
1987	<a href="#">occam 2</a>	<a href="#">David May and INMOS</a>	<a href="#">occam</a>
1987	<a href="#">HyperTalk</a>	<a href="#">Apple Computer Inc.</a>	none (unique language)
1987	<a href="#">Perl</a>	<a href="#">Larry Wall</a>	<a href="#">C</a> , <a href="#">sed</a> , <a href="#">awk</a> , <a href="#">sh</a>
1987	<a href="#">Oberon</a>	<a href="#">Niklaus Wirth</a>	<a href="#">Modula-2</a>
1987	<a href="#">Mathematica (Wolfram Language)</a>	<a href="#">Wolfram Research</a>	none (unique language)
1987	<a href="#">Turbo Basic</a>	<a href="#">Robert 'Bob' Zale</a>	<a href="#">BASIC/Z</a>
1987	<a href="#">Clean</a>	<a href="#">Software Technology Research Group of Radboud University Nijmegen</a>	none (unique language)
1988	<a href="#">RPG/400</a>	<a href="#">IBM</a>	<a href="#">FARGO</a> , <a href="#">RPG</a> , <a href="#">RPG II</a> , <a href="#">RPG III</a>
1988	<a href="#">Octave</a>		<a href="#">MATLAB</a>
1988	<a href="#">Tcl</a>	<a href="#">John Ousterhout</a>	<a href="#">Awk</a> , <a href="#">Lisp</a>
1988	<a href="#">STOS BASIC</a>	<a href="#">François Lionet</a> and <a href="#">Constantin Sotiropoulos</a>	<a href="#">BASIC</a>
1988	<a href="#">Object REXX</a>	<a href="#">Simon C. Nash</a>	<a href="#">REXX</a> , <a href="#">Smalltalk</a>
1988	<a href="#">SPARK</a>	<a href="#">Bernard A. Carré</a>	<a href="#">Ada</a>
1988	<a href="#">A+</a>	<a href="#">Arthur Whitney</a>	<a href="#">APL</a>
1988	<a href="#">Hamilton C shell</a>	<a href="#">Nicole Hamilton</a>	<a href="#">C shell</a>
1989	<a href="#">Turbo Pascal OOP</a>	<a href="#">Anders Hejlsberg at Borland</a>	<a href="#">Turbo Pascal</a> , <a href="#">Object Pascal</a>
1989	<a href="#">Modula-3</a>	<a href="#">Cardeli</a> , et al. <a href="#">DEC</a> and <a href="#">Olivetti</a>	<a href="#">Modula-2</a>
1989	<a href="#">PowerBASIC</a>	<a href="#">Robert 'Bob' Zale</a>	<a href="#">Turbo Basic</a>
1989	<a href="#">VisSim</a>	<a href="#">Peter Darnell</a> , <a href="#">Visual Solutions</a>	
1989	<a href="#">LPC</a>	<a href="#">Lars Pensjö</a>	
1989	<a href="#">Bash</a>	<a href="#">Brian Fox</a>	<a href="#">Bourne shell</a> , <a href="#">C shell</a> , <a href="#">Korn shell</a>
1989	<a href="#">Magik (programming language)</a>	<a href="#">Arthur Chance</a> , of <a href="#">Smallworld Systems Ltd</a>	<a href="#">Smalltalk</a>
<b>Year</b>	<b>Name</b>	<b>Chief developer, company</b>	<b>Predecessor(s)</b>

## 1990s

Year	Name	Chief developer, company	Predecessor(s)
1990	<u>AMOS BASIC</u>	<u>François Lionet</u> and <u>Constantin Sotiropoulos</u>	<u>STOS BASIC</u>
1990	<u>AMPL</u>	<u>Robert Fourer</u> , <u>David Gay</u> and <u>Brian Kernighan</u> at <u>Bell Laboratories</u>	
1990	<u>Object Oberon</u>	<u>H Mössenböck</u> , <u>J Töml</u> , <u>R Griesemer</u>	<u>Oberon</u>
1990	<u>J</u>	<u>Kenneth E. Iverson</u> , <u>Roger Hui</u> at <u>Iverson Software</u>	<u>APL</u> , <u>FP</u>
1990	<u>Haskell</u>		<u>Miranda</u>
1990	<u>EuLisp</u>		<u>Common Lisp</u> , <u>Scheme</u>
1990	<u>Z Shell (zsh)</u>	<u>Paul Falstad</u> at <u>Princeton University</u>	<u>ksh</u>
1991	<u>GNU E</u>	<u>David J. DeWitt</u> , <u>Michael J. Carey</u>	<u>C++</u>
1991	<u>Oberon-2</u>	<u>Hanspeter Mössenböck</u> , <u>Wirth</u>	<u>Object Oberon</u>
1991	<u>Python</u>	<u>Guido van Rossum</u>	<u>ABC</u> , <u>ALGOL 68</u> , <u>Icon</u> , <u>Modula-3</u>
1991	<u>Oz</u>	<u>Gert Smolka</u> and his students	<u>Prolog</u>
1991	<u>Q</u>	<u>Albert Gräf</u>	
1991	<u>Visual Basic</u>	<u>Alan Cooper</u> , sold to <u>Microsoft</u>	<u>QuickBASIC</u>
1992	<u>Borland Pascal</u>		<u>Turbo Pascal OOP</u>
1992	<u>Dylan</u>	many people at <u>Apple Computer Inc.</u>	<u>Common Lisp</u> , <u>Scheme</u>
1992	<u>S-Lang</u>	<u>John E. Davis</u>	<u>PostScript</u>
1993?	<u>Self</u> (implementation)	<u>Sun Microsystems Inc.</u>	<u>Smalltalk</u>
1993	<u>Amiga E</u>	<u>Wouter van Oortmerssen</u>	<u>DEX</u> , <u>C</u> , <u>Modula-2</u>
1993	<u>Brainfuck</u>	<u>Urban Müller</u>	<u>P''</u>
1993	<u>LiveCode Transcript</u>		<u>HyperTalk</u>
1993	<u>AppleScript</u>	<u>Apple Computer Inc.</u>	<u>HyperTalk</u>
1993	<u>K</u>	<u>Arthur Whitney</u>	<u>APL</u> , <u>Lisp</u>
1993	<u>Lua</u>	<u>Roberto Ierusalimschy</u> et al. at <u>Tecgraf</u> , <u>PUC-Rio</u>	<u>Scheme</u> , <u>SNOBOL</u> , <u>Modula</u> , <u>CLU</u> , <u>C++</u>
1993	<u>R</u>	<u>Robert Gentleman</u> and <u>Ross Ihaka</u>	<u>S</u>
1993	<u>ZPL</u>	<u>Chamberlain</u> et al. at <u>University of Washington</u>	<u>C</u>
1993	<u>NewtonScript</u>	<u>Walter Smith</u>	<u>Self</u> , <u>Dylan</u>
1993	<u>Euphoria</u>	<u>Robert Craig</u>	<u>SNOBOL</u> , <u>AWK</u> , <u>ABC</u> , <u>Icon</u> , <u>Python</u>
1994	<u>Claire</u>	<u>Yves Caseau</u>	<u>Smalltalk</u> , <u>SETL</u> , <u>OPS5</u> , <u>Lisp</u> , <u>ML</u> , <u>C</u> , <u>LORE</u> , <u>LAURE</u>
1994	<u>ANSI Common Lisp</u>		<u>Common Lisp</u>
1994	<u>RAPID</u>	<u>ABB Group</u>	<u>ARLA</u>
1994	<u>Pike</u>	<u>Fredrik HübINETTE</u> et al. at <u>Linköping University</u>	<u>LPC</u> , <u>C</u> , <u>µLPC</u>
1994	<u>ANS Forth</u>	<u>Elizabeth Rather</u> , et al.	<u>Forth</u>
1995	<u>Ada 95</u>	<u>S. Tucker Taft</u> , et al. at <u>Intermetrics, Inc.</u>	<u>Ada 83</u>
1995	<u>Borland Delphi</u>	<u>Anders Hejlsberg</u> at <u>Borland</u>	<u>Borland Pascal</u>
1995	<u>ColdFusion</u>	<u>Allaire</u>	

	(CFML)		
1995	<a href="#">Java</a>	<a href="#">James Gosling</a> at <a href="#">Sun Microsystems</a>	C, Simula 67, C++, Smalltalk, Ada 83, Objective-C, Mesa
1995	<a href="#">LiveScript</a>	<a href="#">Brendan Eich</a> at <a href="#">Netscape</a>	Self, C, Scheme
1995	<a href="#">Mercury</a>	<a href="#">Zoltan Somogyi</a> at <a href="#">University of Melbourne</a>	Prolog, Hope, Haskell
1995	<a href="#">PHP</a>	<a href="#">Rasmus Lerdorf</a>	Perl
1995	<a href="#">Ruby</a>	<a href="#">Yukihiro Matsumoto</a>	Smalltalk, Perl
1995	<a href="#">JavaScript</a>	<a href="#">Brendan Eich</a> at <a href="#">Netscape</a>	LiveScript
1995	<a href="#">Racket</a>	<a href="#">Matthew Flatt</a> at <a href="#">Rice University</a>	<a href="#">Scheme</a> , <a href="#">Lisp</a>
1996	<a href="#">Curl</a>	<a href="#">David Kranz</a> , <a href="#">Steve Ward</a> , <a href="#">Chris Terman</a> at <a href="#">MIT</a>	Lisp, C++, Tcl/Tk, TeX, HTML
1996	<a href="#">Lasso</a>	<a href="#">Blue World Communications Inc.</a>	
1996	<a href="#">Perl Data Language (PDL)</a>	<a href="#">Karl Glazebrook</a> , <a href="#">Jarle Brinchmann</a> , <a href="#">Tuomas Lukka</a> , and <a href="#">Christian Soeller</a>	APL, Perl
1996	<a href="#">VBScript</a>	Microsoft	Visual Basic
1996	<a href="#">OCaml</a>	<a href="#">INRIA</a>	Caml Light, Standard ML
1996	<a href="#">NetRexx</a>	<a href="#">Mike Cowlishaw</a>	REXX
1997	<a href="#">Component Pascal</a>	<a href="#">Oberon microsystems, Inc</a>	Oberon-2
1997	<a href="#">E</a>	<a href="#">Mark S. Miller</a>	Joule, Original-E
1997	<a href="#">Pico</a>	<a href="#">Free University of Brussels</a>	Scheme
1997	<a href="#">Squeak Smalltalk</a>	<a href="#">Alan Kay</a> , <i>et al.</i> at <a href="#">Apple Computer Inc.</a>	Smalltalk-80, Self
1997	<a href="#">ECMAScript</a>	<a href="#">ECMA TC39-TG1</a>	JavaScript
1997	<a href="#">F-Script</a>	<a href="#">Philippe Mougin</a>	Smalltalk, APL, Objective-C
1997	<a href="#">ISLISP</a>	<a href="#">ISO Standard ISLISP</a>	<a href="#">Common Lisp</a>
1997	<a href="#">Tea</a>	<a href="#">Jorge Nunes</a>	<a href="#">Java</a> , <a href="#">Scheme</a> , <a href="#">Tcl</a>
1997	<a href="#">REBOL</a>	<a href="#">Carl Sassenrath</a> , <a href="#">Rebol Technologies</a>	Self, <a href="#">Forth</a> , <a href="#">Lisp</a> , <a href="#">Logo</a>
1998	<a href="#">ActionScript</a>	<a href="#">Gary Grossman</a>	ECMAScript
1998	<a href="#">Standard C++</a>	<a href="#">ANSI/ISO Standard C++</a>	C++, Standard C, C
1998	<a href="#">M2001</a>	<a href="#">Ronald E. Prather</a> , <a href="#">Trinity University (Texas)</a>	none (unique language)
1998	<a href="#">Pikt</a>	<a href="#">Robert Osterlund</a> (then at <a href="#">University of Chicago</a> )	AWK, Perl, Unix shell
1998	<a href="#">PureBasic</a>	<a href="#">Frederic Laboureur</a> , <a href="#">Fantaisie Software</a>	
1998	<a href="#">UnrealScript</a>	<a href="#">Tim Sweeney</a> at <a href="#">Epic Games</a>	C++, Java
1998	<a href="#">XSLT</a> (+ <a href="#">XPath</a> )	<a href="#">W3C</a> , <a href="#">James Clark</a>	<a href="#">DSSSL</a>
1999	<a href="#">Game Maker Language (GML)</a>	<a href="#">Mark Overmars</a>	<a href="#">Game Maker</a>
1999	<a href="#">Harbour</a>	<a href="#">Antonio Linares</a>	<a href="#">dBase</a>
<b>Year</b>	<b>Name</b>	<b>Chief developer, company</b>	<b>Predecessor(s)</b>

## 2000s

Year	Name	Chief developer, company	Predecessor(s)
2000	<a href="#">Join Java</a>	G Stewart von Itzstein	Java
2000	<a href="#">XL</a>	<a href="#">Christophe de Dinechin</a>	Ada, C++, Lisp
2000	<a href="#">C#</a>	<a href="#">Anders Hejlsberg</a> <a href="#">Microsoft</a> (ECMA)	C, C++, Java, Delphi, Modula-2
2000	<a href="#">Ferite</a>	Chris Ross	C, C++, Java, PHP, Python, Ruby, Scheme
2001	<a href="#">Joy</a>	Manfred von Thun	FP, Forth
2001	<a href="#">AspectJ</a>	<a href="#">Gregor Kiczales</a> , <a href="#">Xerox PARC</a>	Java, Common Lisp
2001	<a href="#">D</a>	<a href="#">Walter Bright</a> , <a href="#">Digital Mars</a>	C, C++, C#, Java
2001	<a href="#">Processing</a>	<a href="#">Casey Reas</a> and <a href="#">Benjamin Fry</a>	<a href="#">Java</a> , <a href="#">C</a> , <a href="#">C++</a> <sup>[9]</sup>
2001	<a href="#">Visual Basic .NET</a>	<a href="#">Microsoft</a>	Visual Basic
2001	<a href="#">RPG IV (RPGLE, ILE RPG, RPG Free)</a>	<a href="#">IBM</a>	<a href="#">FARGO</a> , <a href="#">RPG</a> , <a href="#">RPG II</a> , <a href="#">RPG III</a> , <a href="#">RPG/400</a>
2001	<a href="#">GDScript (GDS)</a>	<a href="#">OKAM Studio</a>	<a href="#">Godot</a>
2002	<a href="#">Io</a>	Steve Dekorte	Self, NewtonScript, Lua
2002	<a href="#">Gosu</a>	Guidewire Software	GScript
2002	<a href="#">Scratch</a>	<a href="#">Mitchel Resnick</a> , <a href="#">John Maloney</a> , <a href="#">Natalie Rusk</a> , <a href="#">Evelyn Eastmond</a> , <a href="#">Tammy Stern</a> , <a href="#">Amon Millner</a> , <a href="#">Jay Silver</a> , and <a href="#">Brian Silverman</a>	<a href="#">Logo</a> , <a href="#">Smalltalk</a> , <a href="#">Squeak</a> , <a href="#">E-Toys</a> , <a href="#">HyperCard</a> , <a href="#">AgentSheets</a> , <a href="#">StarLogo</a> , <a href="#">Tweak</a> , <a href="#">BYOB</a>
2003	<a href="#">Nemerle</a>	<a href="#">University of Wrocław</a>	C#, <a href="#">ML</a> , <a href="#">MetaHaskell</a>
2003	<a href="#">Factor</a>	<a href="#">Slava Pestov</a>	Joy, Forth, Lisp
2003	<a href="#">Falcon</a>	Giancarlo Niccolai	C++, Perl, Lua, Smalltalk, PHP, Lisp, Python, Ruby
2003	<a href="#">Scala</a>	<a href="#">Martin Odersky</a>	Smalltalk, Java, Haskell, Standard ML, OCaml
2003	<a href="#">C++03</a>	C++ ISO/IEC 14882:2003	<a href="#">C++</a> , Standard C, <a href="#">C</a>
2003	<a href="#">Squirrel</a>	Alberto Demichelis	Lua
2003	<a href="#">HolyC</a>	Terry Davis	C, C++
2003	<a href="#">Boo</a>	Rodrigo B. de Oliveira	Python, C#
2004	<a href="#">Subtext</a>	Jonathan Edwards	none (unique language)
2004	<a href="#">Alma-0</a>	Krzysztof Apt, <a href="#">Centrum Wiskunde &amp; Informatica</a>	none (unique language)
2004	<a href="#">FreeBASIC</a>	Andre Victor	QBasic
2004	<a href="#">Groovy</a>	<a href="#">James Strachan</a>	<a href="#">Java</a>
2004	<a href="#">Little b</a>	<a href="#">Aneil Mallavarapu</a> , <a href="#">Harvard Medical School</a> , <a href="#">Department of Systems Biology</a>	Lisp
2005	<a href="#">Fantom</a>	Brian Frank, Andy Frank	C#, Scala, Ruby, Erlang
2005	<a href="#">F#</a>	<a href="#">Don Syme</a> , <a href="#">Microsoft Research</a>	<a href="#">OCaml</a> , <a href="#">C#</a> , <a href="#">Haskell</a>
2005	<a href="#">Haxe</a>	Nicolas Cannasse	<a href="#">ActionScript</a> , <a href="#">OCaml</a> , <a href="#">Java</a>
2005	<a href="#">Oxygene</a>	<a href="#">RemObjects Software</a>	<a href="#">Object Pascal</a> , <a href="#">C#</a>
2005	<a href="#">Seed7</a>	Thomas Mertes	none (unique language)
2006	<a href="#">Links</a>	<a href="#">Philip Wadler</a> , <a href="#">University of Edinburgh</a>	<a href="#">Haskell</a>

2006	<a href="#">Cobra</a>	ChuckEsterbrook	Python, C#, Eiffel, Objective-C
2006	<a href="#">Windows PowerShell</a>	<a href="#">Microsoft</a>	C#, ksh, Perl, <a href="#">CL</a> , <a href="#">DCL</a> , SQL
2006	<a href="#">OptimJ</a>	<a href="#">Ateji</a>	<a href="#">Java</a>
2006	<a href="#">Fortress</a>	<a href="#">Guy Steele</a>	<a href="#">Scala</a> , <a href="#">ML</a> , <a href="#">Haskell</a>
2006	<a href="#">Vala</a>	<a href="#">GNOME</a>	C#
2007	<a href="#">Ada 2005</a>	Ada Rapporteur Group	Ada 95
2007	<a href="#">Agda</a>	Ulf Norell	<a href="#">Coq</a> , <a href="#">Epigram</a> , <a href="#">Haskell</a>
2007	<a href="#">Clojure</a>	<a href="#">Rich Hickey</a>	<a href="#">Lisp</a> , <a href="#">ML</a> , <a href="#">Haskell</a> , <a href="#">Erlang</a>
2007	<a href="#">LOLCODE</a>	Adam Lindsay	none (unique language)
2008	<a href="#">Nim</a>	Andreas Rumpf	<a href="#">Python</a> , <a href="#">Lisp</a> , <a href="#">Object Pascal</a>
2008	<a href="#">Genie</a>	Jamie McCracken	<a href="#">Python</a> , <a href="#">Boo</a> , <a href="#">D</a> , <a href="#">Object Pascal</a>
2008	<a href="#">Pure</a>	Albert Gräf	Q
2009	<a href="#">Chapel</a>	Brad Chamberlain, <a href="#">Cray Inc.</a>	<a href="#">HPF</a> , <a href="#">ZPL</a>
2009	<a href="#">Go</a>	<a href="#">Google</a>	<a href="#">C</a> , <a href="#">Oberon</a> , <a href="#">Limbo</a> , <a href="#">Smalltalk</a>
2009	<a href="#">CoffeeScript</a>	<a href="#">Jeremy Ashkenas</a>	<a href="#">JavaScript</a> , <a href="#">Ruby</a> , <a href="#">Python</a> , <a href="#">Haskell</a>
2009	<a href="#">Idris</a>	Edwin Brady	<a href="#">Haskell</a> , <a href="#">Agda</a> , <a href="#">Coq</a>
2009	<a href="#">Parasail</a>	S. Tucker Taft, <a href="#">AdaCore</a>	<a href="#">Modula</a> , <a href="#">Ada</a> , <a href="#">Pascal</a> , <a href="#">ML</a>
2009	<a href="#">Whiley</a>	David J. Pearce	<a href="#">Java</a> , <a href="#">C</a> , <a href="#">Python</a>
<b>Year</b>	<b>Name</b>	<b>Chief developer, company</b>	<b>Predecessor(s)</b>

## 2010s

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Year	Name	Chief developer, company	Predecessor(s)
2010	<u>Rust</u>	Graydon Hoare, <u>Mozilla</u>	<u>Alef</u> , <u>C++</u> , <u>Camlp4</u> , <u>Erlang</u> , <u>Hermes</u> , <u>Limbo</u> , <u>Napier</u> , <u>Napier88</u> , <u>Newsqueak</u> , <u>NIL</u> , <u>Sather</u> , <u>Standard ML</u>
2011	<u>Ceylon</u>	Gavin King, <u>Red Hat</u>	<u>Java</u>
2011	<u>Dart</u>	<u>Google</u>	<u>Java</u> , <u>JavaScript</u> , <u>CoffeeScript</u> , <u>Go</u>
2011	<u>C++11</u>	C++ ISO/IEC 14882:2011	<u>C++</u> , <u>Standard C</u> , <u>C</u>
2011	<u>Kotlin</u>	<u>JetBrains</u>	<u>Java</u> , <u>Scala</u> , <u>Groovy</u> , <u>C#</u> , <u>Gosu</u>
2011	<u>Red</u>	Nenad Rakocevic	<u>Rebol</u> , <u>Scala</u> , <u>Lua</u>
2011	<u>Opa</u>	MLstate	<u>OCaml</u> , <u>Erlang</u> , <u>JavaScript</u>
2012	<u>Elixir</u>	José Valim	<u>Erlang</u> , <u>Ruby</u> , <u>Clojure</u>
2012	<u>Elm</u>	Evan Czaplicki	<u>Haskell</u> , <u>Standard ML</u> , <u>OCaml</u> , <u>F#</u>
2012	<u>TypeScript</u>	Anders Hejlsberg, <u>Microsoft</u>	<u>JavaScript</u> , <u>CoffeeScript</u>
2012	<u>Julia</u>	Jeff Bezanson, <u>Stefan Karpinski</u> , <u>Viral Shah</u> , <u>Alan Edelman</u> , <u>MIT</u>	<u>MATLAB</u> , <u>Lisp</u> , <u>C</u> , <u>Fortran</u> , <u>Mathematica</u> <sup>[10]</sup> (strictly its <u>Wolfram Language</u> ), <u>Python</u> , <u>Perl</u> , <u>R</u> , <u>Ruby</u> , <u>Lua</u> <sup>[11]</sup>
2012	<u>Ada 2012</u>	ARA and Ada Europe (ISO/IEC 8652:2012)	Ada 2005, ISO/IEC 8652:1995/Amd 1:2007
2013	<u>PureScript</u>	Phil Freeman	<u>Haskell</u> , <u>Elm</u> , <u>Standard ML</u> , <u>OCaml</u> , <u>F#</u>
2014	<u>Crystal</u>	Ary Borenszweig, Manas Technology Solutions	<u>Ruby</u> , <u>C</u> , <u>Rust</u> , <u>Go</u> , <u>C#</u> , <u>Python</u>
2014	<u>Hack</u>	<u>Facebook</u>	<u>PHP</u>
2014	<u>Swift</u>	<u>Apple Inc.</u>	<u>Objective-C</u> , <u>Rust</u> , <u>Haskell</u> , <u>Ruby</u> , <u>Python</u> , <u>C#</u> , <u>CLU</u>
2014	<u>C++14</u>	C++ ISO/IEC 14882:2014	<u>C++</u> , <u>Standard C</u> , <u>C</u>
2015	<u>Perl 6</u>	The Rakudo Team	<u>Perl</u> , <u>Haskell</u> , <u>Python</u> , <u>Ruby</u>
2016	<u>Ring</u>	Mahmoud Fayed	<u>Lua</u> , <u>Python</u> , <u>Ruby</u> , <u>C</u> , <u>C#</u> , <u>BASIC</u> , <u>QML</u> , <u>xBase</u> , <u>Supernova</u>
2017	<u>C++17</u>	C++ ISO/IEC 14882:2017	<u>C++</u> , <u>Standard C</u> , <u>C</u>
Year	Name	Chief developer, company	Predecessor(s)

## See also

- Programming language
- Timeline of computing
- History of computing hardware
- History of programming languages

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9. <https://www.arduino.cc/en/Reference/HomePage>
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11. "Introduction" (<http://julia.readthedocs.org/en/latest/manual/introduction/>) *The Julia Manual*

## External links

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- [Online encyclopedia for the history of programming languages](#)
  - [Diagram & history of programming languages](#)
  - [Eric Levenez's timeline diagram of computer languages history](#)
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