

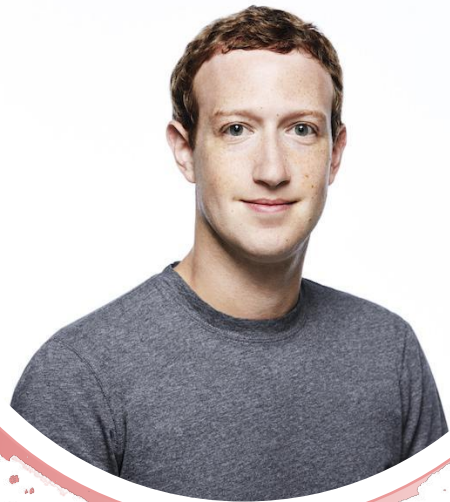
# Bem vindas

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Curso Introdução à Programação

# Quem Somos?

Girls Support Girls  
UFMG



Você conhece  
essas pessoas?



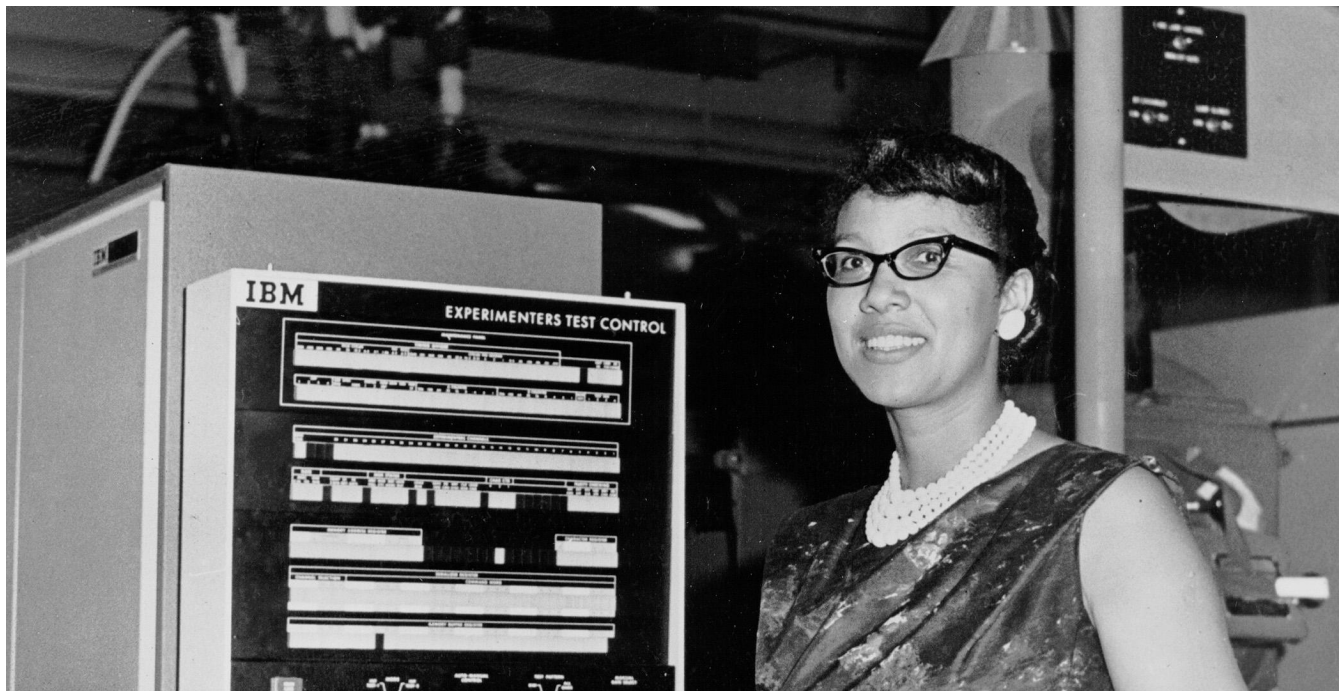
E essas?

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A primeira programadora...

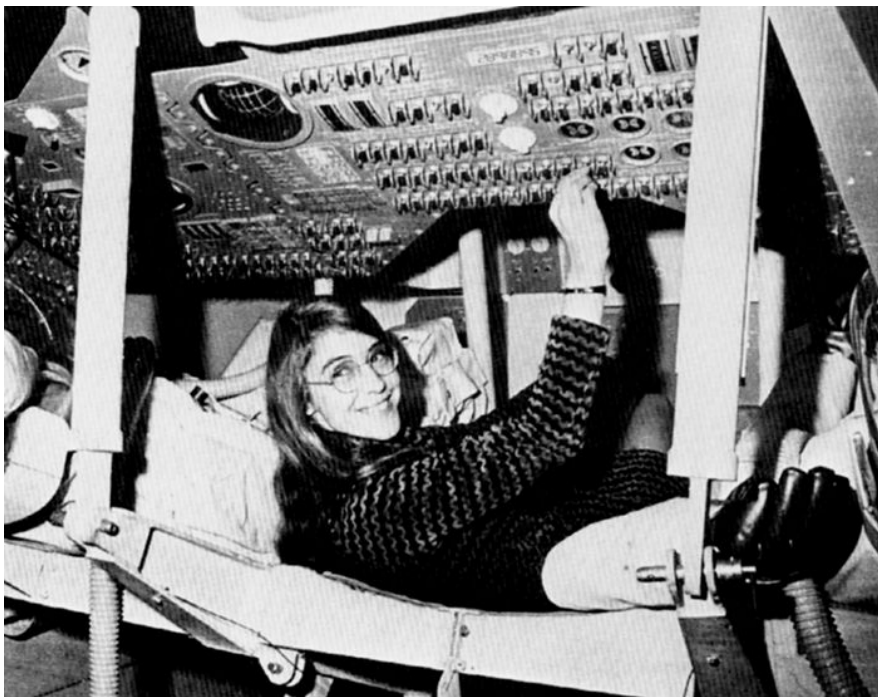
Ada Augusta Byron King: A primeira mulher que veio para mudar a inclusão destas na informática foi uma inglesa no século XIX.





**Dorothy Vaughan**  
líder da seção de programação da Divisão de  
Análise e Computação da NASA





Margareth Hamilton  
Líder de programação dos projetos Apollo e Skylab  
(NASA)

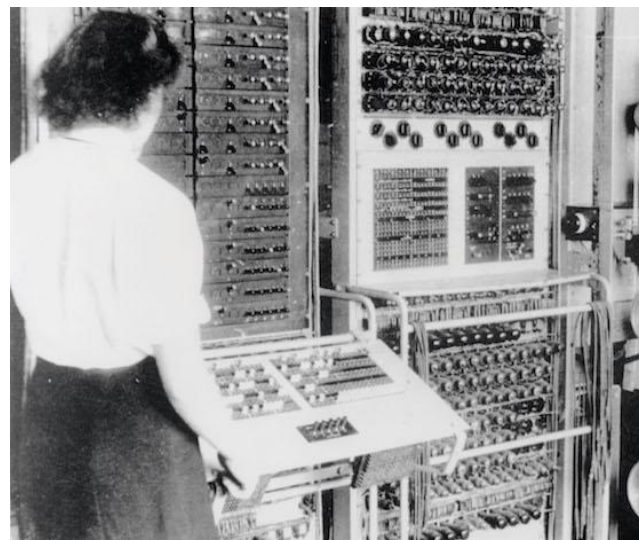




Grace Hopper  
Analista de sistemas da Marinha dos EUA







## The Computer Girls

BY LOIS MANDEL

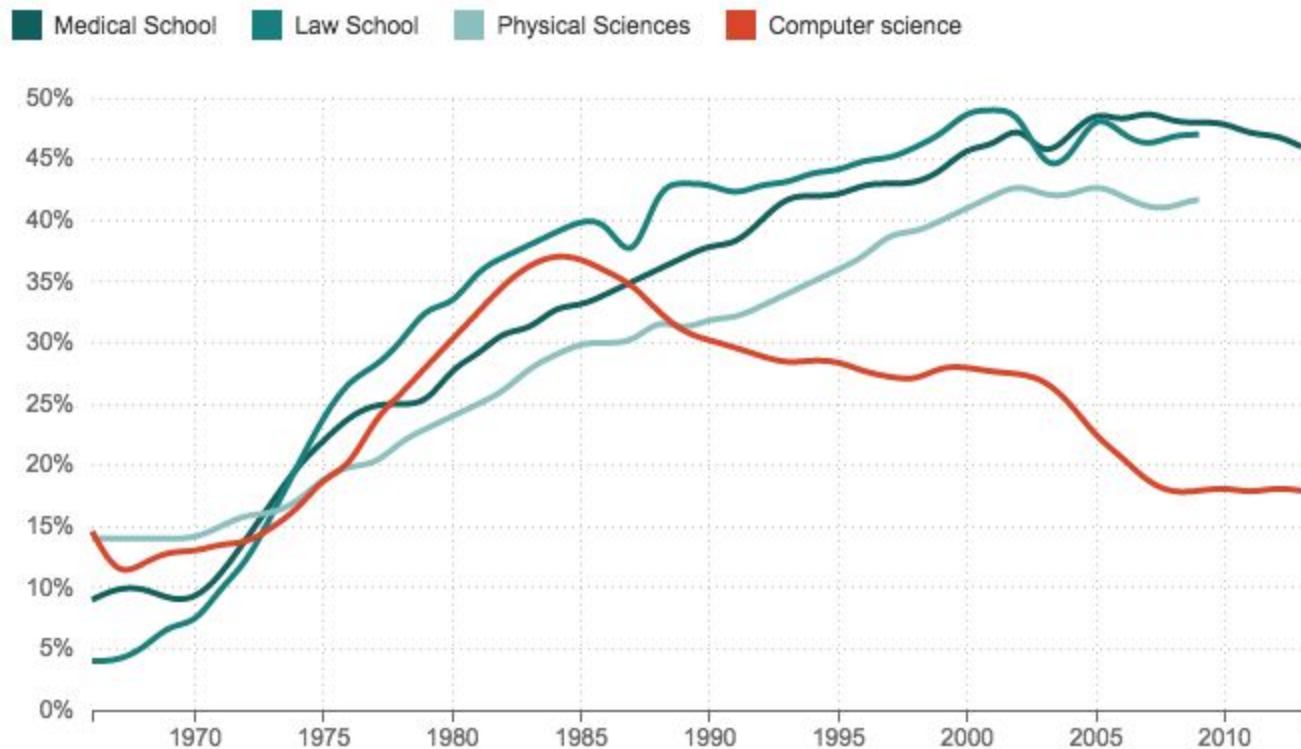
A trainee gets \$8,000 a year  
... a girl "senior systems analyst"  
gets \$20,000—and up!

Twenty years ago, a girl could be a secretary, a school teacher . . . maybe a librarian, a social worker or a nurse. If she was really ambitious, she could go into the professions and compete with men . . . usually working harder and longer to earn less pay for the same job. Now have come the big, dazzling computers—and a whole new kind of work for women: programming. Telling the miracle machines what to do and how to do it. Anything from predicting the

computer can instruct the machine. "It's just like a secretary," explains Dr. C. G. Bell, a scientist in charge of Univac. (Shirley's electronic diary, 1946.) "You schedule everything you need it. Program the machine and the ability are 'natural'."

## What Happened To Women In Computer Science?

% Of Women Majors, By Field



Source: National Science Foundation, American Bar Association, American Association of Medical Colleges

Credit: Quoc Trung Bui/NPR



**Hua Wu**

Responsável pelos principais avanços em tradução automática e linguística computacional



**Frances Allen**

Recebeu o Turing Award, o mais importante prêmio da computação, aos 74 anos, pelo seu trabalho em otimização e computação paralela.



**Timnit Gebru**

Reconhecida pelo seu estudo sobre algoritmos de inteligência artificial que reproduzem preconceitos

# Dúvidas mais comuns sobre programação ...

O QUE PRECISO SABER PARA COMEÇAR A PROGRAMAR?

O QUE VOU APRENDER NO CURSO?

QUE TIPOS DE PROGRAMAS VOU FAZER?

QUAL LINGUAGEM E PROGRAMAS VAMOS UTILIZAR PARA PROGRAMAR?

VOU SAIR DO CURSO SABENDO FAZER UM APLICATIVO?

VOU APRENDER A FAZER MEU SITE HOJE?

VOU SAIR DAQUI UMA DESENVOLVEDORA WEB?

# O que é um programa? O que é um algoritmo?

UM PROGRAMA É CONJUNTO DE INSTRUÇÕES, EXPRESSÕES OU DADOS REGISTRADOS NUM SUORTE E NECESSÁRIOS PARA A EXECUÇÃO DE UMA SÉRIE DE DETERMINADAS OPERAÇÕES, PEDIDAS A UM COMPUTADOR.

UM ALGORITMO É UM CONJUNTO FINITO DE REGRAS QUE DEFINE UMA SEQUÊNCIA ESTRITA DE OPERAÇÕES. UM PASSO A PASSO A SER SEGUIDO PARA QUE DETERMINADA OPERAÇÃO SEJA SATISFEITA.

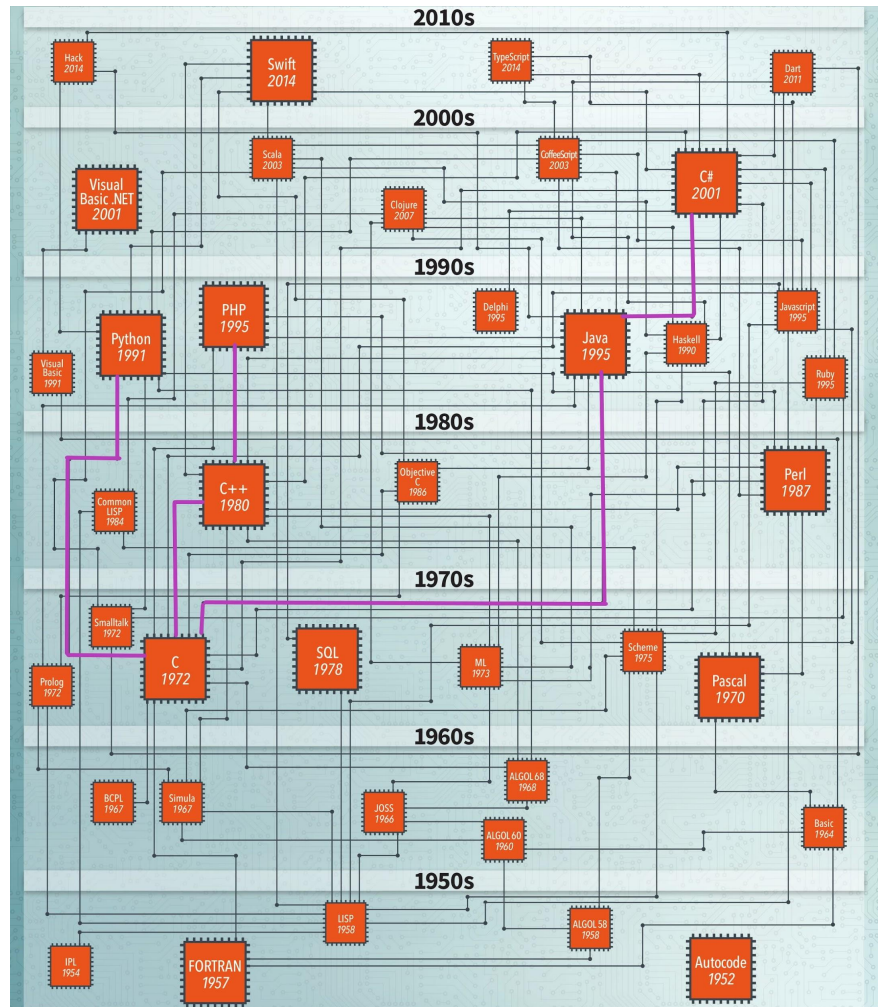


LINGUAGENS DE PROGRAMAÇÃO ATUAIS TÊM ESTRUTURAS MUITO PARECIDAS.

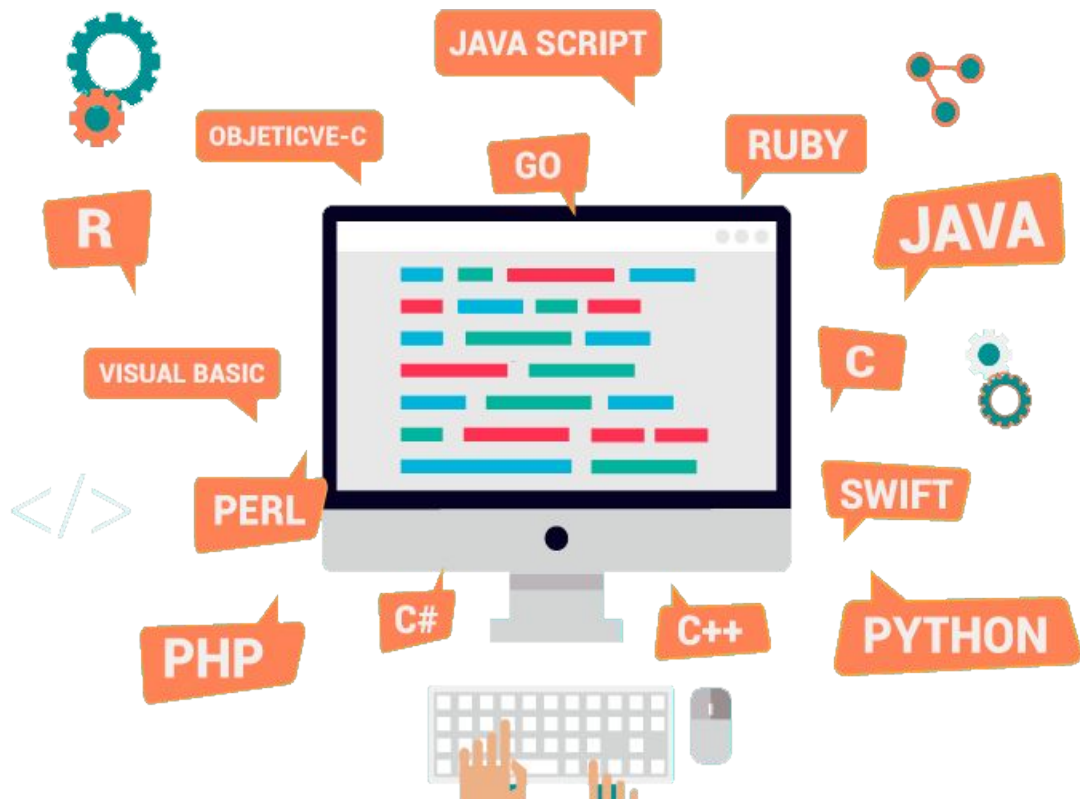
UMA BOA BASE DE LÓGICA DE PROGRAMAÇÃO E A CRIAÇÃO DE UMA ABSTRAÇÃO ACERCA DOS CONCEITOS E ESTRUTURAS BÁSICAS, DE INÍCIO, SÃO MAIS IMPORTANTES QUE O CONHECIMENTO TÉCNICO.












COM ESSAS BASES ESTABELECIDAS, O APRENDIZADO DE QUALQUER LINGUAGEM NOVA FICARÁ MUITO MAIS FÁCIL.

# Um pouco de história da programação...



# E onde entram as linguagem de programação??



1957-1959	<p><b>FORTRAN</b> (FORMULA TRANSLATION), <b>LISP</b> (LIST PROCESSOR), AND <b>COBOL</b> (COMMON BUSINESS-ORIENTED LANGUAGE)</p> <p>Considered the oldest languages that are still used today. High-level languages created for scientific, mathematical, and business computing.</p>	<p>PRIMARY USES</p> <p>Supercomputing applications, AI development, business software</p>	<p>USED BY</p> <p>NASA, credit cards, ATMs</p> <p><b>NASA</b></p> 	<p>FUN FACT</p> <p>Action movie The Terminator used samples of Cobol source code for the text shown in the Terminator's vision display.</p>	1983	<p><b>OBJECTIVE-C</b> (OBJECT-ORIENTED EXTENSION OF "C")</p> <p>General-purpose, high-level. Expanded on C, adding message-passing functionality based on Smalltalk language.</p>	<p>CREATOR</p> <p>BRAD COX AND TOM LOVE</p> <p>Stepstone</p> 	<p>PRIMARY USES</p> <p>Apple programming</p>	<p>USED BY</p> <p>Apple's OS X and iOS operating systems</p> 
1970	<p><b>PASCAL</b> (AFTER FRENCH MATHEMATICIAN/PHYSICIST BLAISE PASCAL)</p> <p>High-level. For teaching structured programming and data structuring. Commercial versions widely used throughout the '80s.</p>	<p>CREATOR</p> <p>NIKLAUS WIRTH</p> 	<p>PRIMARY USES</p> <p>Teaching programming</p> <p>Object Pascal, a derivative, is commonly used for Windows application development</p>	<p>USED BY</p> <p>Apple Lisa (1983), Skype</p> <p><b>skype</b></p>	1987	<p><b>PERL</b> ("PEARL" WAS ALREADY TAKEN)</p> <p>General-purpose, high-level. Created for report processing on Unix systems. Today it's known for high power and versatility.</p>	<p>CREATOR</p> <p>LARRY WALL</p> <p>Unisys</p> 	<p>PRIMARY USES</p> <p>CGI, database applications, system administration, network programming, graphics programming</p>	<p>USED BY</p> <p>IMDb, Amazon, Priceline, Ticketmaster</p> <p><b>IMDb</b></p> <p><b>amazon</b></p>
1972	<p><b>C</b> (BASED ON AN EARLIER LANGUAGE CALLED "B")</p> <p>General-purpose, low-level. Created for Unix systems. Second most popular language (behind Java). Many leading languages are derivatives, including C#, Java, JavaScript, Perl, PHP, and Python.</p>	<p>CREATOR</p> <p>DENNIS RITCHIE</p> <p>Bell Labs</p> 	<p>PRIMARY USES</p> <p>Cross-platform programming, system programming, Unix programming, computer game development</p>	<p>USED BY</p> <p>Unix (rewritten in C in 1973), early WWW servers and clients</p> <p><b>UNIX®</b></p>	1991	<p><b>PYTHON</b> (FOR BRITISH COMEDY TROUPE MONTY PYTHON)</p> <p>General-purpose, high-level. Created to support a variety of programming styles and be fun to use. Tutorials, sample code, and instructions often contain Monty Python references.</p>	<p>CREATOR</p> <p>GUIDO VAN ROSSUM</p> <p>CWI</p> 	<p>PRIMARY USES</p> <p>Web applications, software development, information security</p>	<p>USED BY</p> <p>Google, Yahoo, Spotify</p> <p><b>Google</b></p> <p><b>YAHOO!</b></p> 
1983	<p><b>C++</b> (FORMERLY "C WITH CLASSES"; ++ IS THE INCREMENT OPERATOR IN "C")</p> <p>Intermediate-level, object-oriented. An extension of C, with enhancements such as classes, virtual functions, and templates.</p>	<p>CREATOR</p> <p>BJARNE STROUSTRUP</p> <p>Bell Labs</p> 	<p>PRIMARY USES</p> <p>Commercial application development, embedded software, server/client applications, video games</p>	<p>USED BY</p> <p>Adobe, Google Chrome, Mozilla Firefox, Microsoft Internet Explorer</p> <p><b>A</b>  </p>	1993	<p><b>RUBY</b> (THE BIRTHSTONE OF ONE OF THE CREATOR'S COLLABORATORS)</p> <p>General-purpose, high-level. A teaching language influenced by Perl, Ada, Lisp, Smalltalk, etc. Designed for productive and enjoyable programming.</p>	<p>CREATOR</p> <p>YUKIHIRO MATSUMOTO</p> 	<p>PRIMARY USES</p> <p>Web application development, Ruby on Rails</p>	<p>USED BY</p> <p>Twitter, Hulu, Groupon</p> <p> <b>hulu</b></p> <p><b>GROUPON</b></p>

1995

**JAVA** (FOR THE AMOUNT OF COFFEE CONSUMED WHILE DEVELOPING THE LANGUAGE)

General-purpose, high-level. Made for an interactive TV project. Cross-platform functionality. Currently the world's most popular programming language.

**CREATOR**

**JAMES GOSLING**  
Sun Microsystems

**PRIMARY USES**

Network programming, web application development, software development, Graphical User Interface development

**USED BY**

Android OS/apps



1995

**PHP** (FORMERLY "PERSONAL HOME PAGE," NOW IT STANDS FOR "HYPERTEXT PREPROCESSOR")

Open-source, general-purpose. For building dynamic web pages. Most widely used open-source software by enterprises.

**CREATOR**

**RASMUS LERDORF**

**PRIMARY USES**

Building/maintaining dynamic web pages, server-side development

**USED BY**

Facebook, Wikipedia, Digg, WordPress, Joomla



1995

**JAVASCRIPT** (FINAL CHOICE AFTER "MOCHA" AND "LIVESCRIPT")

High-level. Created to extend web page functionality. Used by dynamic web pages for form submission/validation, interactivity, animations, user activity tracking, etc.

**CREATOR**

**BRENDAN EICH**  
Netscape

**PRIMARY USES**

Dynamic web development, PDF documents, web browsers, desktop widgets

**USED BY**

Gmail, Adobe Photoshop, Mozilla Firefox

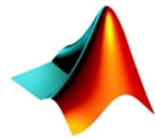


E as mulheres?

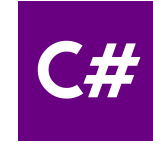
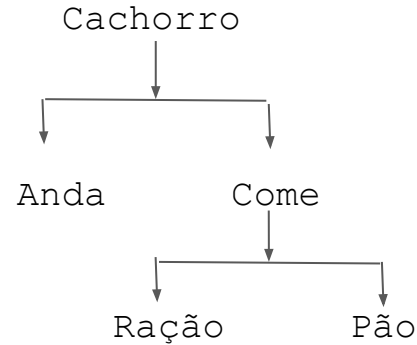


# Linguagem procedural x orientada à objetos

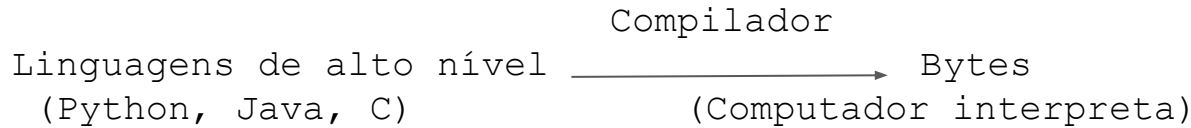
o cachorro anda  
o cachorro come ração  
o cachorro come pão



MATLAB®



# Compiladores e IDE:











IDE: INTEGRATED DEVELOPMENT ENVIRONMENT - PROGRAMA QUE REÚNE CARACTERÍSTICAS E FERRAMENTAS DE APOIO AO DESENVOLVIMENTO DE SOFTWARES



# Algumas linguagens mais comuns:

## Top 10 Programming Languages

										
	Python	C	Java	C++	C#	R	JavaScript	PHP	Go	Swift
Paradigm	Multi-paradigm: object-oriented, imperative, functional, procedural, reflective	Imperative (procedural), structured	Multi-paradigm: object-oriented (class-based), structured, imperative, generic, reflective, concurrent	Multi-paradigm: procedural, functional, object-oriented, generic	Multi-paradigm: structured, imperative, object-oriented, event-driven, task-driven, functional, generic, reflective, concurrent	Multi-paradigm: array, object-oriented, imperative, functional, procedural, reflective	Multi-paradigm: object-oriented (prototype-based), imperative, functional, event-driven	Imperative, object-oriented, procedural, reflective	Compiled, concurrent, imperative, structured	Multi-paradigm: protocol-oriented, object-oriented, functional, imperative, block-structured
Designed by	Guido van Rossum	Dennis Ritchie	James Gosling	Bjarne Stroustrup	Microsoft	Ross Ihaka and Robert Gentleman	Brendan Eich	Rasmus Lerdorf	Robert Griesemer, Rob Pike, Ken Thompson	Chris Lattner and Apple Inc
Developer	Python Software Foundation	Dennis Ritchie & Bell Labs (creators), ANSI X3J11 (ANSI C), ISO/IEC	Sun Microsystems (now owned by Oracle corporation)	Bell Labs	Microsoft	R Core Team	Netscape Communications Corporation, Mozilla Foundation, Ecma International	The PHP Development Team, Zend Technologies	Google Inc.	Apple Inc
First appeared	20 February 1991 (26 years ago)	1972 (45 years ago)	May 23 1995 (22 years ago)	1983 (34 years ago)	2000 (17 years ago)	August 1993 (24 years ago)	December 4, 1995 (21 years ago)	June 8, 1995 (22 years ago)	November 10, 2009 (7 years ago)	June 2, 2014 (3 years ago)
Typing discipline	Duck, dynamic, strong	Static, weak, manifest, nominal	Static, strong, safe, nominative, manifest	Static, nominative, partially inferred	Static, dynamic, strong, safe, nominative, partially inferred	Dynamic	Dynamic, duck	Dynamic, weak, gradual (as for PHP 7.0.0)	Strong, static, inferred, structural	Static, strong, inferred
Platform	Cross-platform	Cross-platform	Windows, Solaris, Linux, OS X	Linux, MacOS, Solaris	Common Language Infrastructure	UNIX platforms, Windows, MacOS	Cross-platform	Unix-like, Windows	Linux, macOS, FreeBSD, NetBSD, OpenBSD, Windows, Plan 9, DragonFly BSD, Solaris	Darwin, Linux, FreeBSD
Filename extensions	.py, .pyc, .pyo (prior to 3.5), .pyw, .pyz (since 3.5)	.c, .h	.java, .class, .jar	.cc, .cpp, .C, c++, .h, .hh, .hpp, .hxx, .h++	.cs	.r, .R, .RData, .rds, .rda	.js	.php, .phtml, .php3, .php4, .php5, .php7, .phps	.go	.swift

# E trabalhando com isso?

MESMO QUE NÃO VENHA A SER UMA DESENVOLVEDORA DE SOFTWARES, MUITOS PROGRAMAS UTILIZADOS NAS MAIS DIVERSAS PROFISSÕES SÃO EDITÁVEIS POR ALGUMA LINGUAGEM DE PROGRAMAÇÃO (PYTHON É UMA DAS MAIS COMUNS).

ENTENDER A LÓGICA DE PROGRAMAÇÃO E ALGUMA LINGUAGEM É UMA VANTAGEM COMPETITIVA NO MERCADO DE TRABALHO.

PROGRAMAR DÁ A LIBERDADE E INDEPENDÊNCIA DE DESENVOLVER FUNCIONALIDADES AO INVÉS DE ADQUIRIR ALGO PRONTO, QUE PODE NÃO SER O MAIS ADEQUADO À SUA NECESSIDADE.

BORA PRATICAR !