Turiba University

(Mehak Singh)

(History of programming langauge)

PROFESSIONAL BACHELOR'S DEGREE

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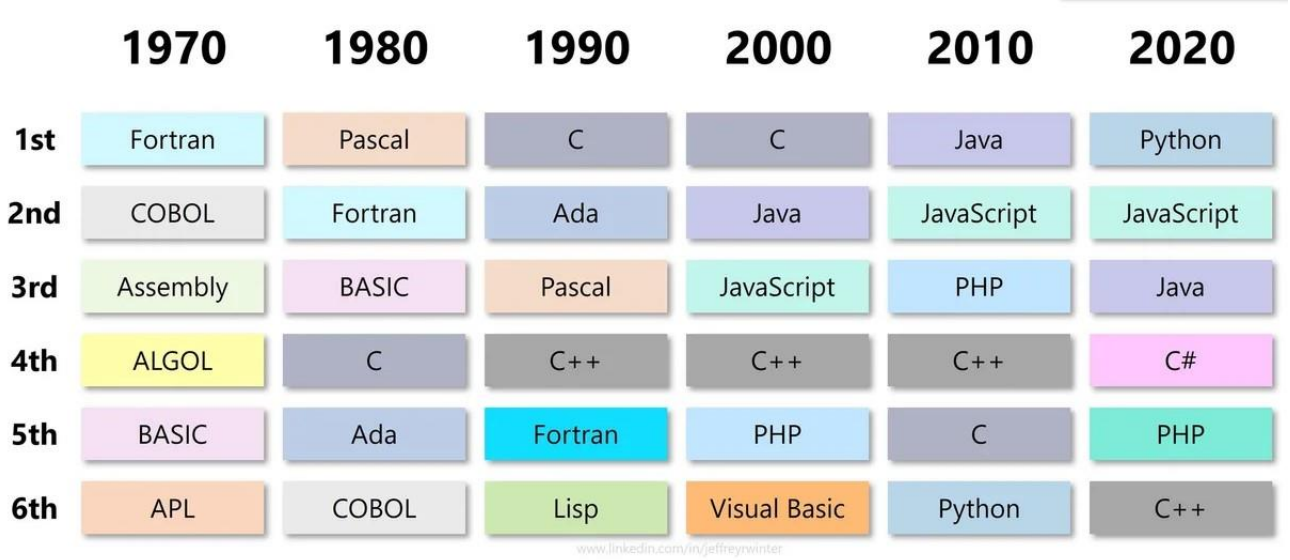
Introduction

The programming language is truly the essential component of the modern technology landscape. They enable people to engage with computers through a collection of rules, symbols, and reasoning. The evolution of programming languages began in the early 19th century and has moved through several major stages — starting from mechanical methods of programming and gradually advancing to the sophisticated, human-friendly languages we use today.Grasping this development enables us to recognize how technology, reasoning, and mathematics influenced computer science.

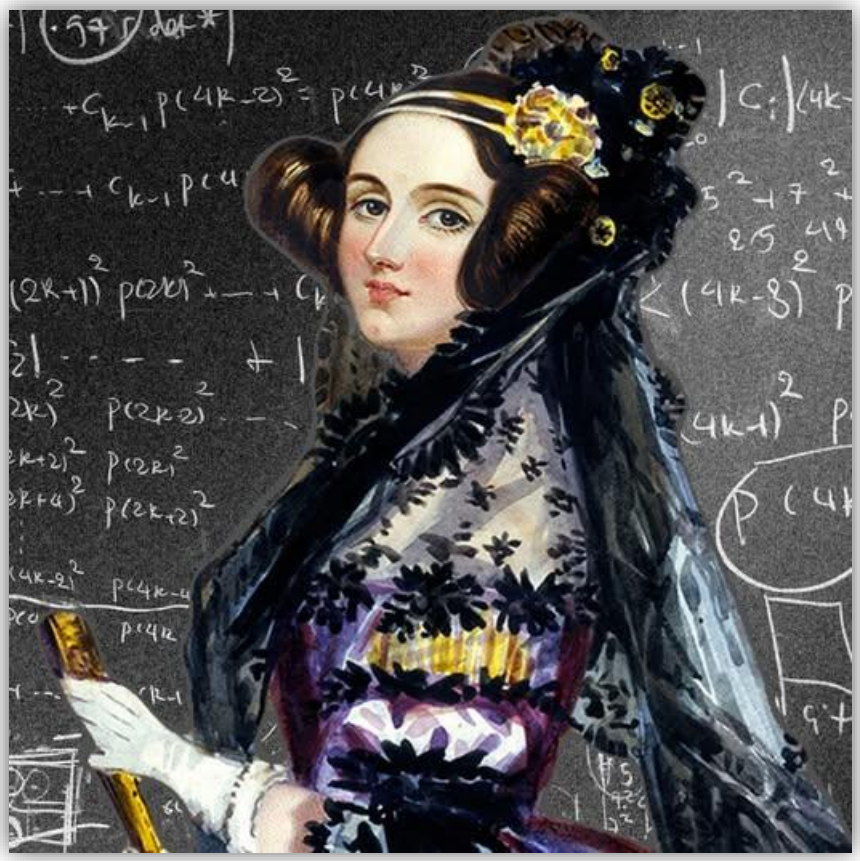


The First Programming Language

The idea of programming started long before electronic computers existed.

Ada Lovelace and the Analytical Engine:

- Ada Lovelace, in the 1840s, worked with Charles Babbage on his Analytical Engine.
- She is often regarded as the world's first computer programmer because she wrote an algorithm intended for the machine to compute Bernoulli numbers.
- Though the machine was never completed, Ada's notes introduced the concept of looping and conditional branching.



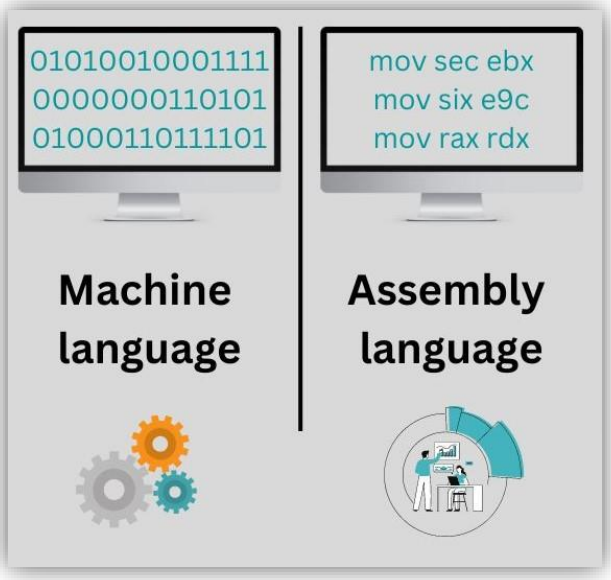
Major Programming Languages and Their Development

1843: Machine Language

- The very first generation of programming languages.
- Written entirely in **binary (0s and 1s)** and directly executed by hardware.
- Very difficult to understand and debug.
- Programs were hardware-specific and not portable.

1949: Assembly Language

- It is a type of low-level language.
- It mainly consists of instructions (kind of symbols) that only machines could understand.
- In today's time also assembly language is used in real-time programs such as simulation flight navigation systems and medical equipment eg - Fly-by-wire (FBW) systems.
- It is also used to create computer viruses.



1952: Autocode

- Developed by Alick Glennie.
- The first compiled computer programming language.
- COBOL and FORTRAN are the languages referred to as Autocode.

1957: FORTRAN

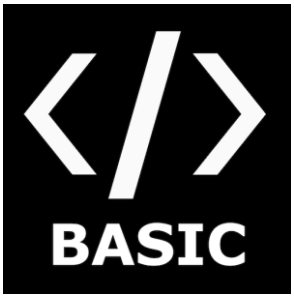
- Developers are John Backus and IBM.
- It was designed for numeric computation and scientific computing.
- Software for NASA probes voyager-1 (space probe) and voyager-2 (space probe) was originally written in FORTRAN 5.

1958: ALGOL

- ALGOL stands for ALGOrithmic Language.
- The initial phase of the most popular programming languages of C, C++, and JAVA.
- It was also the first language implementing the nested function and has a simple syntax than FORTRAN.
- The first programming language to have a code block like "begin" that indicates that your program has started and "end" means you have ended your code .

1959: COBOL

- It stands for **CO**mmon **B**usiness-**O**riented **L**anguage.
- In 1997, 80% of the world's business ran on Cobol.
- The US internal revenue service scrambled its path to COBOL-based IMF (individual master file) in order to pay the tens of millions of payments mandated by the coronavirus aid, relief, and economic security.



1964: BASIC

- It stands for beginners All-purpose symbolic instruction code.
- In 1991 Microsoft released Visual Basic, an updated version of Basic
- The first microcomputer version of Basic was co-written by Bill Gates, Paul Allen, and Monte Davidoff for their newly-formed company, Microsoft.

1972: C

- It is a general-purpose, procedural programming language and the most popular programming language till now.
- All the code that was previously written in assembly language gets replaced by the C language like operating system, kernel, and many other applications.
- It can be used in implementing an operating system, embedded system, and also on the website using the Common Gateway Interface (CGI).
- C is the mother of almost all higher-level programming languages like C#, D, Go, Java, JavaScript, Limbo, LPC, Perl, PHP, Python, and Unix's C shell.

CONCLUSION

From **machine language** in the 1940s to **object-oriented languages** by the 1980s, programming evolved from pure hardware control to abstract thinking.

Each new language was born to solve a problem — whether it was simplicity, portability, structure, or reusability.
By the early 1990s, programming had already taken its modern form, and the foundation for today's software world was firmly set.