Evolution of Programming Languages

- 1843 – Ada Lovelace

She provided a method for calculating Bernoulli numbers with the Charles Babbage's proposed machine – Analytical Engine. It is recognized as the world's first published computer program.

- 1949 – Short Code

Uses symbols instead of binary code (Machine Level Programming) for UNIVAC I. It is still used in real-time software like simulation flight navigation systems and medical monitoring equipment, for creating computer viruses, etc. The programs had to be interpreted instead of compiled.

- 1952 – AutoCode

First compiled programming language for Manchester Mark 1.

- 1957 – Fortran (FORmula TRANslating System)

General-purpose, compiled imperative programming language that is especially suited to numeric computation and scientific computing. Used in NASA's Voyager 1 and 2. Primary language for some of the most intensive super-computing tasks – Astronomy, Climate Modeling, Computational Chemistry, Computational Economics, Computational Fluid Dynamics, Computational Physics, Hydrological Modeling, Satellite simulation, and weather prediction.

- 1958 – LISP (LISt Processor)

Mathematical notation for computer programs to express lambda calculus. Favored programming language for artificial intelligence. Introduced tree data structures, Linked lists, automatic storage management, dynamic typing, conditionals, higher-order functions, recursion.

- 1959 – COBOL (COmmon Business Oriented Language)

It devised by Grace Hopper (English-like data processing language) for business data processing.

- 1964 – BASIC (Beginners' All-purpose Symbolic Instruction Code)

Lets non-scientific fields to use computers. A single machine could divide up its processing time among many users. The first microcomputer version of BASIC was co-written by Bill Gates, Paul Allen and Monte Davidoff for their newly formed company, Micro-Soft.

- 1972 – C

Devised by Dennis Ritchie – standardized by ANSI in 1989 (ANSI C). It is an imperative procedural language supporting structured programming, lexical variable scope, recursion with a static type system.
It is used for systems programming in implementing operating systems and embedded system applications. Compilers, libraries and interpreters of other programming languages (Python, Perl, Ruby, and PHP) are often implemented in C.
Thin layer of abstraction from hardware and its low overhead helps to write efficient computationally intensive programs e.g., GNU Multiple Precision Arithmetic Library, the GNU Scientific Library, Mathematica, and MATLAB.
Many languages have borrowed from C, – C++, C#, Unix's C shell, Java, JavaScript, Julia, Objective-C, Perl, PHP, Python, Ruby, Rust, Swift, Verilog and SystemVerilog.

- Object oriented languages

Have the features – Class and Object, Inheritance, and Dynamic Binding. Example – LISP, Simula.

1982 – C++

Devised by Bjarne Stroustrup.

1996 – JAVA

Architecture-neutral and portable.

- Focusing on the Internet

JavaScript, Haskell, Python, Ruby, PHP, Ada 95.