C Programming

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Outline

Who Developed C?

- The C programming language was developed by **Dennis Ritchie** at Bell Labs in the early 1970s.
- Ritchie, along with Ken Thompson, also developed the Unix operating system, which was written in C and played a major role in the widespread adoption of the language.
- C has since become one of the most widely used programming languages in the world, and has influenced many other programming languages that followed it.

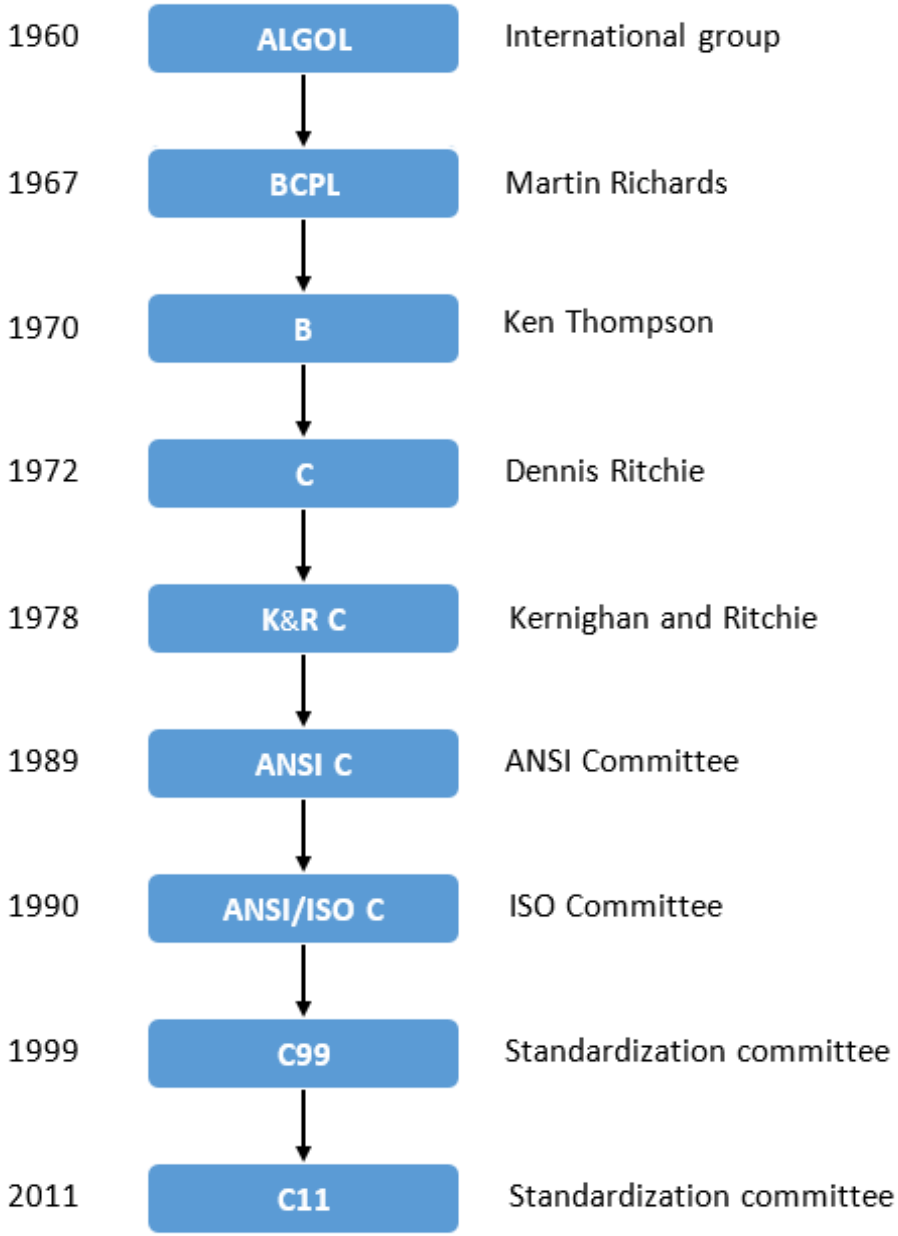
Dennis Ritchie

History of C Programming Language

Timeline of C Programming Language(From 1970s to present day)

- C is a general-purpose programming language that was originally developed by Dennis Ritchie at Bell Labs in the early 1970s. Ritchie created C to improve on the existing programming languages of the time, such as Assembly and Fortran, by providing a language that was efficient, flexible, and portable.
- The first version of C was released in 1972, but it was not widely used until the development of the UNIX operating system in the early 1970s. C quickly became the language of choice for programming system software, including operating systems, device drivers, and compilers.
- Throughout the 1980s, C continued to gain popularity and was adopted by many software development companies. It was also standardized by the American National Standards Institute (ANSI) in 1989, resulting in the creation of the ANSI C standard.
- C remains a widely used programming language today, particularly in system programming, embedded systems, and game development. Its influence can also be seen in many other programming languages, including Java, Python, and C++.

Timeline of C Programming



Features of C Programming

- Simple and Efficient: The basic syntax style of implementing C language is very simple and easy to learn.
- Fast: C programming is a statically typed programming language which makes it much faster than dynamic languages.
- Portability: It provides the functionality of using a single code on multiple systems depending on the requirement.
- Function Rich Libraries: C comes with an extensive set of libraries with several built-in functions that make the life of a programmer easy.
- Dynamic Memory Management: Programmer can utilize and manage the size of the data structure in C during runtime.

Applications of C Programming

1. Development of video games
2. Applications using graphical user interfaces
3. Databases and computer operating systems
4. Banking
5. Cloud computing and distributed systems
6. Integrated software libraries for enterprises
7. Server applications on a large scale

Programming Paradigms in C Programming

- C programming supports multiple programming paradigms, but it is primarily considered an imperative, procedural programming language.
- Imperative programming is a programming paradigm that focuses on describing how a program operates by explicitly specifying a sequence of instructions that the computer should follow to accomplish a task. C programming is designed to work with imperative programming paradigms and provides features such as loops, conditional statements, and functions to accomplish this goal.
- Additionally, C programming can also support aspects of functional programming, where functions are treated as first-class objects and can be passed around like any other data type. C programming also supports object-oriented programming to some extent, but it does not have native support for many of the features associated with this paradigm.

Hello World Program in C

```c
#include <stdio.h>

int main()
{
    printf("Hello World");

    return 0;
}
```

```
Hello World
```

Figure: Code with output for a hello world program in C

References

https://www.simplilearn.com/tutorials/c-tutorial/features-of-c-language

https://en.wikipedia.org/wiki/C_(programming_language)

https://chat.openai.com/chat