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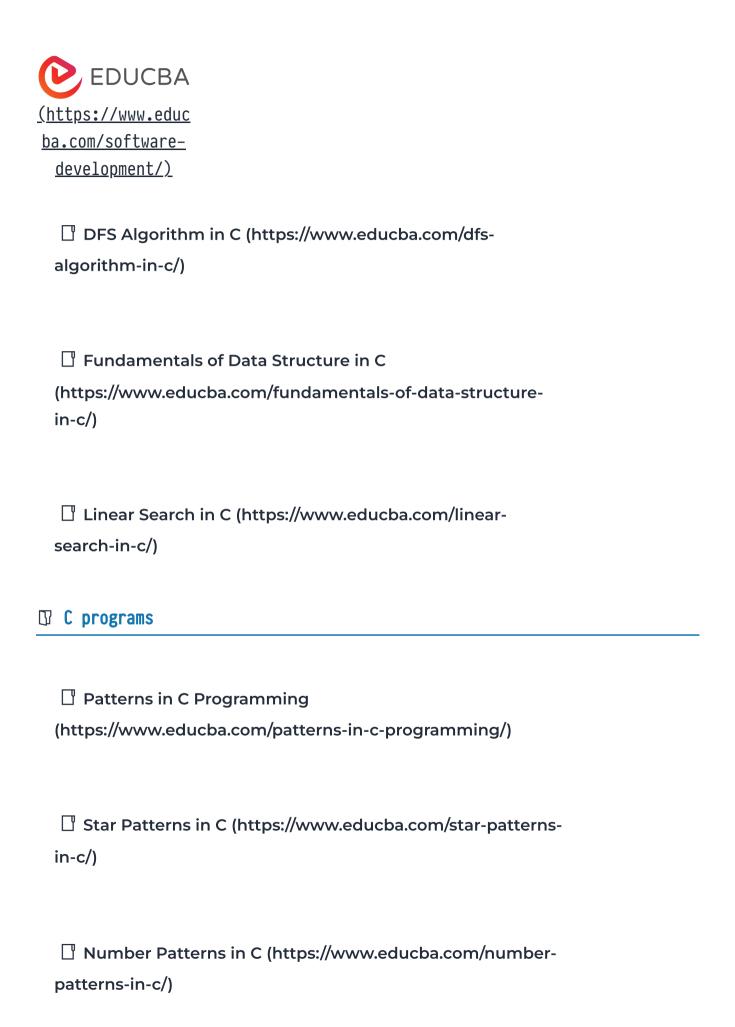
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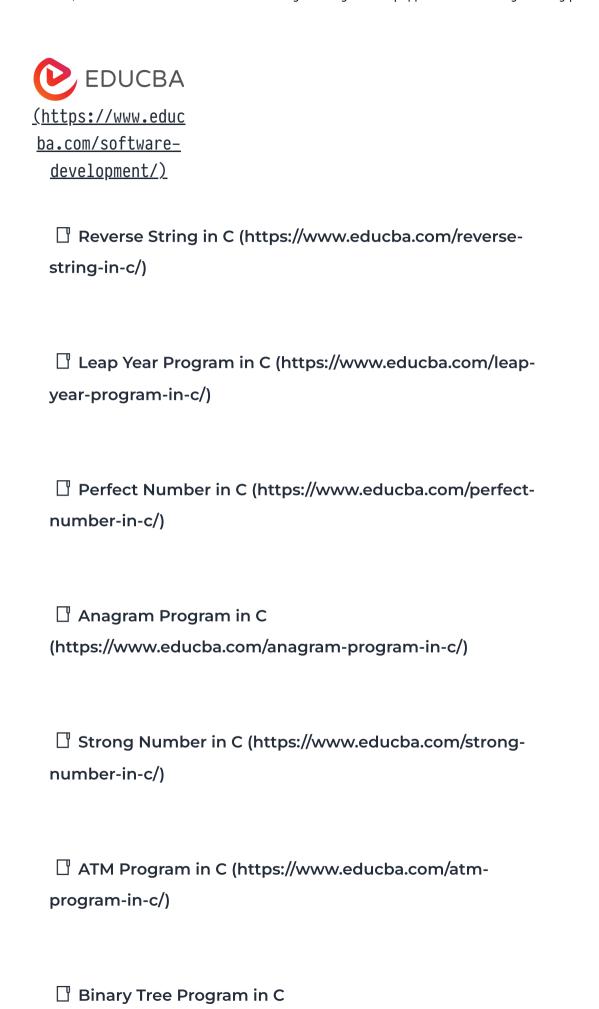
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# **C Programming Tutorial**

C is a procedural and general-purpose programming language that is used most widely for system programming. Dennis Ritchie initially



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taken/borrowed features from C programming language. Program written in C can be very efficiently mapped to machine instructions which make C programming very much popular to use for any embedded software application development which runs on a microcontroller.

## Why do we need to learn C?

- ▶ C is the most widely and commonly used programming language to develop the different operating systems. The popular operating systems like UNIX and LINUX are written in C.
- ▶ C program allows programs to maintain portable and compact code along with maintaining performance and minimizing CPU constraints like memory and execution time etc.
- ▶ C programming language allows programmers to control memory allocation and reallocation which will be very helpful while working with software development for small embedded systems.
- ▶ C is middle-level language and very fast in terms of execution compared to other programming languages.
- ▶ Different algorithms and data structures can be implemented using C language very efficiently which can be used in may software applications.
- ▶ Due to the portability feature of C programming language, the C program written for one computer platform can easily be run on different other platforms with very little modification in code.



- ▶ To develop and design system software like compilers for other programming languages.
- ▶ To develop different operating systems for embedded devices and kernels.
- ▶ To develop graphics related software like gaming application.
- ▶ To design and develop network device software.
- ▶ To develop a software system where memory and execution time is constraint like software for microcontrollers which is mainly used for small embedded systems.
- ▶ Used for systems that require direct access/modification of data from memory.

## Example (One short example)

To have an initial understanding of C programming language, Have a look at below sample example code where two age variables are taken as input and compared those for age comparison.

Code:

```
#include <stdio.h>
int main()
{
```



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```
print( agei is greater than age 2 );
}
else
{
printf("age2 is greater than age 1");
}
return 0;
}
```

Output:

## **Prerequisites**

You should have a basic understanding of computer programming language methodologies like variable, condition, looping, constants, operators, etc. Knowledge of any other programming language is an added advantage to learn this tutorial.

# **Target Audience**

This tutorial is designed for those software programmers who wish to understand about C programming language and wish to apply C programming in their project.



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