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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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Directly or indirectly many other computer programming languages have 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.

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▸ 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:

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

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```
printf("age1 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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