



# C Language

```
printf("Powered by Amir Saeid Dehghan")
```



01

### system programming

C offers low-level memory access for OS/drivers

02

### embedded systems

C is efficient for microcontrollers and IoT devices

03

### application development

C used for high-performance desktop applications

04

### Gaming And Animation

C provides speed for game engines and graphics

C is a general-purpose, procedural programming language. It is widely used for system programming, embedded systems, and application development.

# History of C




## History

C was developed by Dennis Ritchie at Bell Labs in the early 1970s.

It became the foundation for many modern programming languages. .

# Why Learn C



Learning C gives you a deep understanding of how computers actually work. Unlike high-level languages that abstract away memory management, C forces you to deal with pointers, memory allocation, and data structures directly, building a mental model of the CPU, stack, and heap. This foundational knowledge makes you a better programmer in any language – concepts like references in C++, ownership in Rust, or memory management in Python all trace back to C. Moreover, C remains the backbone of modern computing: operating systems (Linux, Windows kernels), embedded firmware, and database engines are all written in C. Beyond education, C is irreplaceable in performance-critical domains. It offers minimal runtime overhead, predictable execution, and direct hardware access – qualities essential for real-time systems, game engines, and high-frequency trading platforms. Many modern languages (Python, JavaScript, Go) are themselves implemented in C or C++, meaning that mastering C lets you contribute to the tools millions of developers rely on. Simply put, learning C equips you with both timeless programming fundamentals and the ability to build the fastest, most resource-efficient software on the planet.



## Features of C :

- Simple and efficient
- Portable
- Fast execution
- Structured programming
- Rich set of operators

```
31 def __init__(self, path):
32     self.file = None
33     self.fingerprints = set()
34     self.logdupes = True
35     self.debug = debug
36     self.logger = logging.getLogger(__name__)
37     if path:
38         self.file = open(os.path.join(path, "fingerprint.log"), "a")
39         self.file.seek(0)
40         self.fingerprints.update(set(request_fingerprint(request)))
41
42 @classmethod
43 def from_settings(cls, settings):
44     debug = settings.getbool("SUPERFINGER_DEBUG", False)
45     return cls(job_dir(settings), debug)
46
47 def request_seen(self, request):
48     fp = self.request_fingerprint(request)
49     if fp in self.fingerprints:
50         return True
51     self.fingerprints.add(fp)
52     if self.file:
53         self.file.write(fp + os.linesep)
54
55 def request_fingerprint(self, request):
56     return request_fingerprint(request)
```

# Basic Syntax And Structure



A typical C program consists of functions. The main function is the entry point. Programs use `#include` to incorporate header files containing declarations for standard library functions. Statements are terminated by semicolons, and code blocks are defined by curly braces `{}`.

```
#include <stdio.h>

int main() {

    printf("Hello, World!\n");

    return 0;

}
```



```
static const char *tag
22
23
24 /*
25  * Helper function to read and send a
26  * @param start Starting index
27  * @param end Stop index
28  * @param payload Payload id
29  * @param dest_node Node to send TM
30  * @return CMD_OK, CMD_ERROR, or CMD_S
31  */
32 static int _send_tel_from_to(int start
33
34 void cmd_tm_init(void)
35 {
36     cmd_add( name: "tm_parse_status", t
37 );
38     cmd_add( name: "tm_parse_string", t
39 );
40     cmd_add( name: "tm_send_status", tm_s
41 );
42     cmd_add( name: "tm_send_var", tm_s
43 );
44     cmd_add( name: "tm_get_last", tm_g
45 );
46     cmd_add( name: "tm_get_single", tm
47 );
48     cmd_add( name: "tm_send_last", tm_
49 );
50     cmd_add( name: "tm_send_all", tm_s
51 );
52     cmd_add( name: "tm_send_from", tm_
53 );
54     cmd_add( name: "tm_set_ack", tm_se
55 );
56     cmd_add( name: "tm_send_cmds", tm_
57 );
58 #ifdef LINUX
59     cmd_add( name: "tm_send_file", tm
60 );
61 #endif
62
63 int tm_send_status(char *fmt, char *
64 {
65     //Format: <node>
66     int dest_node;
67 }
```

```

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# Data Types in C

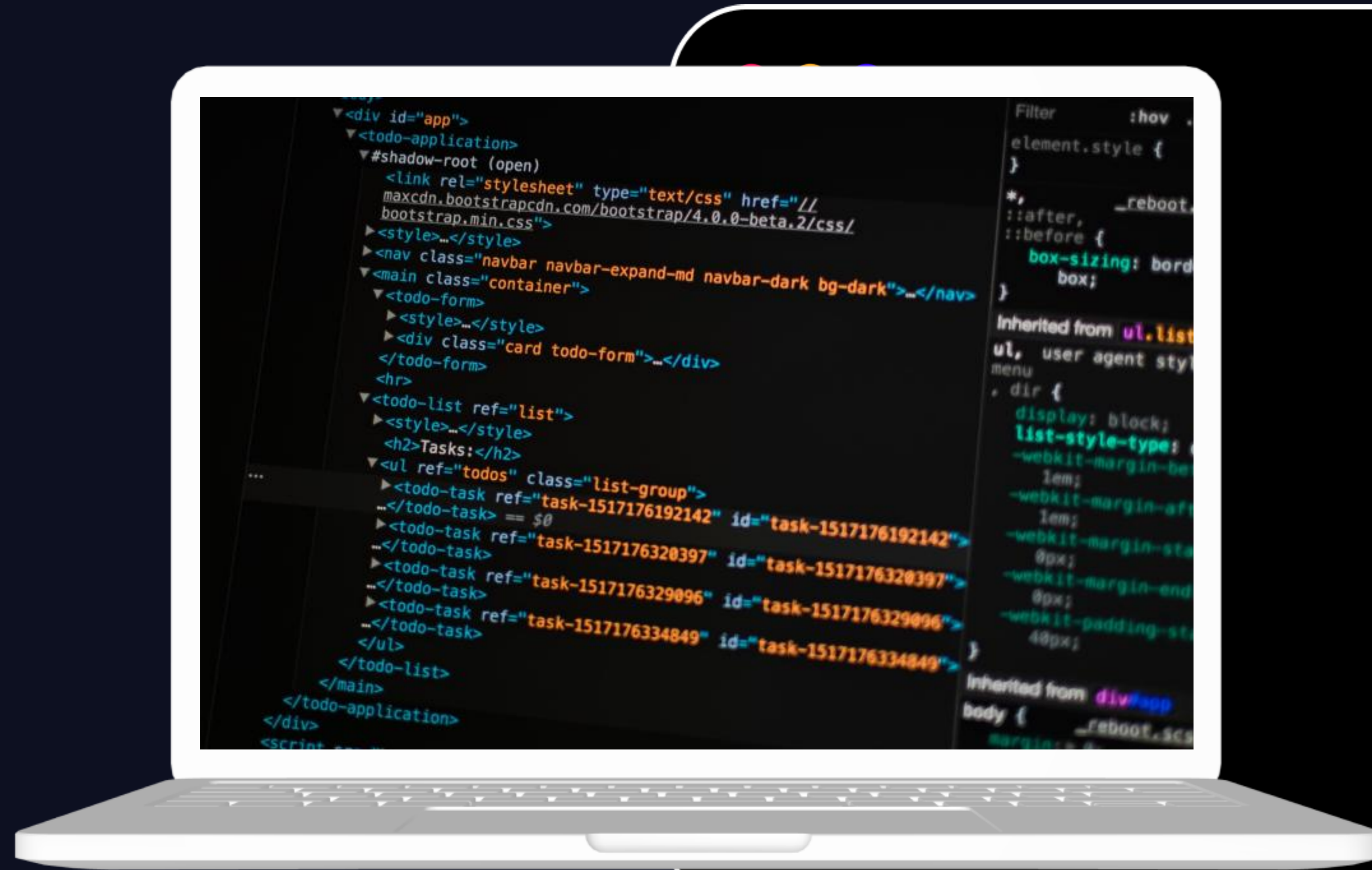
**int** Integer numbers

**float** Single-precision floating-point numbers

**double** Double-precision floating-point numbers

**Char** Single characters

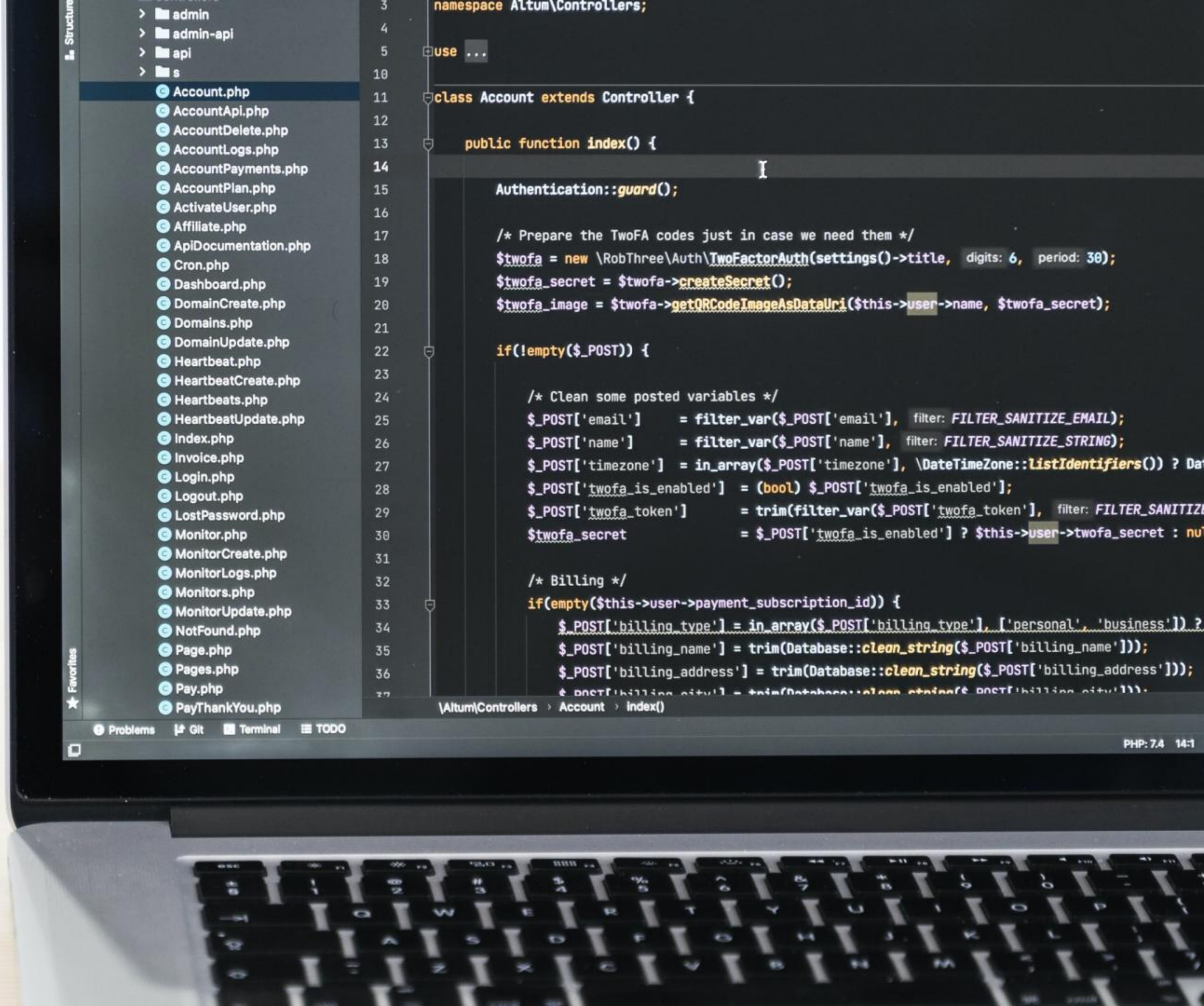
# Conclusion and Further Learning




## C is Powerful And Enduring

C is a powerful and enduring programming language. Its principles are fundamental to computer science. Continued practice with data structures, algorithms, and system-level programming will solidify your understanding. Explore C++ for object-oriented extensions and other languages for different paradigms.

# The Magic of C



# Thank you



Thank you for your attention. It has been a pleasure sharing this exploration of the C programming language with you.

I am Amir Saeid Dehghan, an inventor and artist with a deep passion for innovation and technology.

I hope this presentation has sparked your interest and inspired further exploration into the world of programming.

May your journey into technology be filled with discovery and creativity!