

# Learn the Difference between C and Java

Object-oriented programming (OOP)





# Purpose and Paradigm:

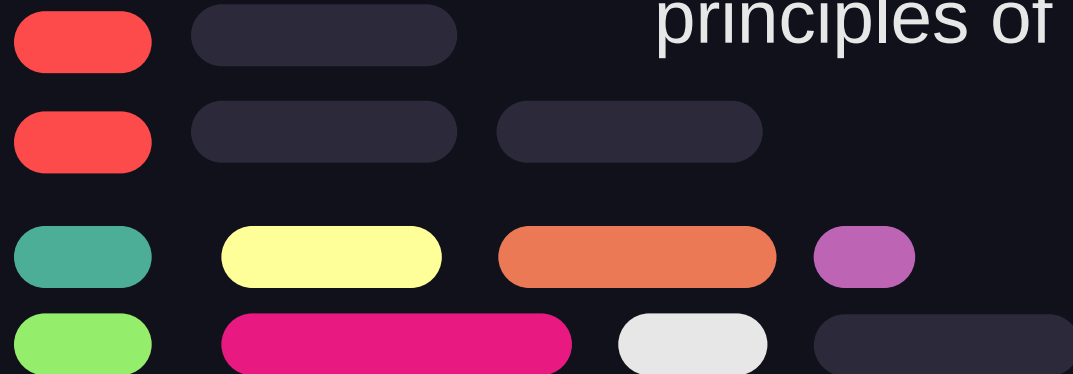


## Java:

Java is a **high-level, object-oriented programming language** primarily used for developing platform-independent software applications, including web, mobile, and enterprise applications. It follows the principles of WORA.

## C:

C is a **low-level procedural programming language** designed for programming, such as **operating systems, embedded systems, and device drivers**. It provides direct access to memory and hardware resources, making it suitable for performance-critical applications.



# Syntax and Readability

Java syntax is relatively simpler and more readable compared to C. It enforces **object-oriented programming principles** and provides features like automatic memory management which contributes to cleaner code.

```
public class HelloWorld {  
    public static void main(String[] args) {  
        System.out.println("Hello, world!");  
    }  
}
```

Expected output:  
Hello, world!



# Syntax and Readability



C syntax is **more complex and may appear less readable compared to Java, especially for beginners**. Memory management in C is manual, requiring explicit allocation and deallocation of memory using functions like `malloc()` and `free()`, which can lead to potential memory leaks and errors if not handled properly.

```
int main() {  
    printf("Hello, world!\n");  
    return 0;  
}
```

**Expected output:**  
Hello, world!





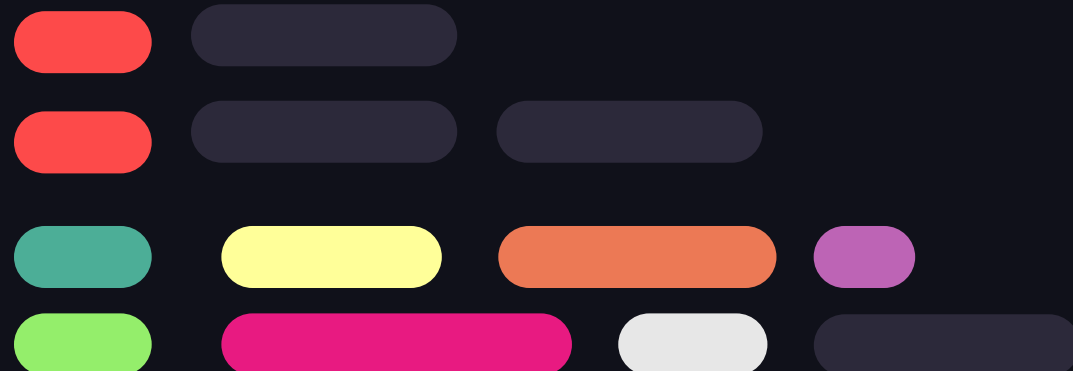
# Performance

## C

C is known for its high performance as it allows for direct manipulation of hardware resources and memory. It's often the language of choice for performance-critical applications where speed is paramount.

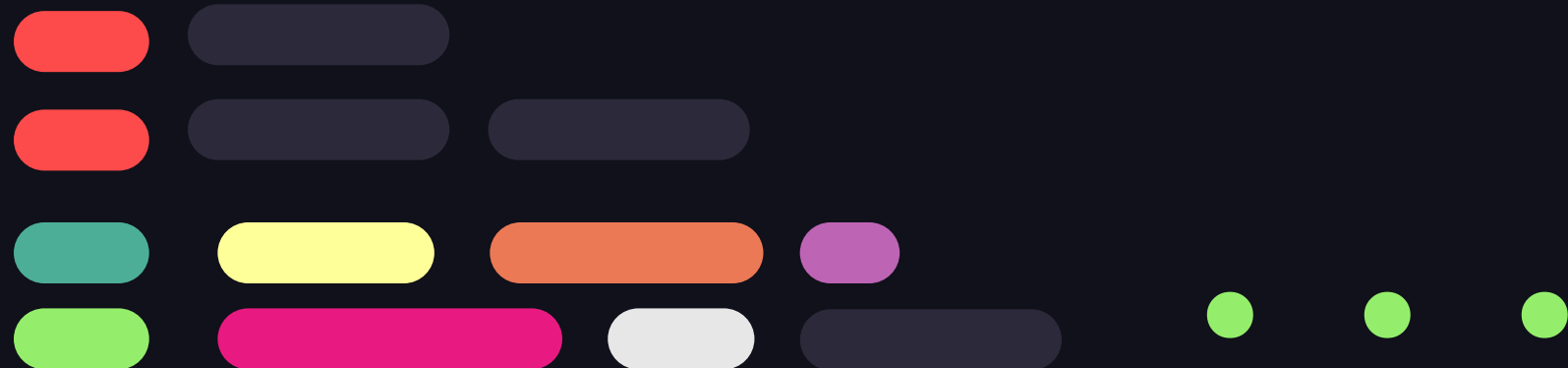
## Java

Java typically has slower performance compared to C due to its platform independence and runtime environment overhead. However, advancements in JIT (Just-In-Time) compilation and optimization techniques have narrowed the performance gap in many cases.



# { Portability

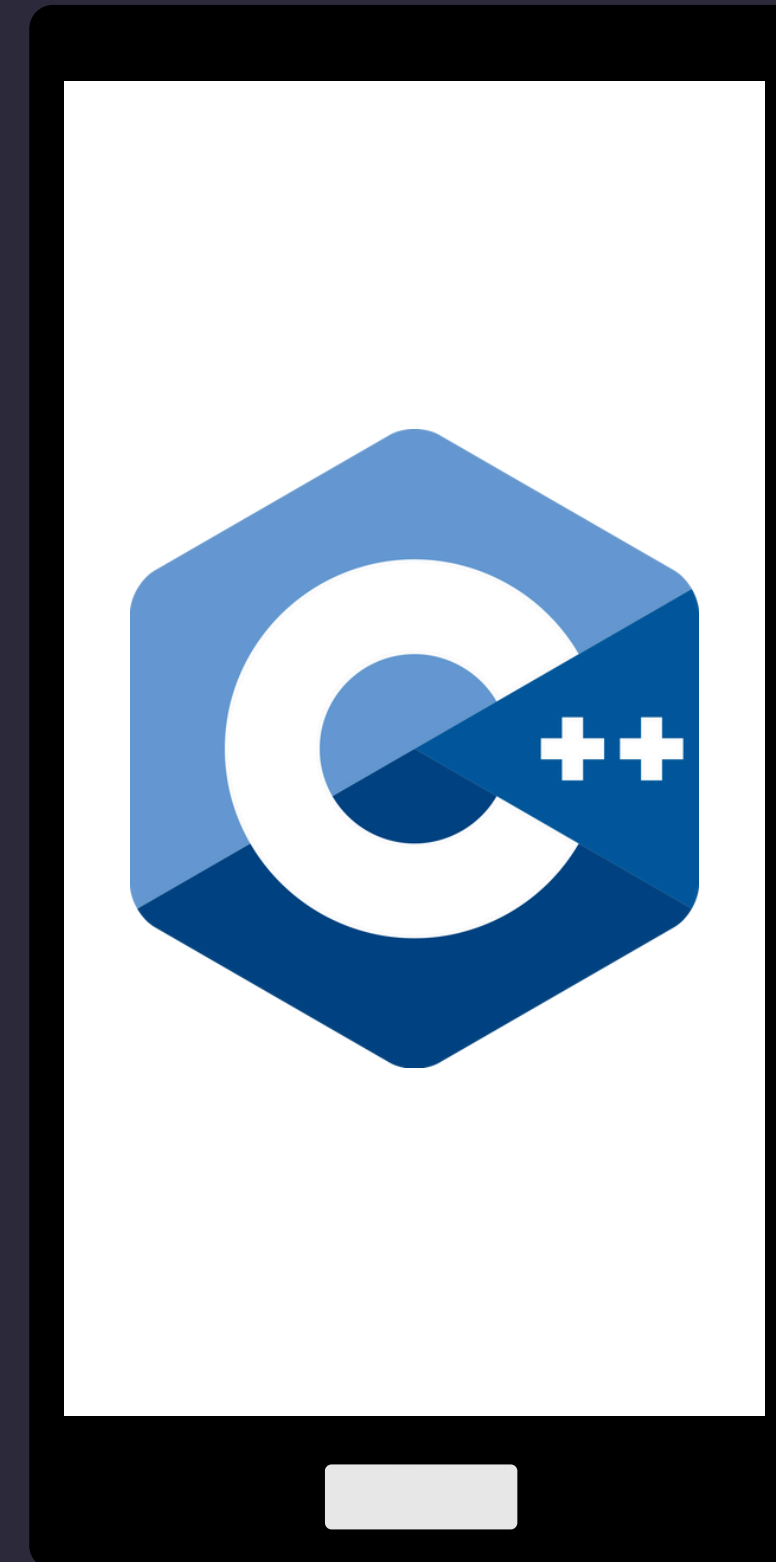
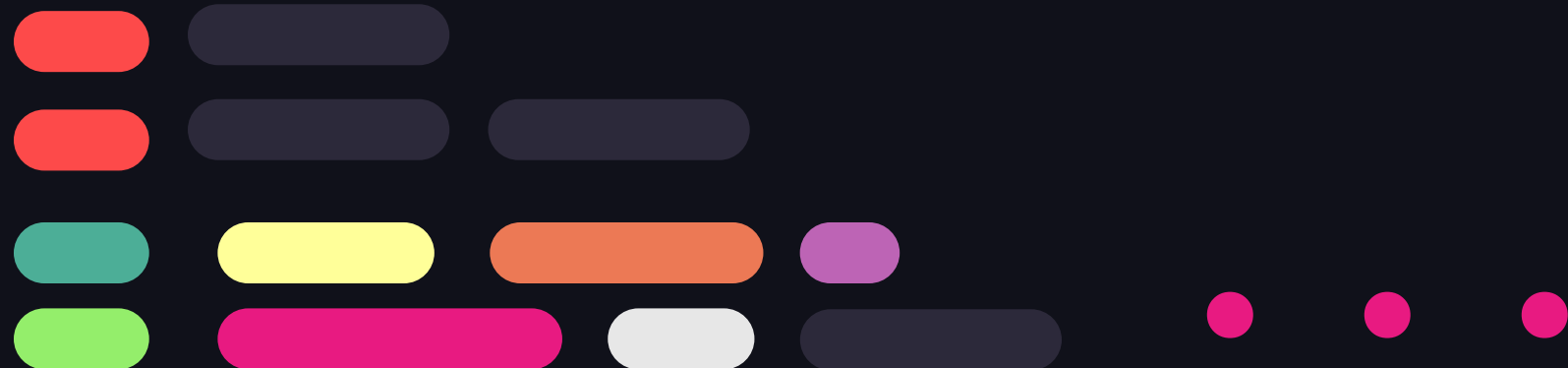
Java programs are **highly portable due to the JVM**, which provides a layer of abstraction between the application code and the underlying hardware and operating system. Once compiled to bytecode, **Java applications can run on any platform with a compatible JVM** implementation.





# Portability

C programs are **less portable compared to Java** because they are **compiled directly to machine code**, which is specific to the target platform's architecture and operating system. **Porting C programs to different platforms often requires modification and recompilation.**





# Usage and Domains

## 01 Web Dev

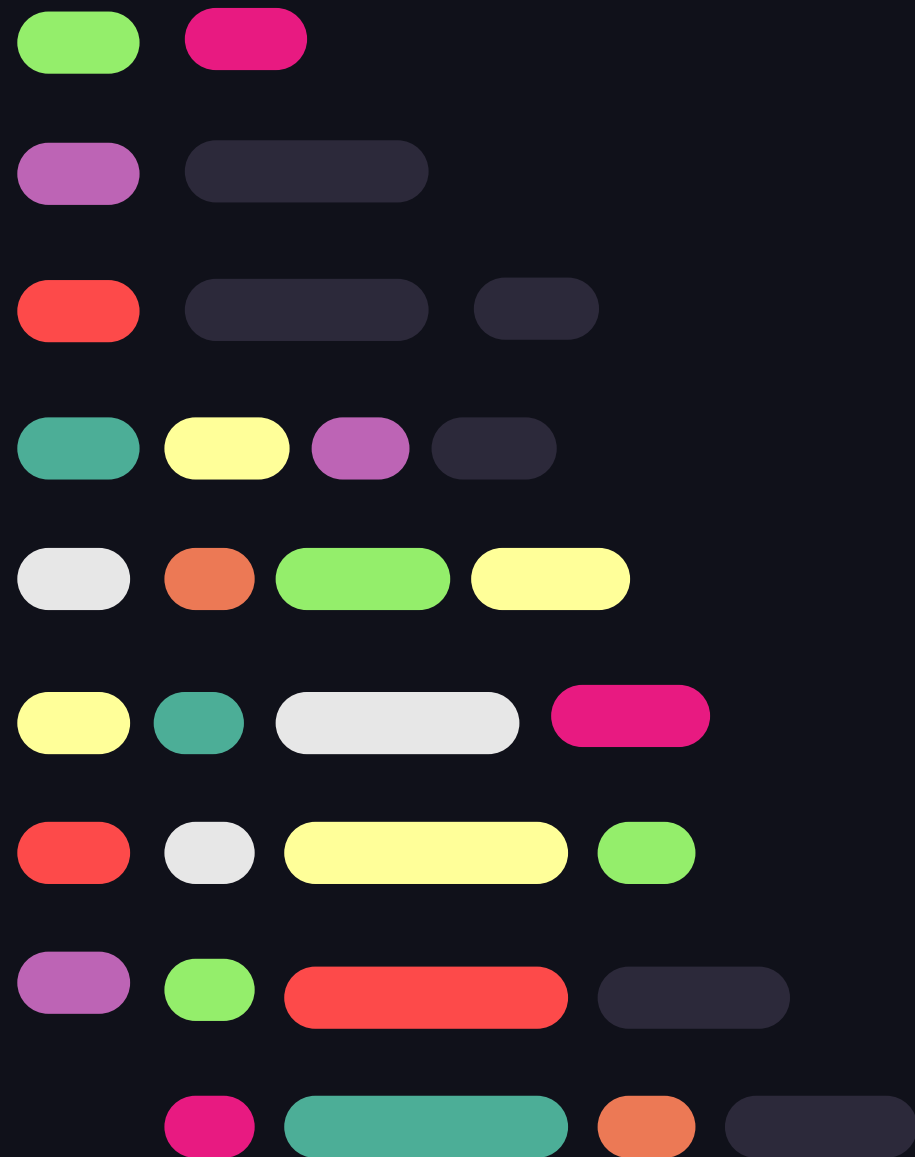
Java Enterprise Edition is commonly used for developing enterprise web applications.

## 02 Mobile App Dev

Java is the primary programming language for Android app development.

## 03 Enterprise Software Dev

Java is widely used for developing enterprise-level software solutions.







# Usage and Domains

## 01 System Programming

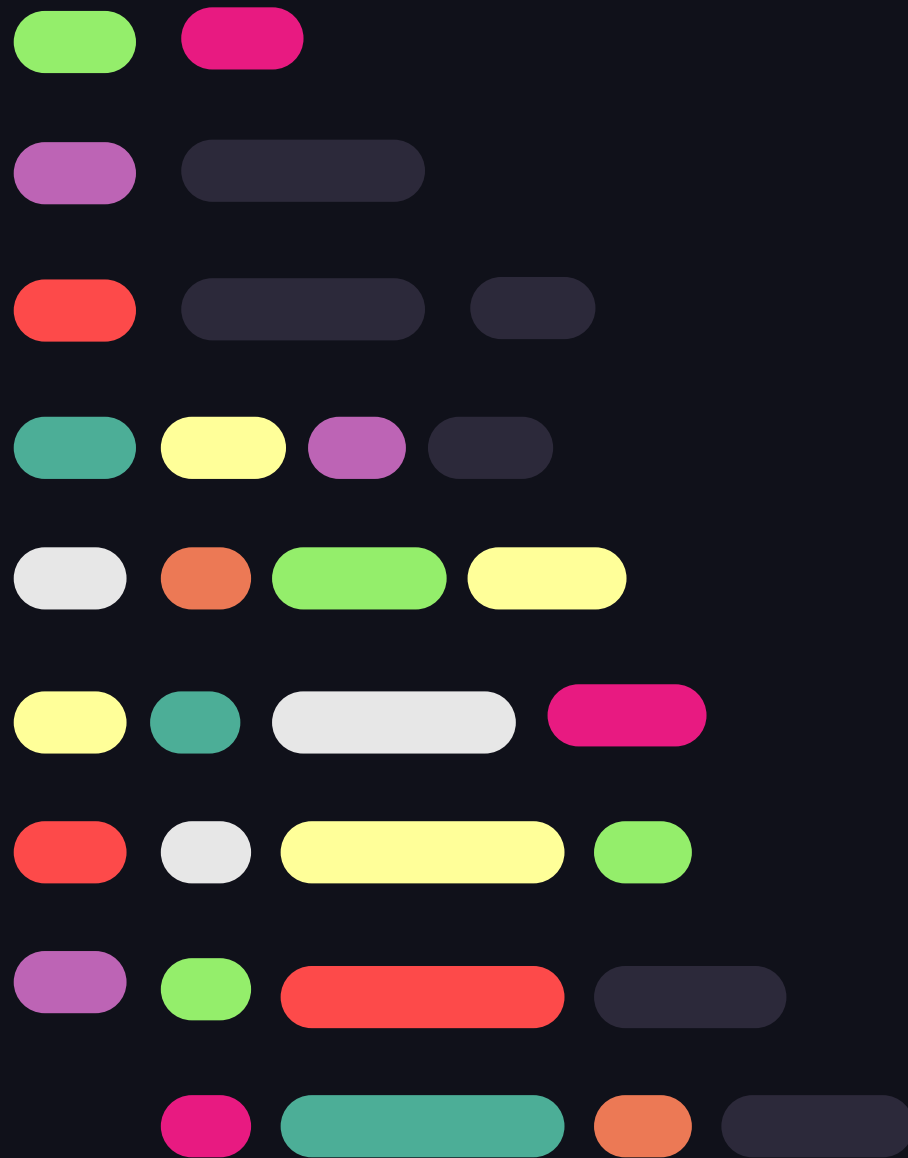
C is extensively used for system programming tasks such as developing operating systems, kernels, device drivers, and firmware.

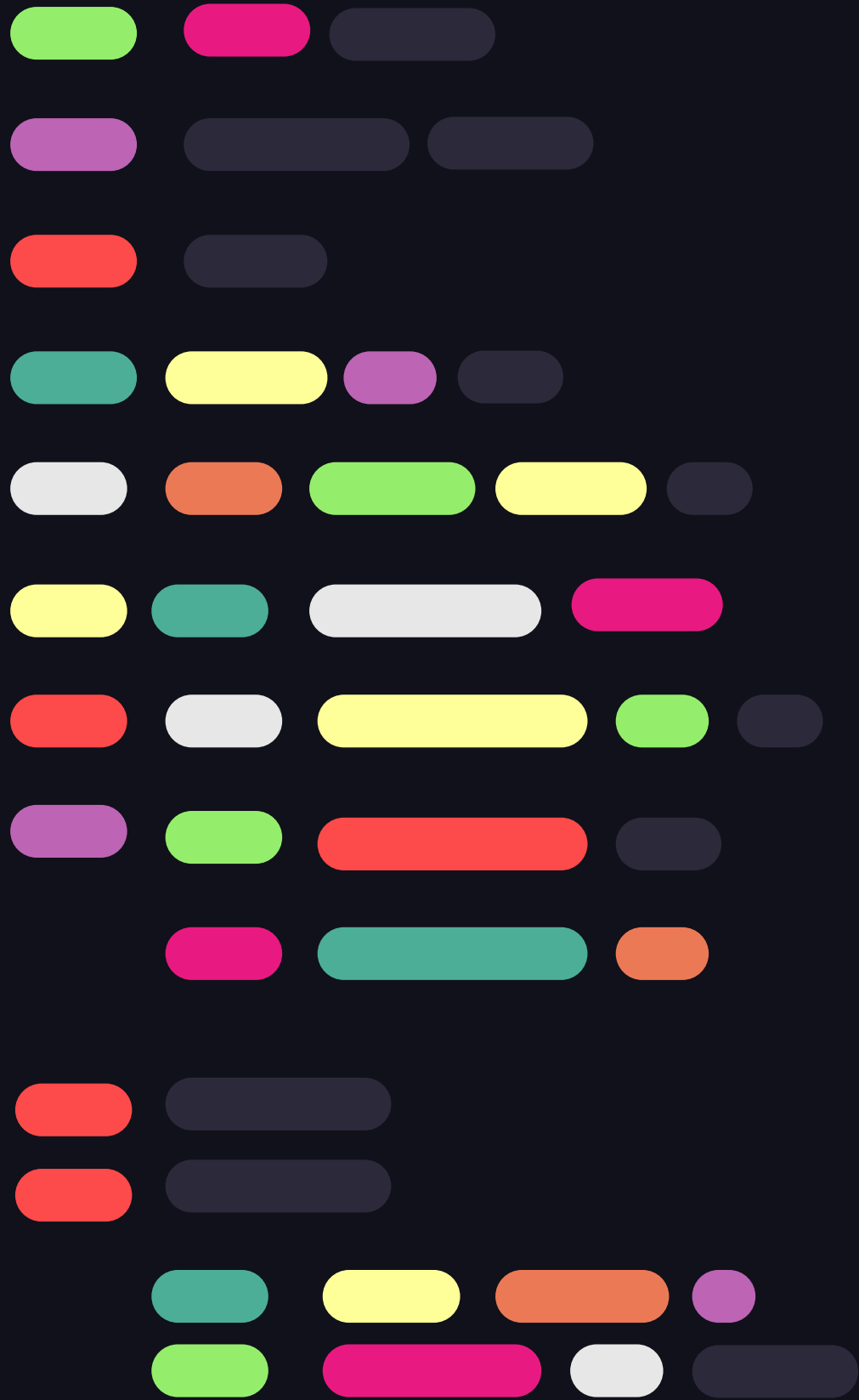
## 02 Game Dev

C is widely used in the gaming industry for developing game engines, graphics libraries, and game logic

## 03 Performance-Critical Applications

C is chosen for applications where performance is critical, such as real-time systems, high-frequency trading platforms, and computational-intensive applications, etc.





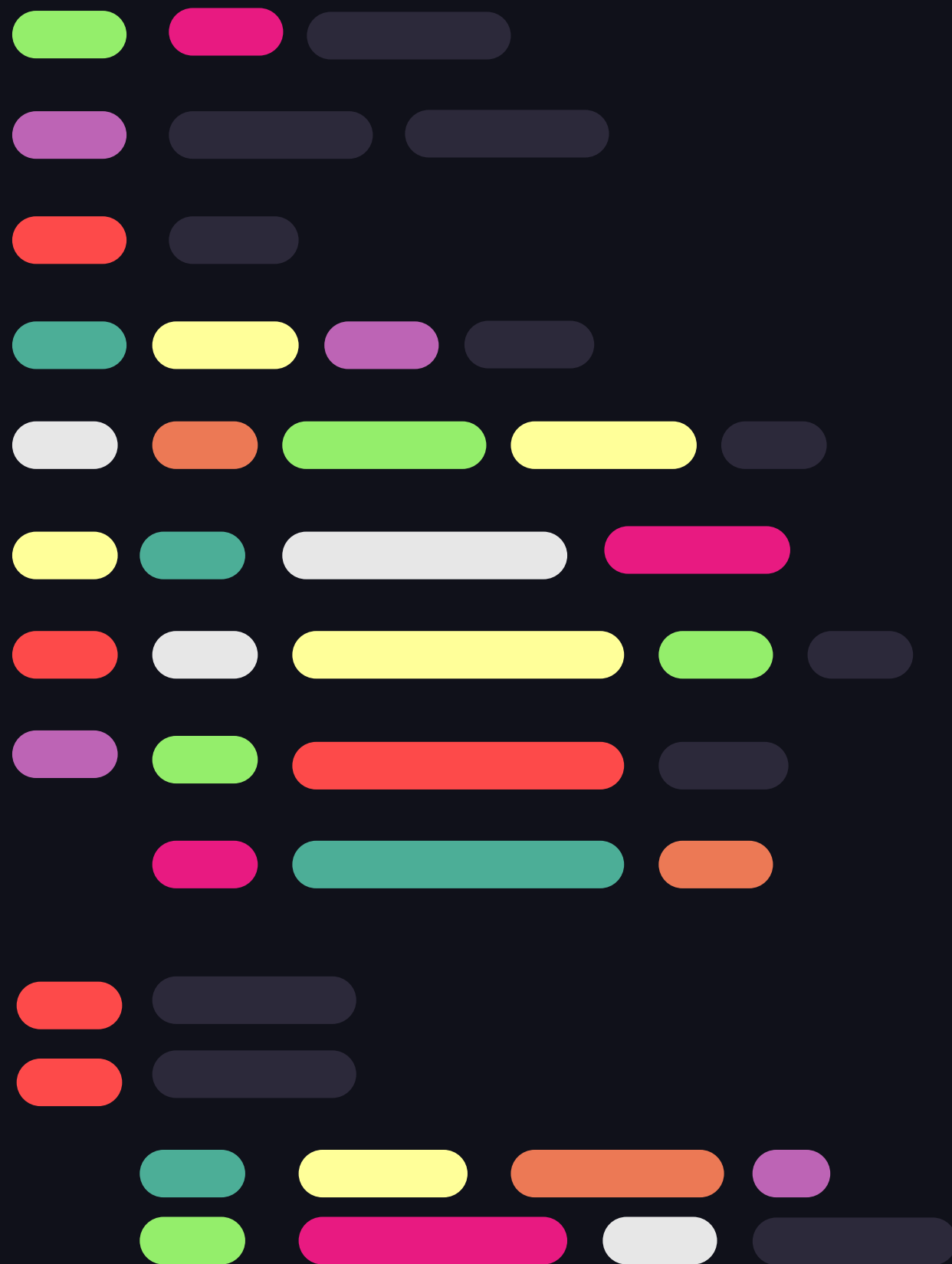
# Thanks!

< Do you have any questions? >

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# Referencias }



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