



**O que faz  
uma boa  
Arquitetura?**

# Temos um problema de código...

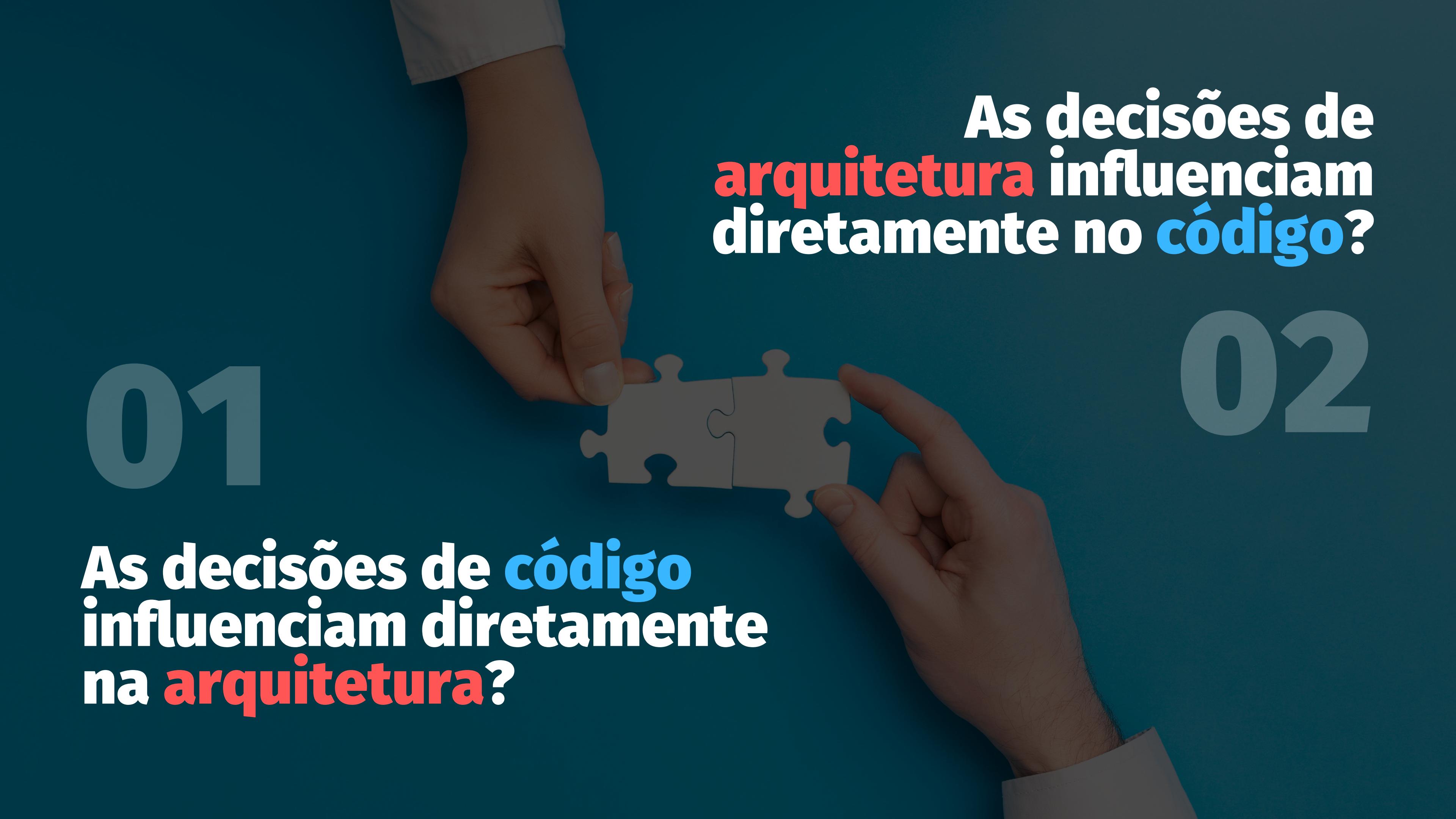
01    itens.forEach(...)

02    itens.map(...)

03    itens.reduce(...)

Temos um problema de código...

Esta escolha vai  
influenciar na  
**Arquitetura?**



As decisões de  
**arquitetura** influenciam  
diretamente no **código**?

01

As decisões de **código**  
influenciam diretamente  
na **arquitetura**?

02

01

# Design

As decisões de código  
influenciam a arquitetura?  
**Arquitetura**



02

As decisões de  
arquitetura  
Código enciam  
diretamente no código?



# Design vs Arquitetura?

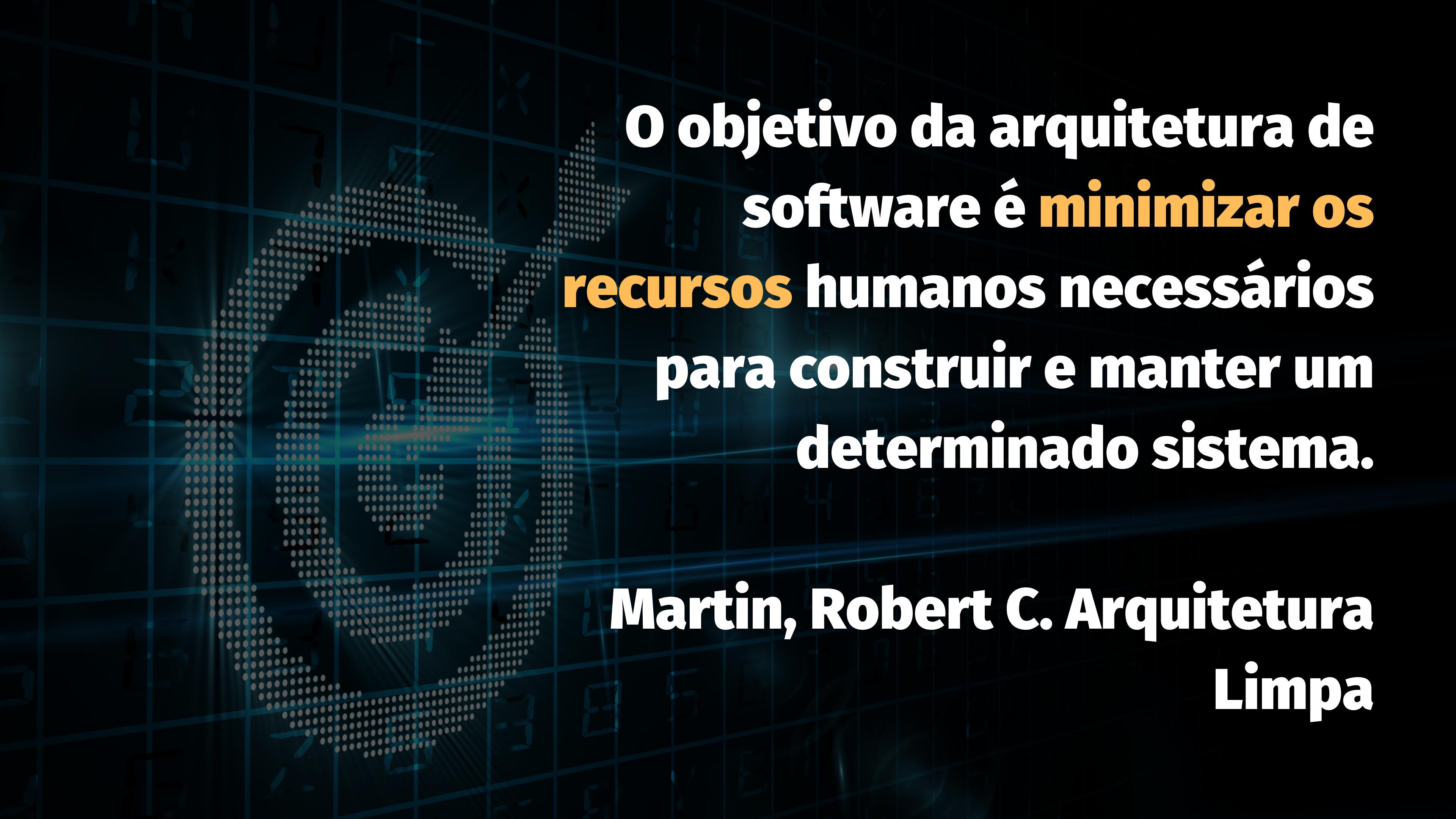




O que é  
**Arquitetura?**

Em geral, a palavra "**arquitetura**" é usada no contexto de algo em um nível mais alto e que independe dos detalhes dos níveis mais baixos, enquanto "**design**" parece muitas vezes sugerir as estruturas e decisões de nível mais baixo.

**Martin, Robert C. Arquitetura Limpa**



O objetivo da arquitetura de  
software é **minimizar os**  
**recursos humanos necessários**  
para construir e manter um  
determinado sistema.

Martin, Robert C. Arquitetura  
Limpa

# Produtividade



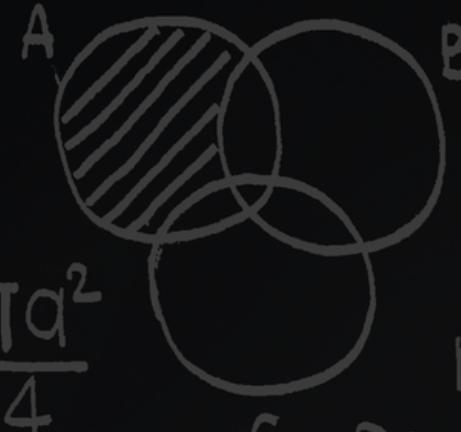
# Desempenho

# Empenho

$$2x^2 + 3x - 90 = 0$$

$$(2x+15)(x-6)=0$$

$$\int_0^a \frac{dx}{\sqrt{a^2-x^2}} = \frac{\pi}{2}$$



$$\log_a(mn) = \log_a m + \log_a n$$

$$n(A \cup B \cup C) - n(B \cup C)$$

$$n(B \cap C) = 22$$

$$n(B) = 68$$

$$n(C) = 84$$

$$n(B \cup C) = n(B) + n(C)$$

$$f(x) \leq 5$$

$$x^2 - 4x + 5 \leq 5$$

$$x^2 - 4x \leq 0$$

$$\sqrt[n]{a^m} = a^{\frac{m}{n}}$$

$$\sqrt[3]{a^3 \cdot a} = \sqrt[3]{a \cdot a^{\frac{1}{3}}}$$

$$\lim_{x \rightarrow a} [f(x) \pm g(x)] = l \pm m$$

$$\lim_{x \rightarrow a} [f(x) \cdot g(x)] = l \cdot m$$

$$\lim_{x \rightarrow a} \frac{1}{f(x)} = \frac{1}{l}$$

$$\bar{x}_1 = \frac{1+3+3+6+8+9}{6} = 5$$

$$\bar{x}_2 = 2+4+4+8+12 = 30$$

$$126 = 6xy$$

$$2x+2y=20$$

$$a^2 + b^2 = c^2$$

$$a = \sqrt{c^2 - b^2}$$

$$b = \sqrt{c^2 - a^2}$$

$$c = \sqrt{a^2 + b^2}$$

$$\sin B = \frac{4\sqrt{3}}{8}$$

$$\sin 60^\circ = \frac{\sqrt{3}}{2}$$

$$\cos B = \frac{y}{8}$$

$$\cos 60^\circ = \frac{1}{2}$$

$$\frac{1}{2} = \frac{y}{8} \rightarrow y = 4$$

$$AB + BC = x + y = 52 + (0.4)(53 - 52)$$

$$x + y = 8 + 4 = 52.4$$

$$P_{86} = X_{34} + 0.4(X_{35} - X_{34})$$

$$\lambda = \frac{2\ell}{n}$$

$$v = \sqrt{\mu}$$

$${}^1H + {}^1n \rightarrow {}^2H + 2.23 \text{ MeV}$$

$$\frac{\sin \theta_1}{\sin \theta_2} = \frac{v_1}{v_2} = \frac{\lambda_1}{\lambda_2} = \frac{n_2}{n_1}$$

$$n_1$$

$$n_2$$

$$\theta_1$$

$$\theta_2$$

$$x \sqrt{3} = 8\sqrt{3}$$

$$2a = 8$$

$$a = 4$$

$$x = 8 + 4 = 12$$

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# Grady Booch



A arquitetura representa  
as **decisões significativas**  
**de design** que moldam  
um sistema, onde a  
significância é medida  
pelo **custo** da mudança.

**"A arquitetura é o conjunto de decisões que você queria ter tomado logo no início de um projeto, mas, como todo mundo, não teve a imaginação necessária."**

**Ralph Johnson**

**"Architecture is about the important stuff. Whatever that is"**

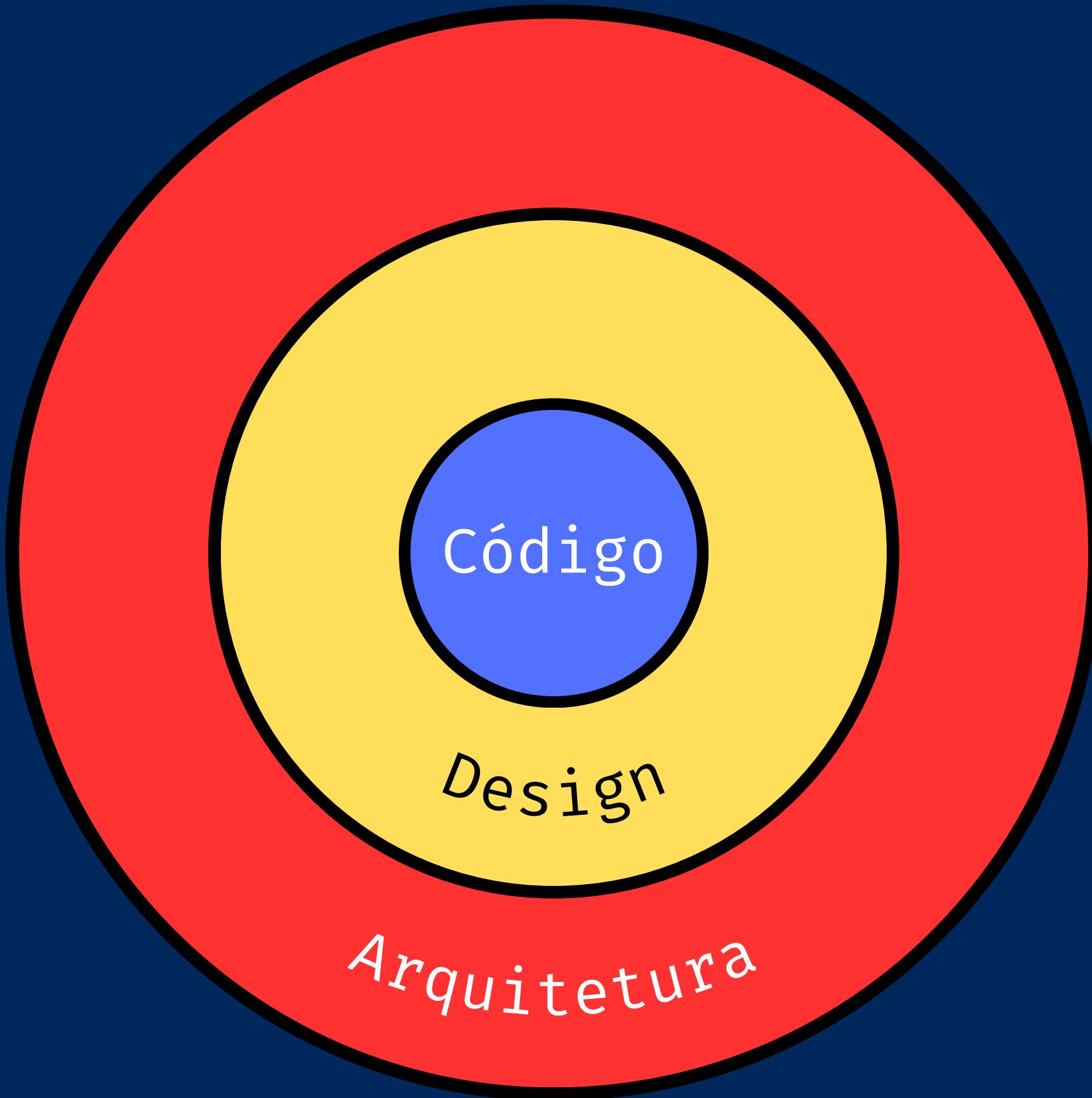


# Quem depende de quem?

Código

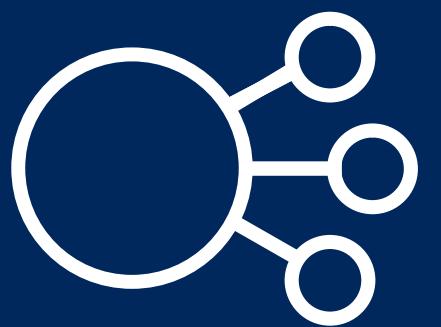
Design

Arquitetura



A arquitetura  
sempre impacta no  
design, mas o  
design nem  
sempre impacta na  
arquitetura!

# Componentes



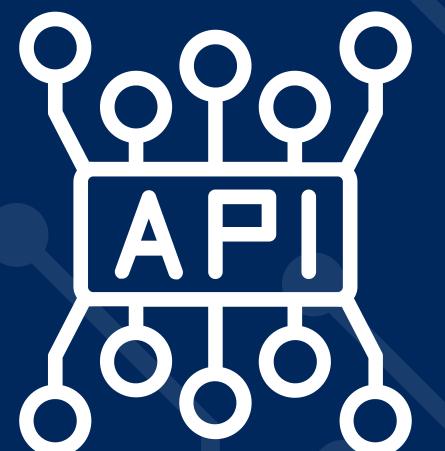
Load Bal.



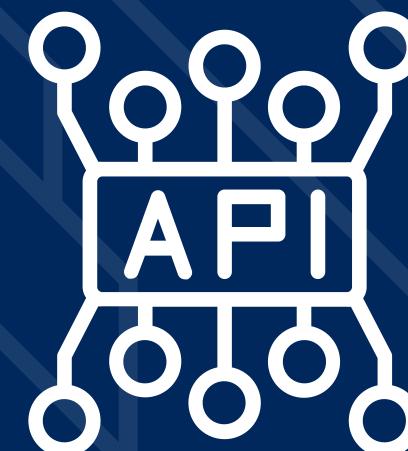
Queue



Frontend



API Z

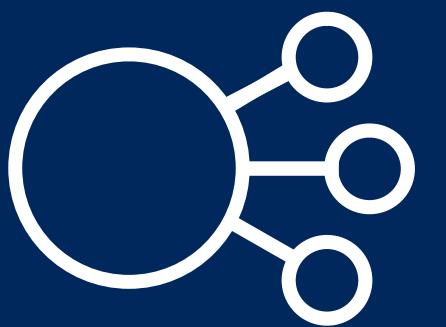


API X

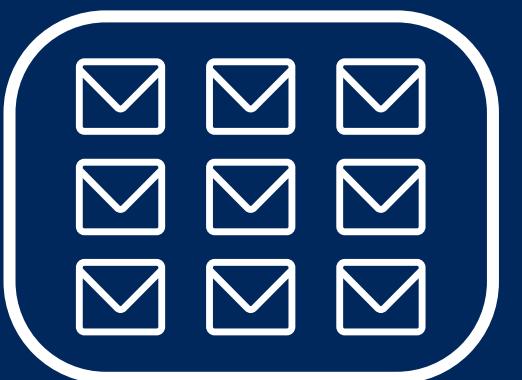


Databases

# Responsabilidade



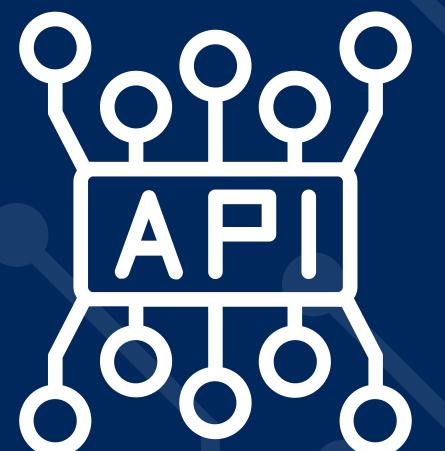
Load Bal.



Queue



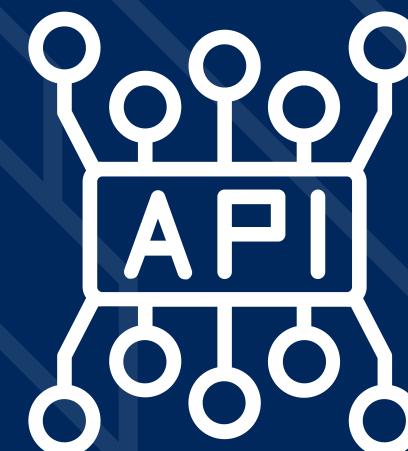
Frontend



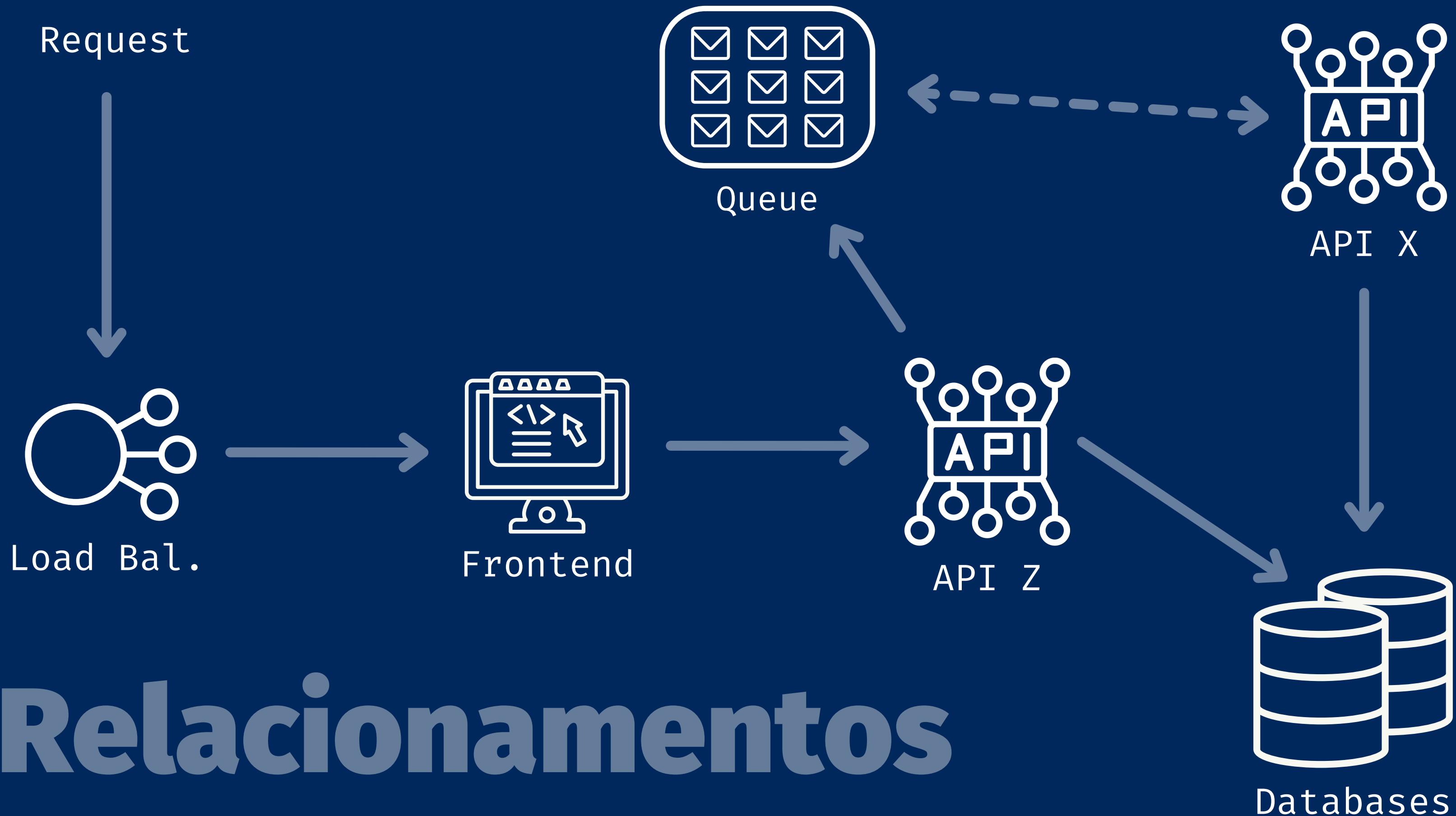
API Z



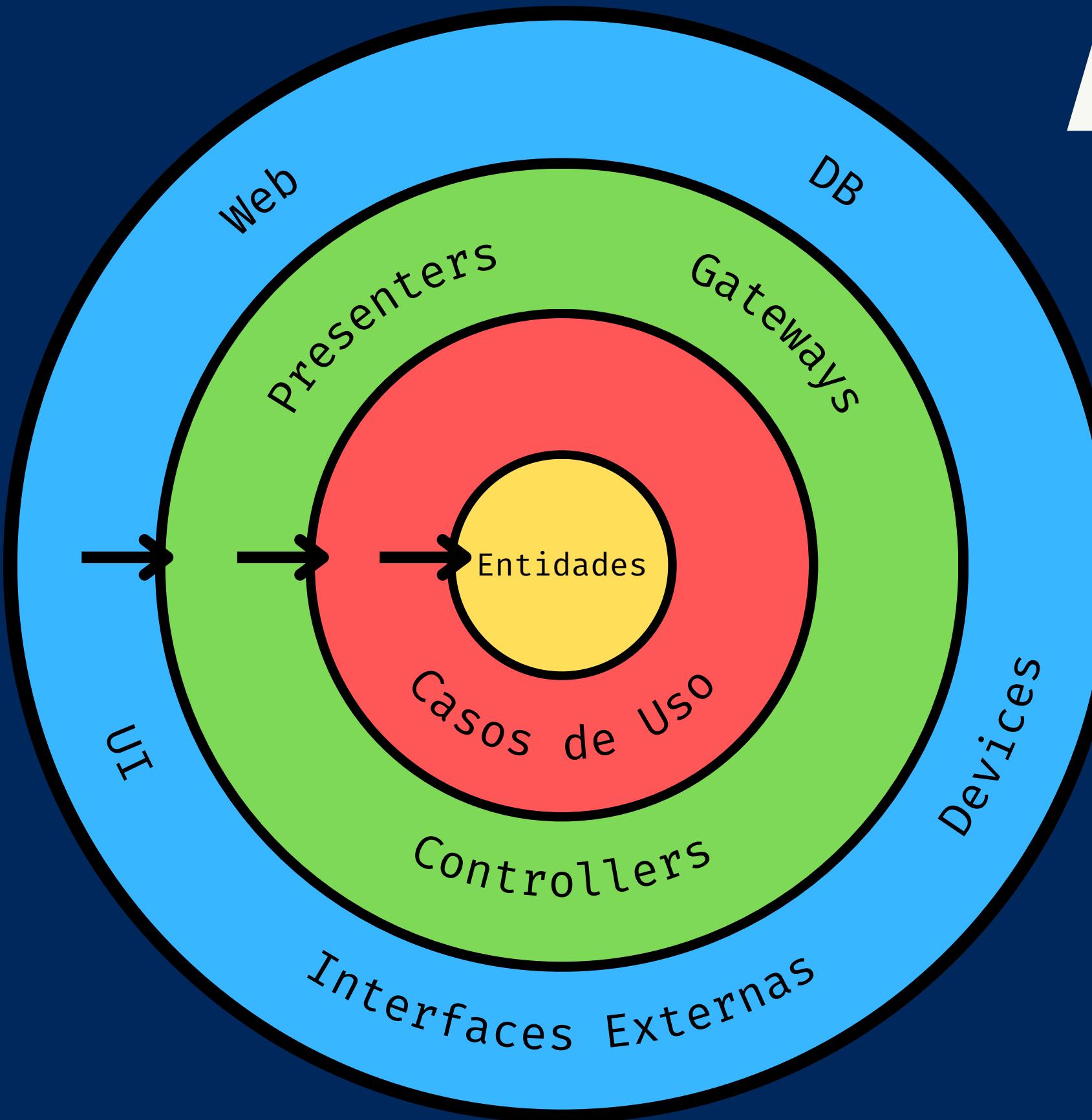
Databases



API X

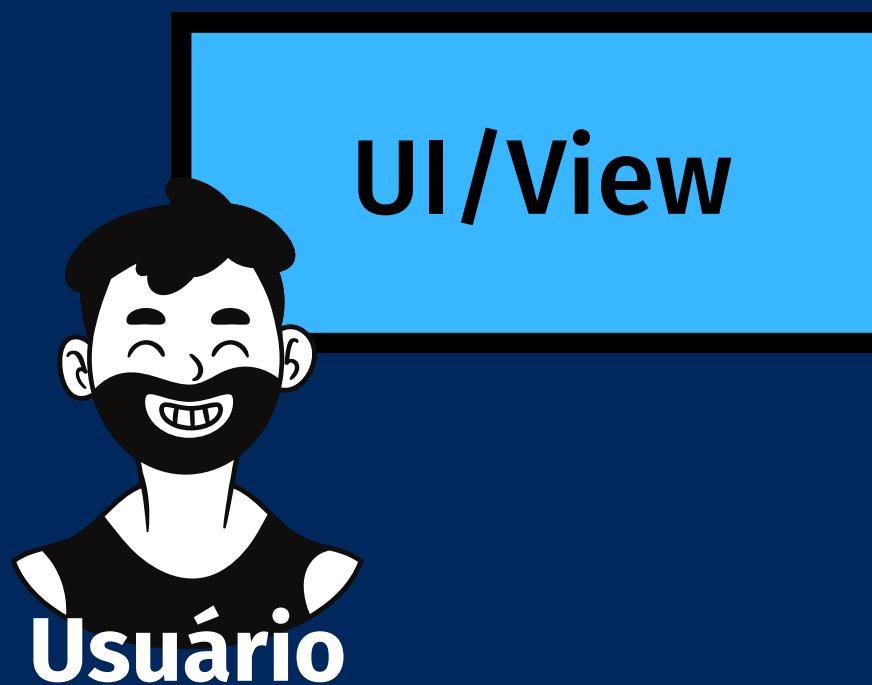


# Arquitetura Limpa ou seria Design Limpo

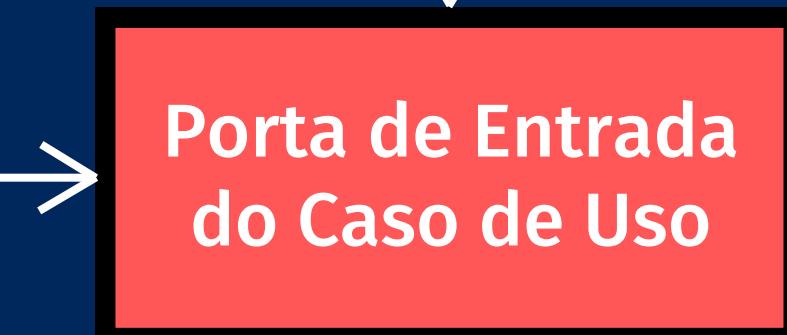
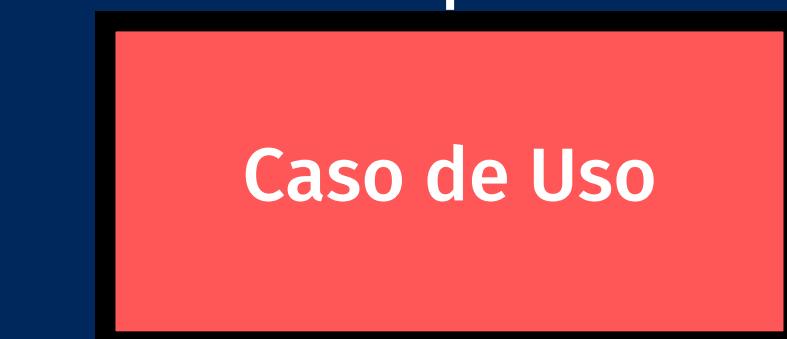
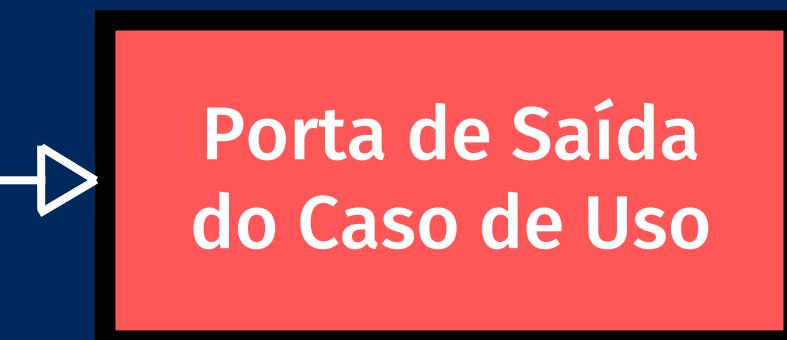


- █ Regras de Negócio de Domínio
- █ Regras de Negócio de Aplicação
- █ Adaptadores de Interface
- █ Frameworks & Drivers

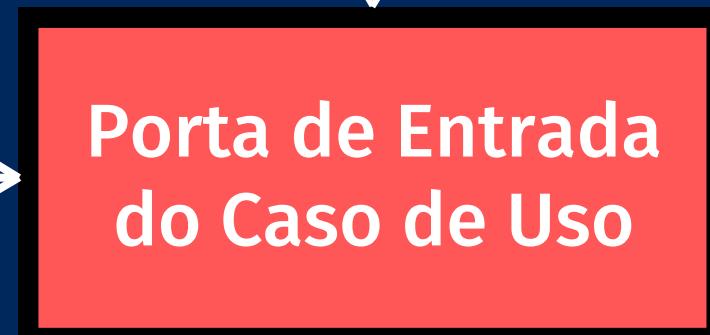
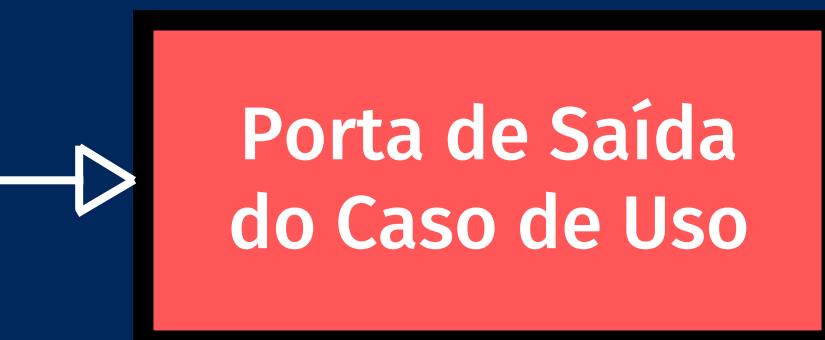
## Interfaces Externas



## Interfaces Adaptadoras



## Regras de Aplicação



Presenter

Porta de Saída  
do Caso de Uso

Controller

Porta de Entrada  
do Caso de Uso

Caso de Uso

## Interfaces Externas



UI/View

## Interfaces Adaptadoras

Presenter

Controller

## Regras de Aplicação

Porta de Saída do Caso de Uso

Caso de Uso

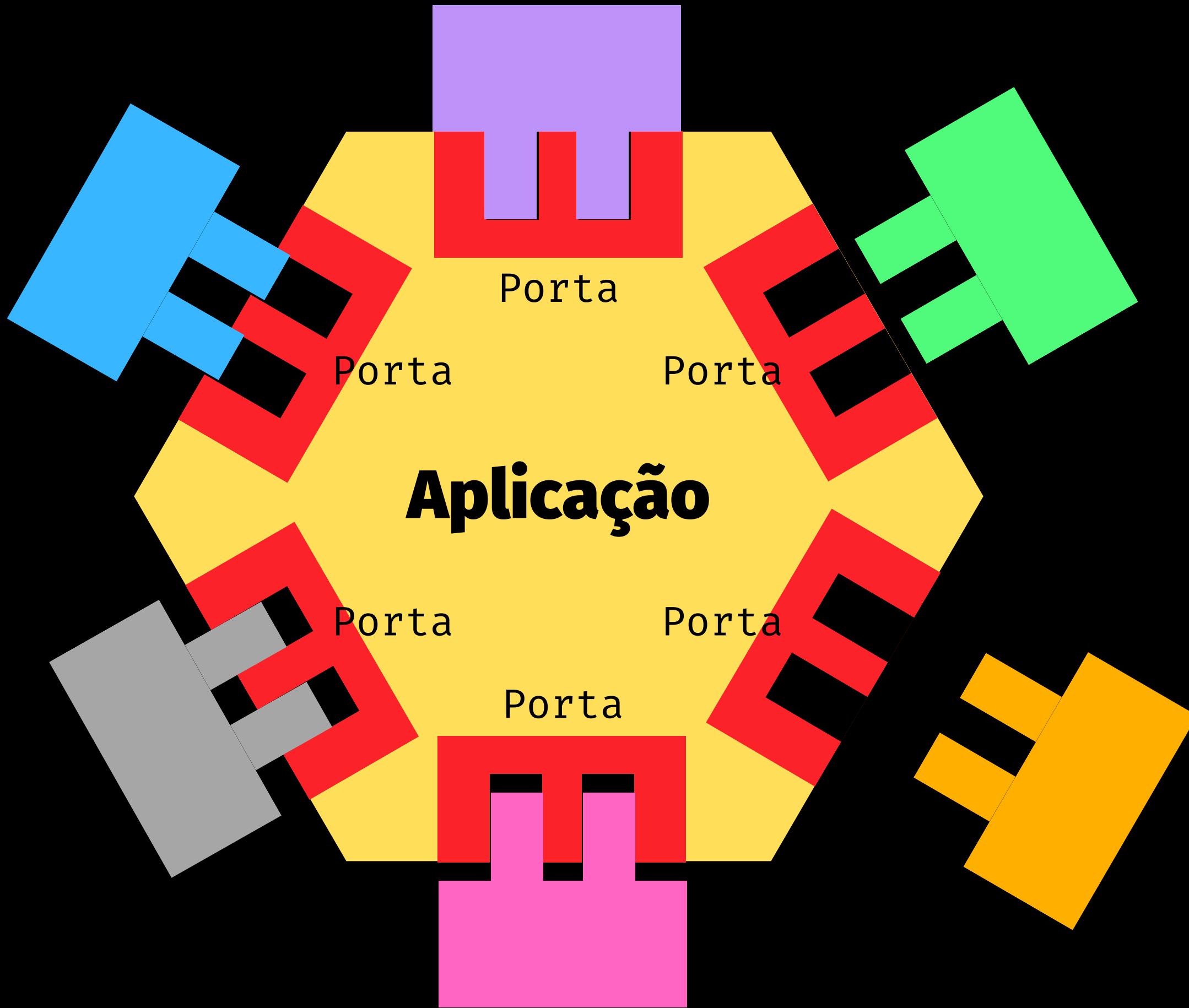
Porta de Entrada do Caso de Uso

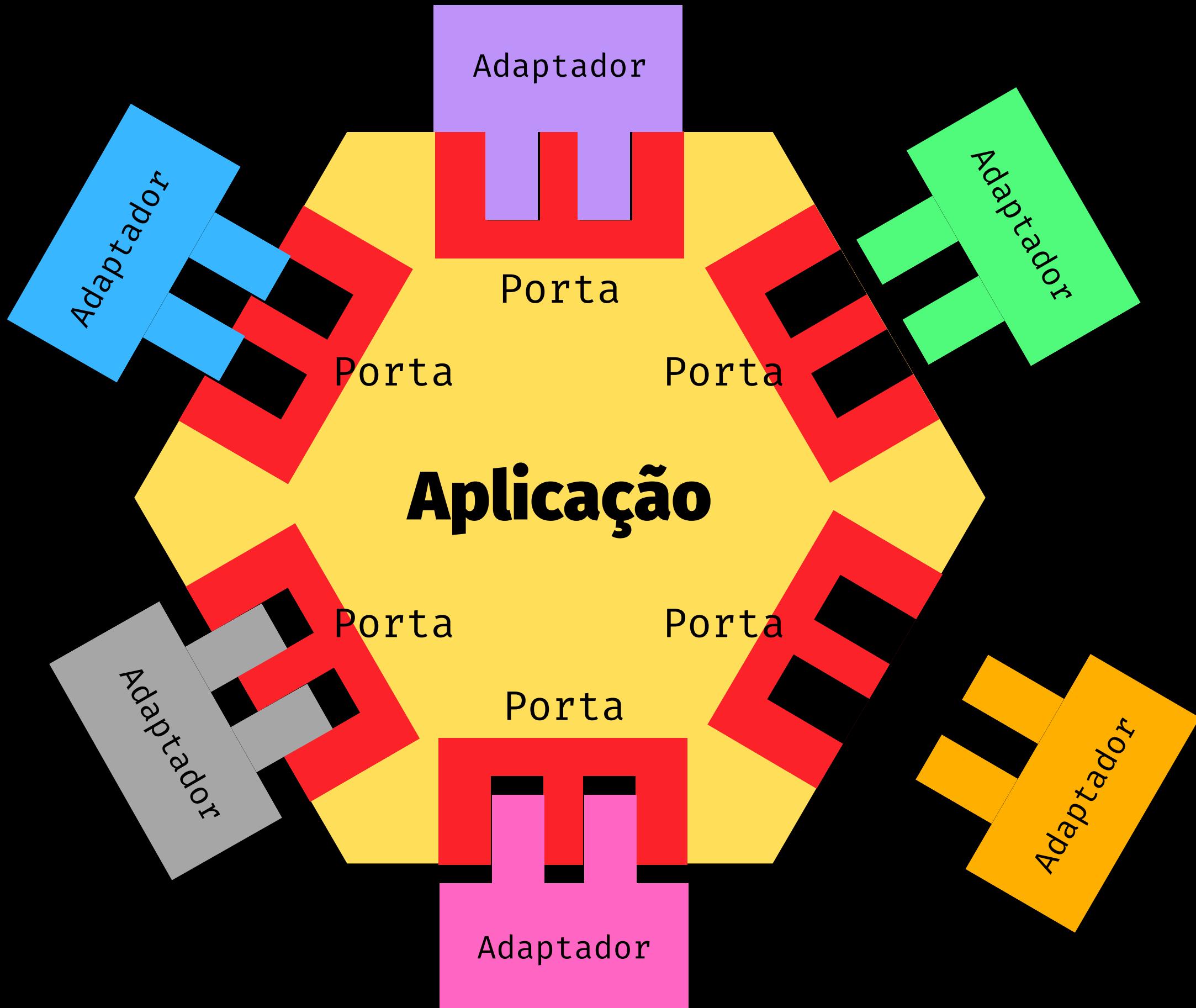


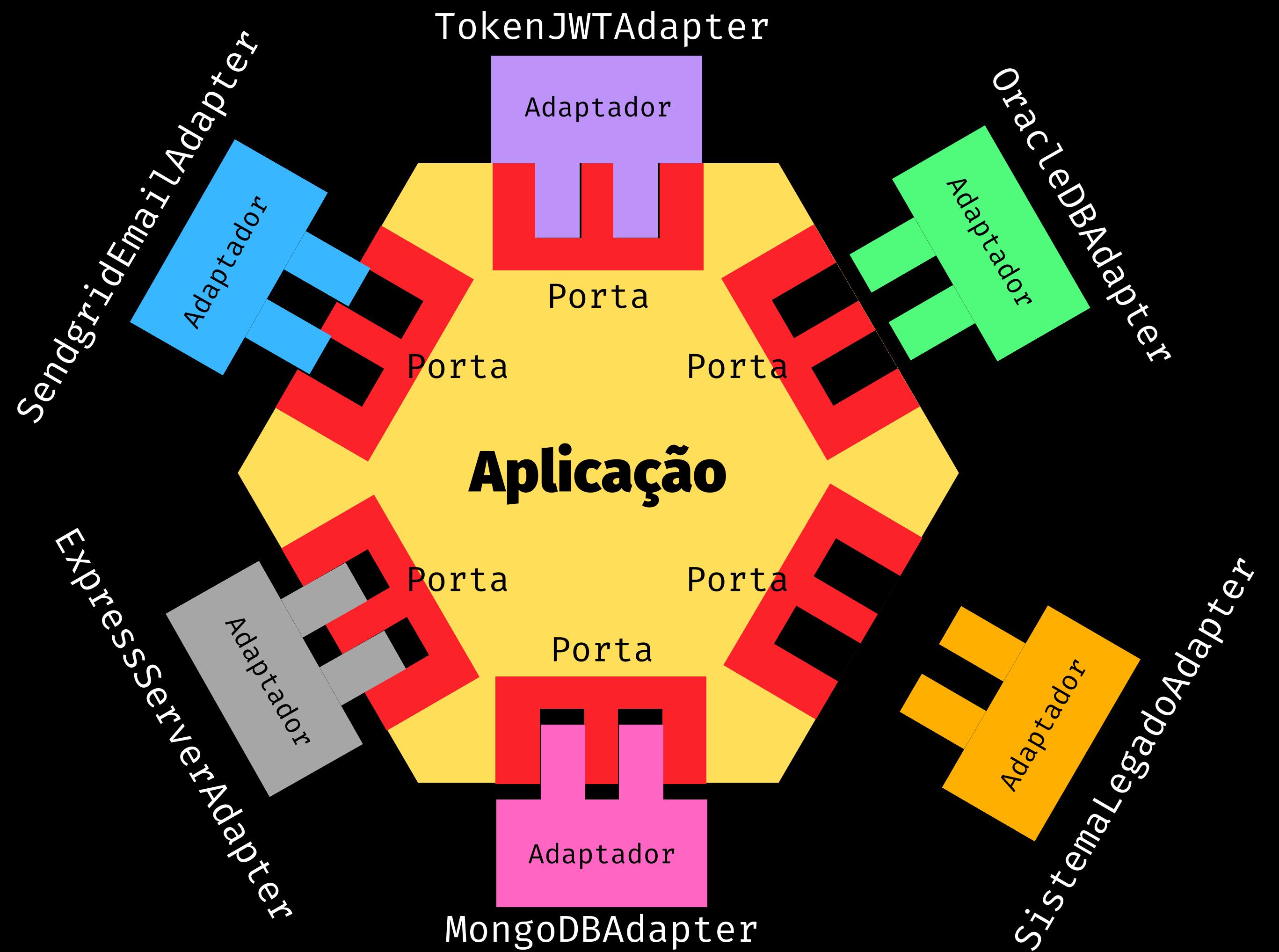


**Aplicação**









# Juan Manuel Garrido de Paz

<https://jmgarridopaz.github.io/content/hexagonalarchitecture.html>

## Ports and Adapters Pattern (Hexagonal Architecture)

Published on August 29, 2018 by Juan Manuel Garrido de Paz

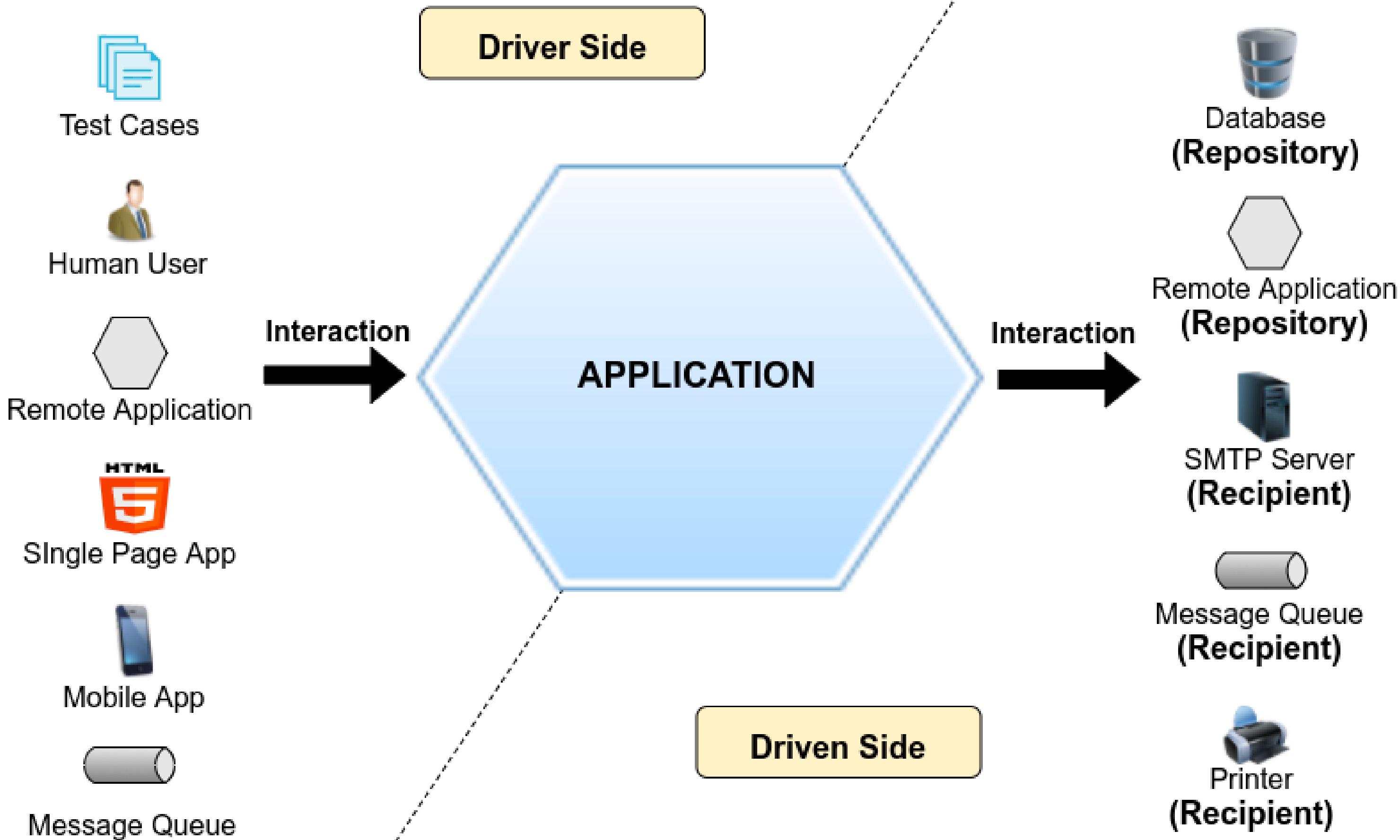
*This article is for sharing my knowledge about Ports & Adapters pattern (also known as Hexagonal Architecture), hoping it can be helpful to someone interested in this subject. Here I expose my understanding of this architecture pattern, after being reading articles, watching talks and learning about it, since I first heard of it two years ago. This is a conceptual article, rather than a practical one. I hope to publish a pragmatic article soon, explaining my implementation of this architecture using Java 9 modules; and I hope to upload a proof of concept to github as well*

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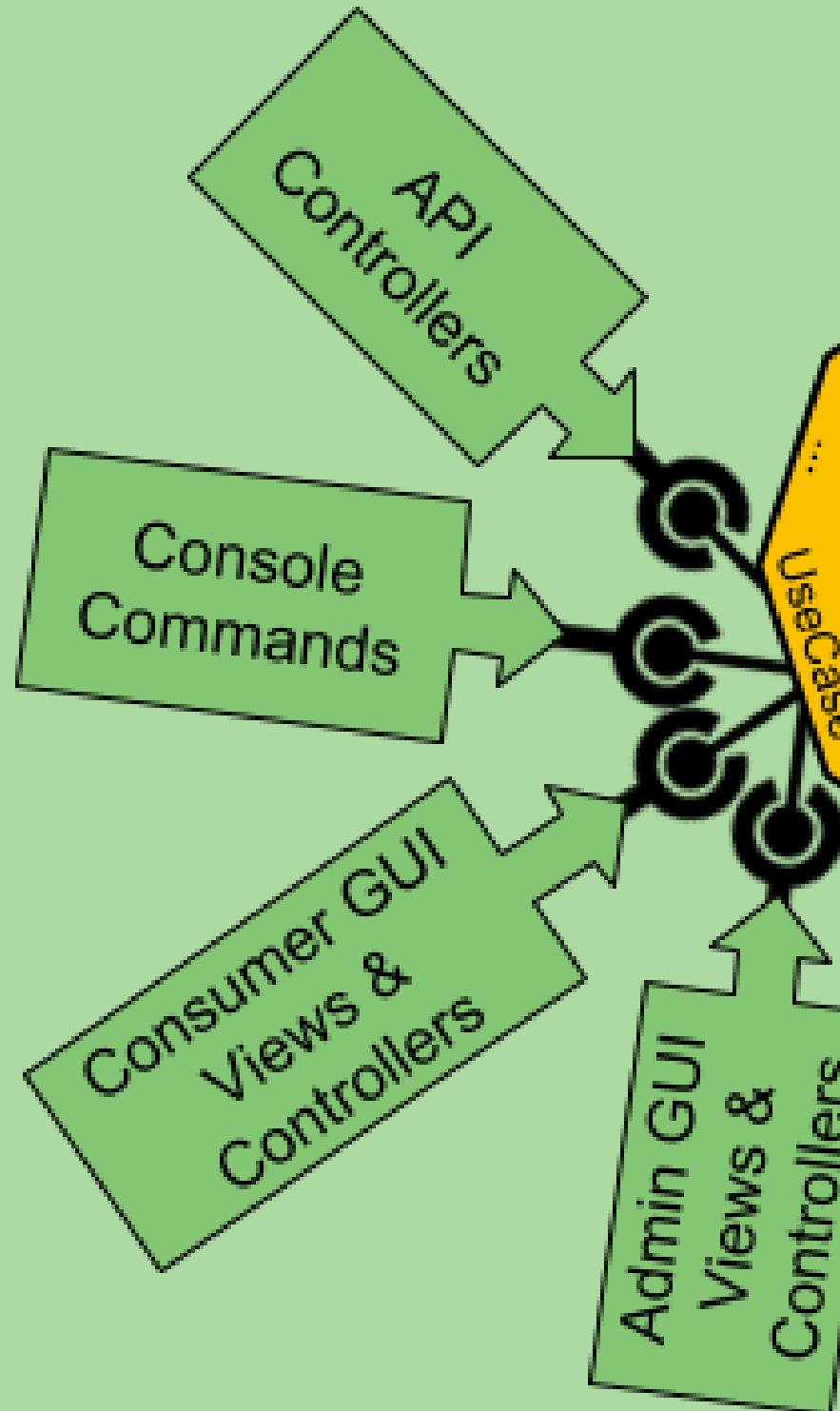
- 1. [Introduction](#)
- 2. [The Architecture](#)
  - 2.1. The Hexagon
  - 2.2. Actors
  - 2.3. Ports
  - 2.4. Adapters
  - 2.5. Summary
  - 2.6. Example
- 3. [Configurable Dependency Pattern](#)

**DRIVERS  
(Primary Actors)**

<https://jmgarridopaz.github.io/content/hexagonalarchitecture.html> (Secondary Actors)



## Primary/Driving Adapters



## Secondary/Driven Adapters

