



PROF. RENÊ XAVIER

renefx@gmail.com

DESENVOLVIMENTO PARA IOS 11 COM SWIFT 4



ONDE ENCONTRAR O MATERIAL?

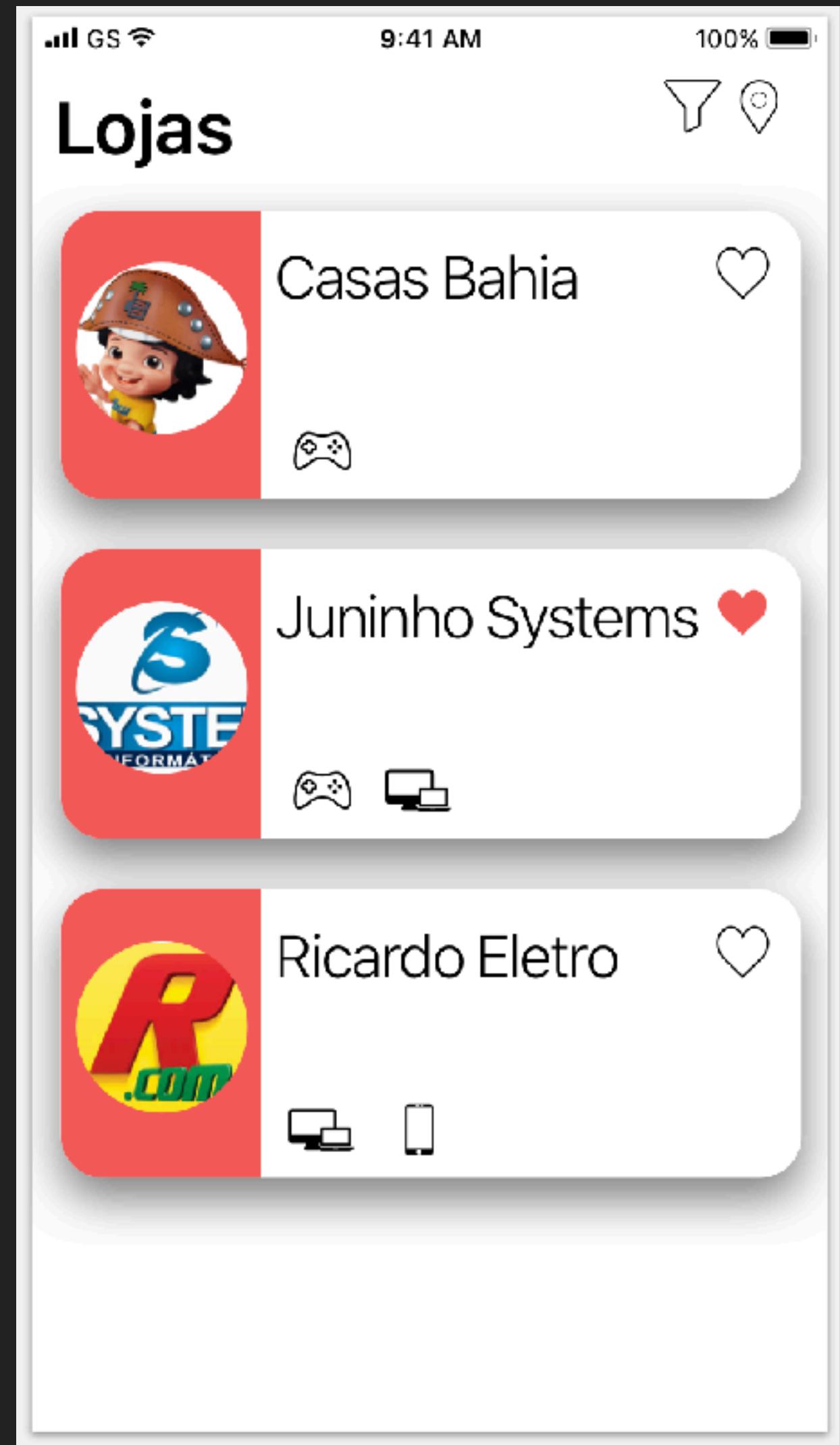
LEIA O QR CODE

ALÉM DO TRADICIONAL BLACKBOARD DO IESB

O QUE VAMOS FAZER HOJE?

AGENDA

- ▶ Entendendo Storyboards.
- ▶ Controlando a UI com o Autolayout.

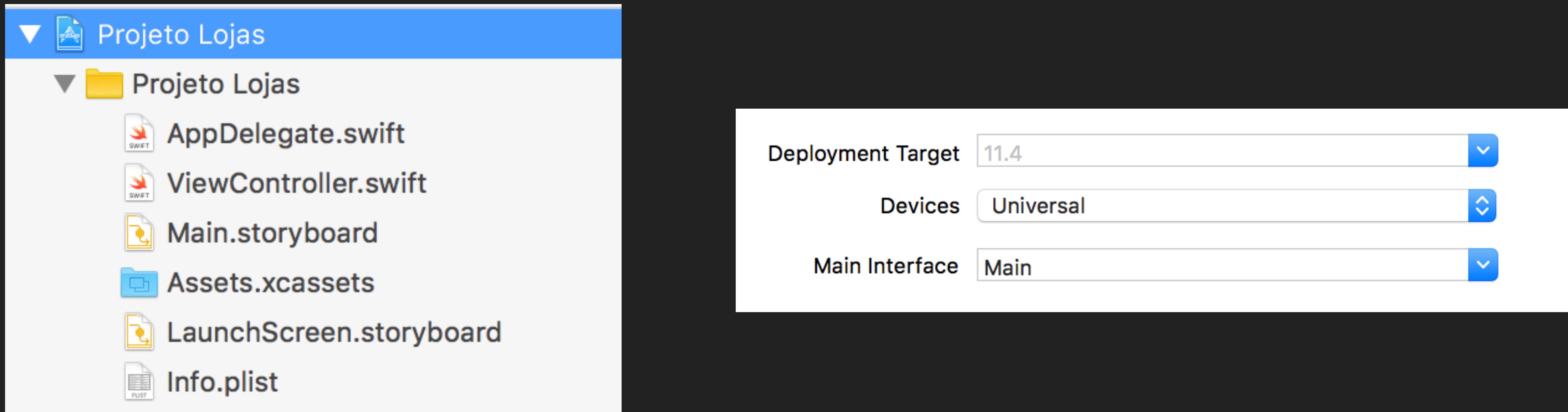




STORYBOARDS

STORYBOARDS - DEFINIÇÃO

- Arquivos visuais do projeto;
- O inicial é definido no seu projeto;



STORYBOARDS - DEFINIÇÃO

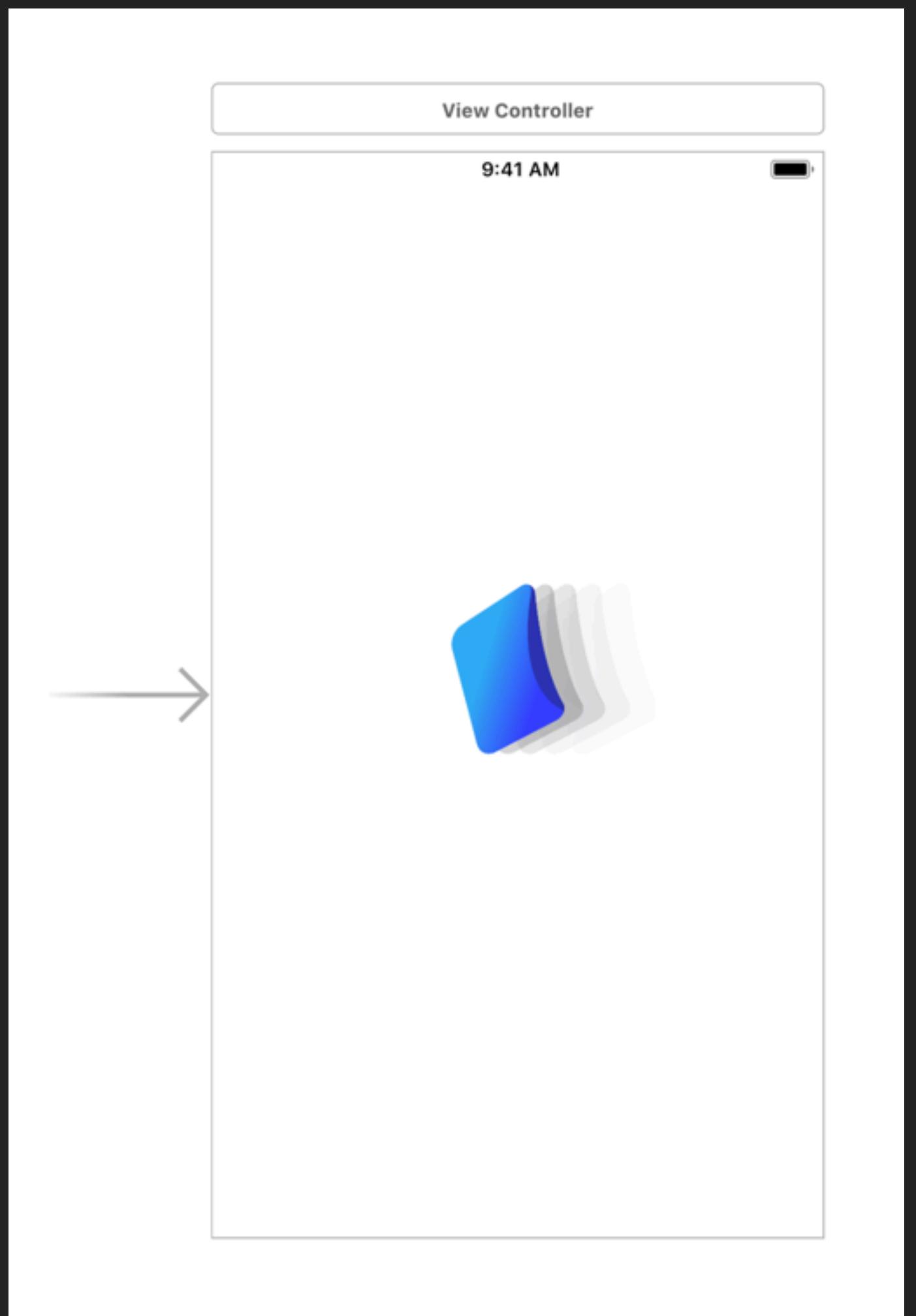
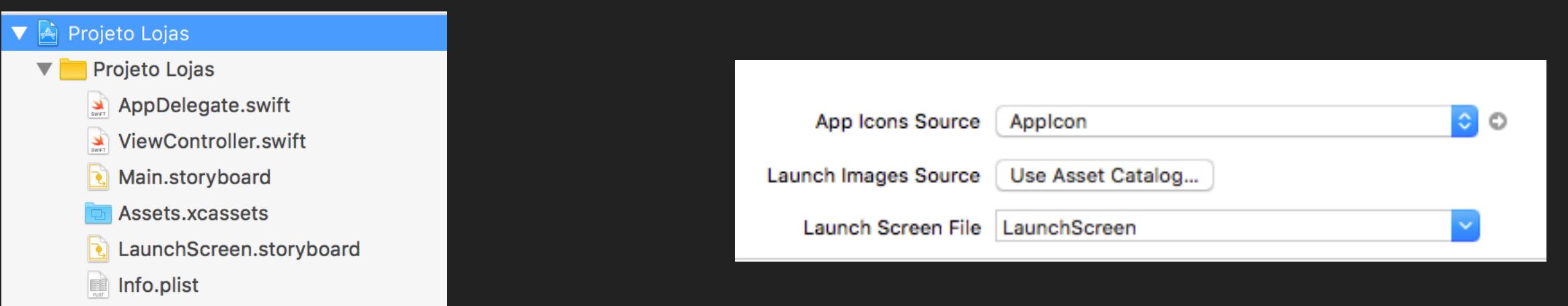
- ▶ Você pode criar todo o seu app em um só storyboard;
- ▶ Mas não abuse 😢
- ▶ Mais de um storyboard por projeto (iPhone/iPad/Funcionalidade);



STORYBOARDS - DEFINIÇÃO

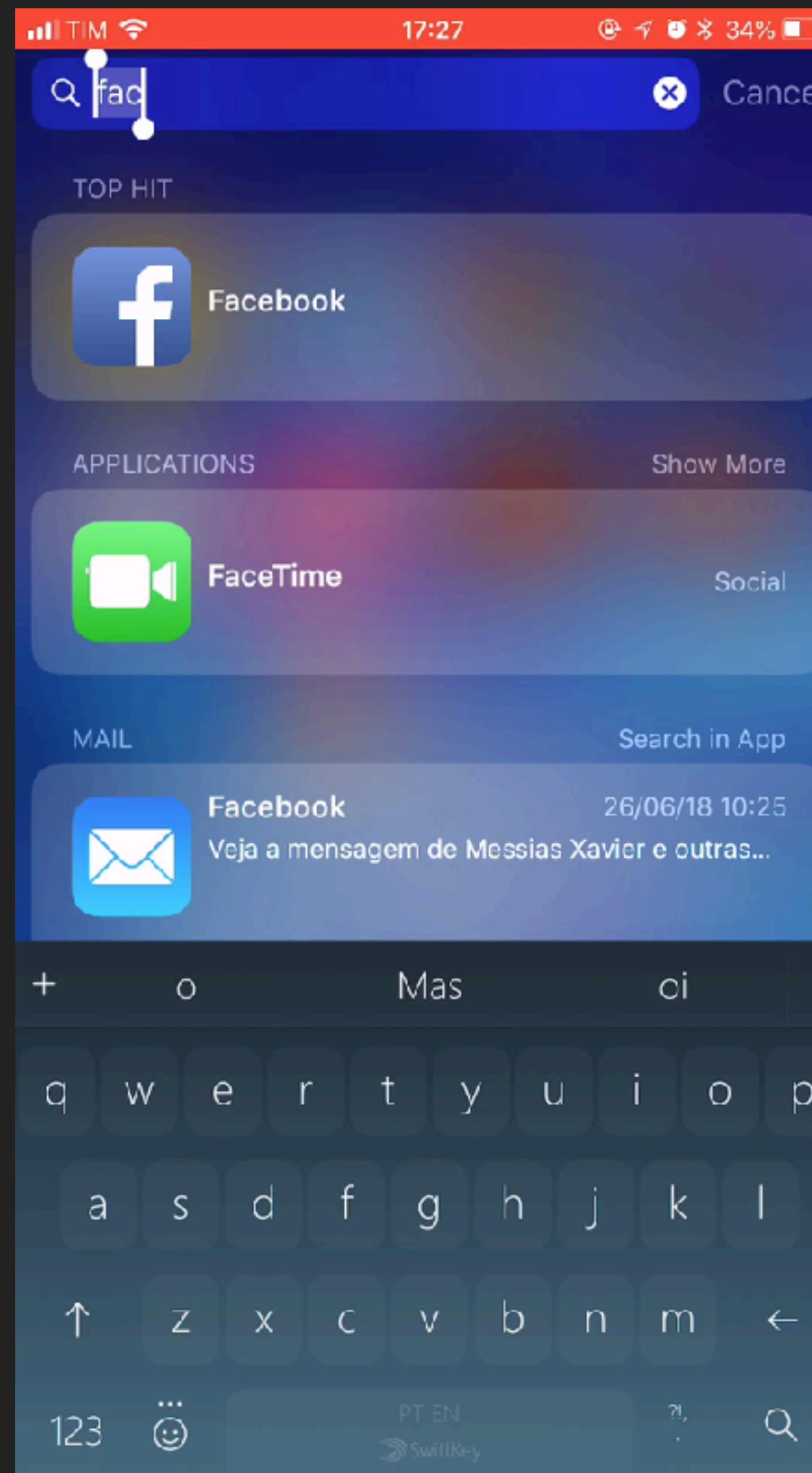
LAUNCH SCREEN. STORYBOARD

- ▶ Splash screen que deve ser próxima da tela do app;



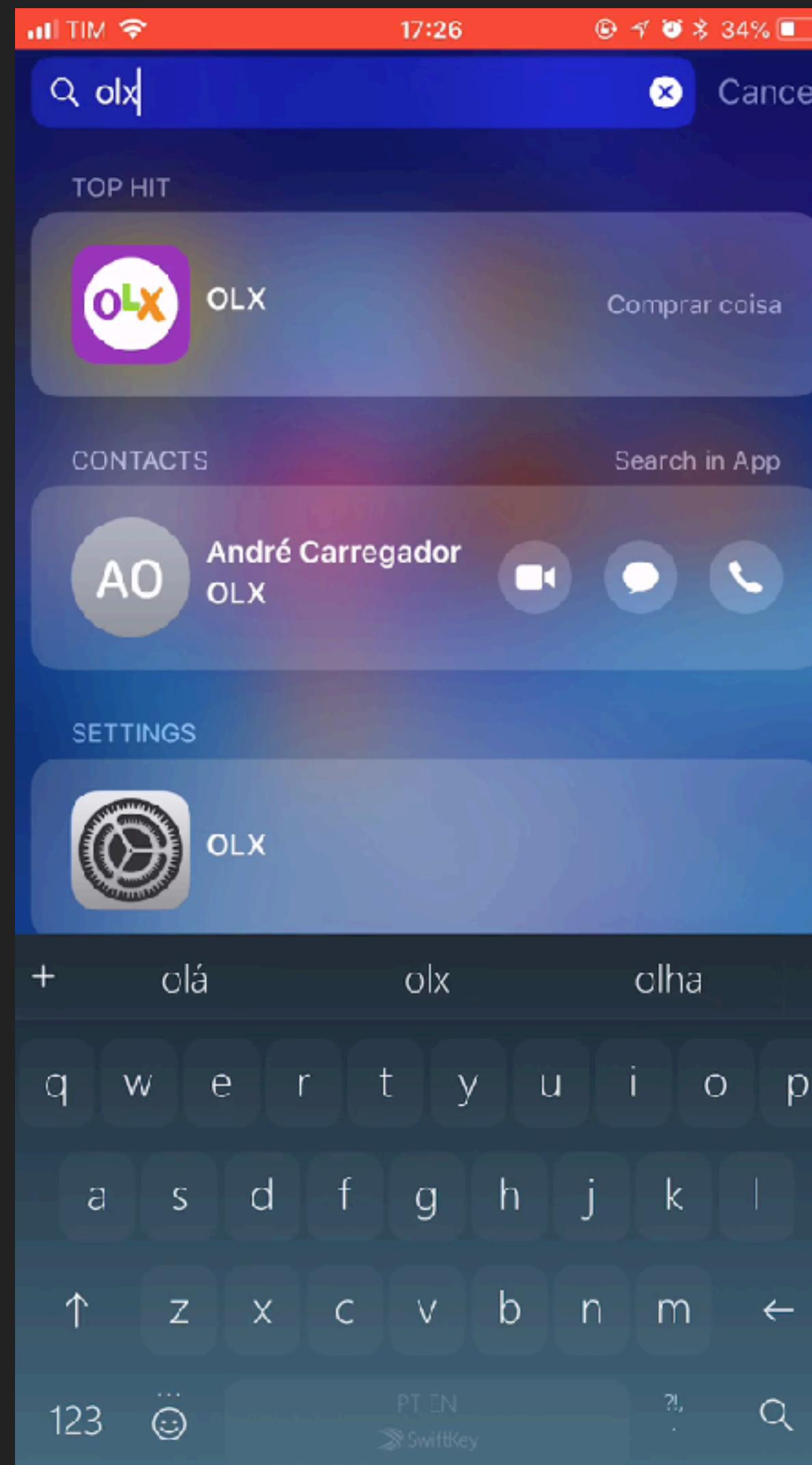
STORYBOARDS - EXEMPLOS

LAUNCH SCREEN. STORYBOARD



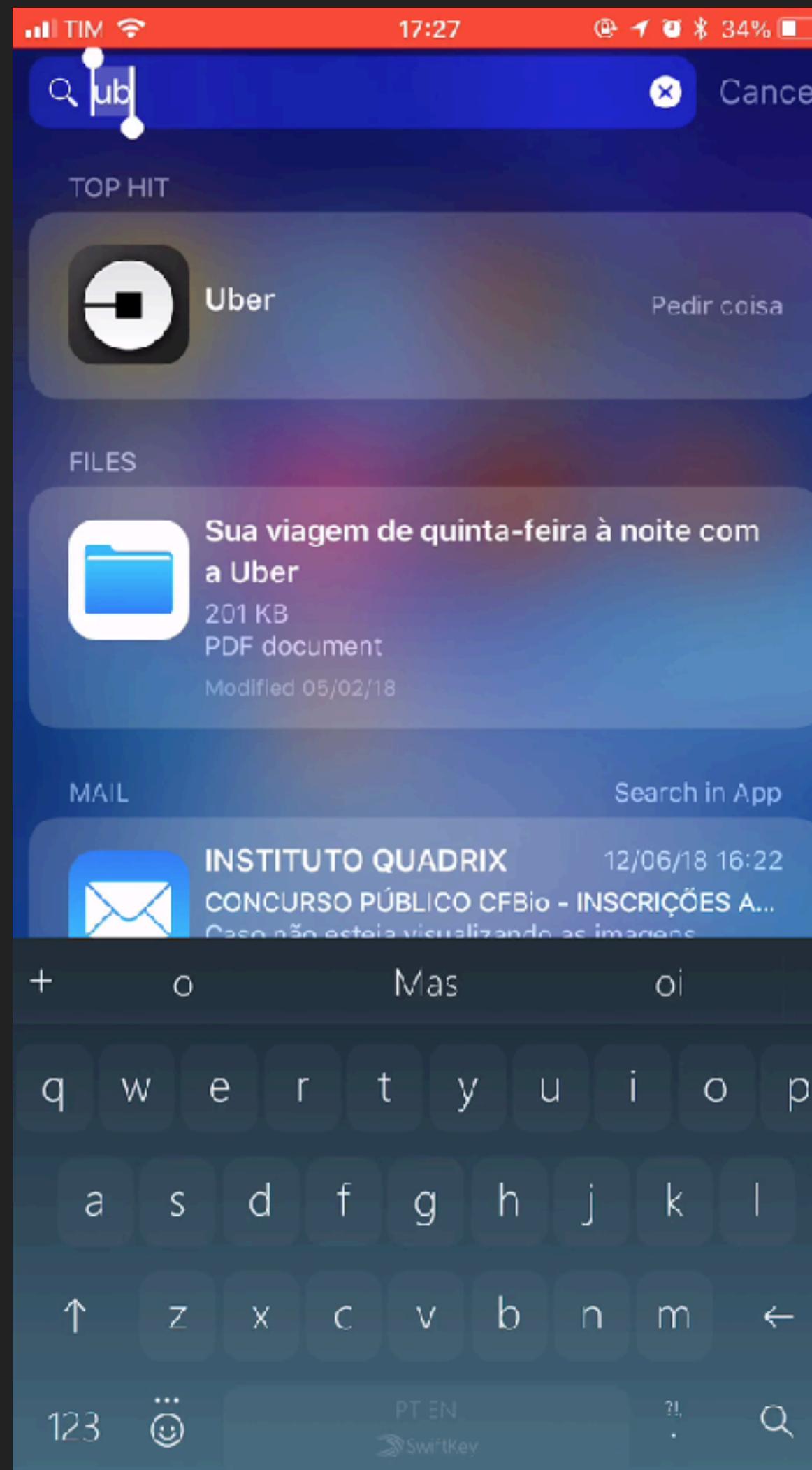
STORYBOARDS - EXEMPLOS

LAUNCH SCREEN. STORYBOARD



STORYBOARDS - EXEMPLOS

LAUNCH SCREEN. STORYBOARD



FERRAMENTAS PARA TRABALHAR COM STORYBOARDS



Canto Superior Direito

STORYBOARDS - FERRAMENTAS



FILE INSPECTOR

Visualizar as informações do arquivo storyboard:
-Localização no disco;
-Se usa ou não Auto Layout;
-Se usa a Safe Area.

QUICK HELPER INSPECTOR

Exibe uma ajuda do elemento visual selecionado.
Exibe a documentação provida pela Apple.

IDENTITY INSPECTOR

Prioritariamente serve para informar qual classe implementa aquele elemento visual.

Também pode conter customizações (pequenas) do elemento visual.

É possível declarar as tags de acessibilidade.

ATTRIBUTES INSPECTOR

Onde será feita a maior parte das personalizações do elemento visual.

STORYBOARDS - FERRAMENTAS



SIZE INSPECTOR

Determina o tamanho do elemento visual

Determina sua posição na tela

Determina seu comportamento em diferentes tamanhos de tela

CONNECTIONS INSPECTOR

Exibe as conexões do elemento visual com o código (classes .swift)

Exibe as conexões do elemento visual com outras telas. Ex:
Botão

STORYBOARDS - FERRAMENTAS



FILE TEMPLATE LIBRARY

Clicar e arrastar para o projeto
cria um novo arquivo daquele
tipo.

O mesmo que Command+N

CODE SNIPPET LIBRARY

Dá a possibilidade de adicionar
um trecho de código no seu
arquivo.

OBJECT LIBRARY

São os objetos/elementos
visuais que podem ser
adicionados no Storyboard.

MEDIA LIBRARY

Exibe os arquivos de imagem no
seu projeto.

Ao adicionar no storyboard ele
já vira uma ImageView

FILE TEMPLATE E MEDIA LIBRARY SERÃO REMOVIDOS NO XCODE 10



STORYBOARDS - FERRAMENTAS

OBJECT LIBRARY

	View Controller - A controller that manages a view.
	Storyboard Reference - Provides a placeholder for a view controller in an external storyboard.
	Navigation Controller - A controller that manages navigation through a hierarchy of views.
	Table View Controller - A controller that manages a table view.
	Collection View Controller - A controller that manages a collection view.
	Tab Bar Controller - A controller that manages a set of view controllers that represent tab bar items.
	Split View Controller - A composite view controller that manages left and right view controllers.
	Page View Controller - Presents a sequence of view controllers as pages.
	GLKit View Controller - A controller that manages a GLKit view.
	AVKit Player View Controller - A view controller that manages a AVPlayer object.
	Object - Provides a template for objects and controllers not directly available in Interface Builder.

	Label Label - A variably sized amount of static text.
	Button Button - Intercepts touch events and sends an action message to a target object when it's tapped.
	Segmented Control - Displays multiple segments, each of which functions as a discrete button.
	Text Field - Displays editable text and sends an action message to a target object when Return is tapped.
	Slider - Displays a continuous range of values and allows the selection of a single value.
	Switch - Displays an element showing the boolean state of a value. Allows tapping the control to toggle the value.
	Activity Indicator View - Provides feedback on the progress of a task or process of unknown duration.
	Progress View - Depicts the progress of a task over time.
	Page Control - Displays a dot for each open page in an application and supports sequential navigation through the pages.
	Stepper - Provides a user interface for incrementing or decrementing a value.
	Horizontal Stack View - Arranges views linearly.
	Vertical Stack View - Arranges views linearly.
	Table View - Displays data in a list of plain, sectioned, or grouped rows.
	Table View Cell - Defines the attributes and behavior of cells (rcws) in a table view.

STORYBOARDS - FERRAMENTAS

CONTROLLERS (VIEW CONTROLLERS)

São quase como uma tela do app.

Possuem diferentes aplicações, por isso os diversos tipos.

Veremos melhor na próxima aula.



View Controller - A controller that manages a view.



Storyboard Reference - Provides a placeholder for a view controller in an external storyboard.



Navigation Controller - A controller that manages navigation through a hierarchy of views.



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STORYBOARDS - FERRAMENTAS

VIEWS (ELEMENTOS VISUAIS)

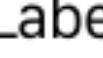
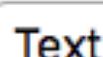
São os elementos que compõem a tela.

Na hierarquia de visual eles ficam dentro das View Controllers

Todos são filhos de UIView. Todos são customizações da UIView.

Por todos serem filhos de UIView, a partir de agora, quando for citado Views, entenda qualquer um desses componentes visuais.

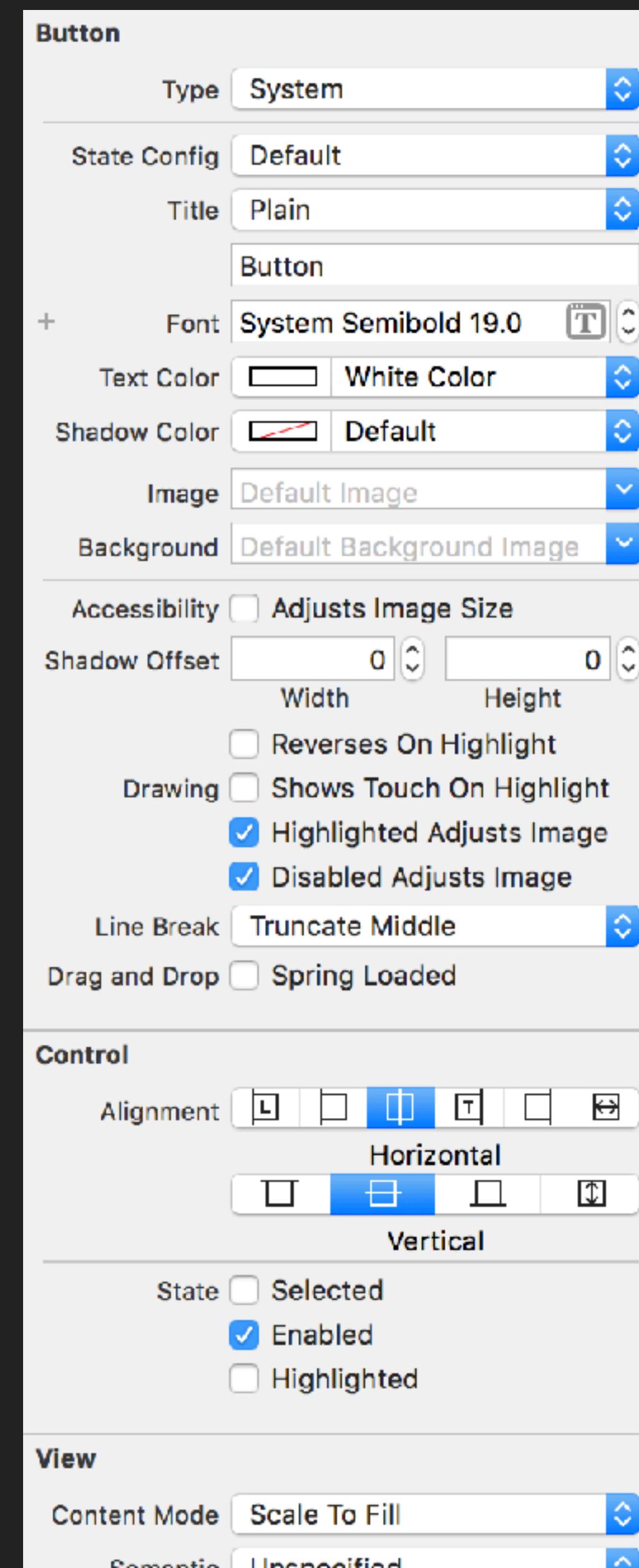
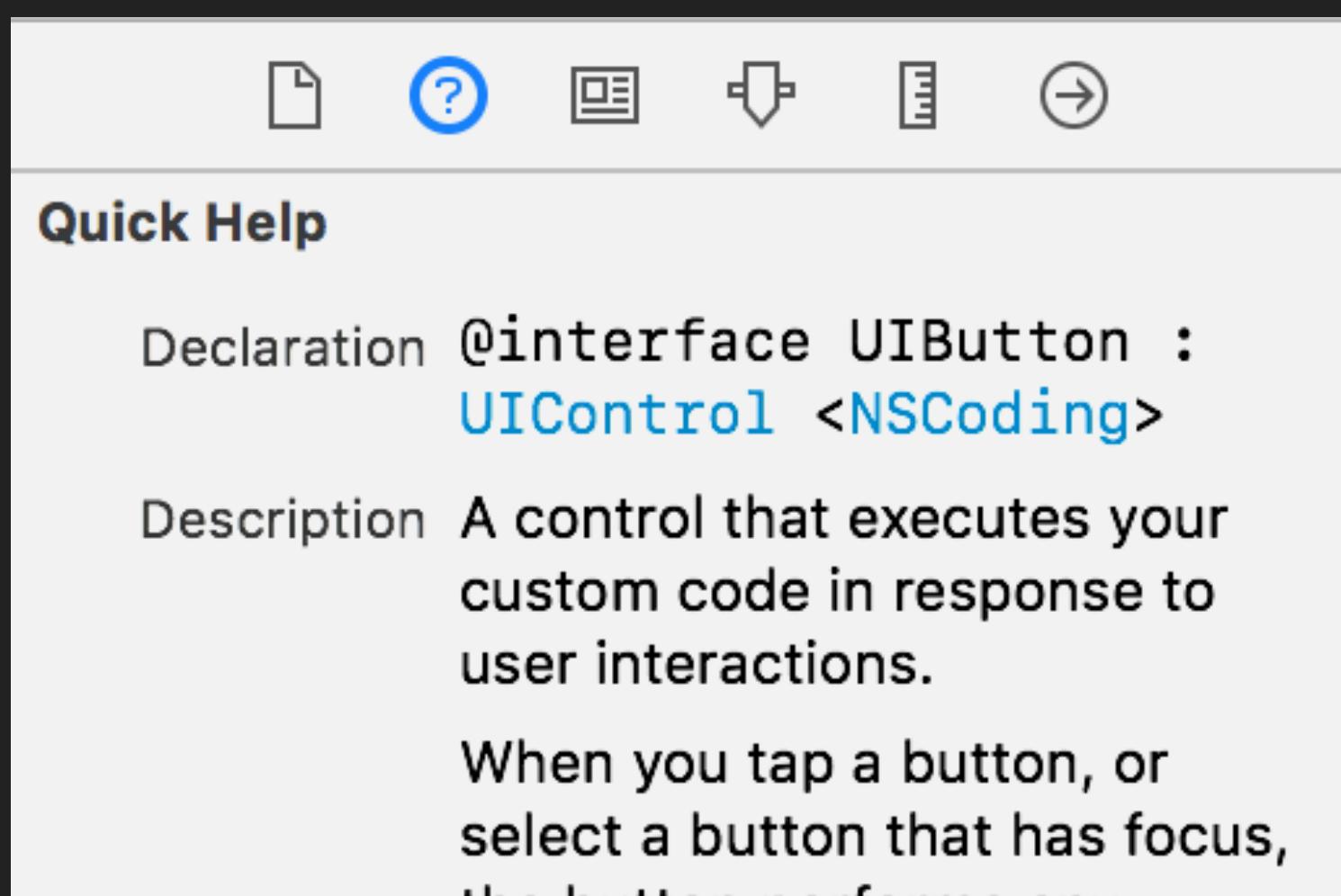
Todos possuem customizações próprias.

 Label	Label - A variably sized amount of static text.
 Button	Button - Intercepts touch events and sends an action message to a target object when it's tapped.
 Segmented Control	Segmented Control - Displays multiple segments, each of which functions as a discrete button.
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STORYBOARDS - FERRAMENTAS

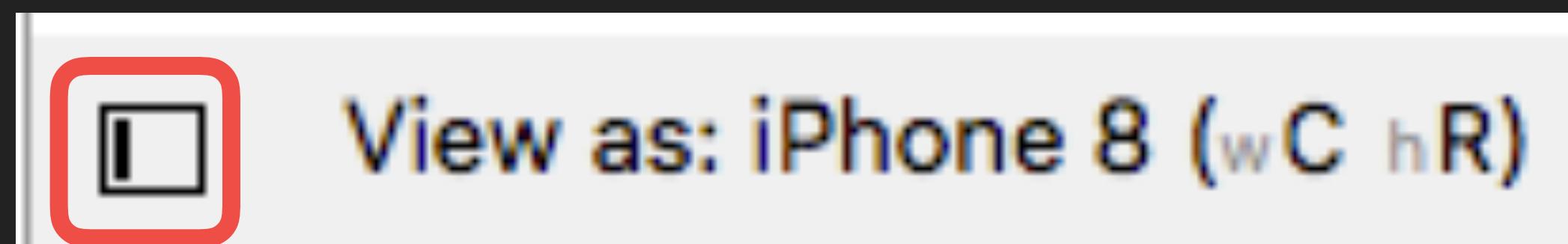
VIEWS (ELEMENTOS VISUAIS)

Podemos saber a hierarquia de classes

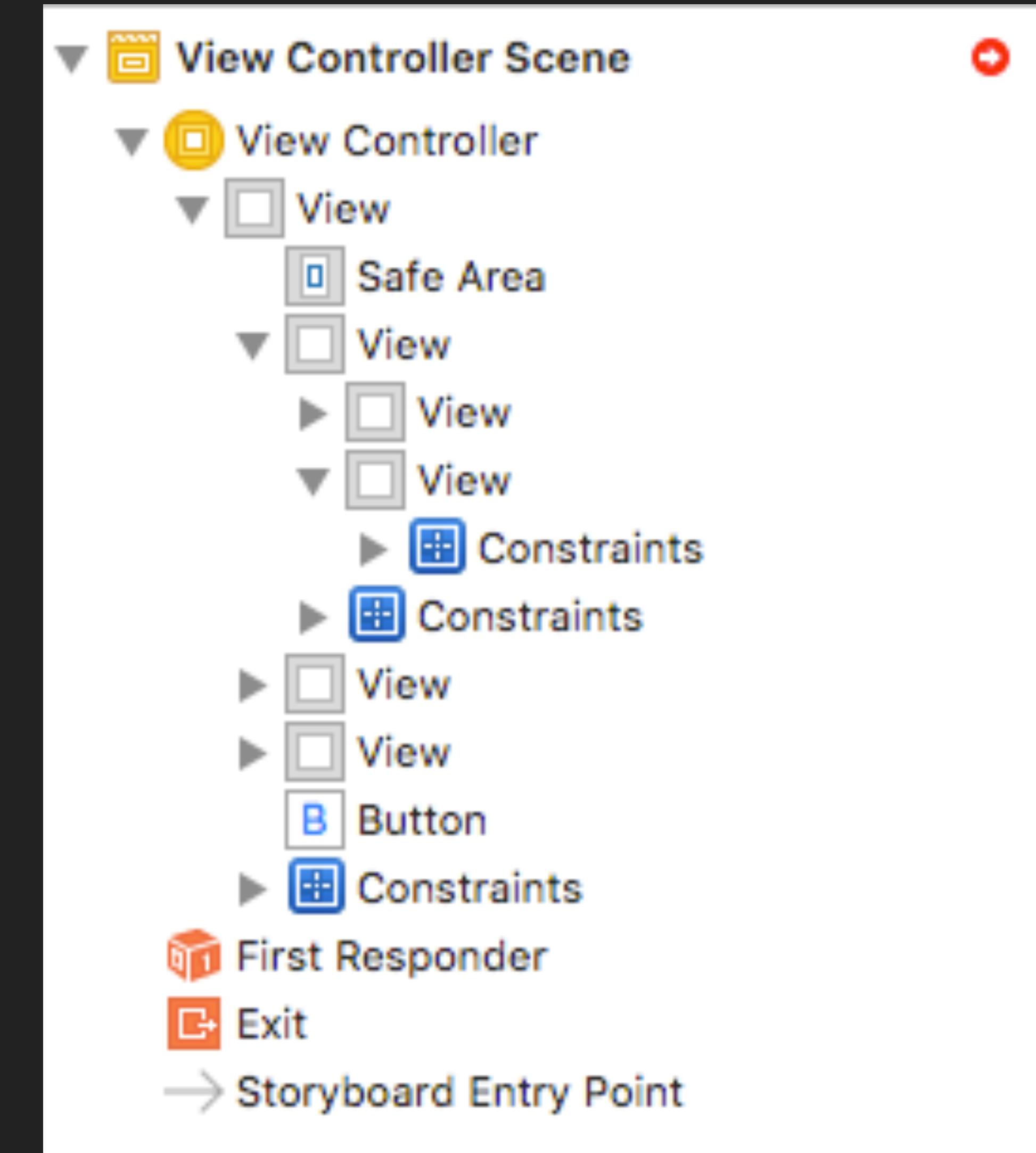


STORYBOARDS - FERRAMENTAS

HIERARQUIA DE COMPONENTES VISUAIS

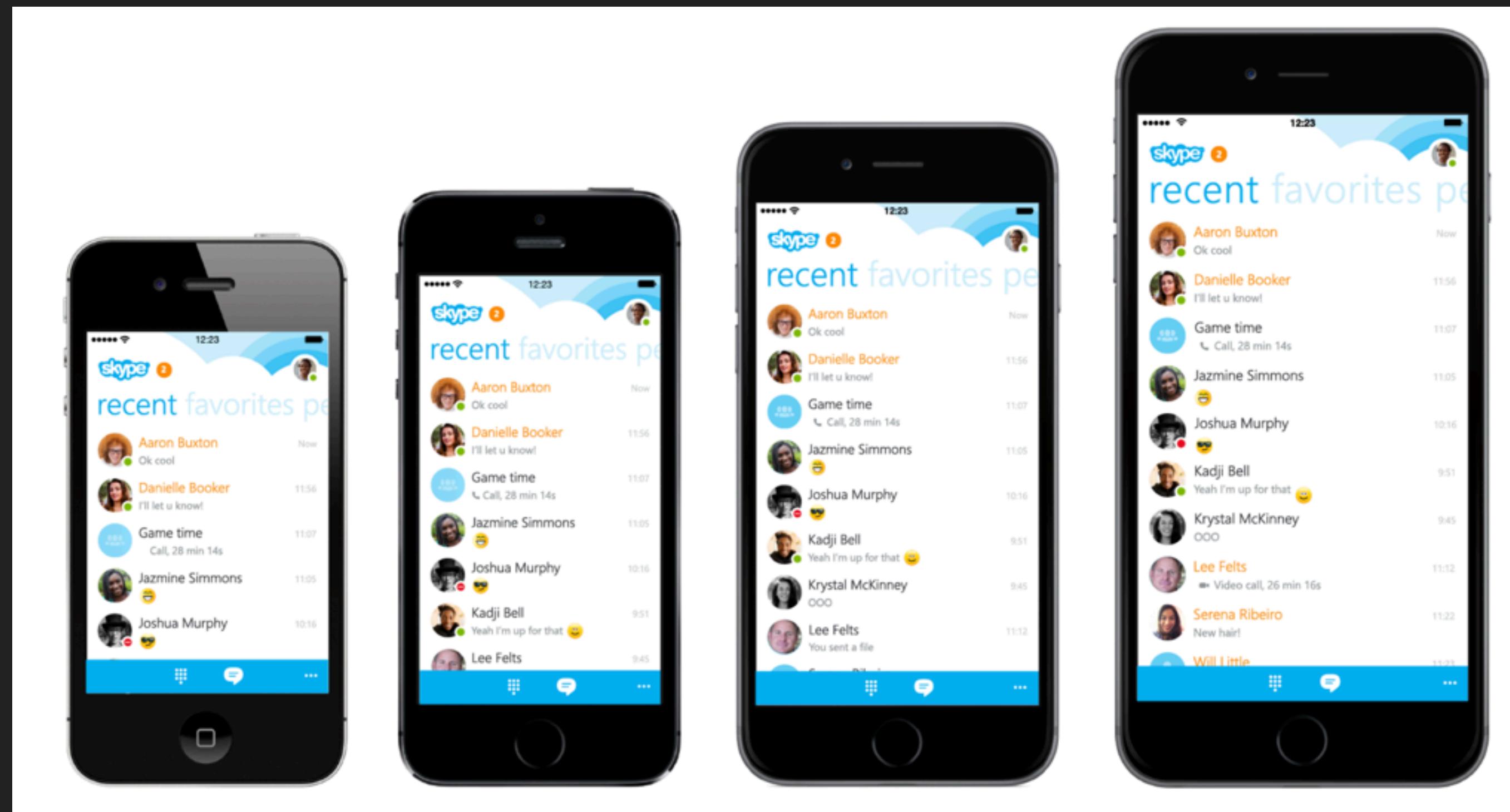


(Quase) Canto inferior esquerdo



STORYBOARDS

COMO EU GARANTO QUE VAI FUNCIONAR EM TODOS OS DISPOSITIVOS? 😜

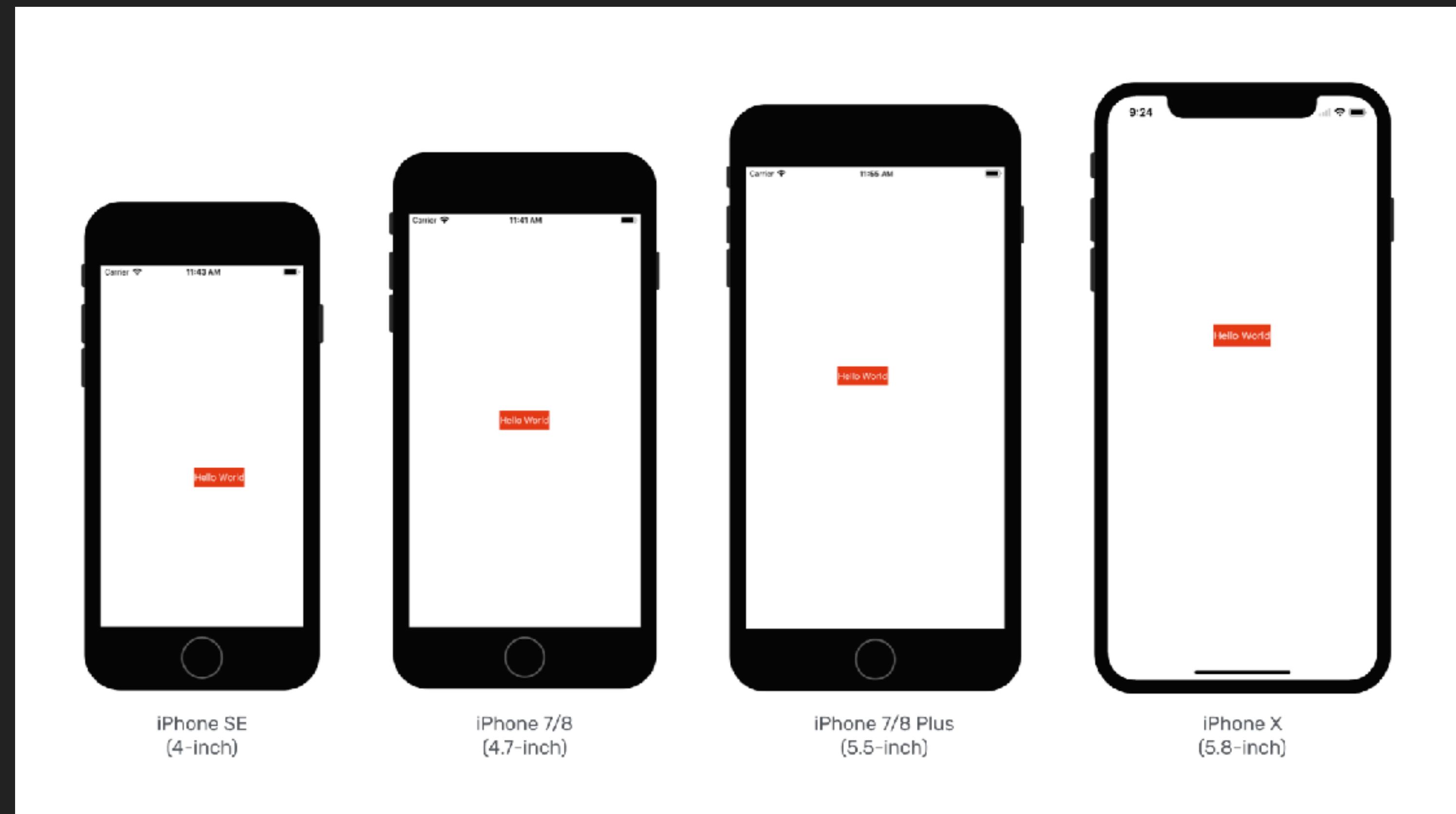




AUTOLAYOUT

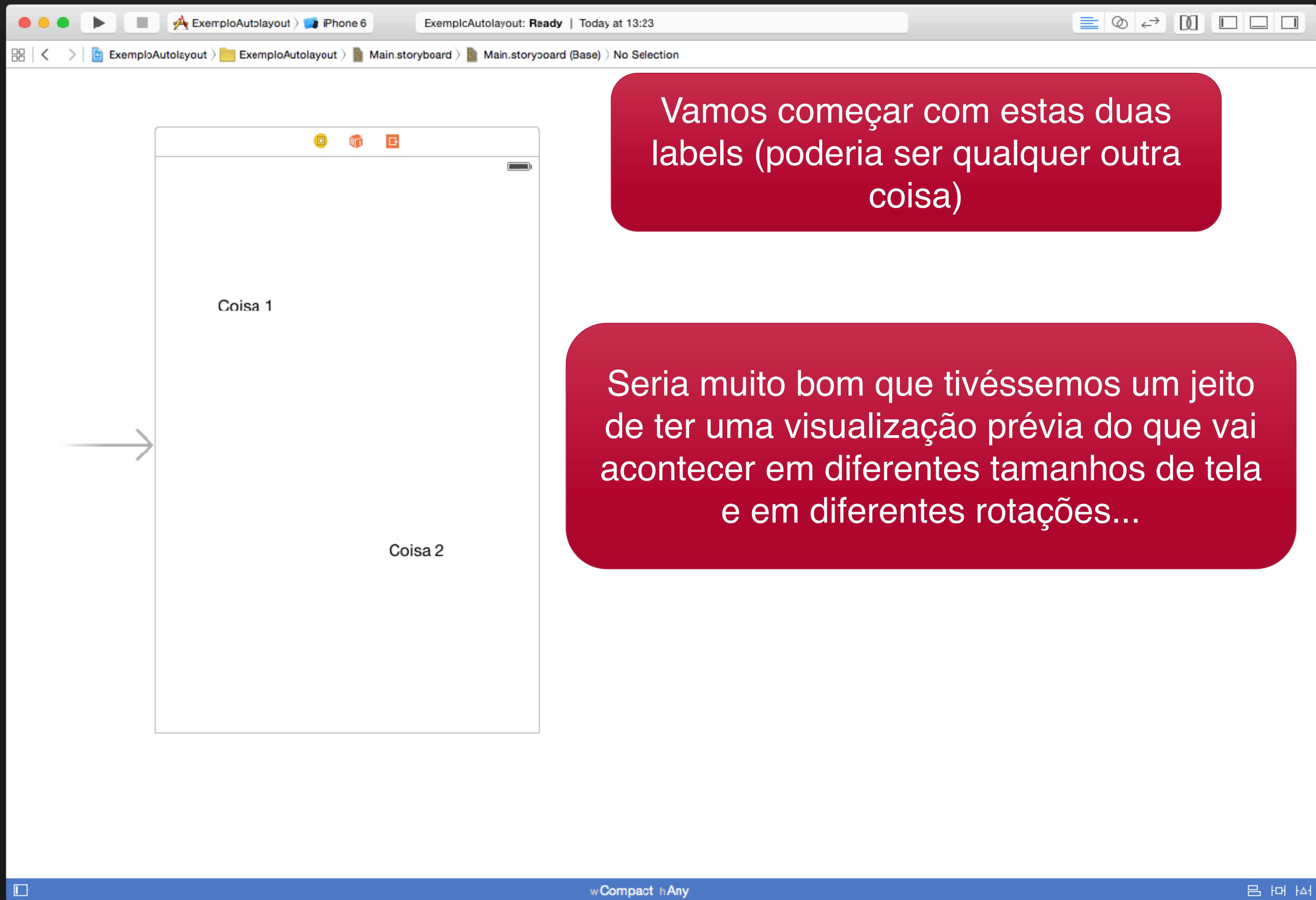
AUTOLAYOUT

MAS É REALMENTE NECESSÁRIO?

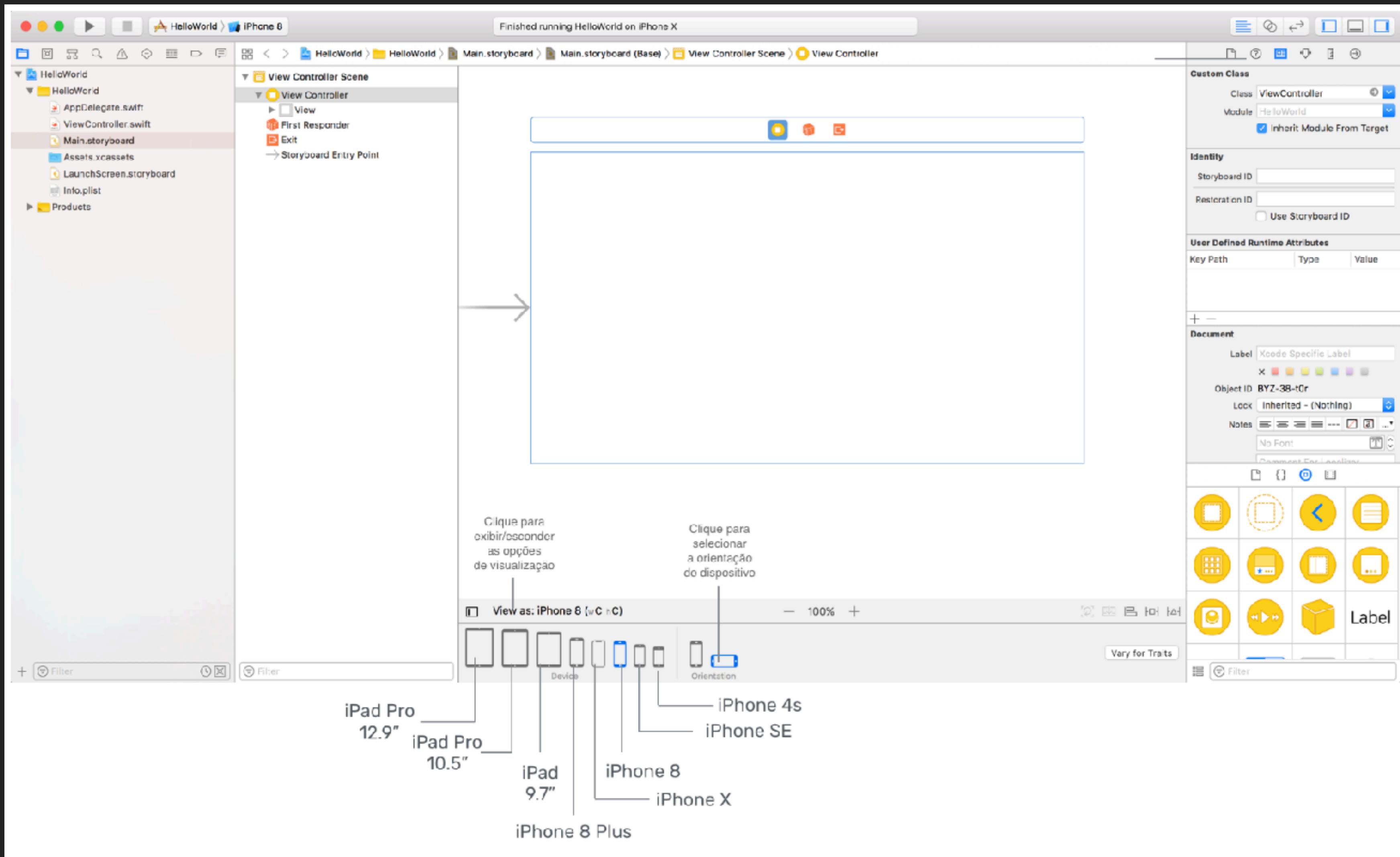


O PROBLEMA:

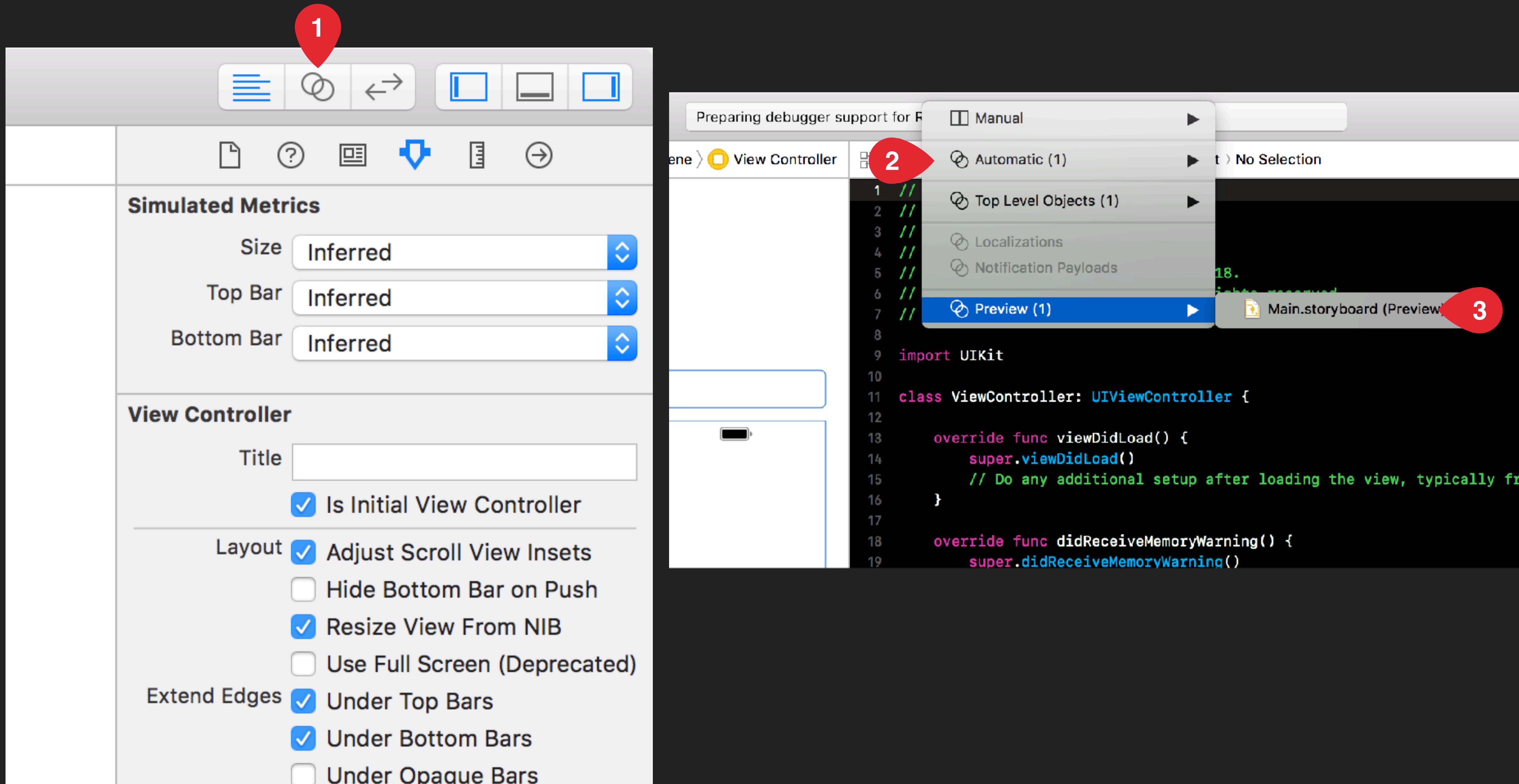
O PROBLEMA



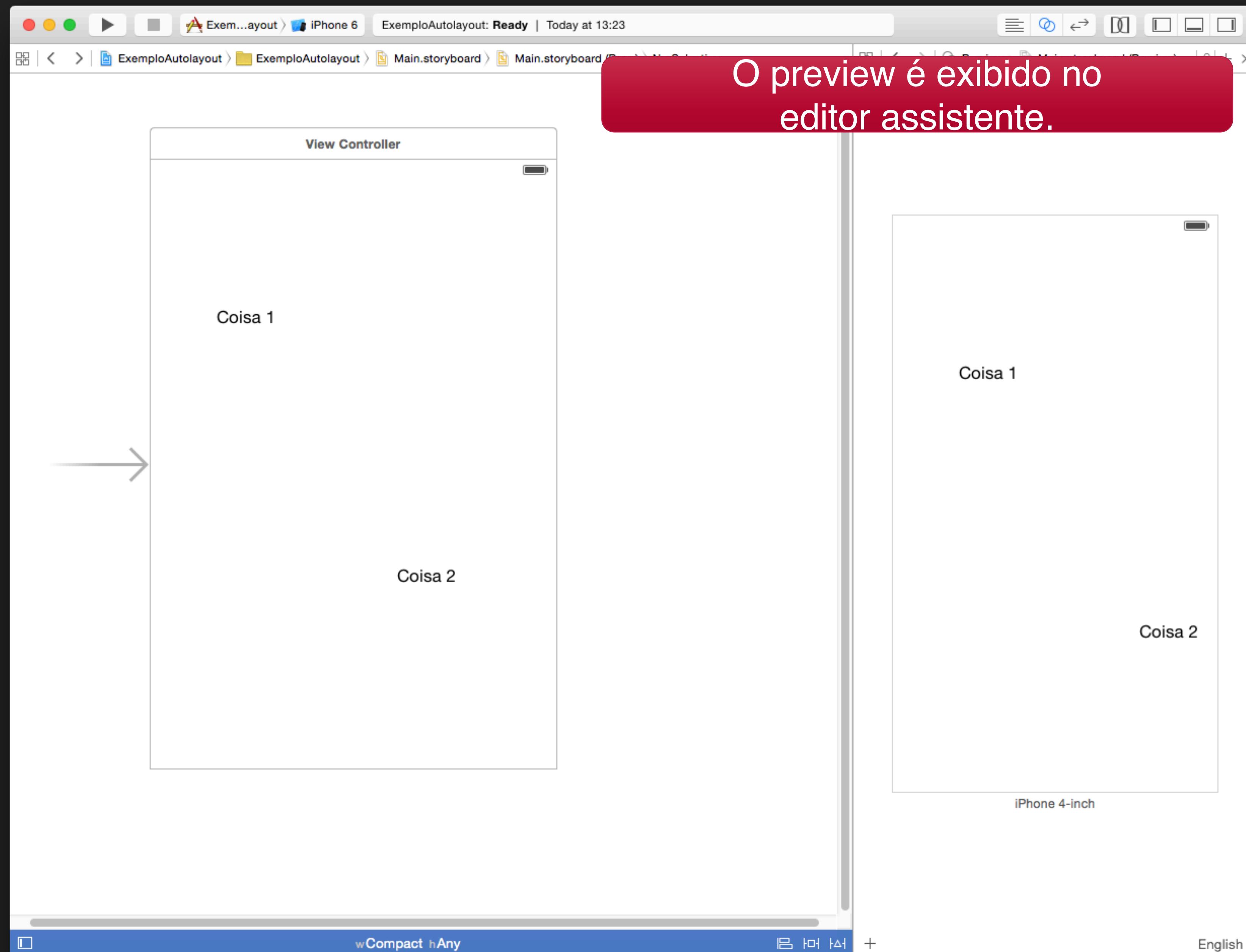
O PROBLEMA

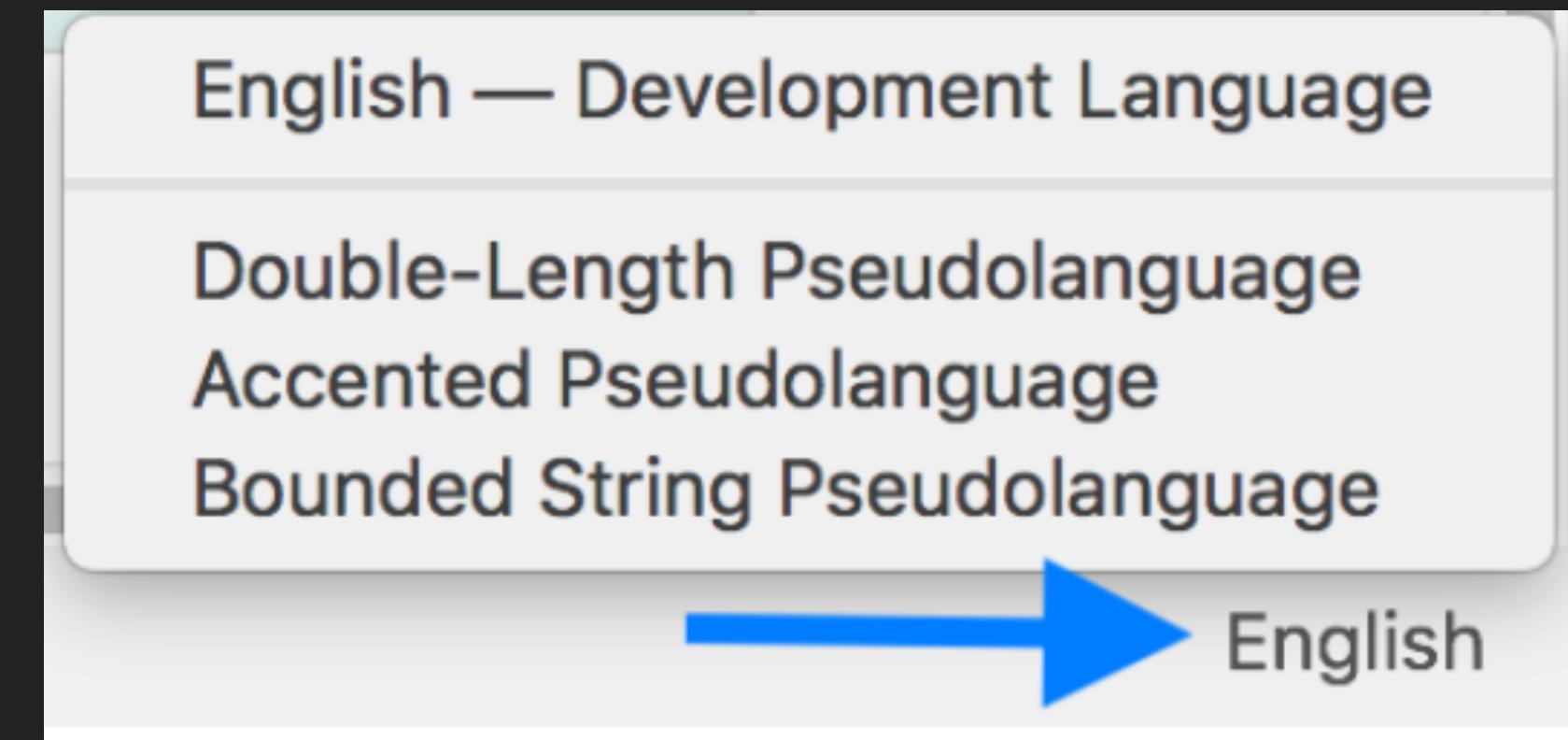
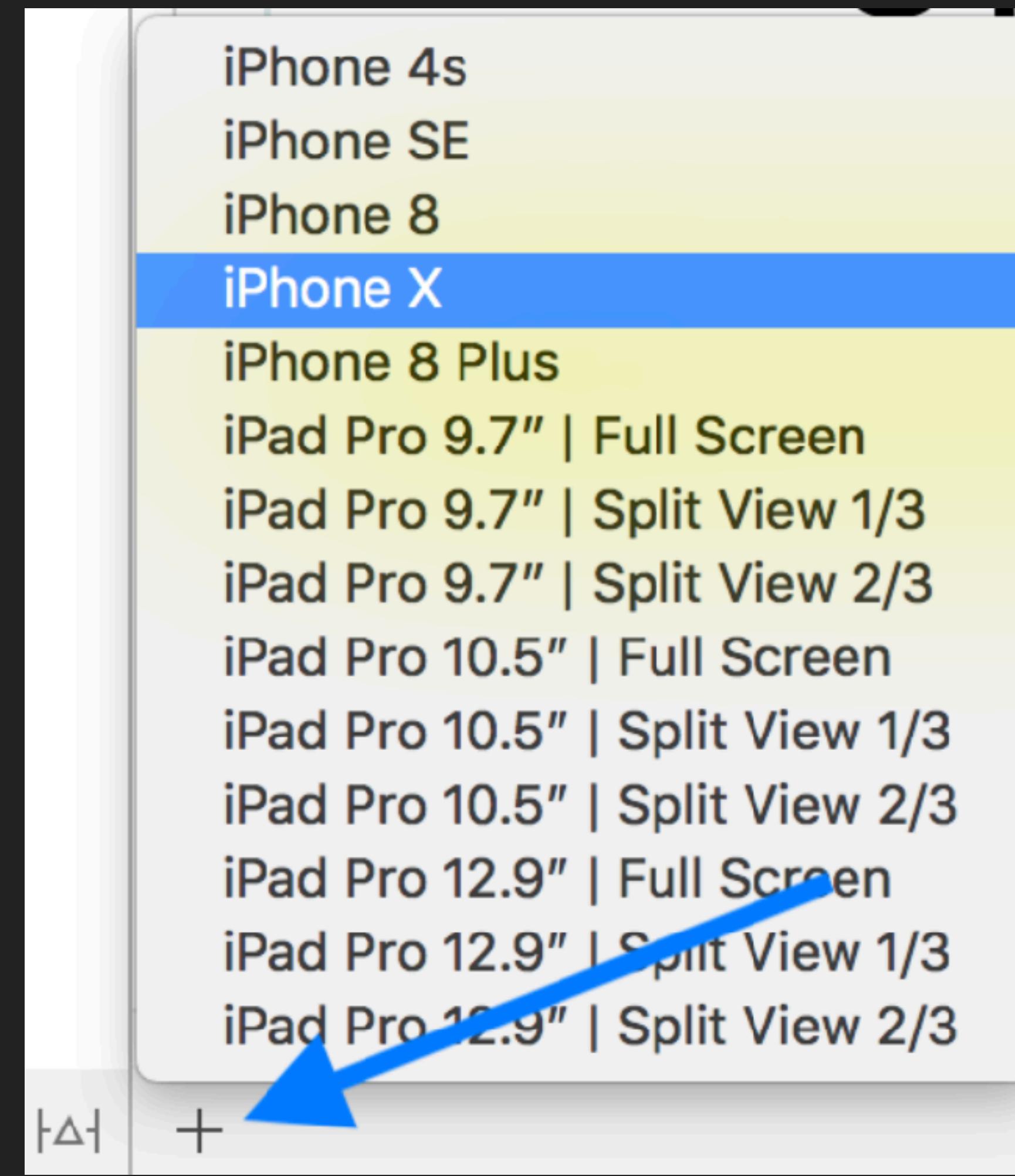


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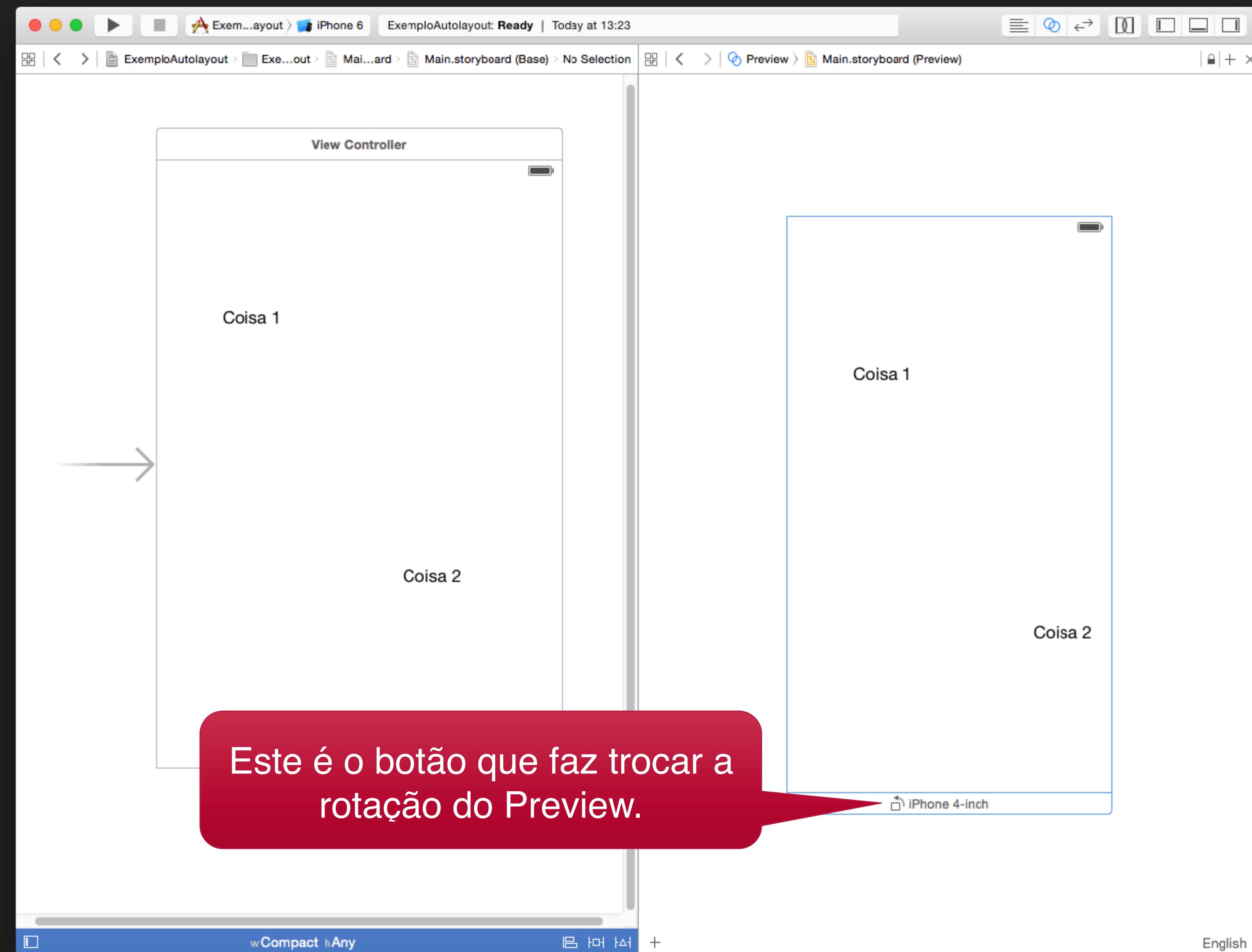


O PROBLEMA

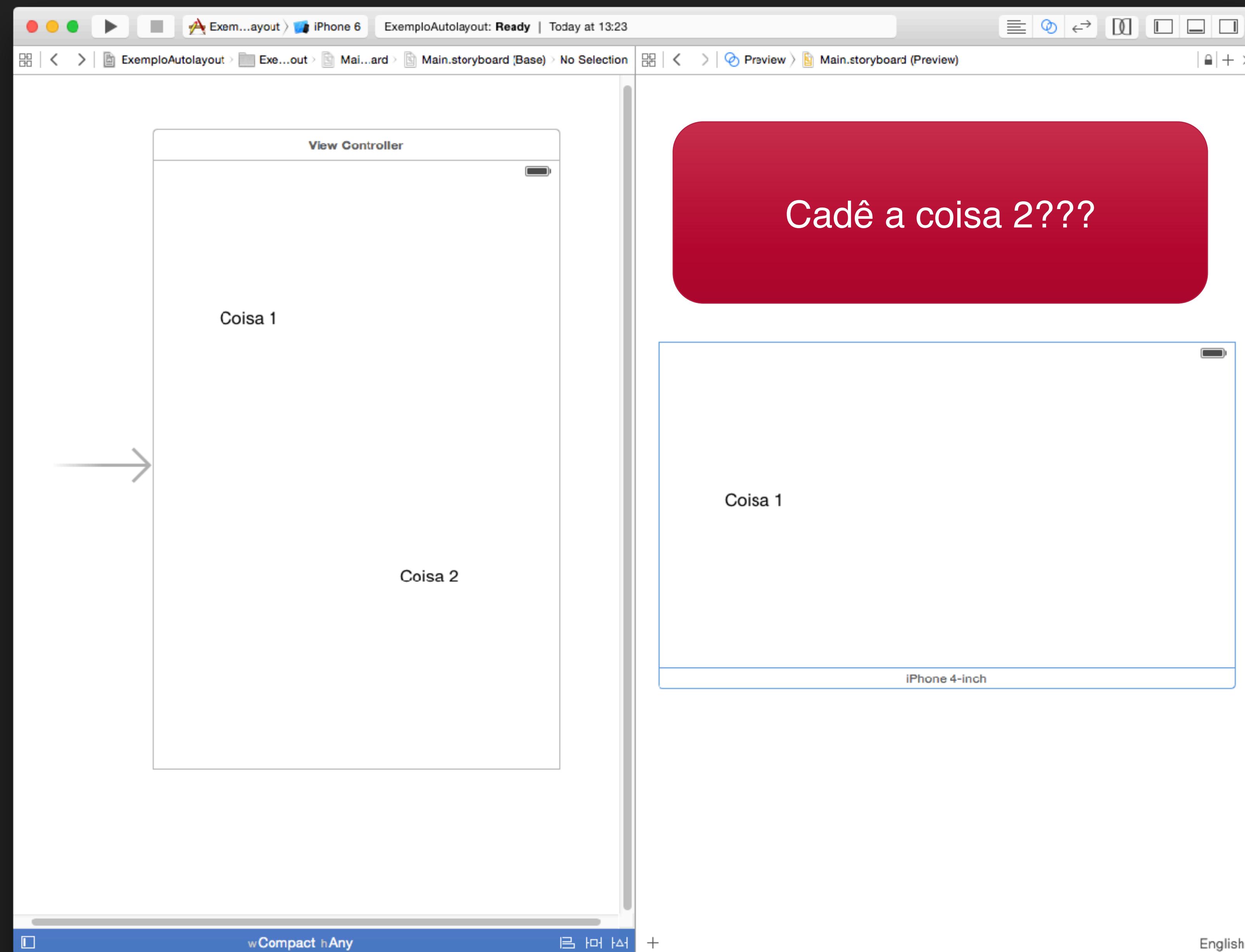


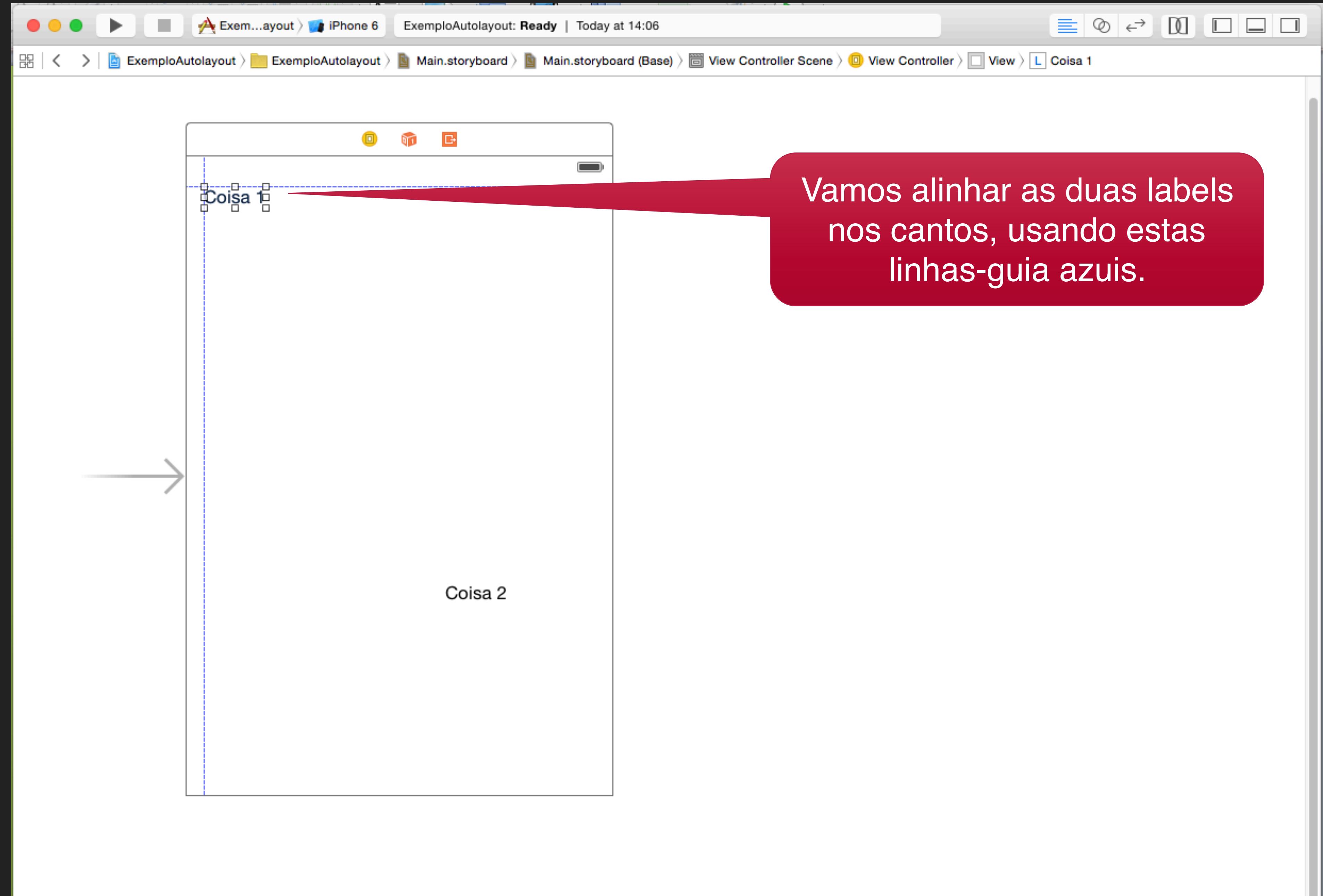


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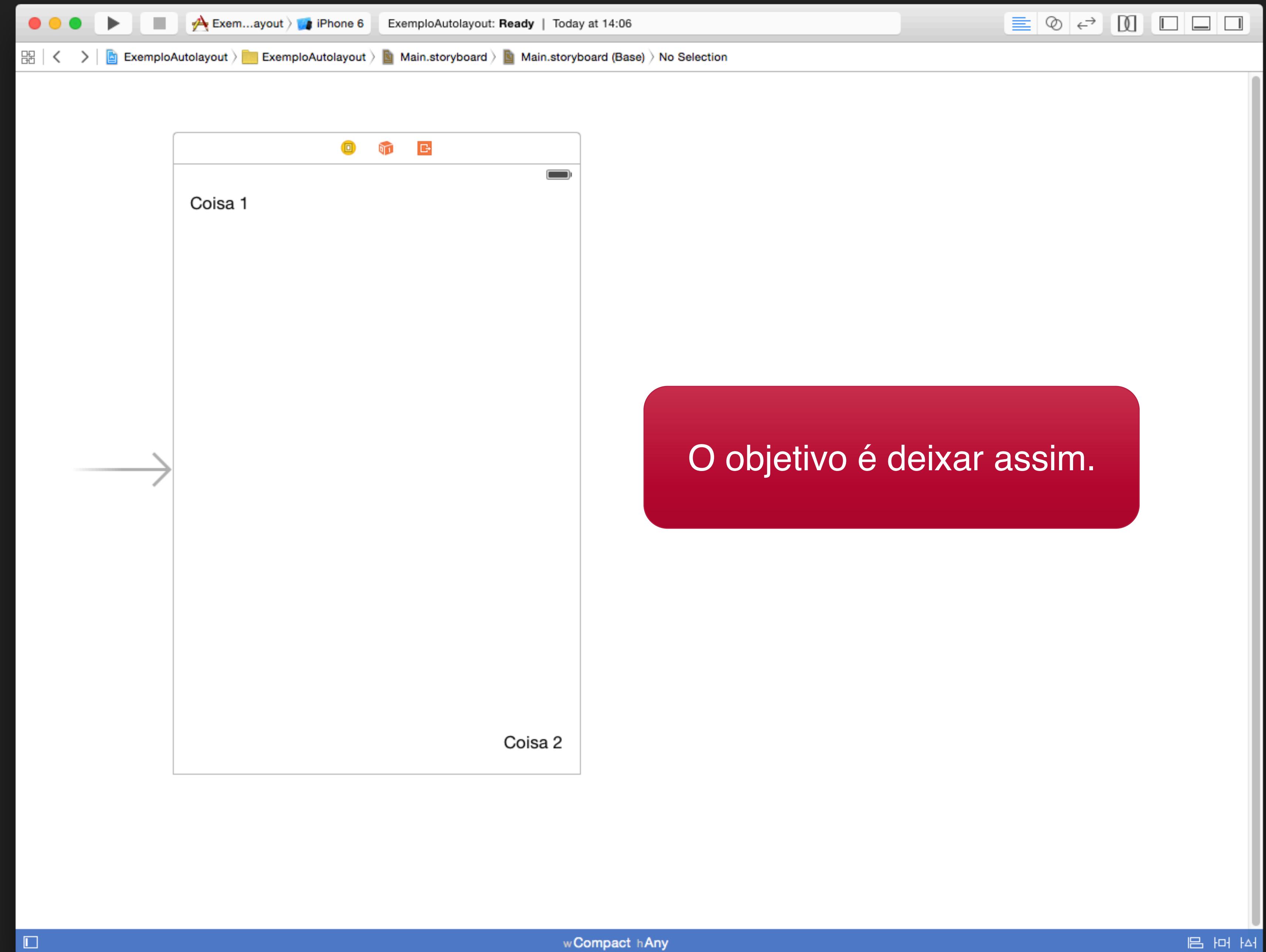


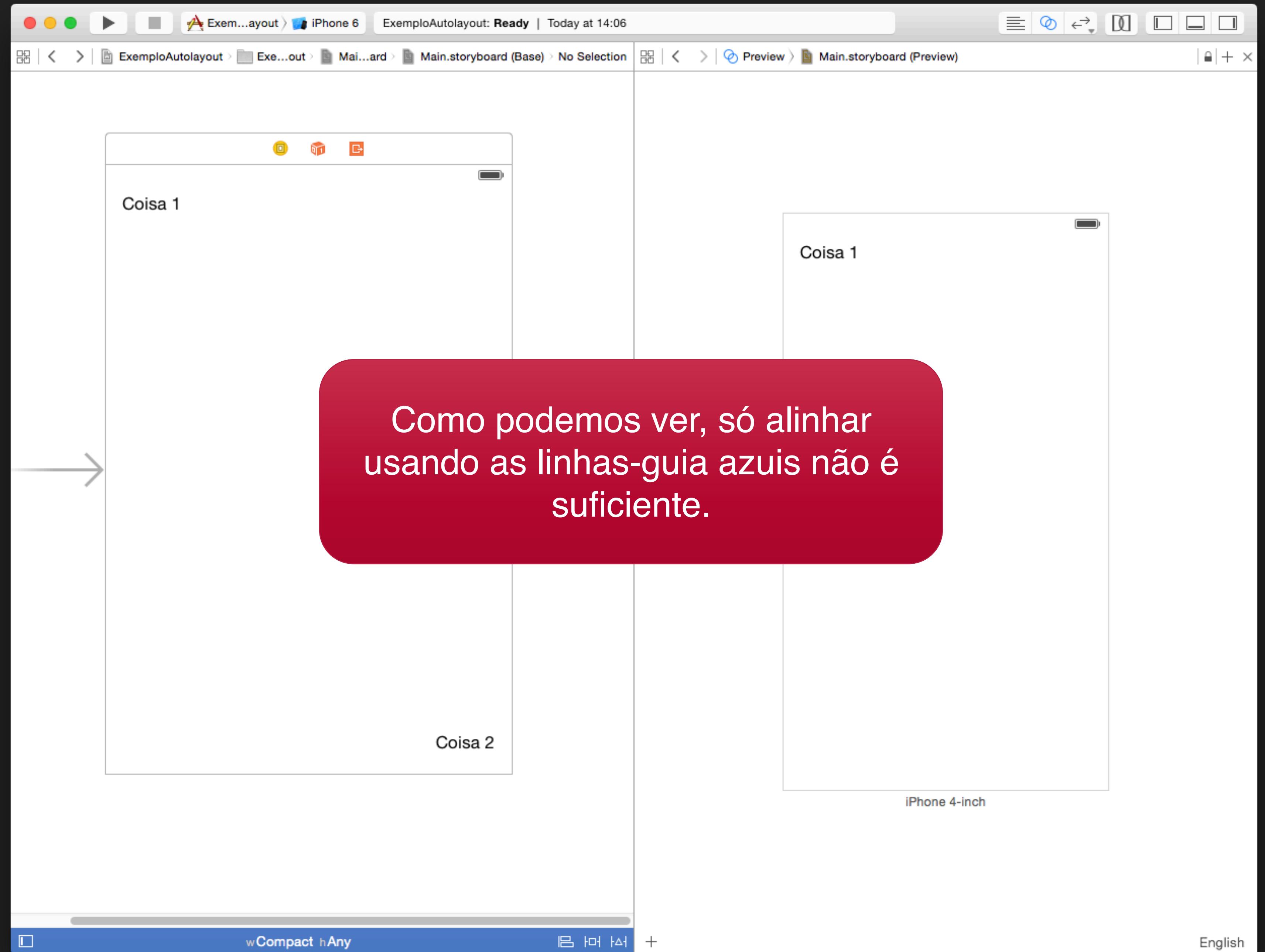
O PROBLEMA





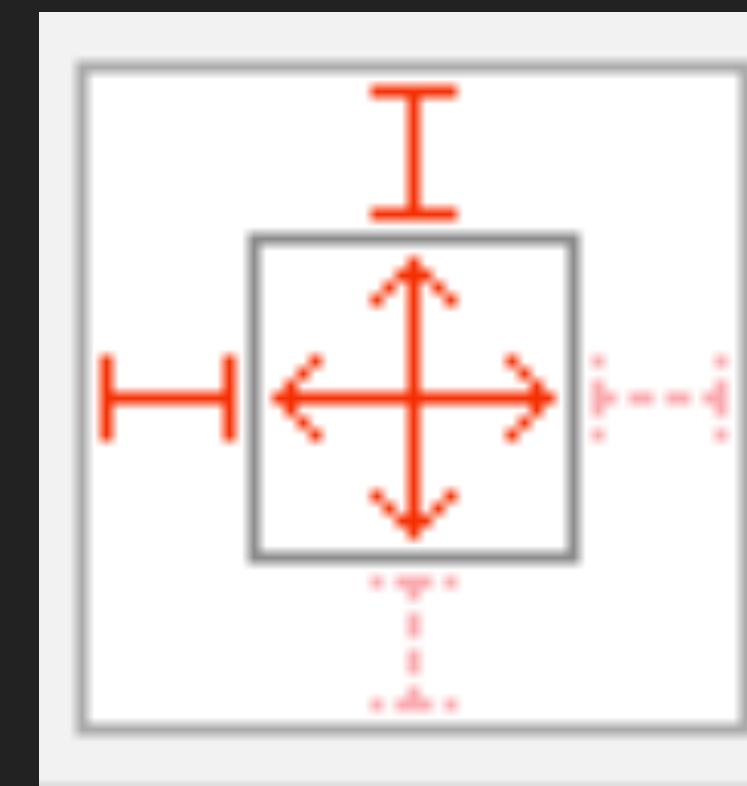
Vamos alinhar as duas labels
nos cantos, usando estas
linhas-guia azuis.





POR QUE ISSO ACONTECE?

O padrão é o Layout Baseado em Frames

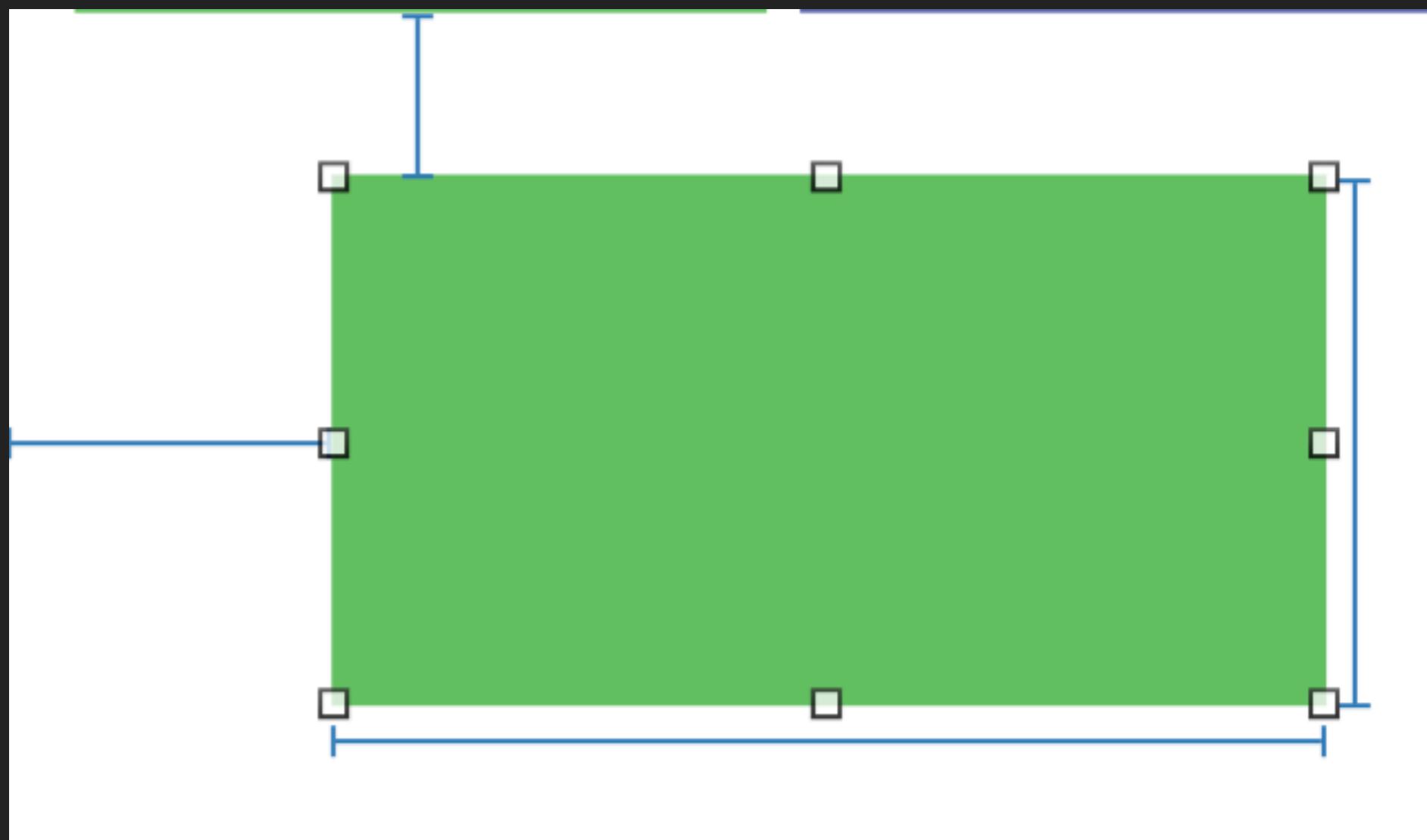


A SOLUÇÃO:

H CONSTRAINTS H

CONSTRAINTS - DEFINIÇÃO

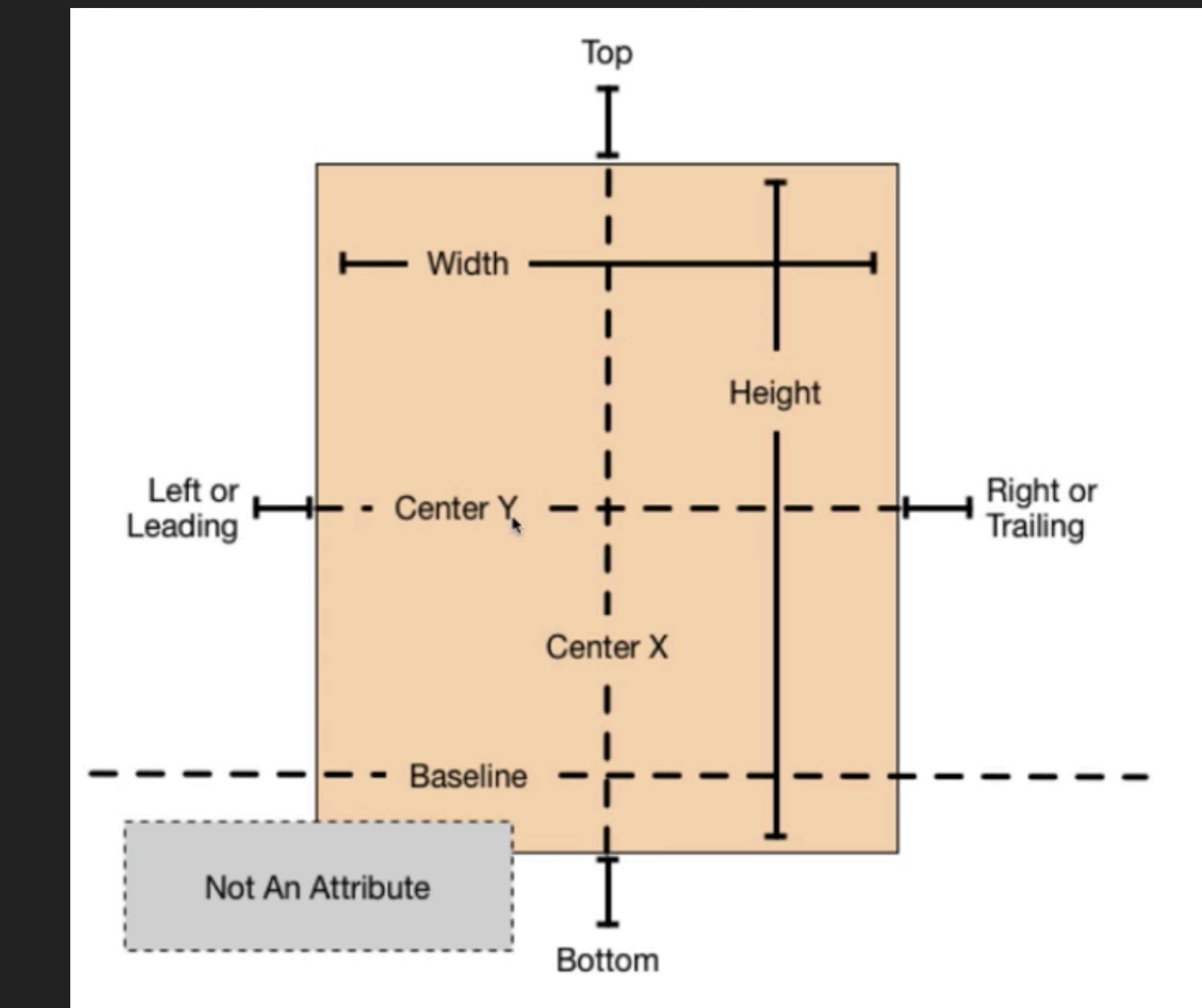
- ▶ Significa literalmente limitações;
- ▶ "Configurar" tamanho e posição das *views* usando regras;
- ▶ Essas regras, quando bem definidas, fazem as coisas aparecerem nos lugares certos, não importa o tamanho que está disponível para o *ViewController*;
- ▶ São esses tracinhos azuis no storyboard;



CONSTRAINTS - DEFINIÇÃO

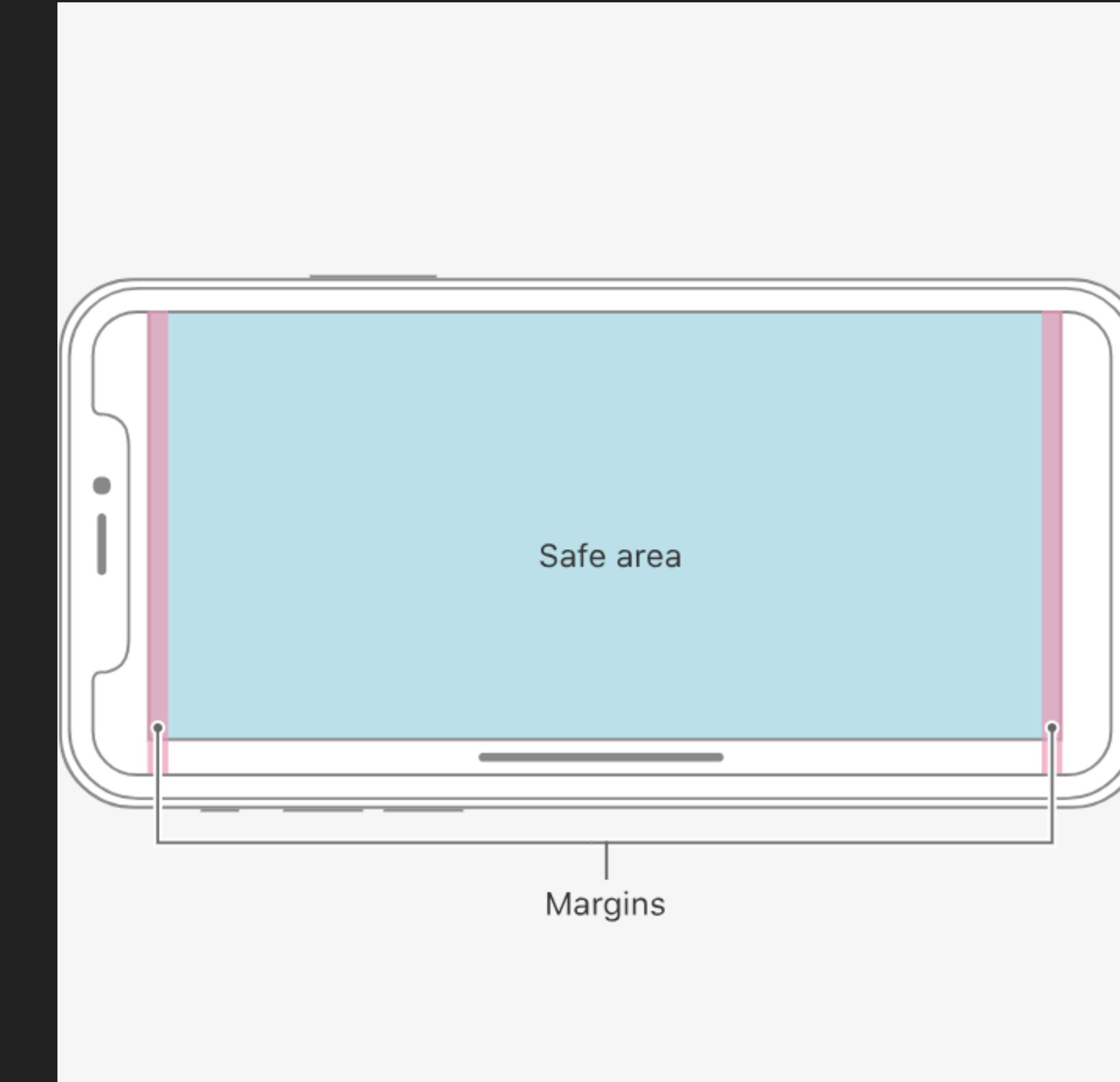
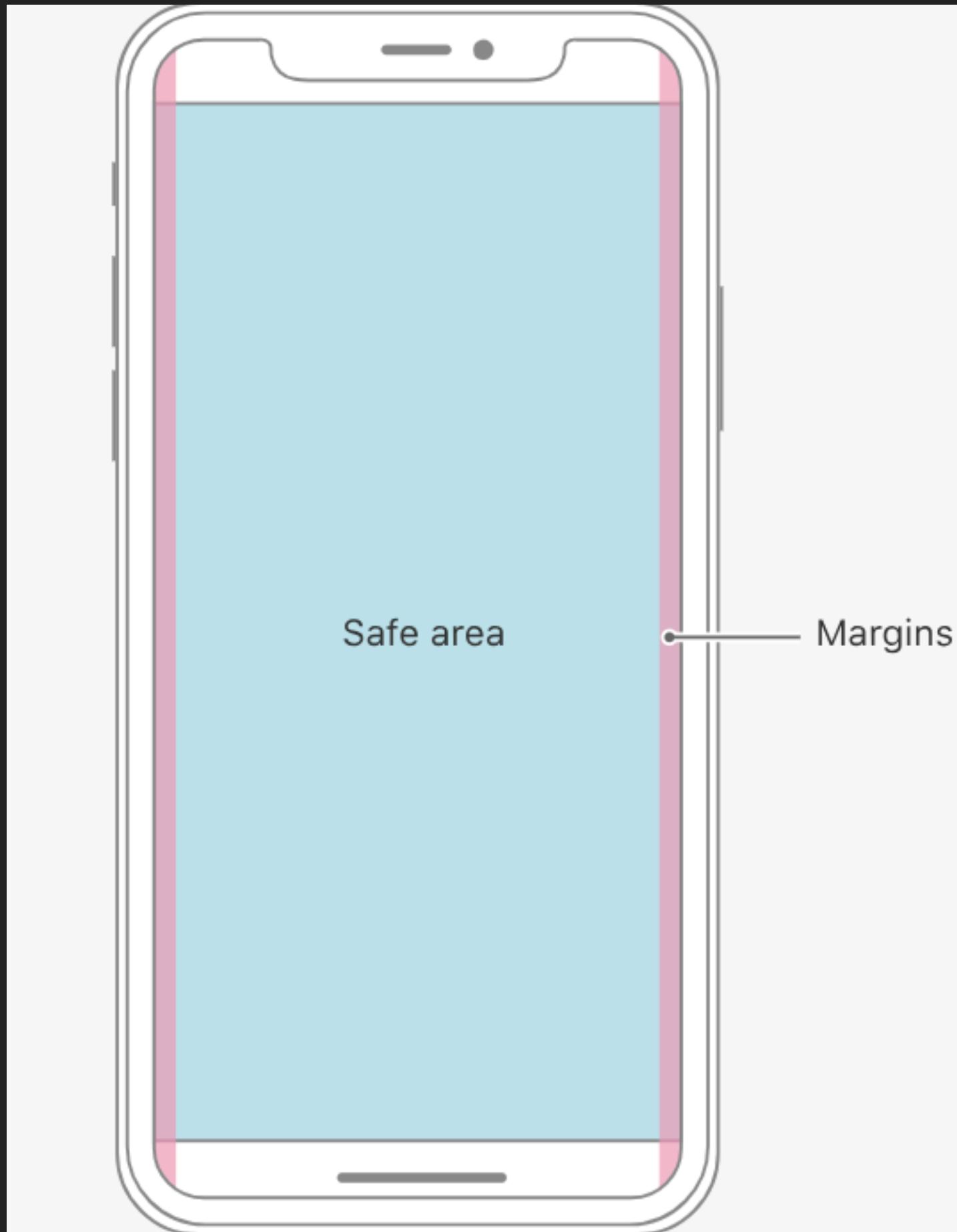
TERMOS:

- Top Space
- Bottom Space
- Leading Space
- Trailing Space
- Top Layout Guide
- Bottom Layout Guide
- Margins
- Vertical Spacing
- Horizontal Spacing
- Safe Area



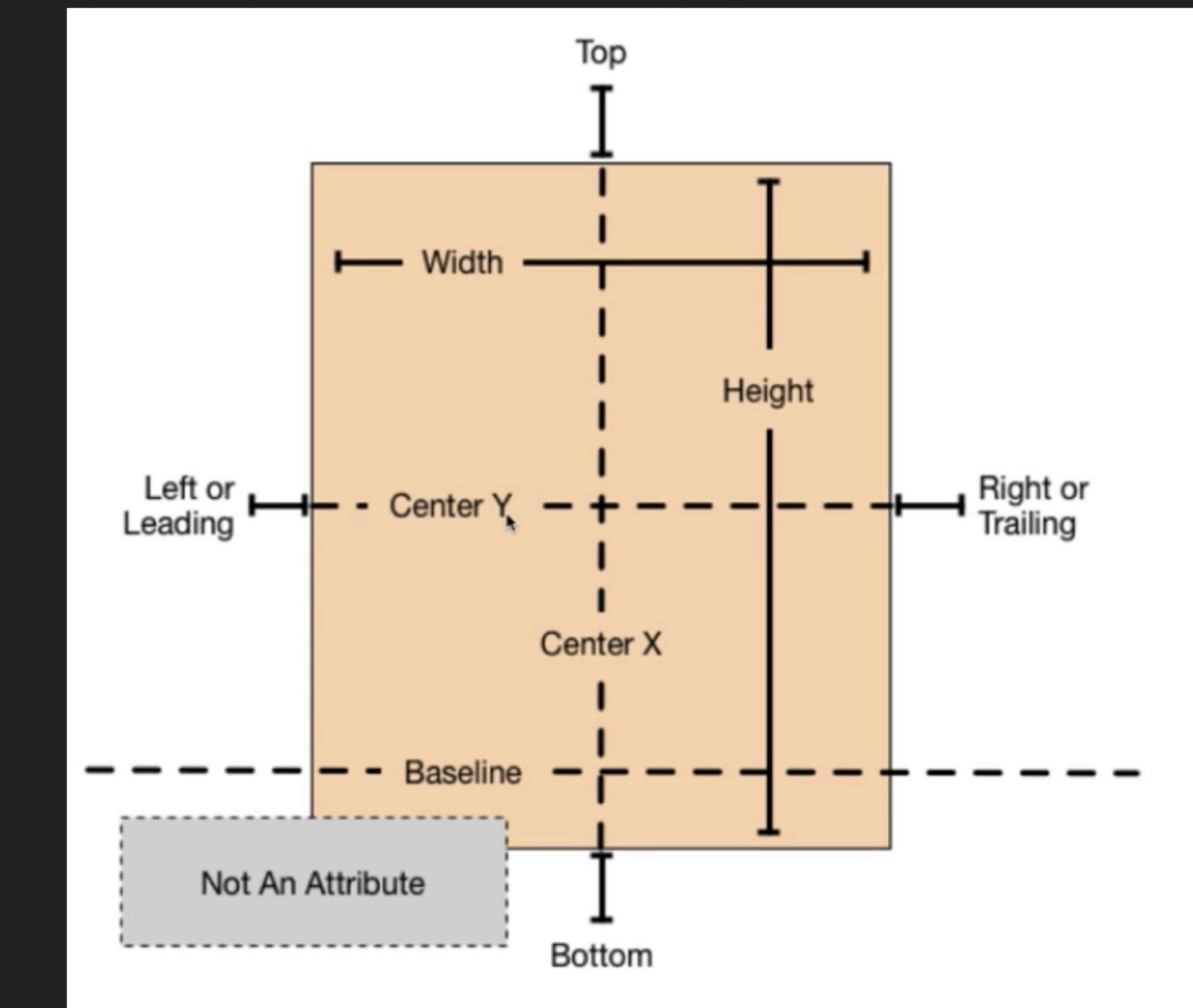
CONSTRAINTS - DEFINIÇÃO

SAFE AREA:

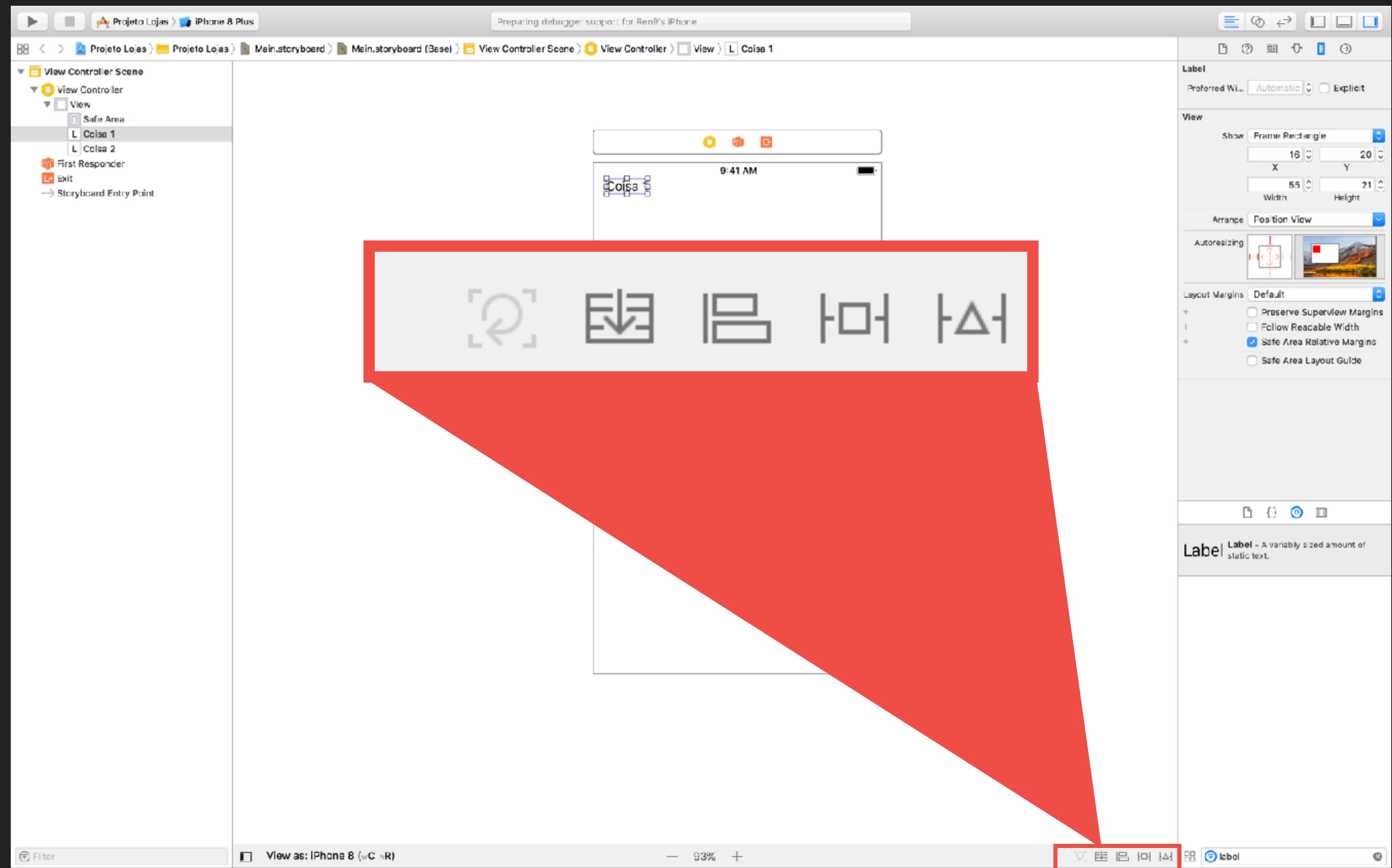


CONSTRAINTS - DEFINIÇÃO

- Posição:
 - ▶ Posição Vertical
 - ▶ Posição Horizontal
- Tamanho:
 - ▶ Altura
 - ▶ Largura



CONSTRAINTS - FERRAMENTAS



CONSTRAINTS - FERRAMENTAS



UPDATE FRAMES

Atualiza a View selecionada no Storyboard para ficar no tamanho das Constraints (quando uma alteração é feita manualmente)

EMBED IN STACKVIEW

Agrupa em uma StackView as Views selecionadas.

ALIGN

Cria Constraints na View selecionada alinhando ela com o centro (horizontal/vertical) ou nos limites (topo/abaixo/inicio/fim) de outra View.

ADD NEW CONSTRAINTS

Cria Constraints na View nas bordas (limites) selecionada. Também pode criar Constraints que limitam a altura e largura da View (em pontos, não pixels)

RESOLVE AUTO LAYOUT ISSUES

Remover todas as Constraints da View ou das Views dentro do container selecionado.

Possui um Auto Resolve que não resolve automaticamente na maioria dos casos

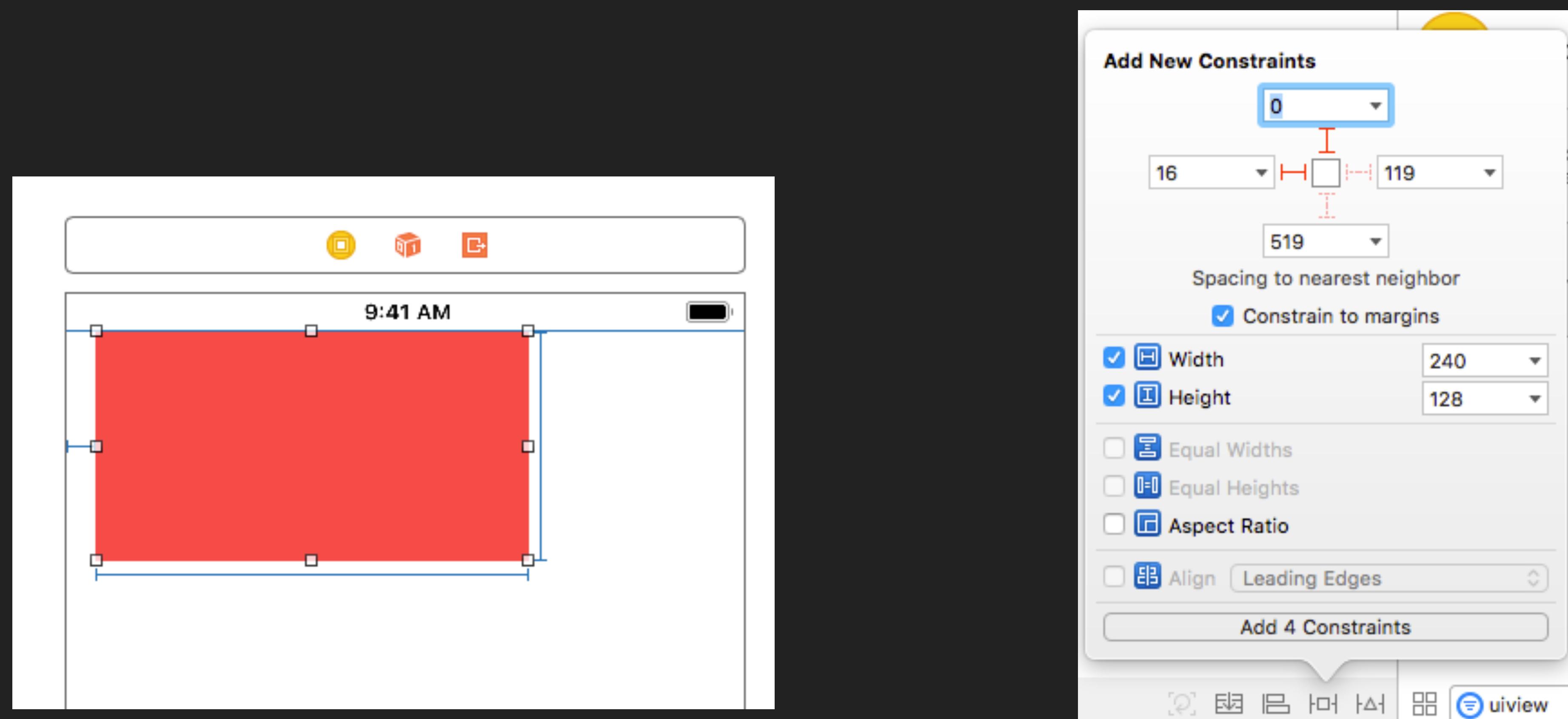
CONSTRAINTS

DOIS "TIPOS" DE TAMANHO DE VIEW:

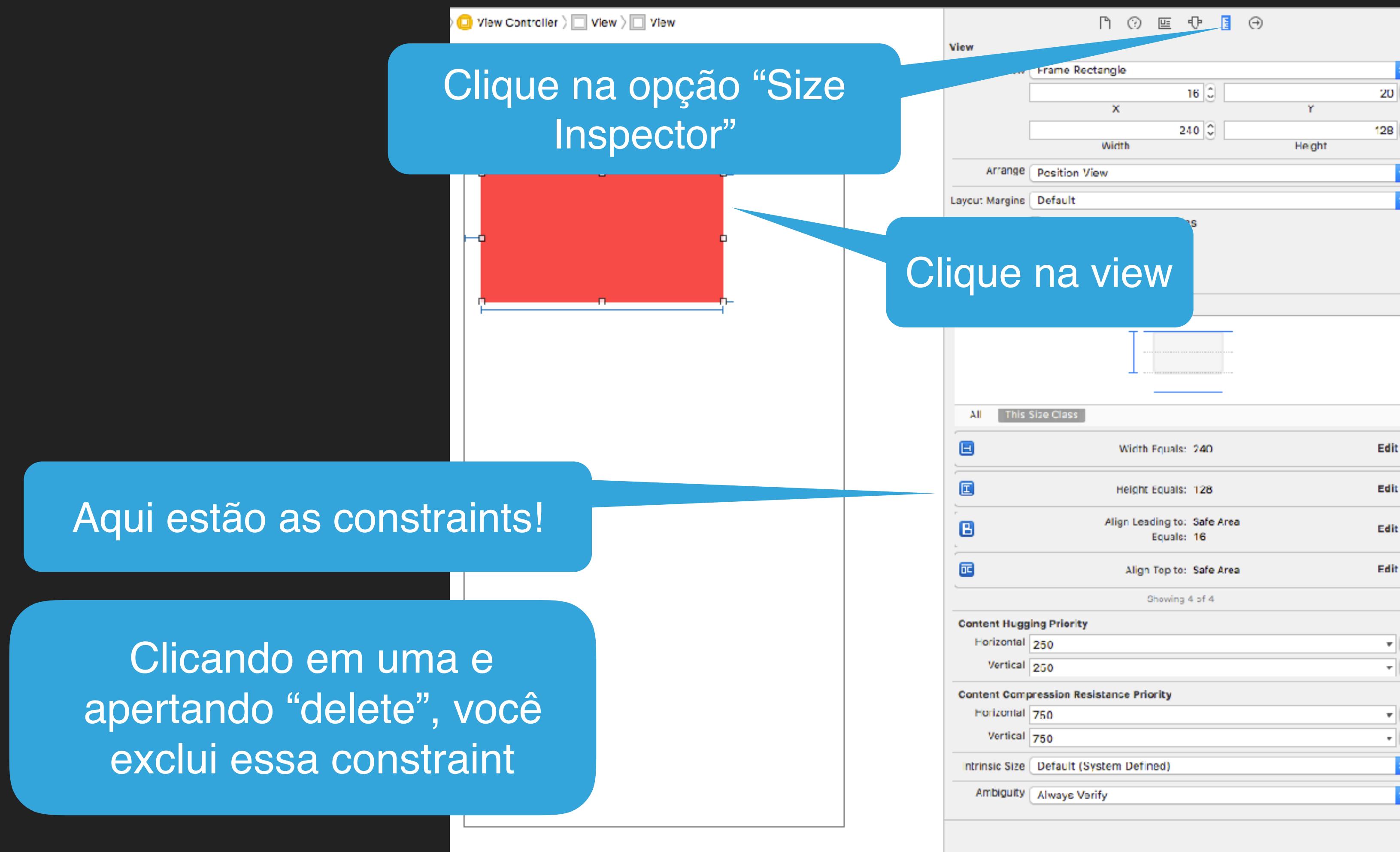
- Views com tamanho fixo
- Views com tamanho dinâmico

CONSTRAINTS

EXEMPLO SIMPLES DE VIEW DE TAMANHO FIXO

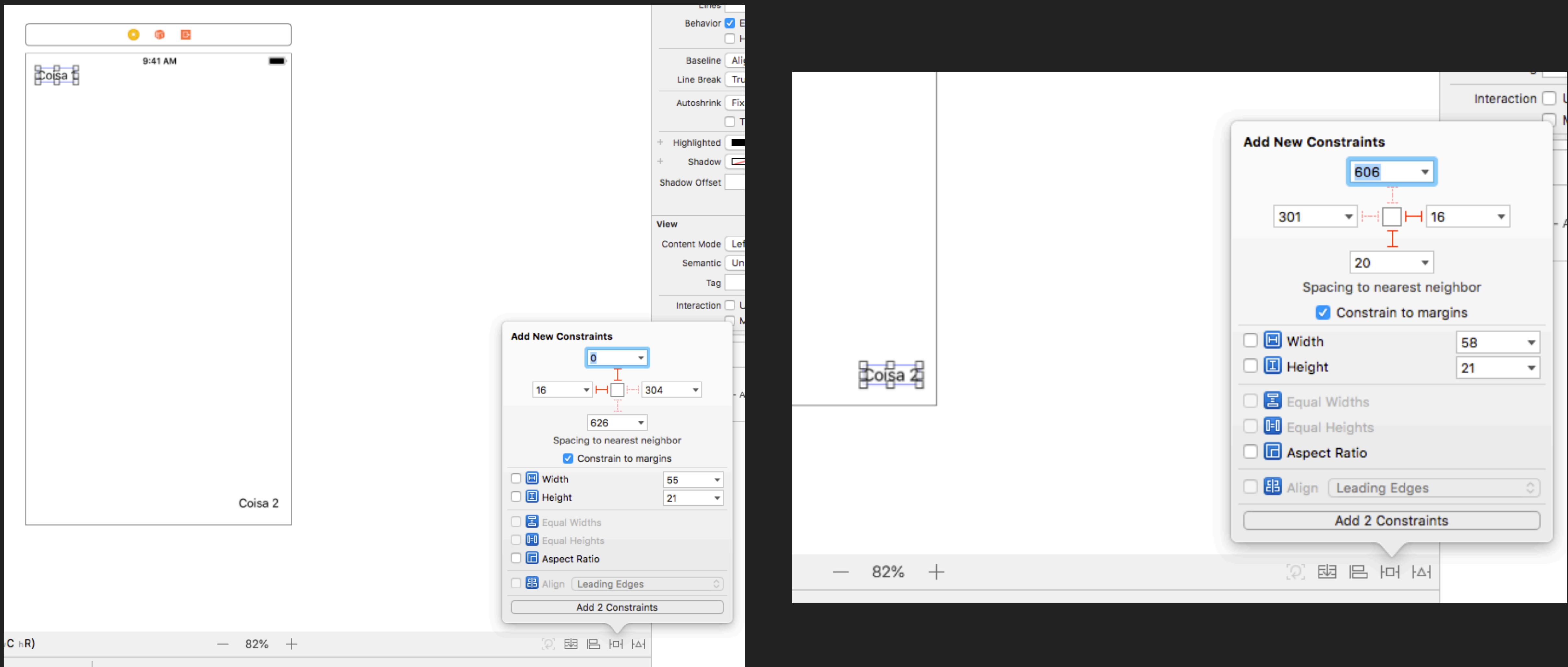


CONSTRAINTS - VIEWS TAMANHO FIXO



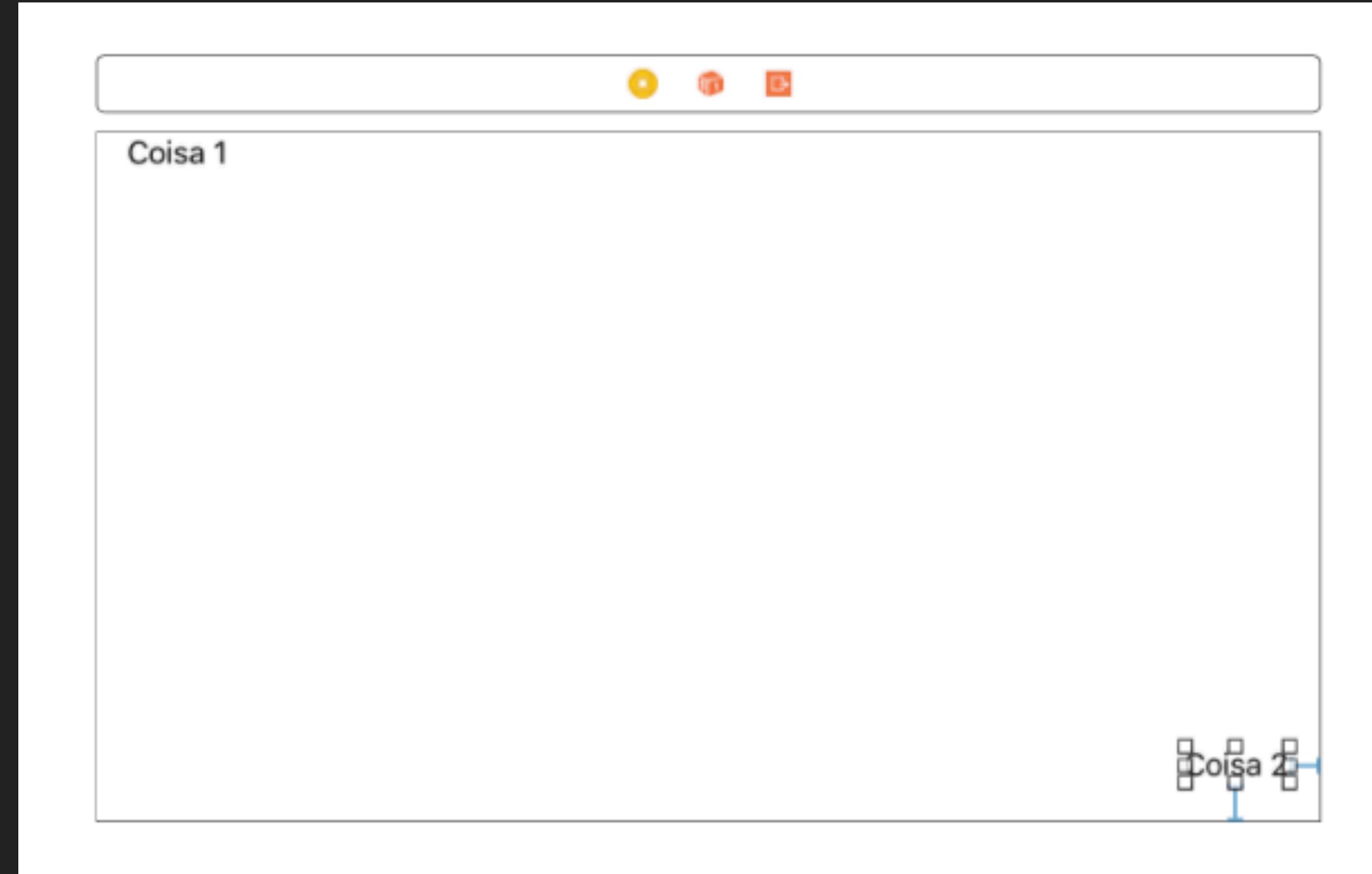
CONSTRAINTS - VIEWS TAMANHO FIXO

VOLTANDO AO COISA 1 COISA 2



ROTACIONE O EMULADOR E...

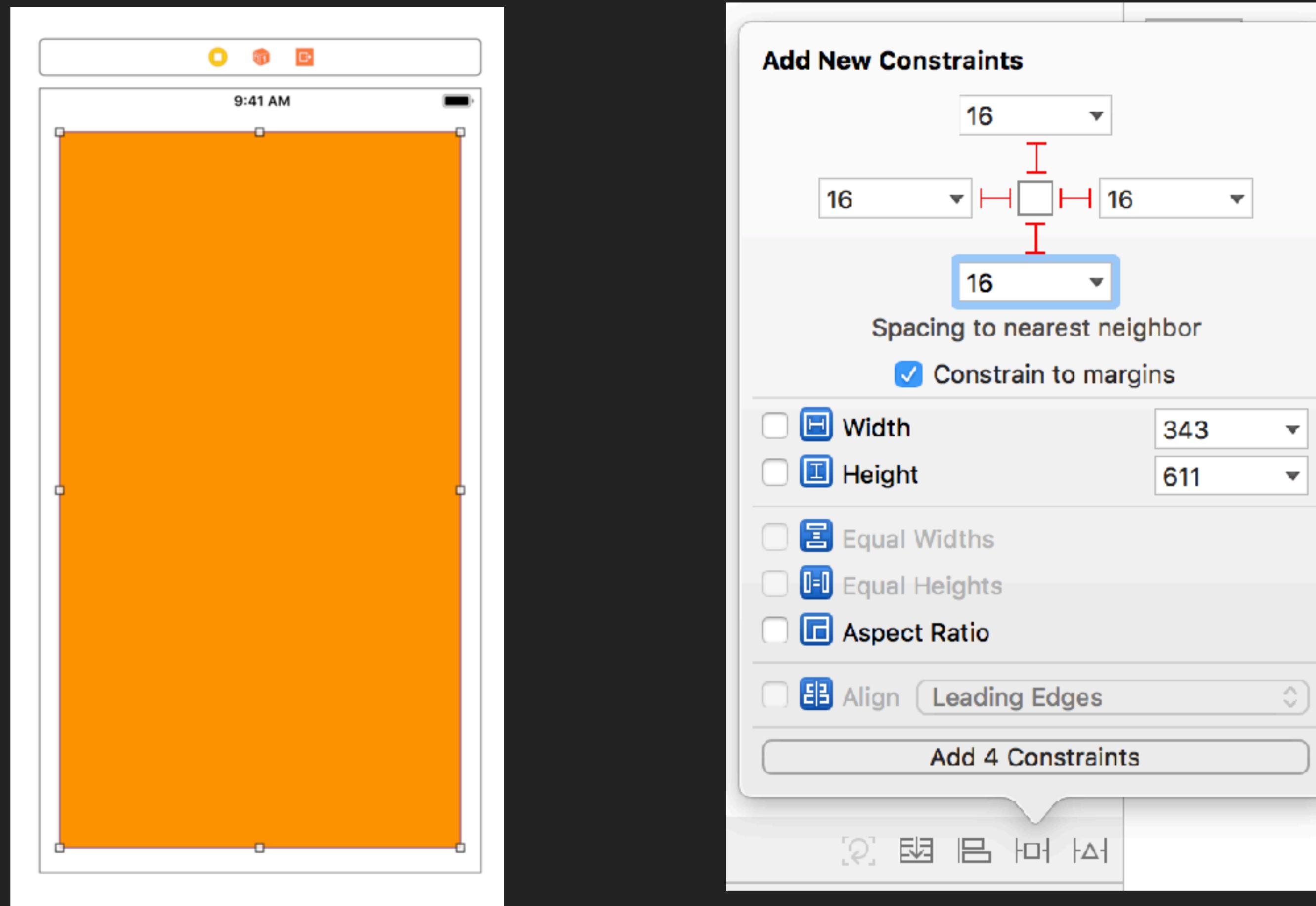
DEU CERTO!! 



PERAI DEU CERTO?!?! COMO? 

CONSTRAINTS

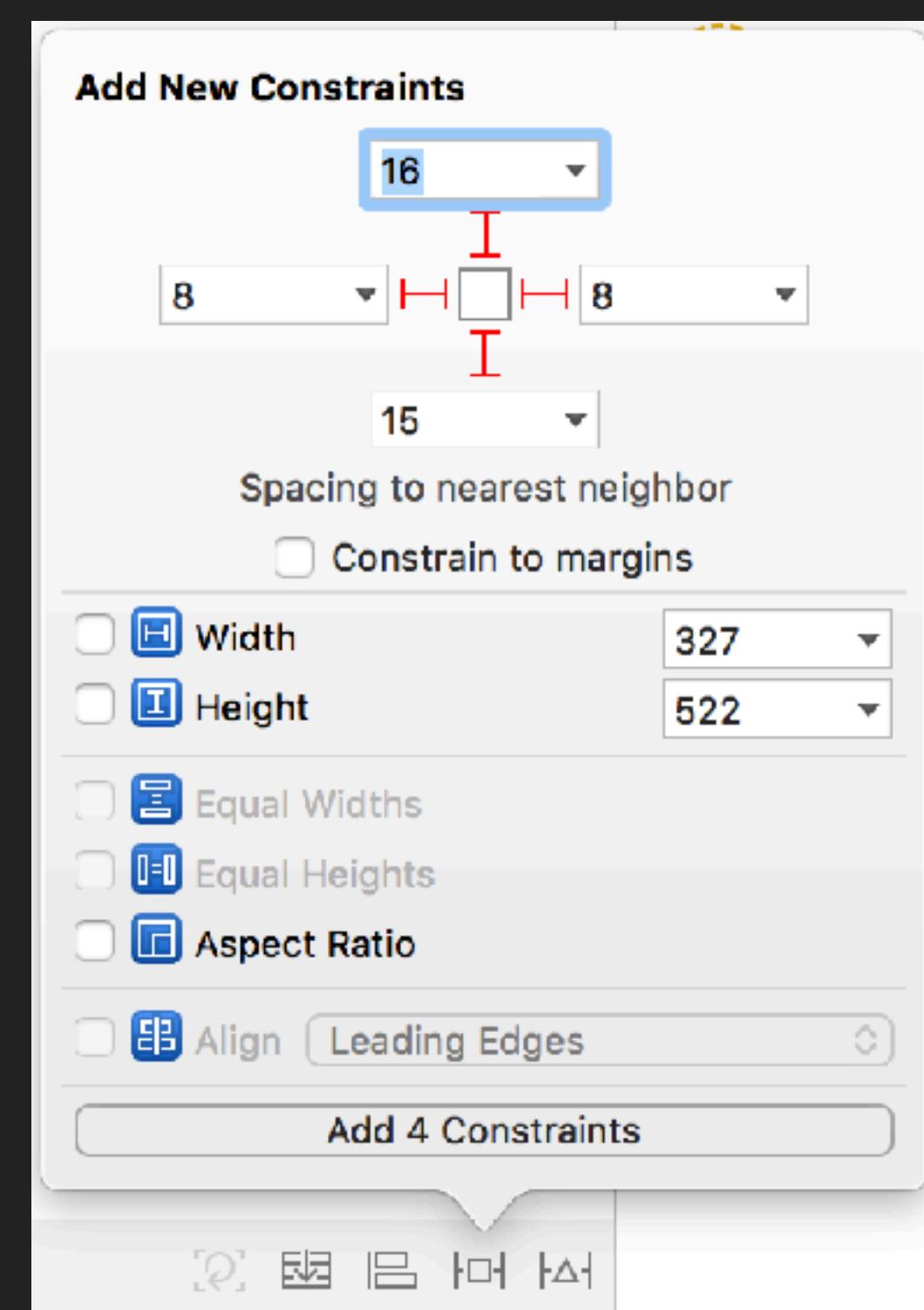
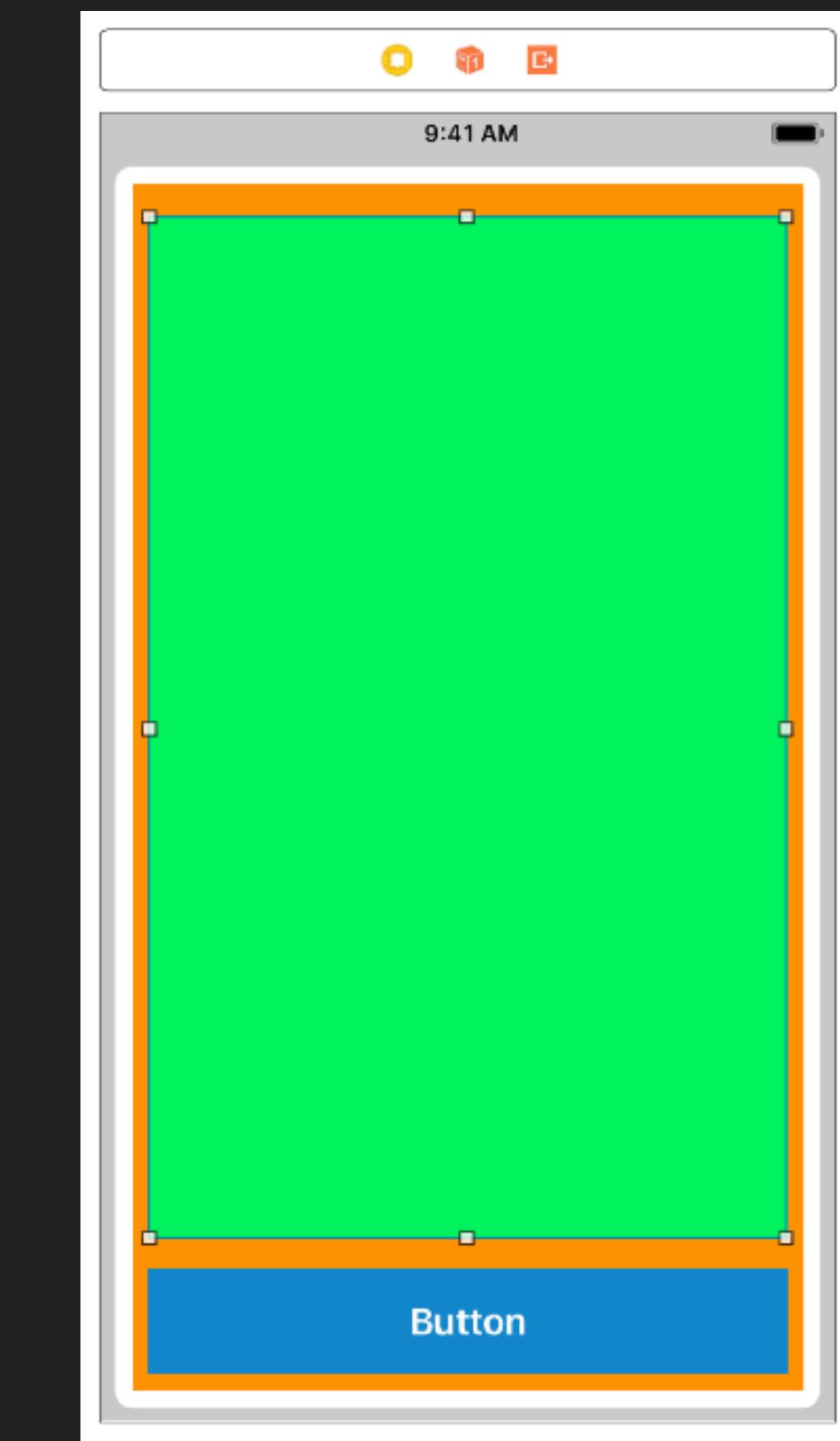
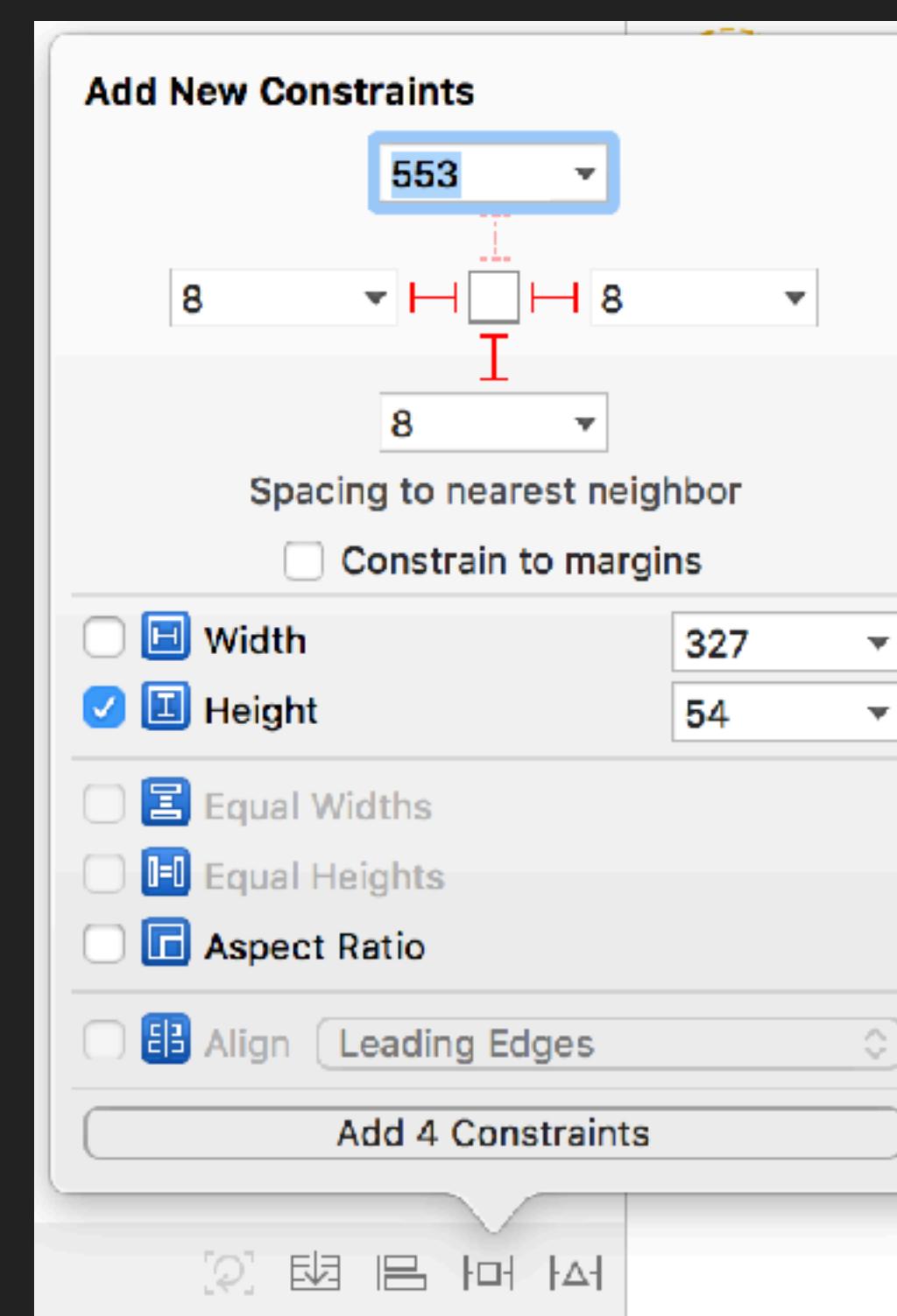
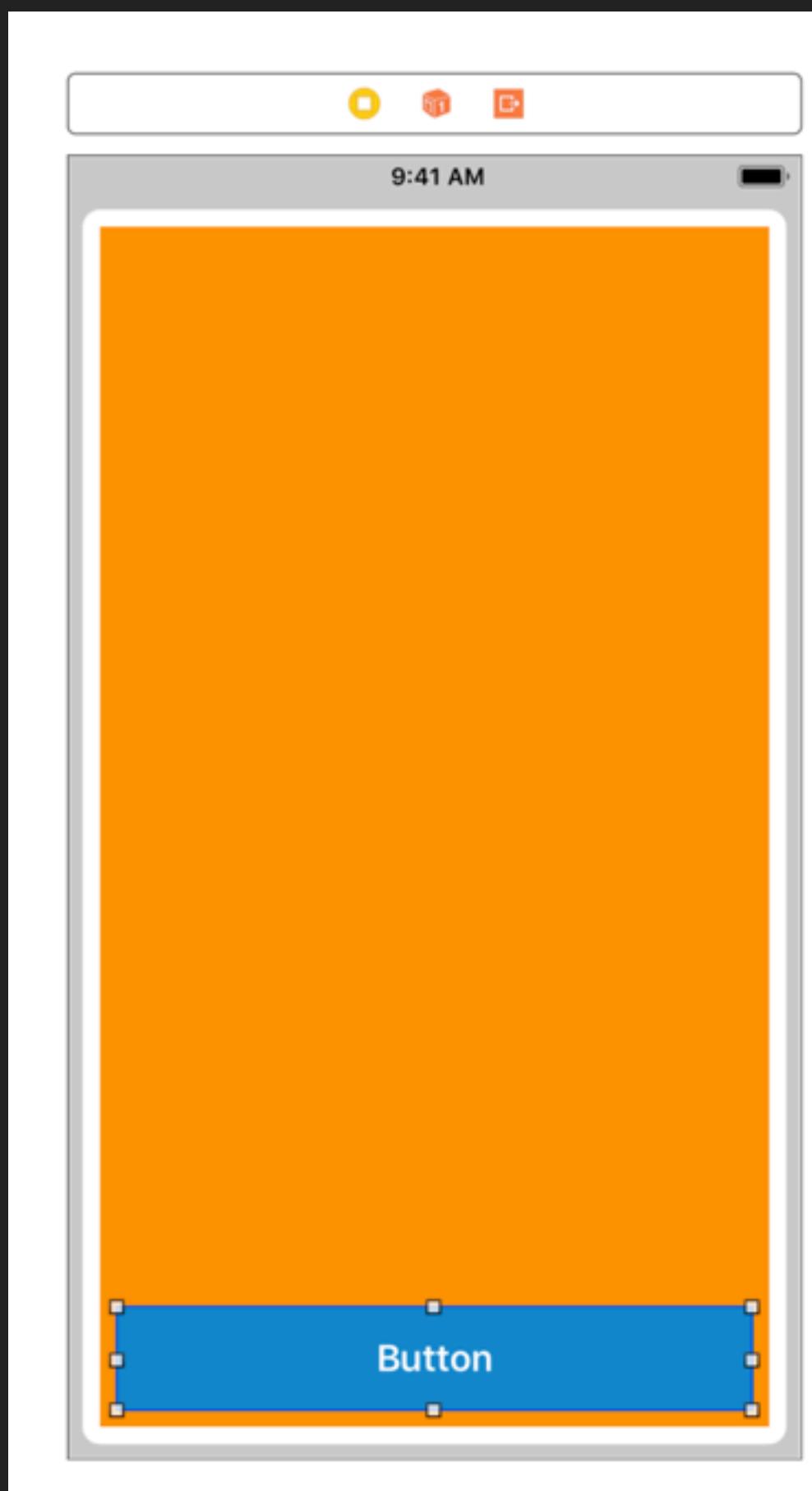
EXEMPLO SIMPLES DE VIEW DE TAMANHO DINÂMICO



CONSTRAINTS

EXEMPLO SIMPLES DE VIEW DE TAMANHO DINÂMICO

LIGADAS A VIEWS DE TAMANHO FIXO



CONSTRAINTS

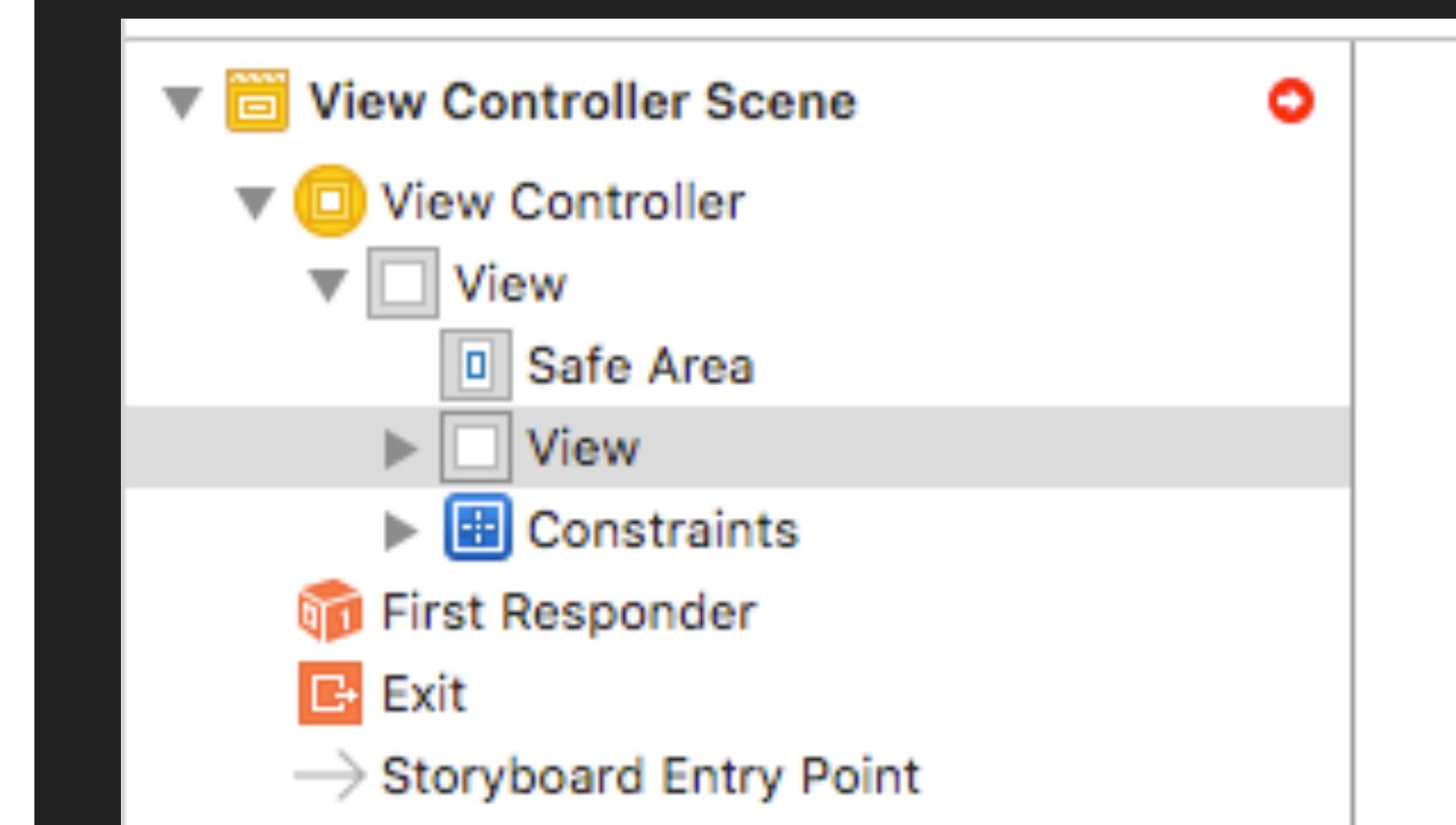
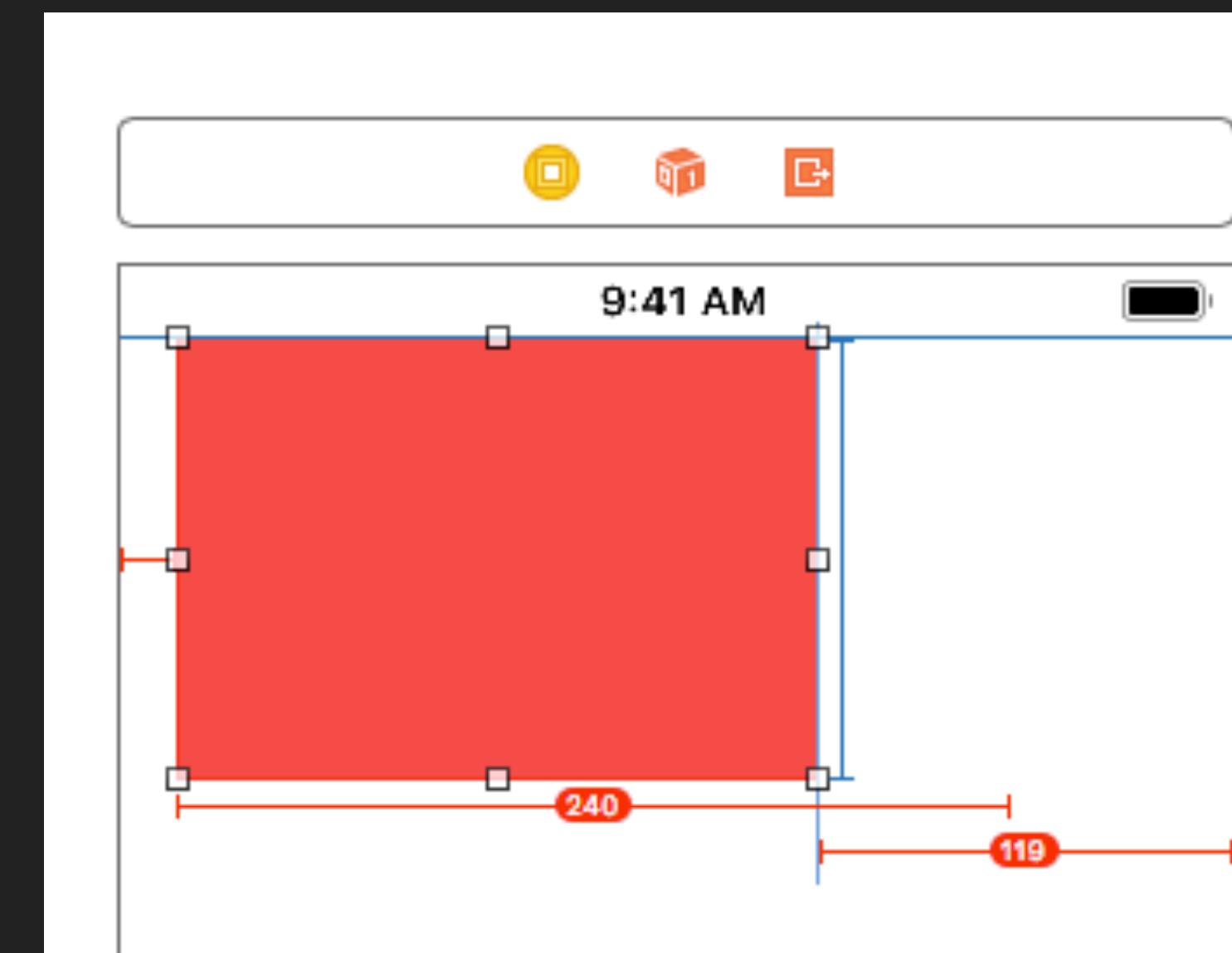
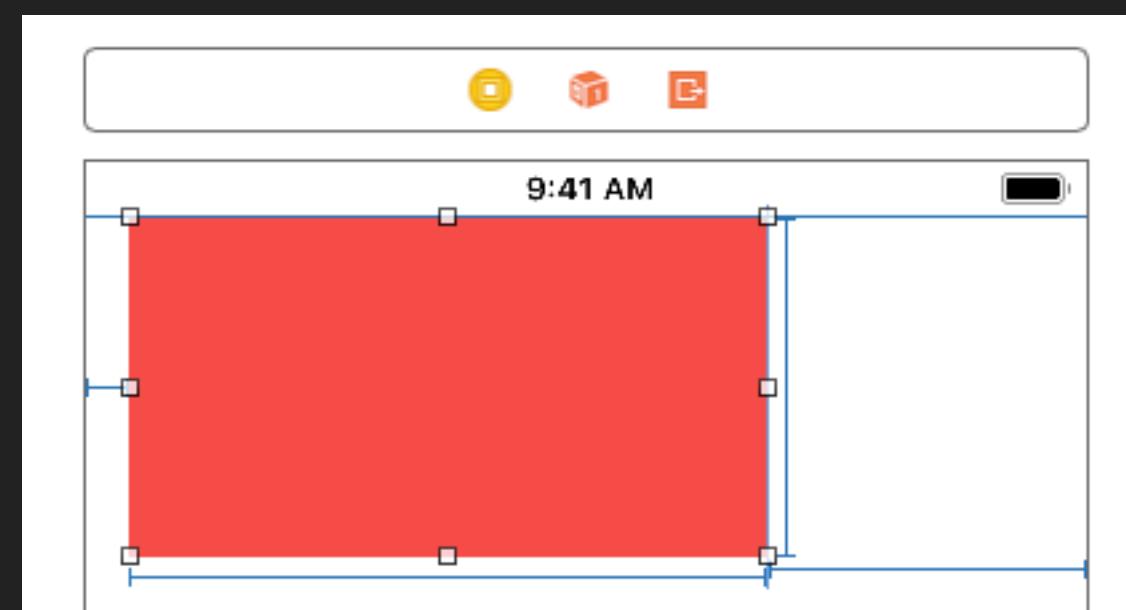
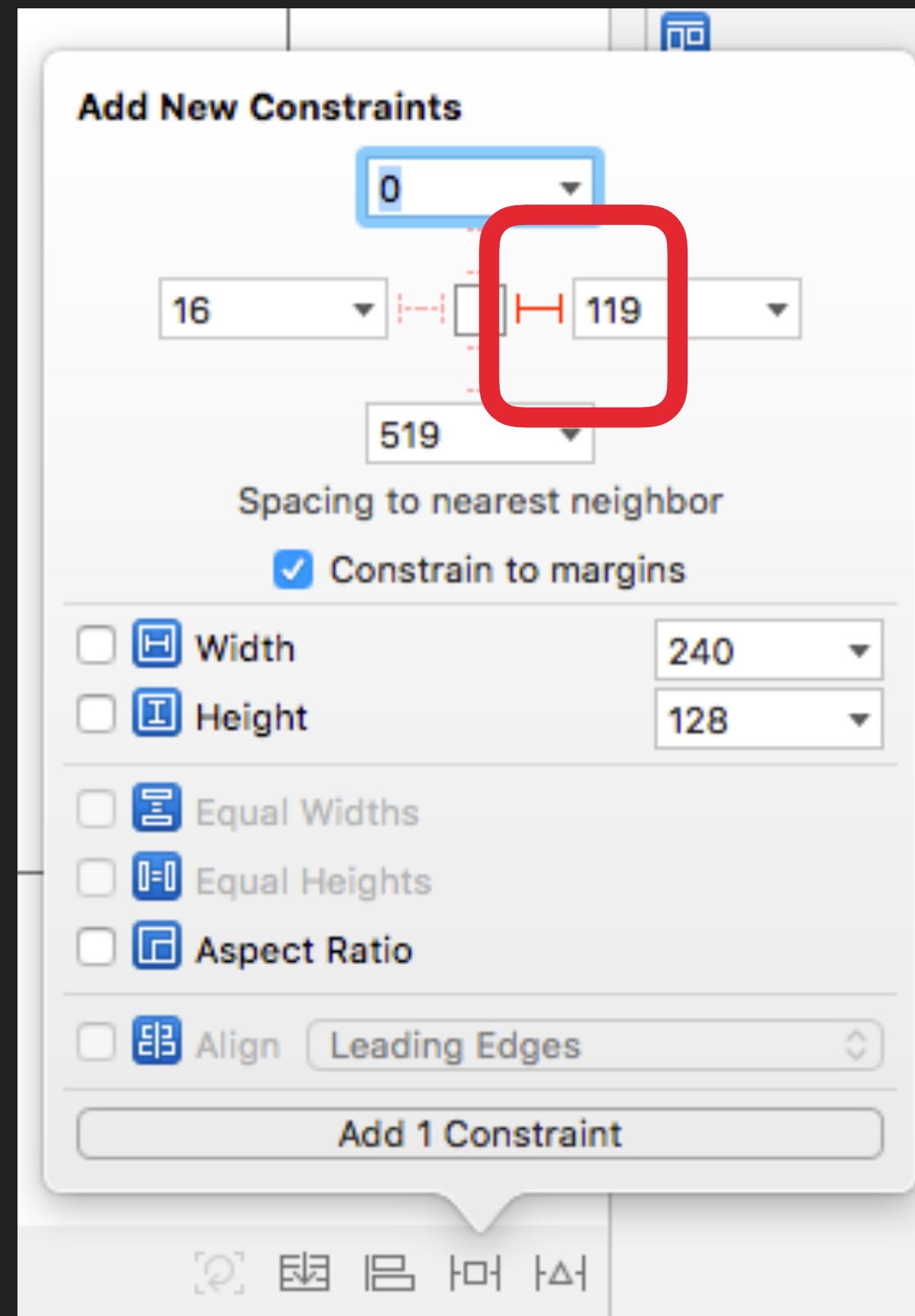
VIEWS DE TAMANHO DINÂMICO:

Elas tem que estar ligadas (por constraints) à borda

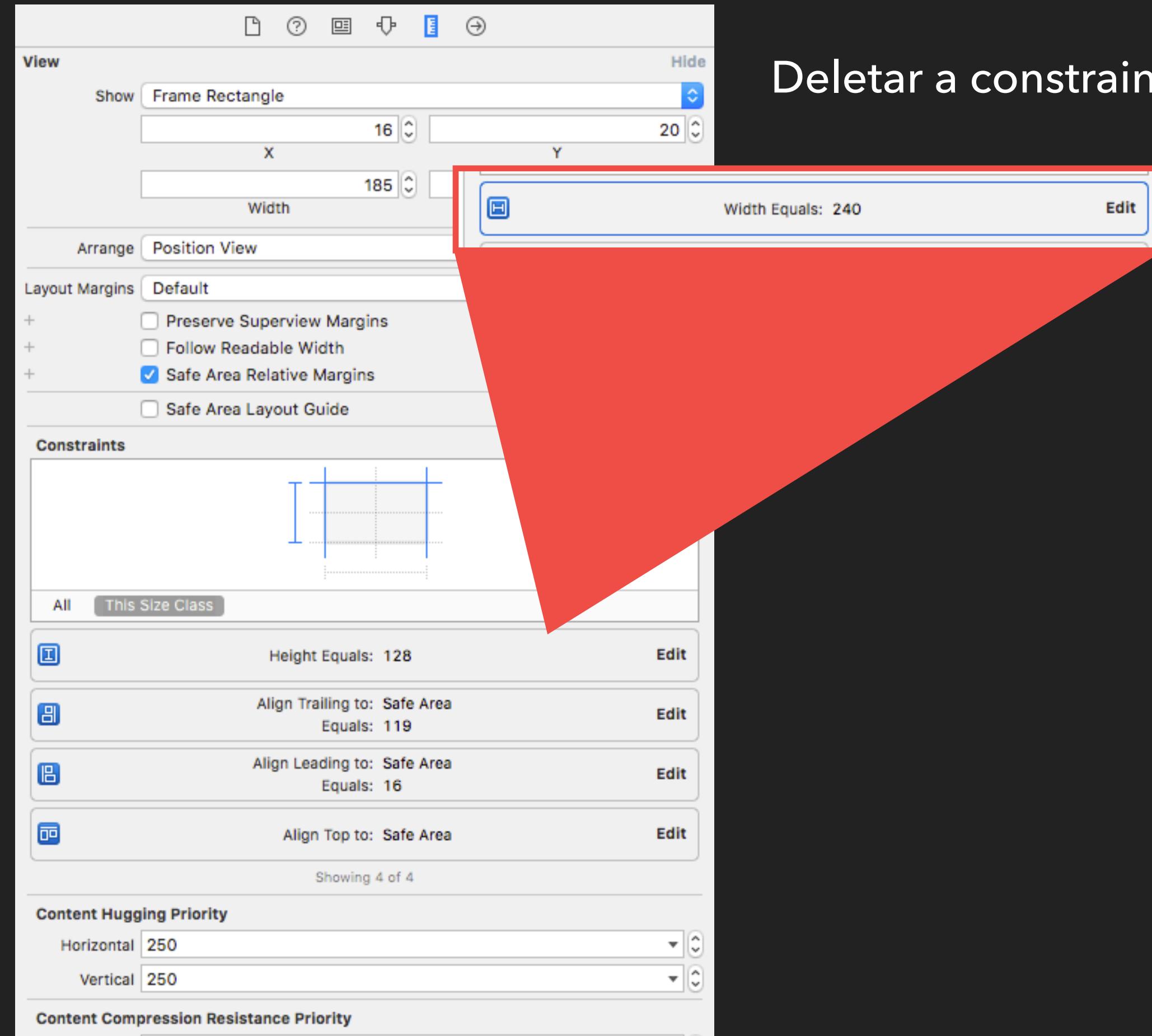
ou

Ligadas à Views que estejam ancoradas nas bordas da tela

E SE EU DEIXAR A CONSTRAINT DE COMPRIMENTO?



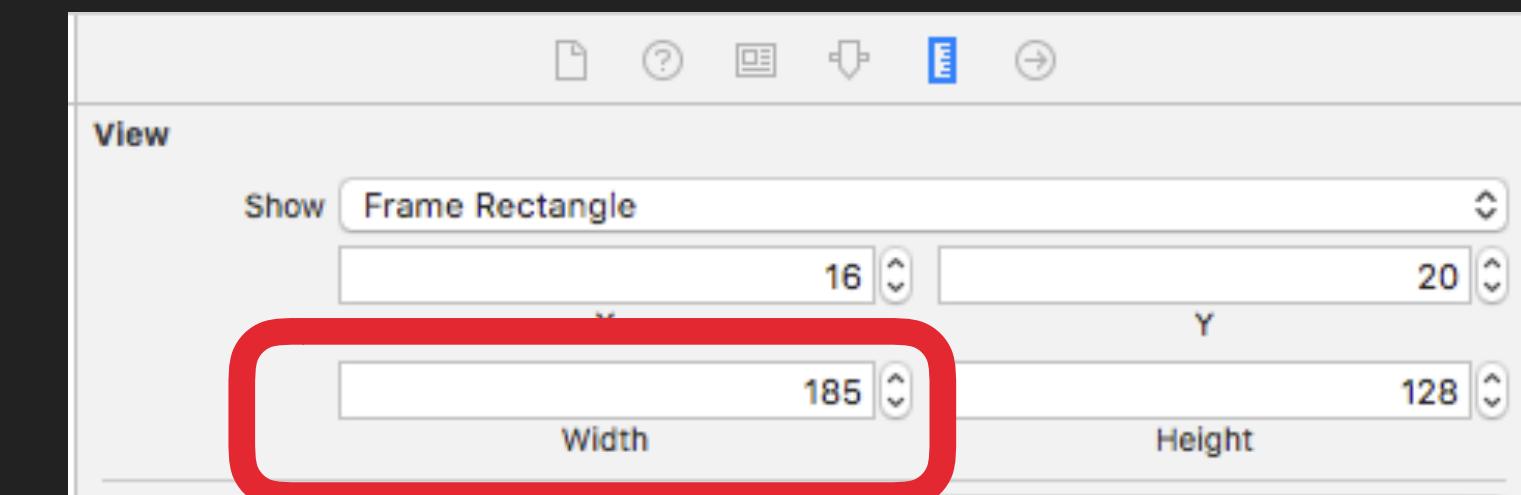
COMO RESOLVER?



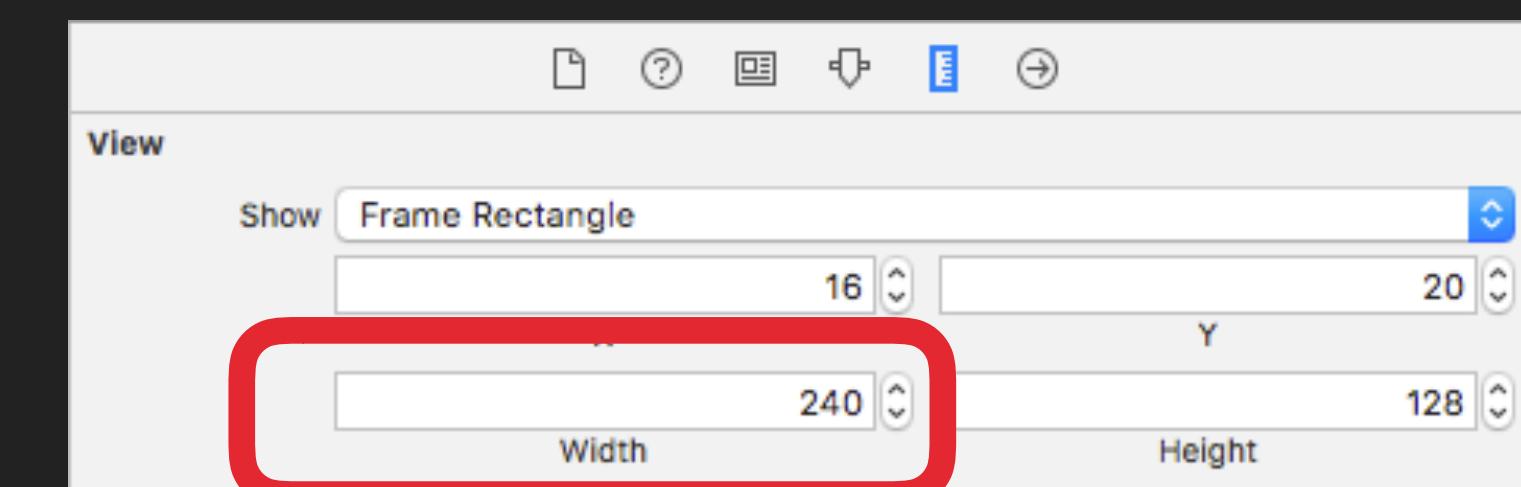
Deletar a constraint de comprimento

Note que o tamanho mudou:

iPhone 4s:

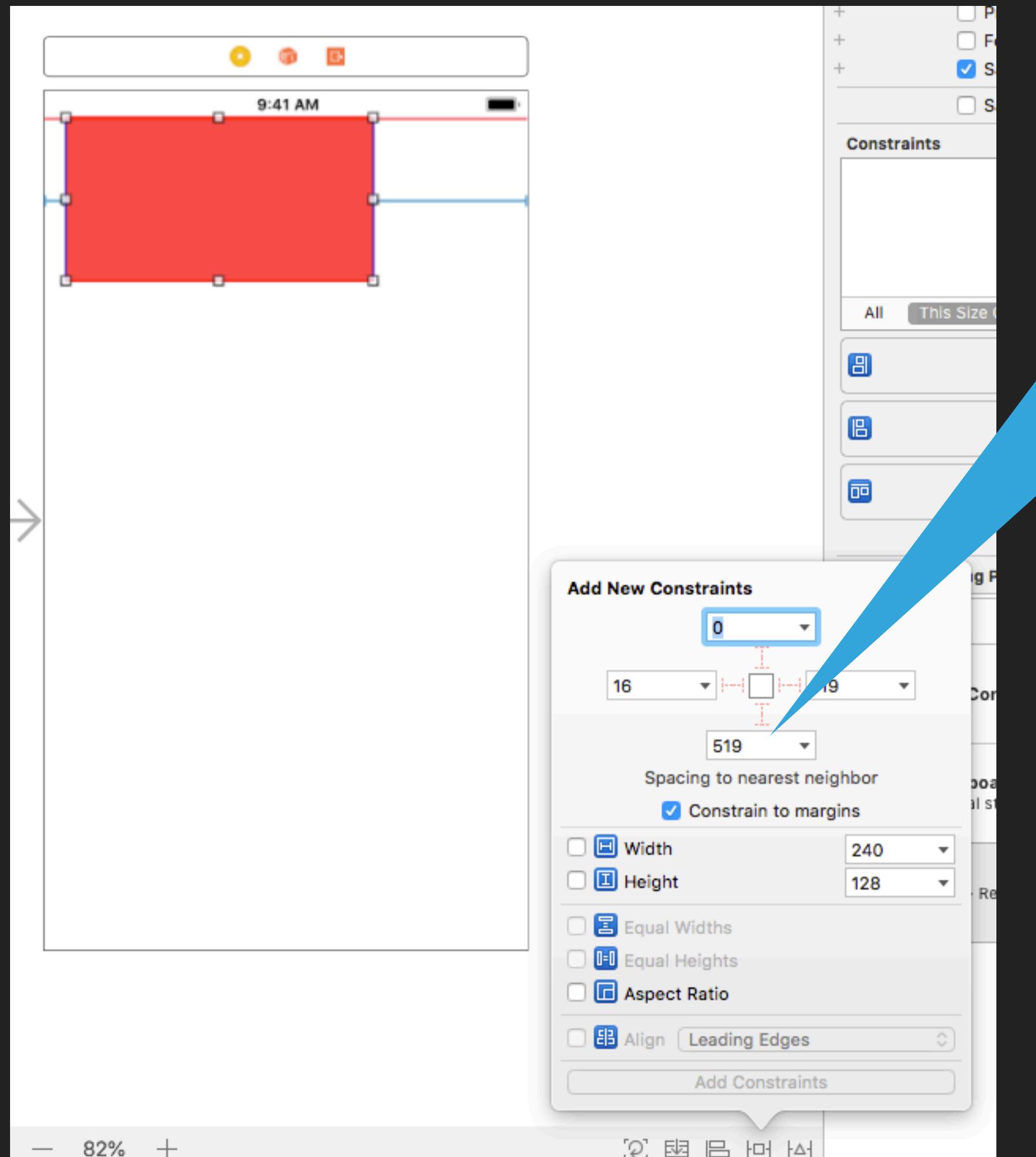


iPhone 8:



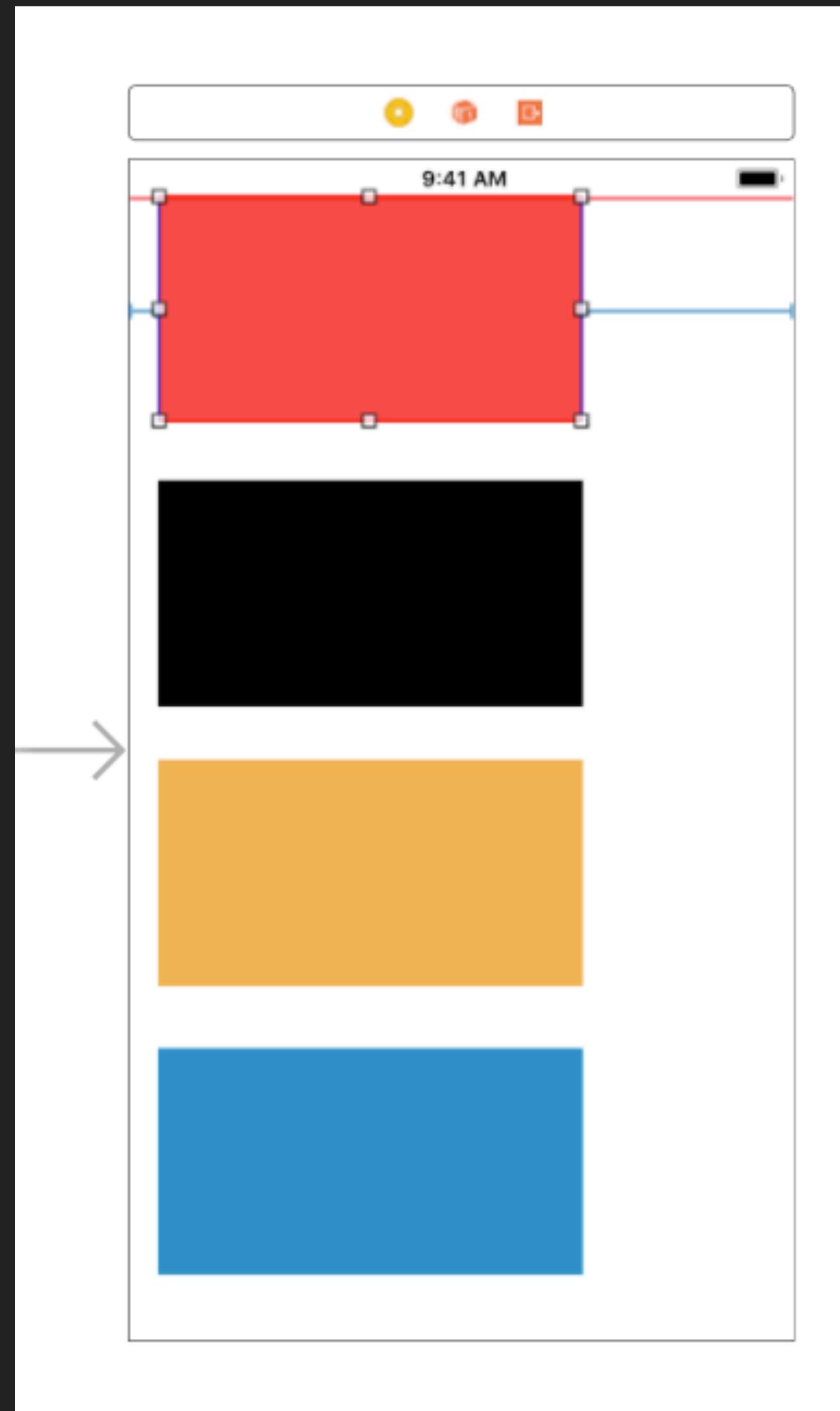
E PARA O CASO DA ALTURA?

PODEMOS APAGAR A ALTURA FIXA E COLOCAR A CONSTRAINT?



Geralmente não criamos Constraints com um valor tão grande

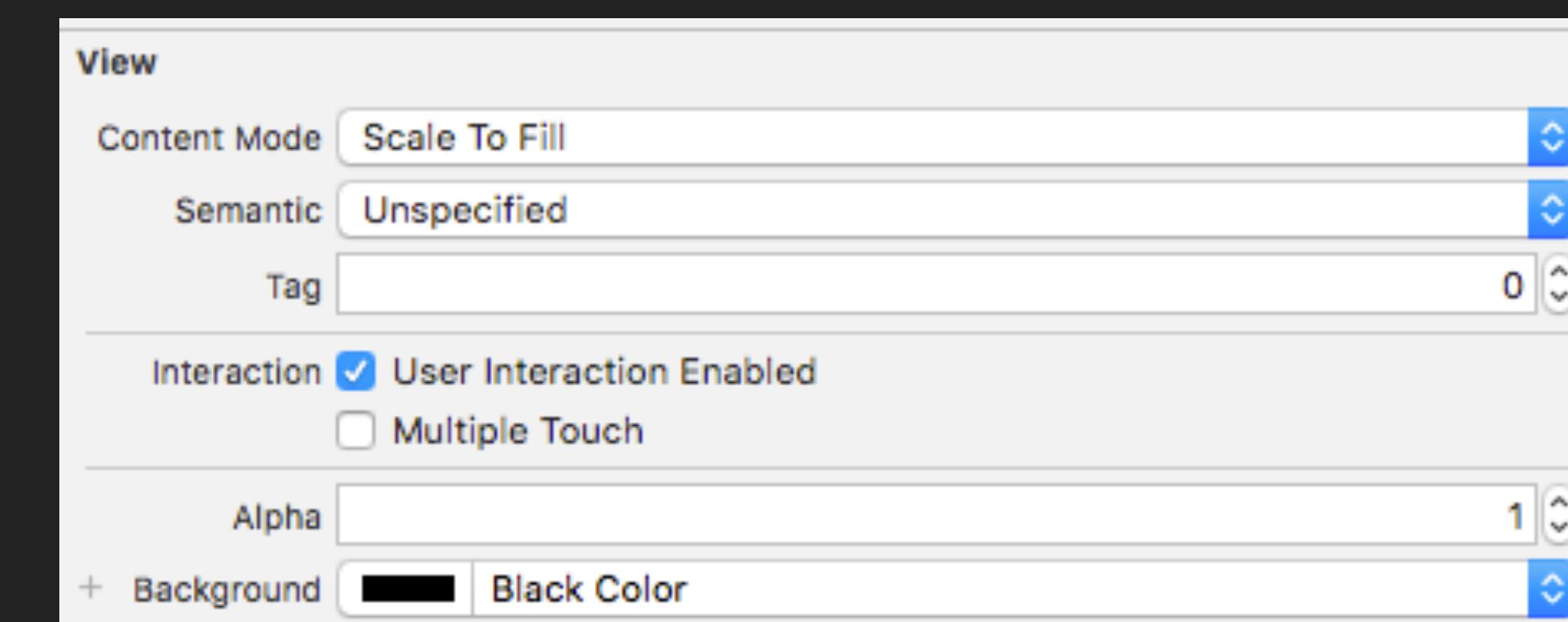
VAMOS ADICIONAR OUTRAS VIEWS E TRATAR ISSO



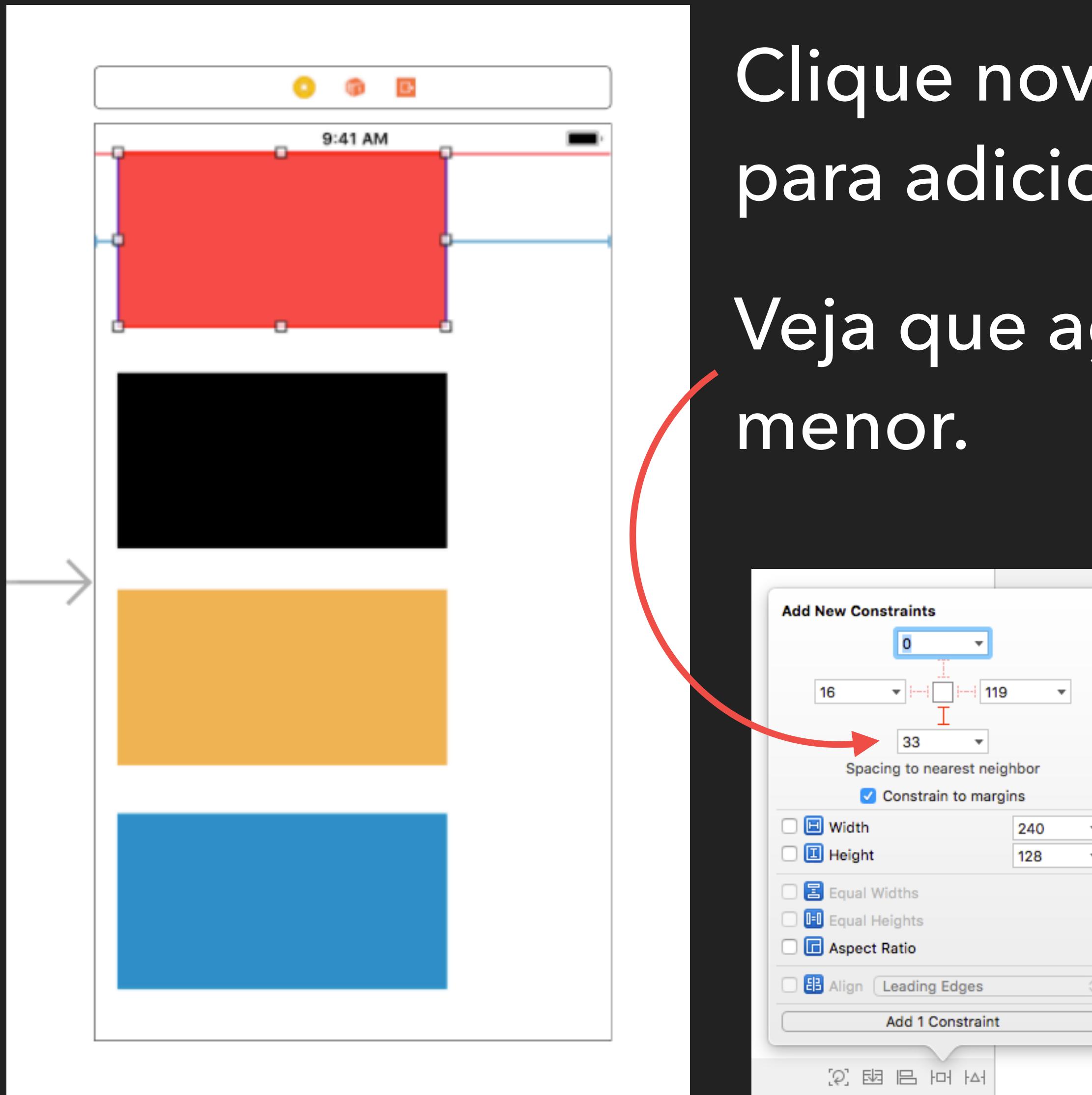
Arraste outras três Views abaixo da que criamos
Selecione o Attribute Inspector



Clique em Background e selecione uma cor, se
não houver, clique em Other e escolha uma cor
na janela que abrir:



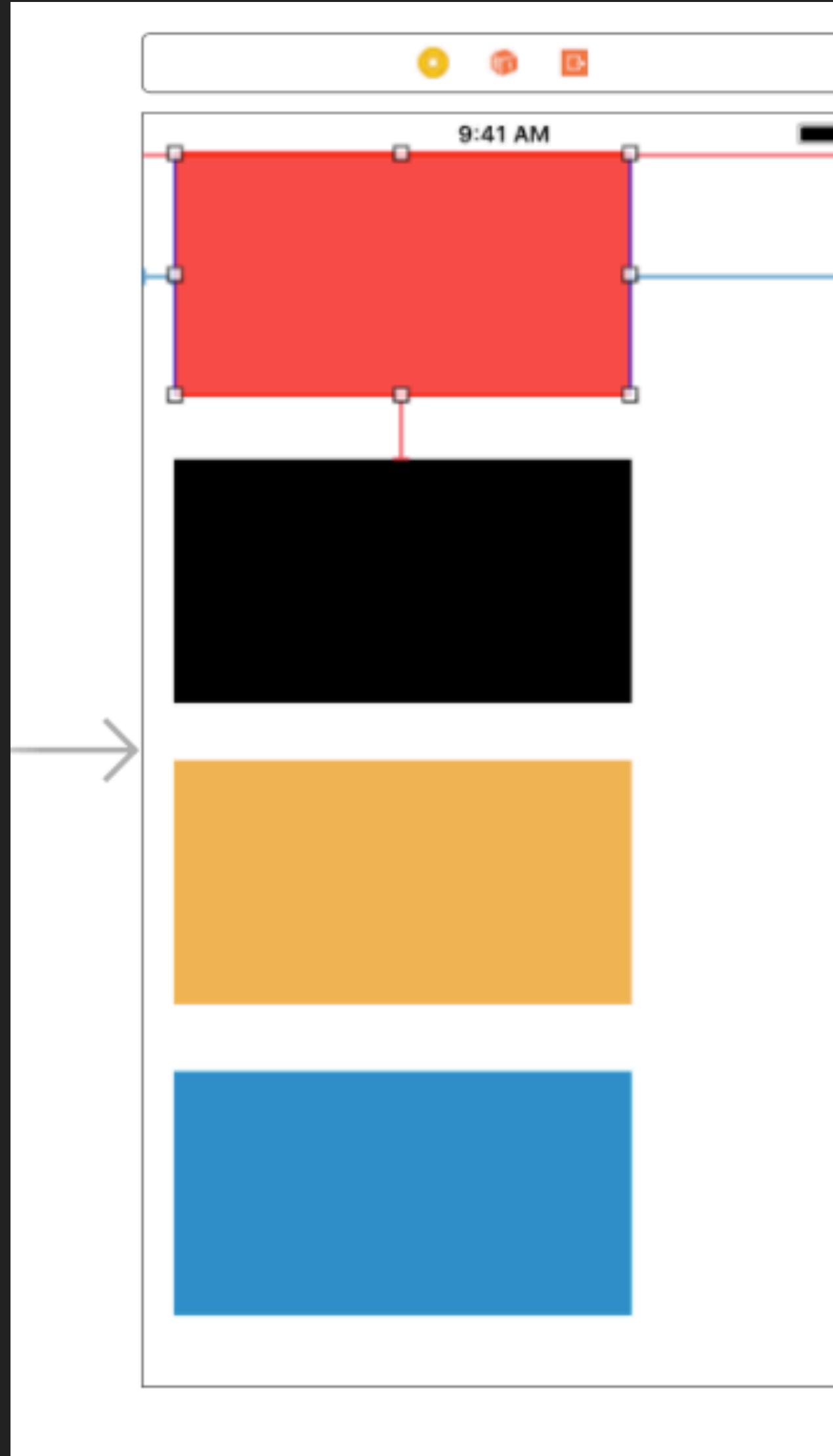
VAMOS ADICIONAR OUTRAS VIEWS E TRATAR ISSO



Clique novamente na primeira View e clique para adicionar uma Constraint.

Veja que agora, o valor da Constraint, é bem menor.

VAMOS ADICIONAR OUTRAS VIEWS E TRATAR ISSO

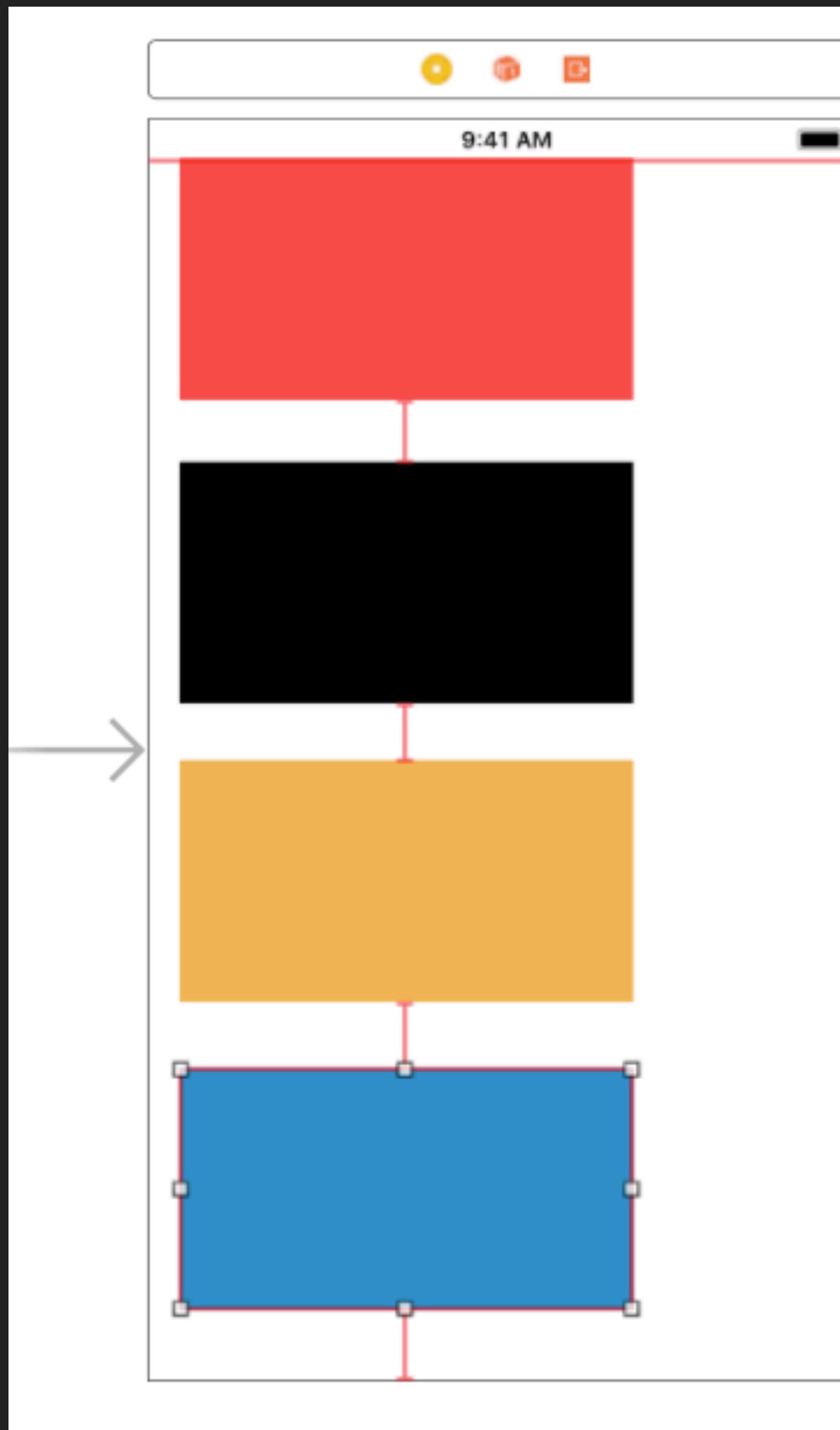


Ele ainda apresenta erro. 😞

Isso ocorre pois as Constraints ainda não atingiram o bottom nem está ligada à uma View de tamanho e posição fixa.

Crie as ligações até o bottom.

VAMOS ADICIONAR OUTRAS VIEWS E TRATAR ISSO



Ele ainda apresenta erro. 😠

Isso ocorre pois as outras Views só estão com o eixo vertical posicionado.

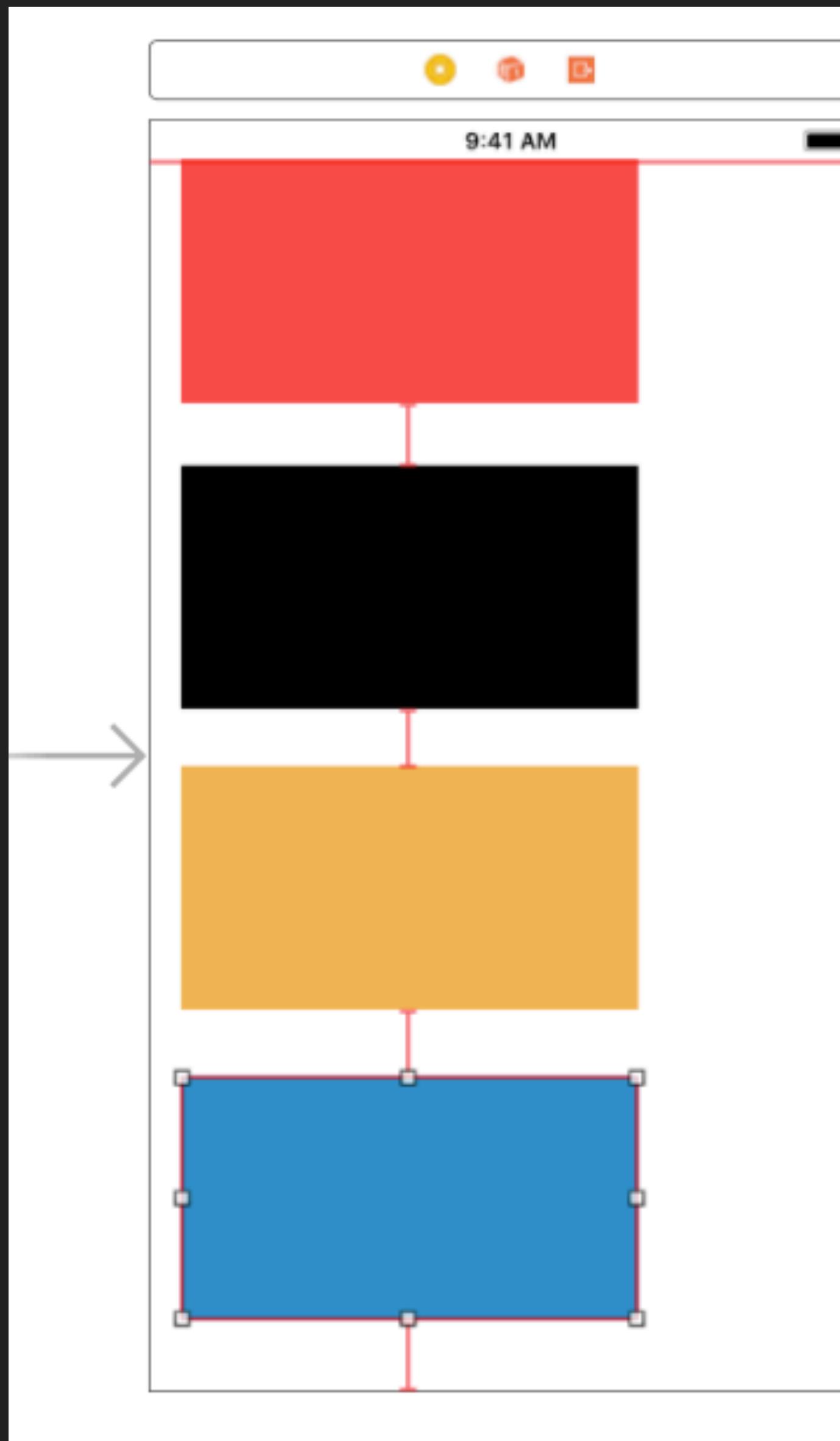
Ainda falta:

-Horizontal

-Altura

-Largura

VAMOS ADICIONAR OUTRAS VIEWS E TRATAR ISSO

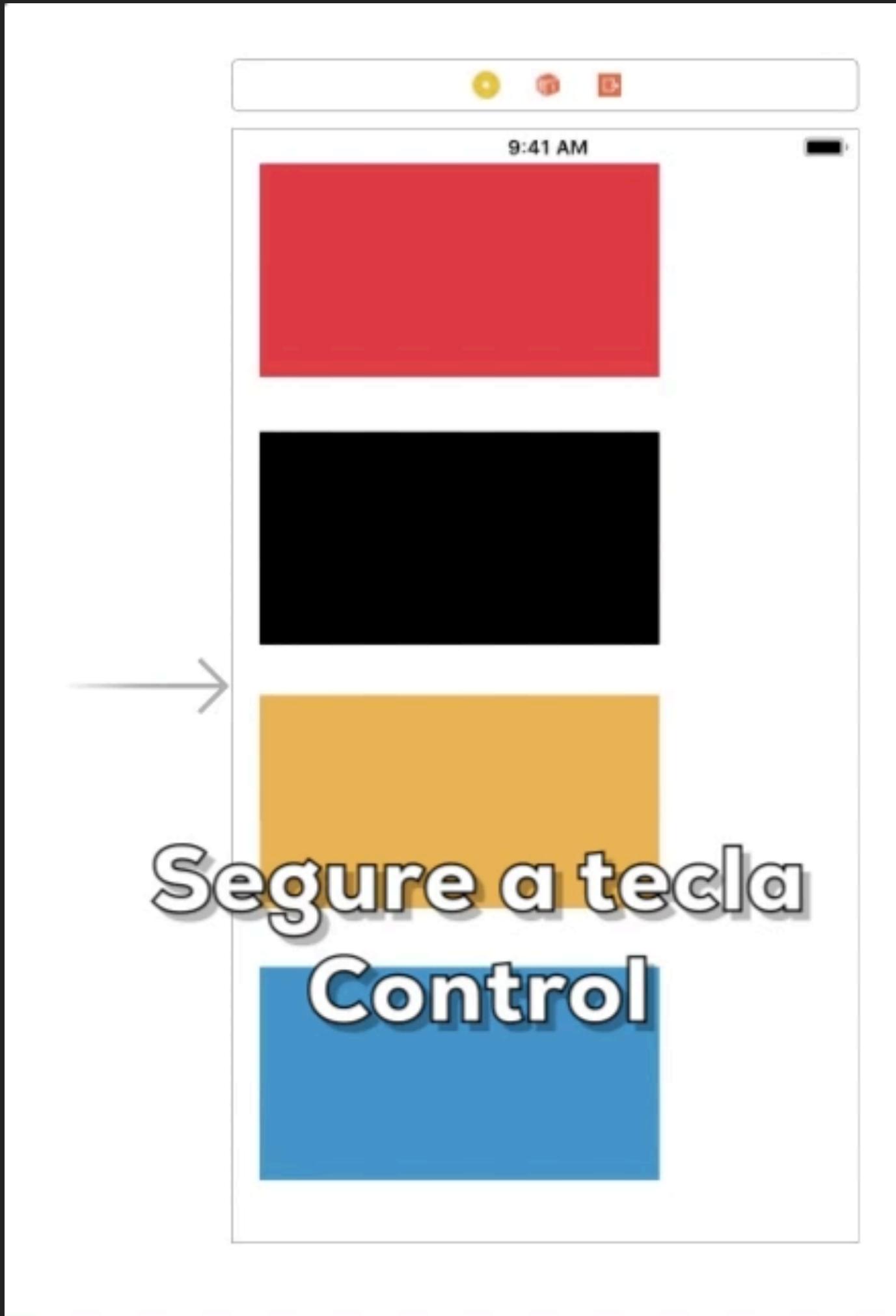


Vamos dificultar um pouco: 😊

Vamos posicionar todas as Views relativas à primeira View (Vermelha)

Caso a primeira mude a altura, comprimento, todas as outras mudarão

VAMOS ADICIONAR OUTRAS VIEWS E TRATAR ISSO



Control + Clique -> Arrasta

Importante para tudo no Storyboard

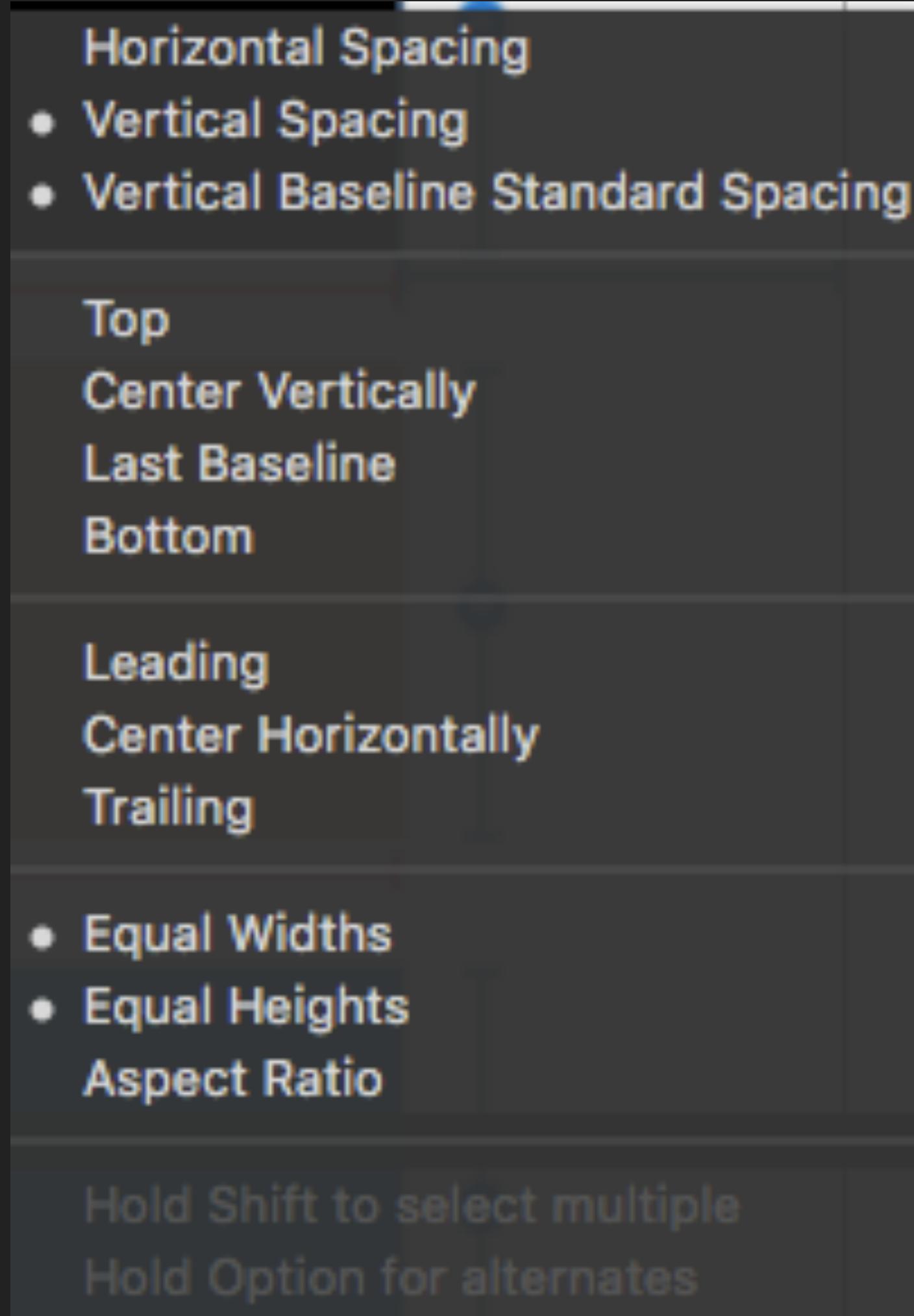
Colocar Equal Widths e Equal Heights

✓ - Altura

✓ - Largura

❗ - Posicionamento Horizontal relativo à primeira view

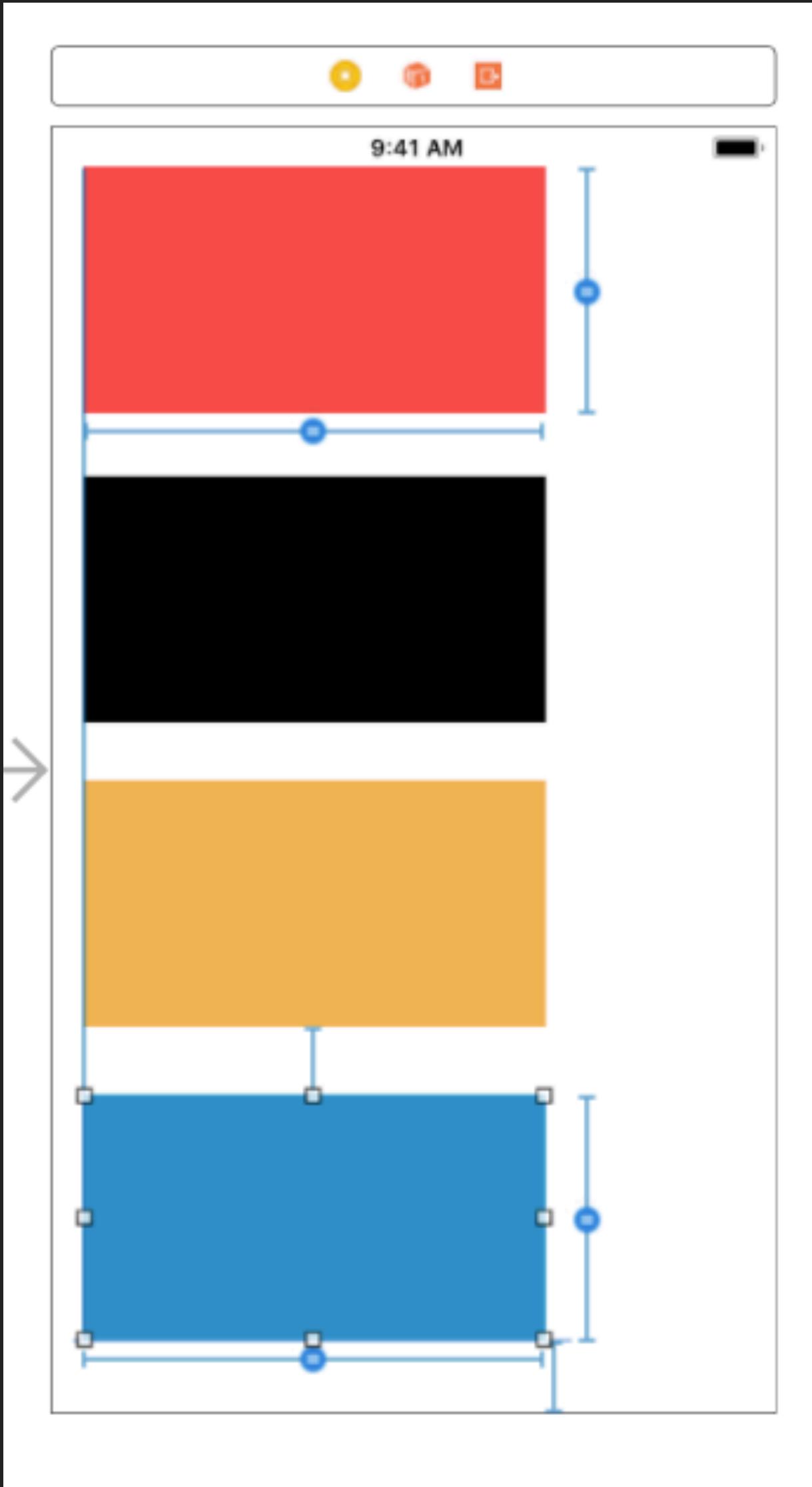
VAMOS ADICIONAR OUTRAS VIEWS E TRATAR ISSO



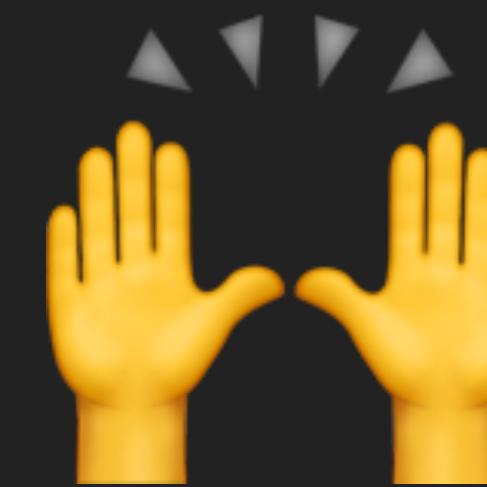
Leading - Alinha os ínicios (esquerda) das duas Views

Alinhe as outras Views com o ínicio da primeira View

VAMOS ADICIONAR OUTRAS VIEWS E TRATAR ISSO

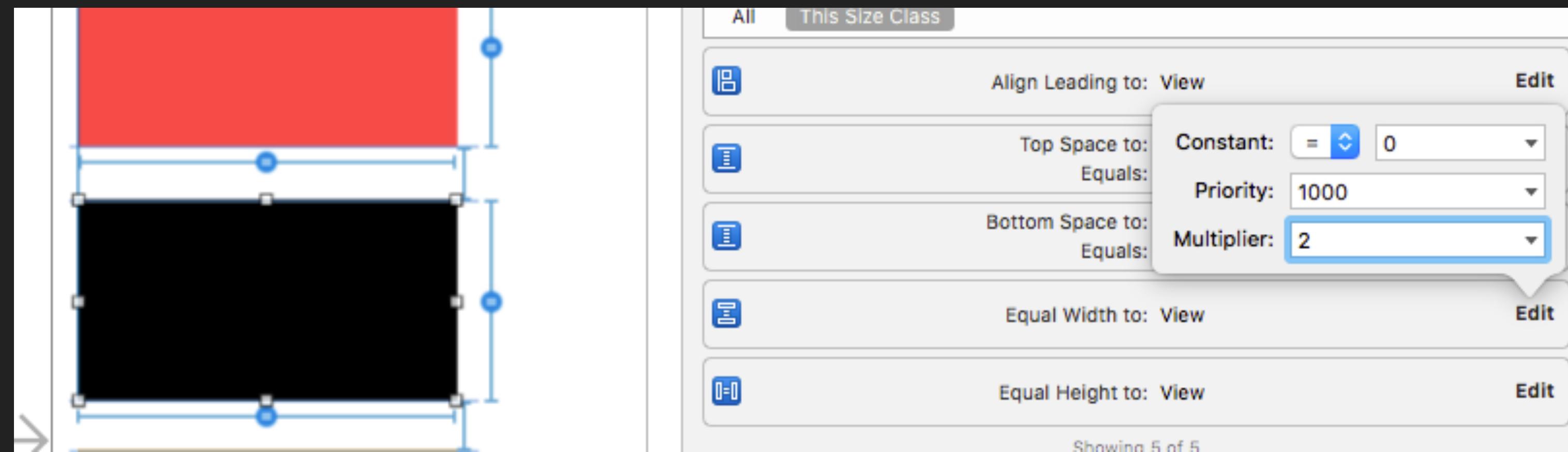


DEU CERTO!!

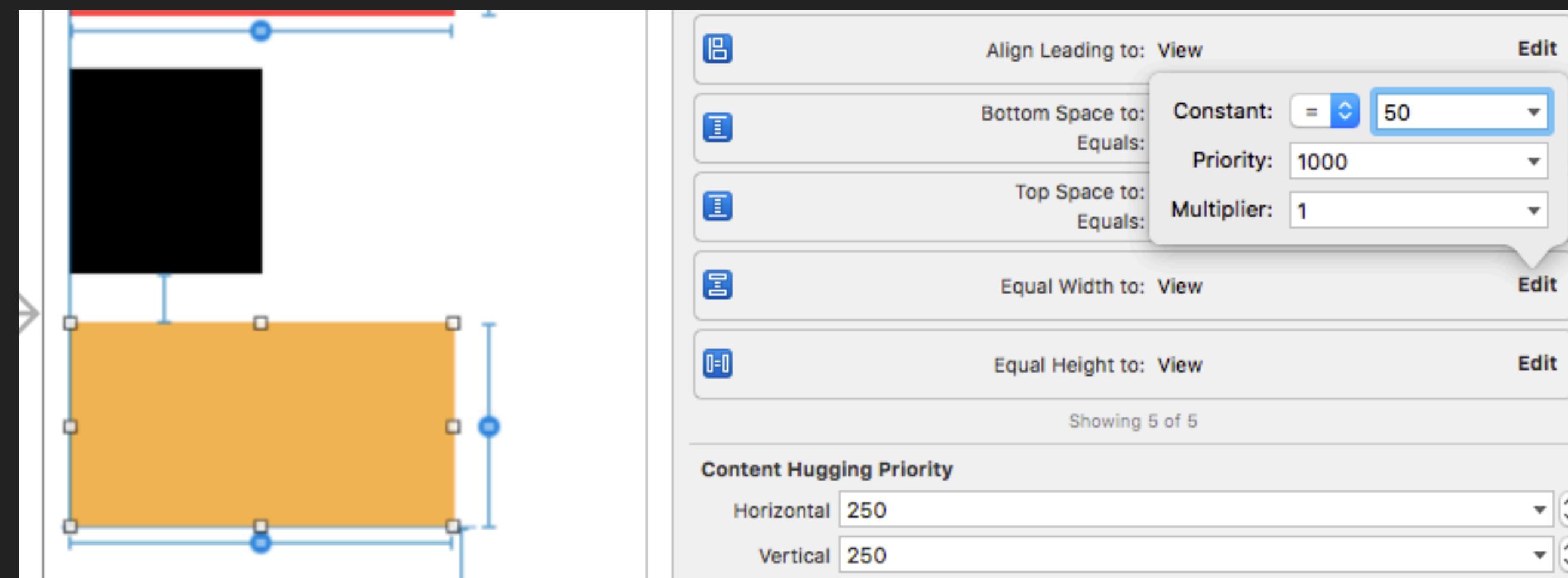


(No 4s também)

OUTRAS OPÇÕES DE CONSTRAINTS

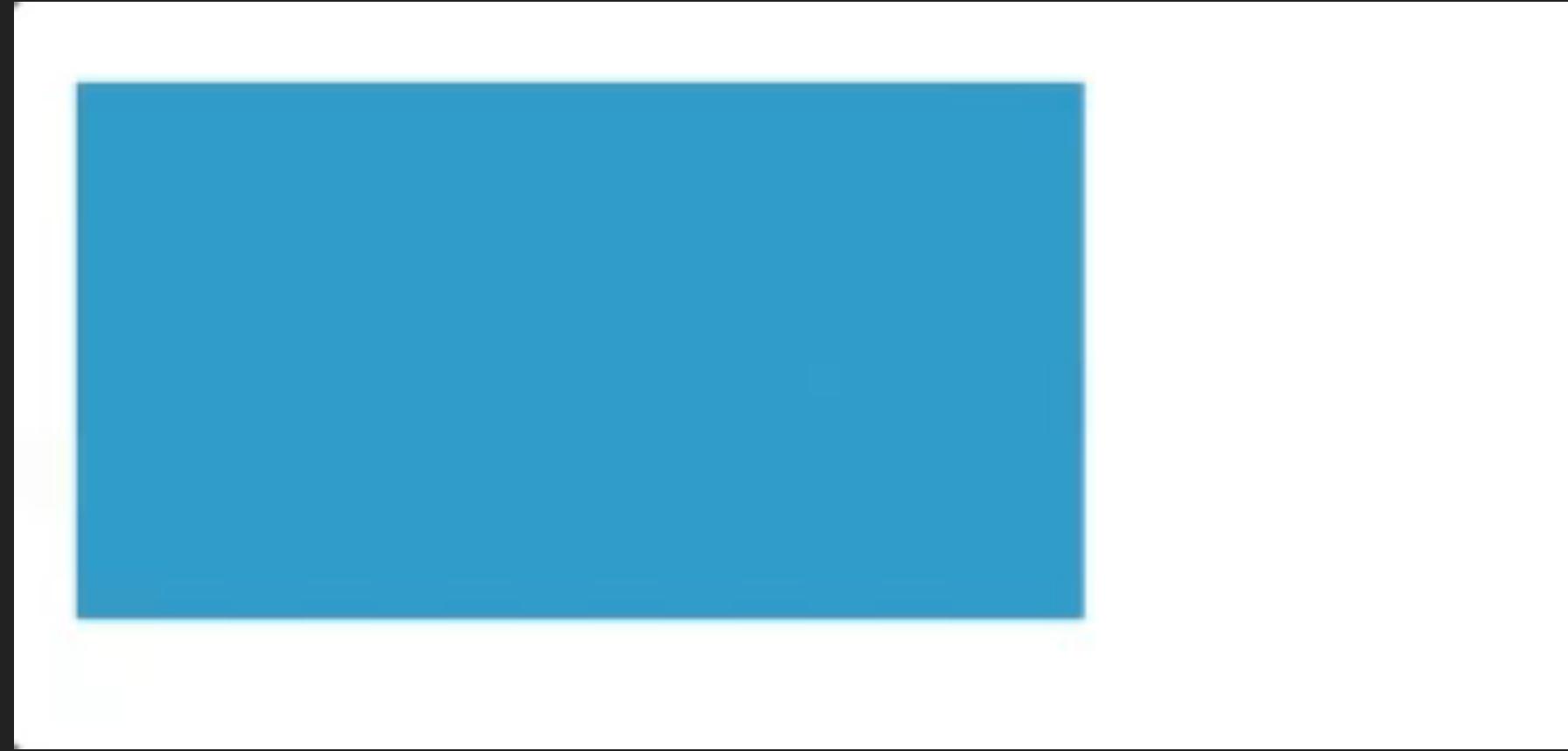


É possível fazer um tamanho proporcional (multiplier)



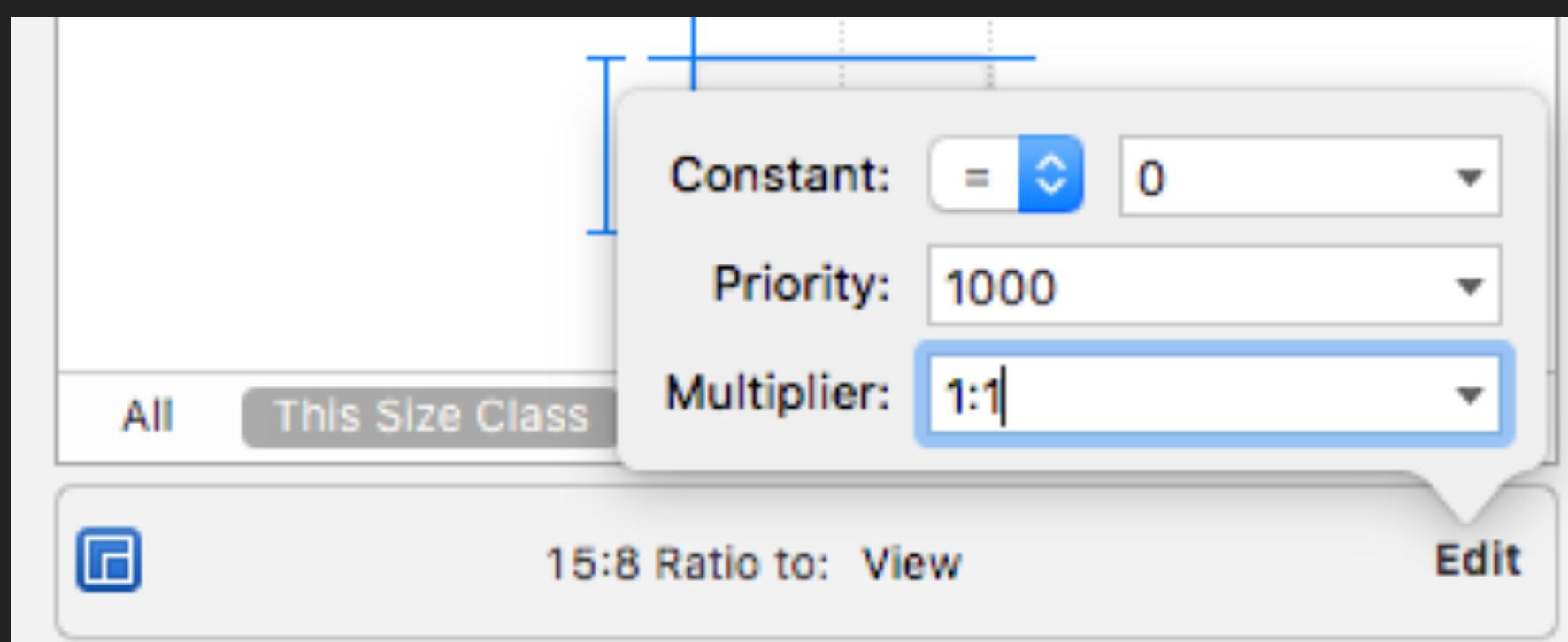
É possível fazer um tamanho menor (constant)

ASPECT RATIO



Aspect Ratio - Mantém a proporção Comprimento/Altura da View

-Pode ser a proporção com outra View, para isso é só arrastar para outra View e selecionar Aspect Ratio

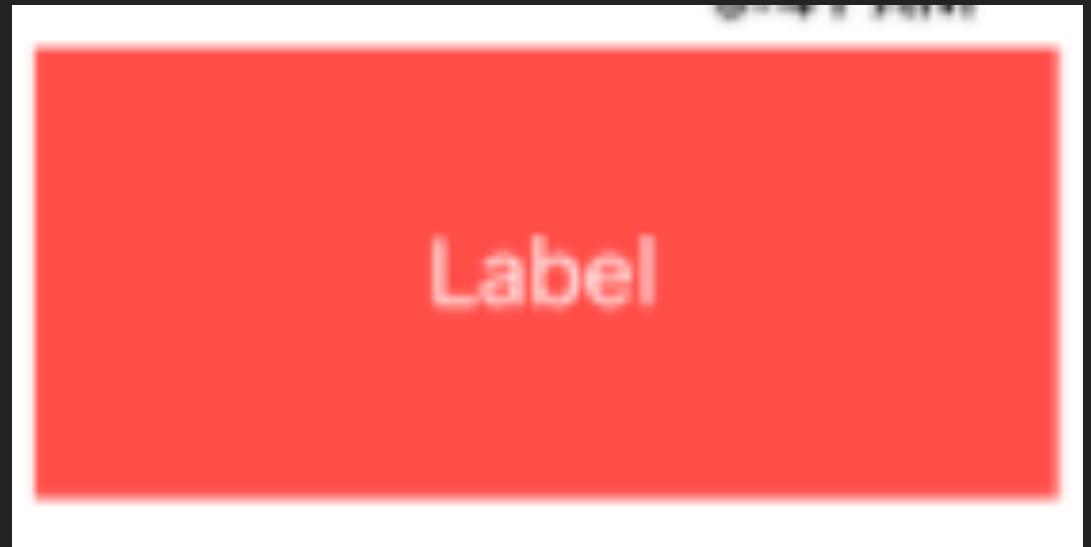


Remova a constraint de comprimento

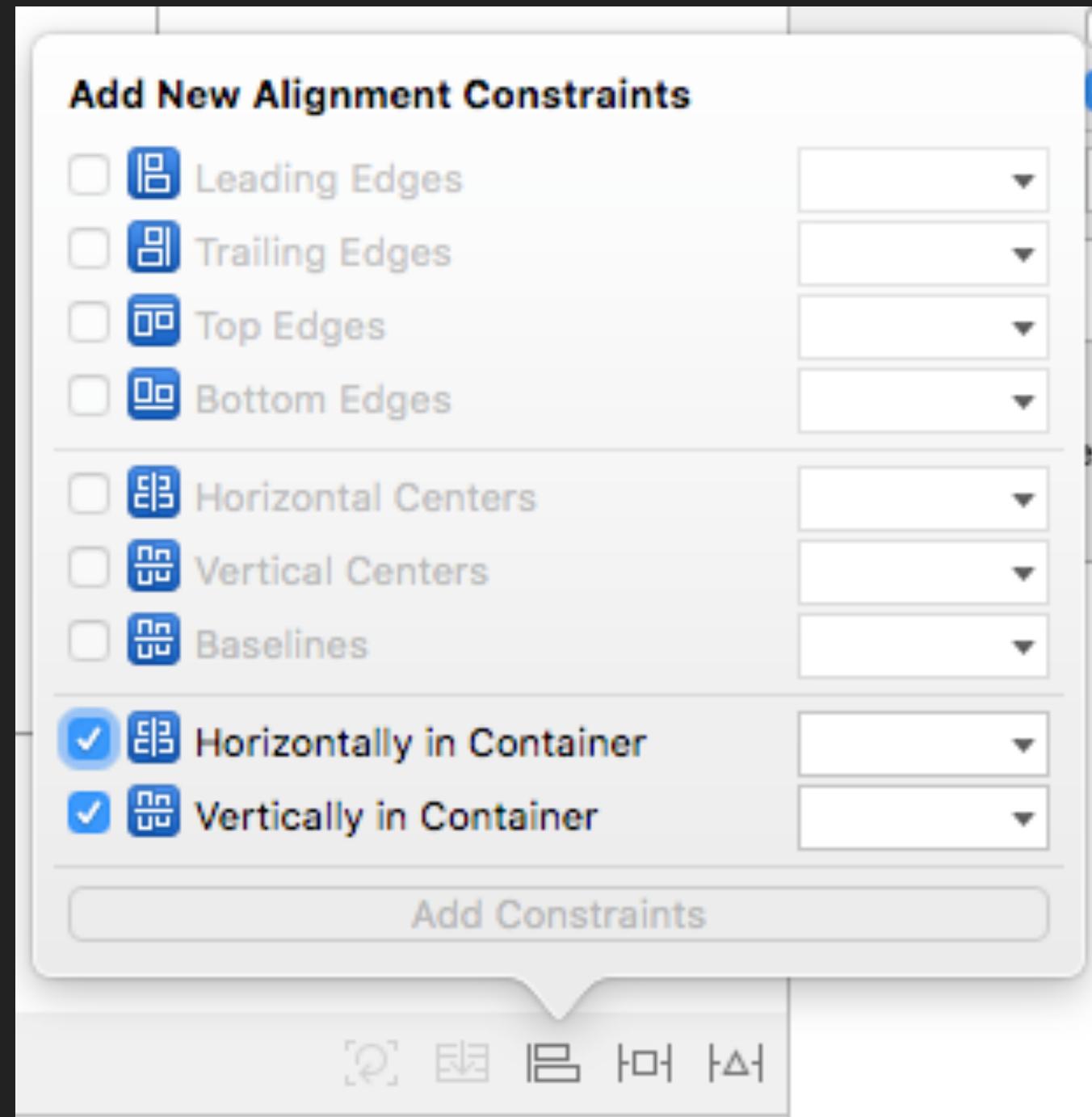
Altere o Aspect Ratio para 1:1

Será View quadrada

CENTRALIZANDO VIEWS

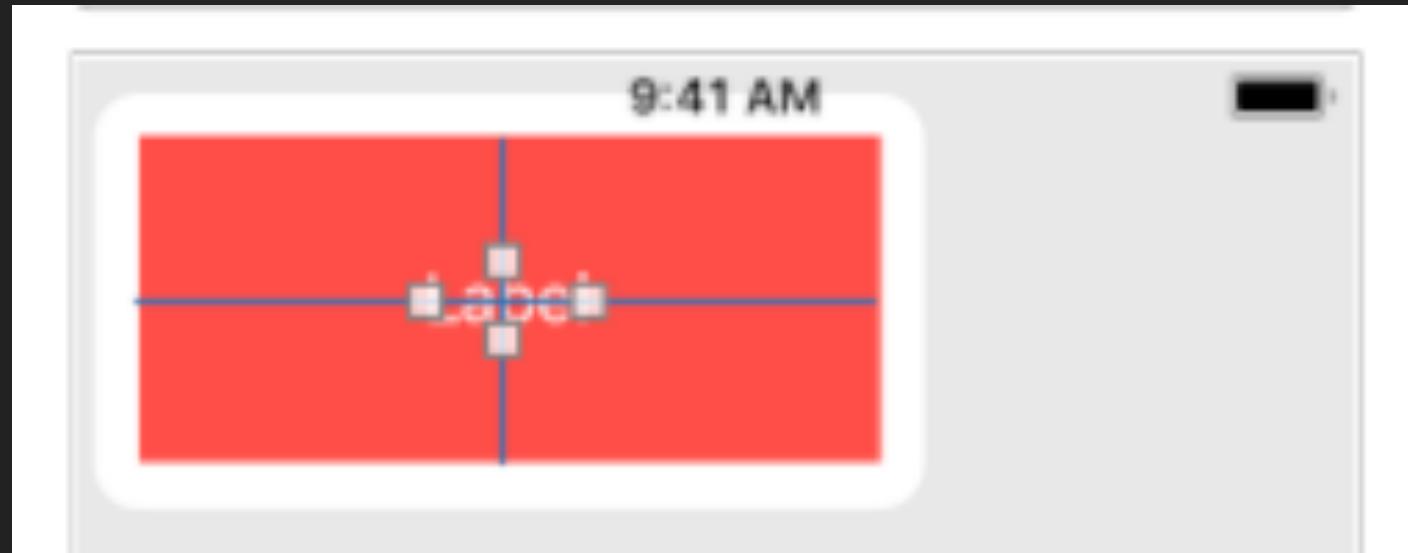


Vamos colocar uma UILabel dentro da caixa vermelha
Trocar a cor da fonte
E centralizá-la



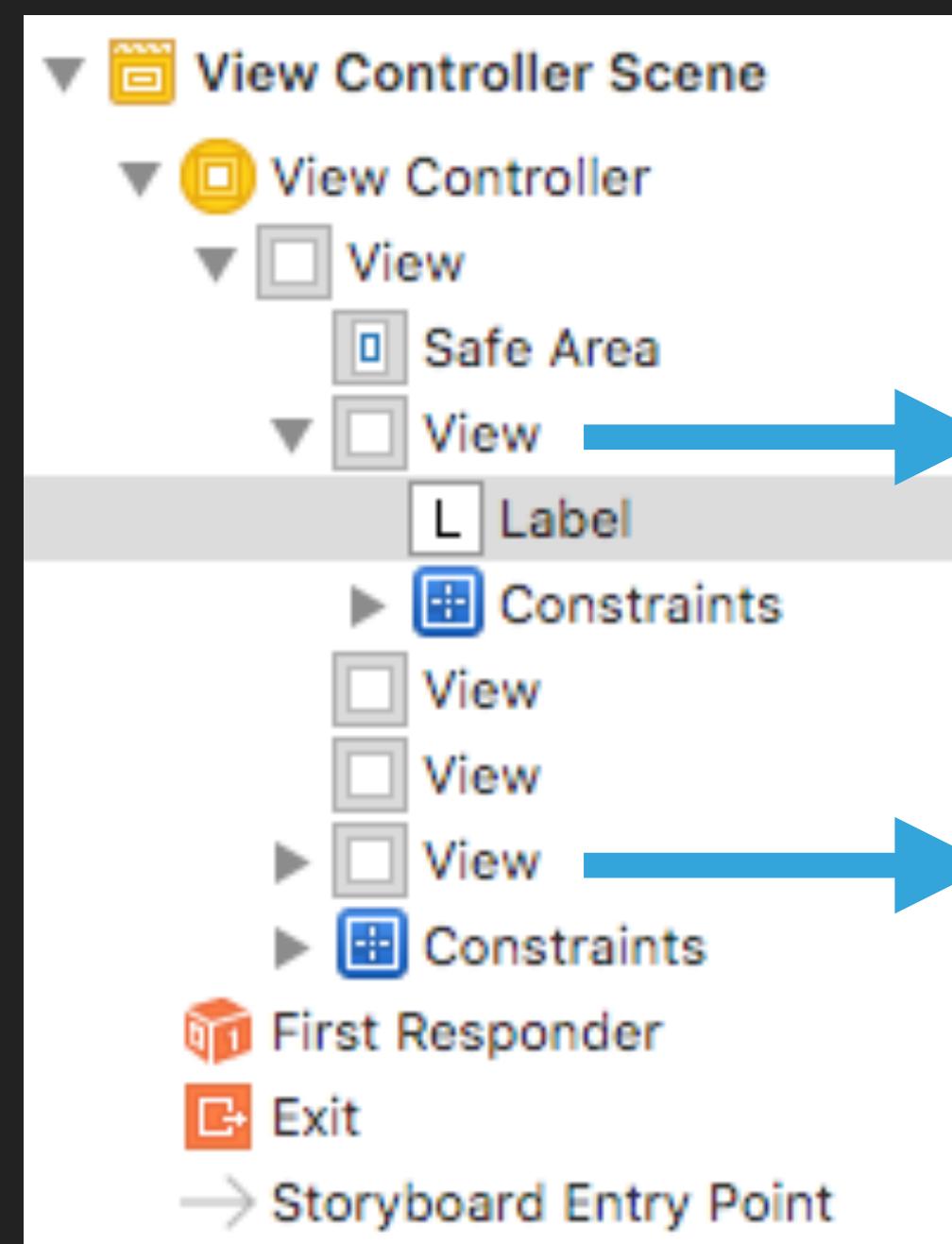
Para que ela fique no centro, é necessário
criar constraints de centralização.

CENTRALIZANDO VIEWS



A Label se centralizou dentro da View que estava contida

Para se centralizar na tela, seria necessário utilizar o Control+Clique e arrastar até a ViewController.
Selecionando então as opções de Center.



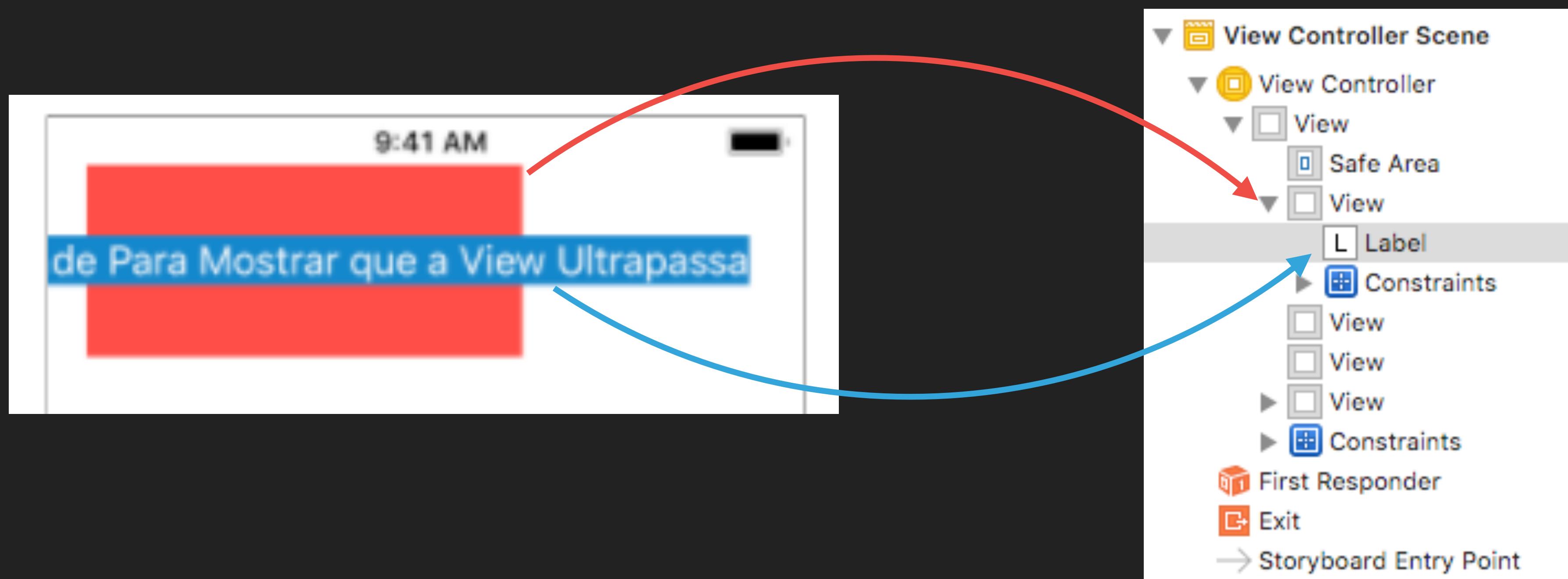
Mais atrás

Mais a frente

Uma View, não necessariamente tem de ficar dentro dos limites da View que a contém.

HIERARQUIA DE VIEWS

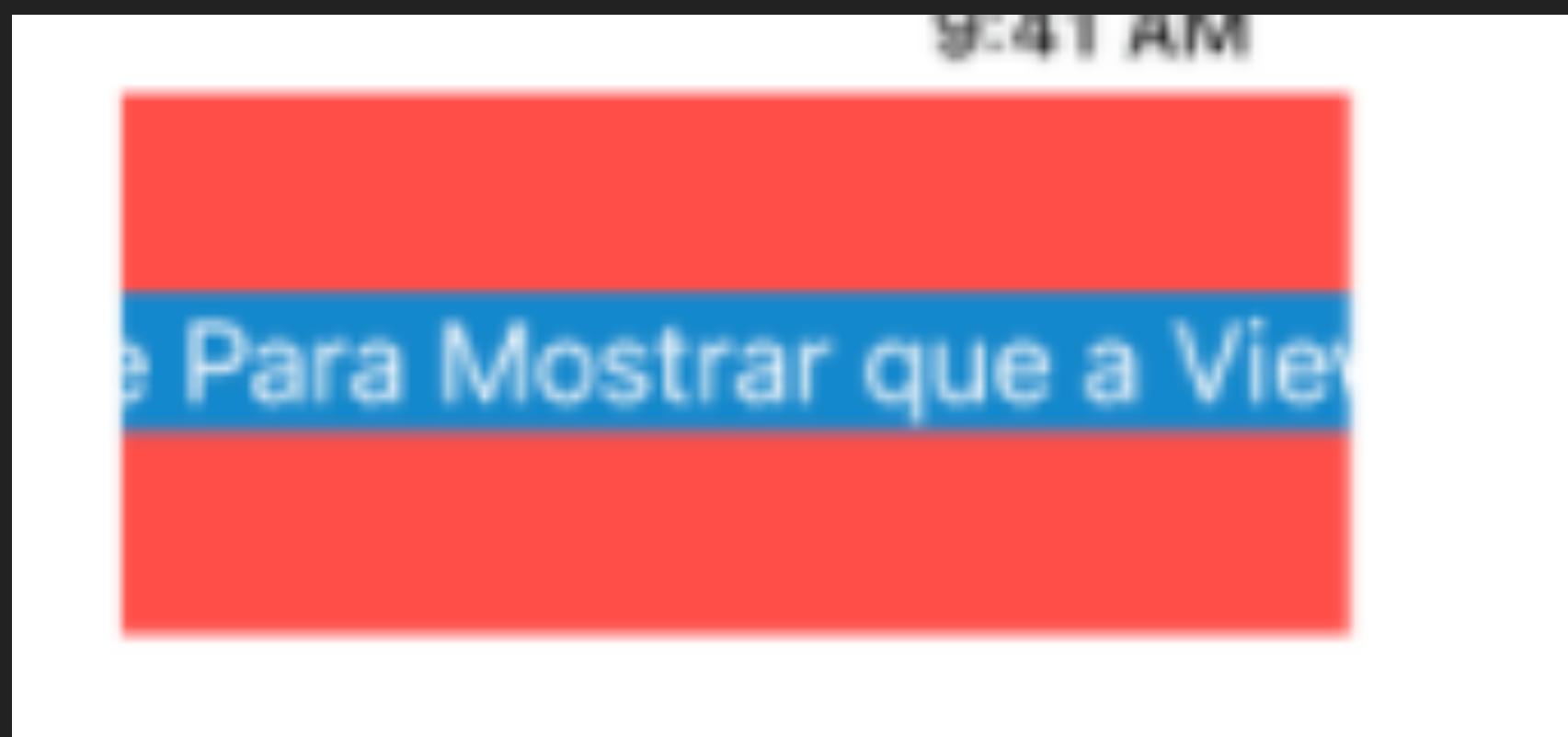
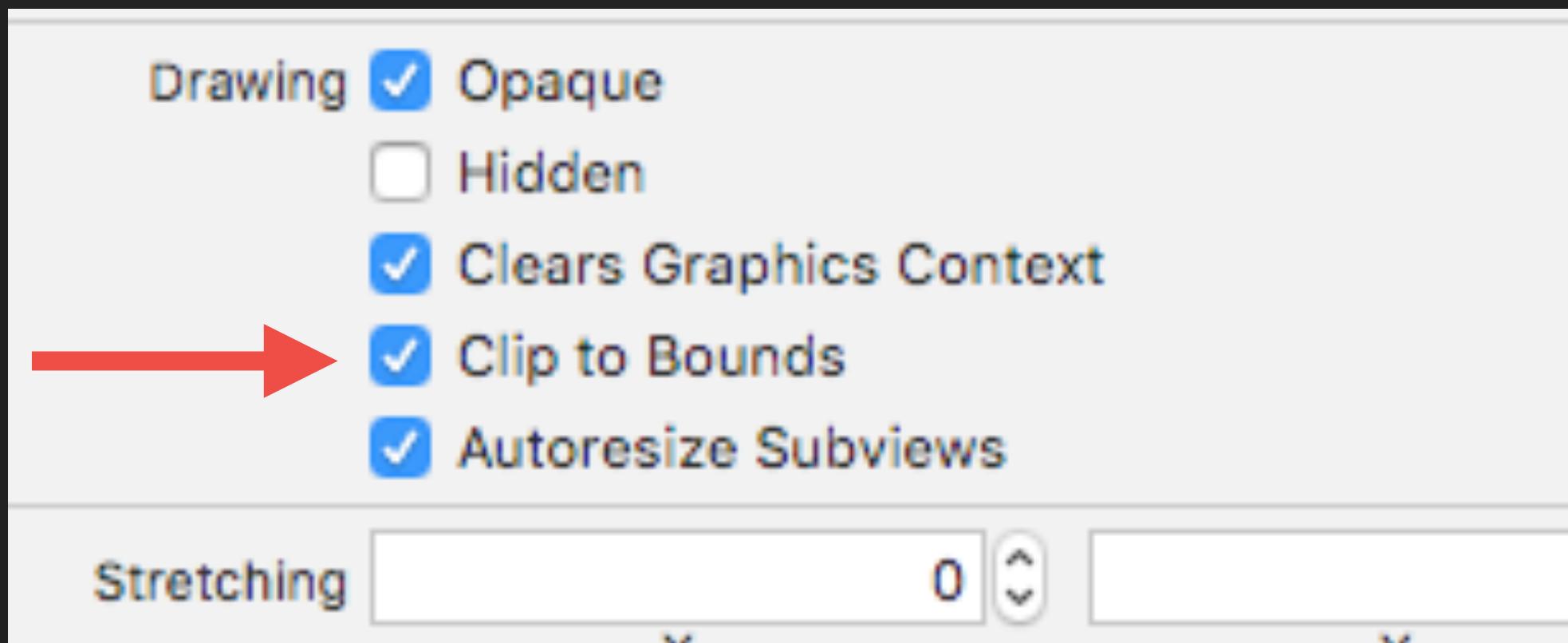
Alterando a cor de Background e o texto de Label vemos isso



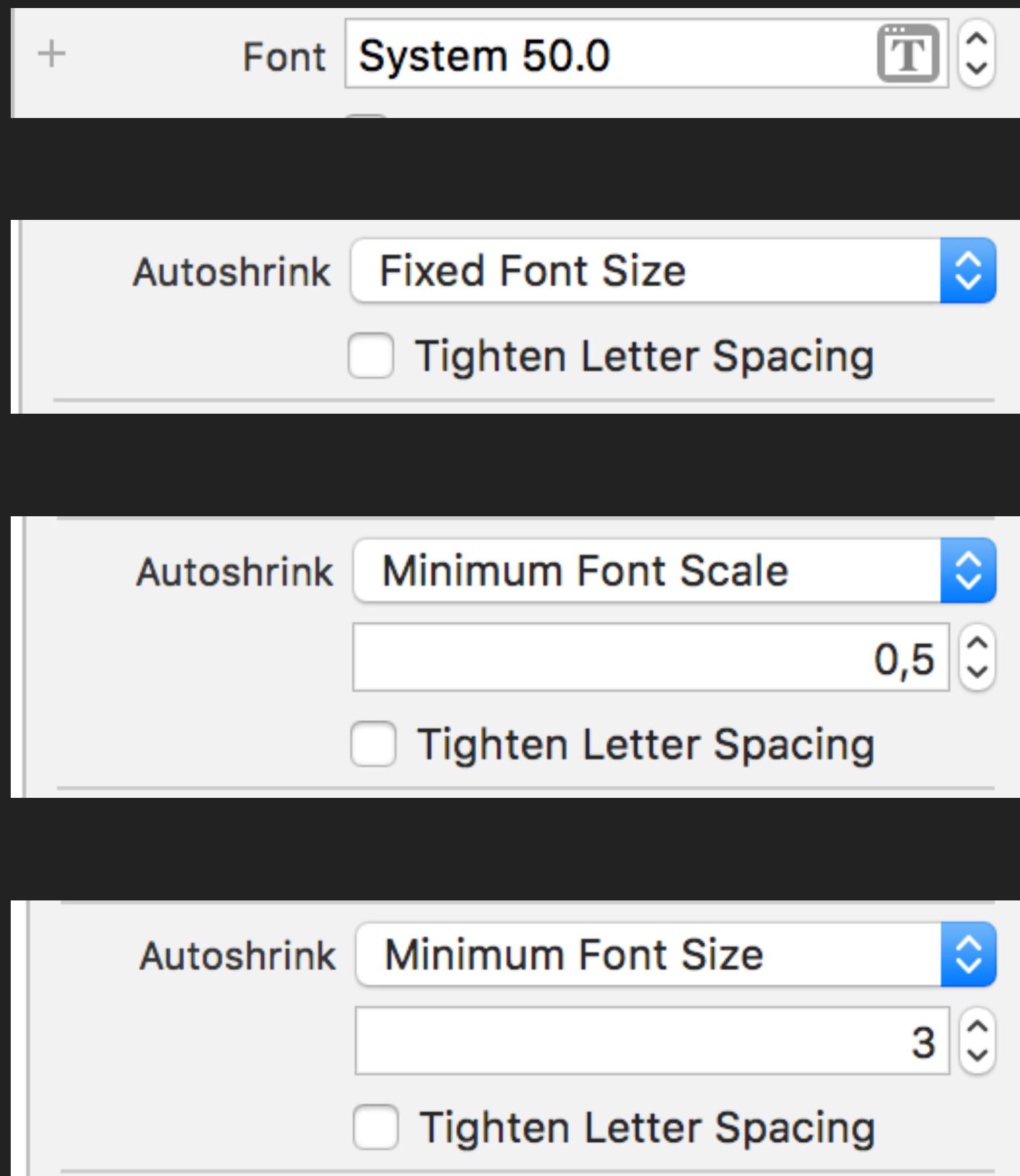
HIERARQUIA DE VIEWS

Para limitar, seleccionamos a View superior

No Attribute Inspector, seleccionamos o Clip To Bounds



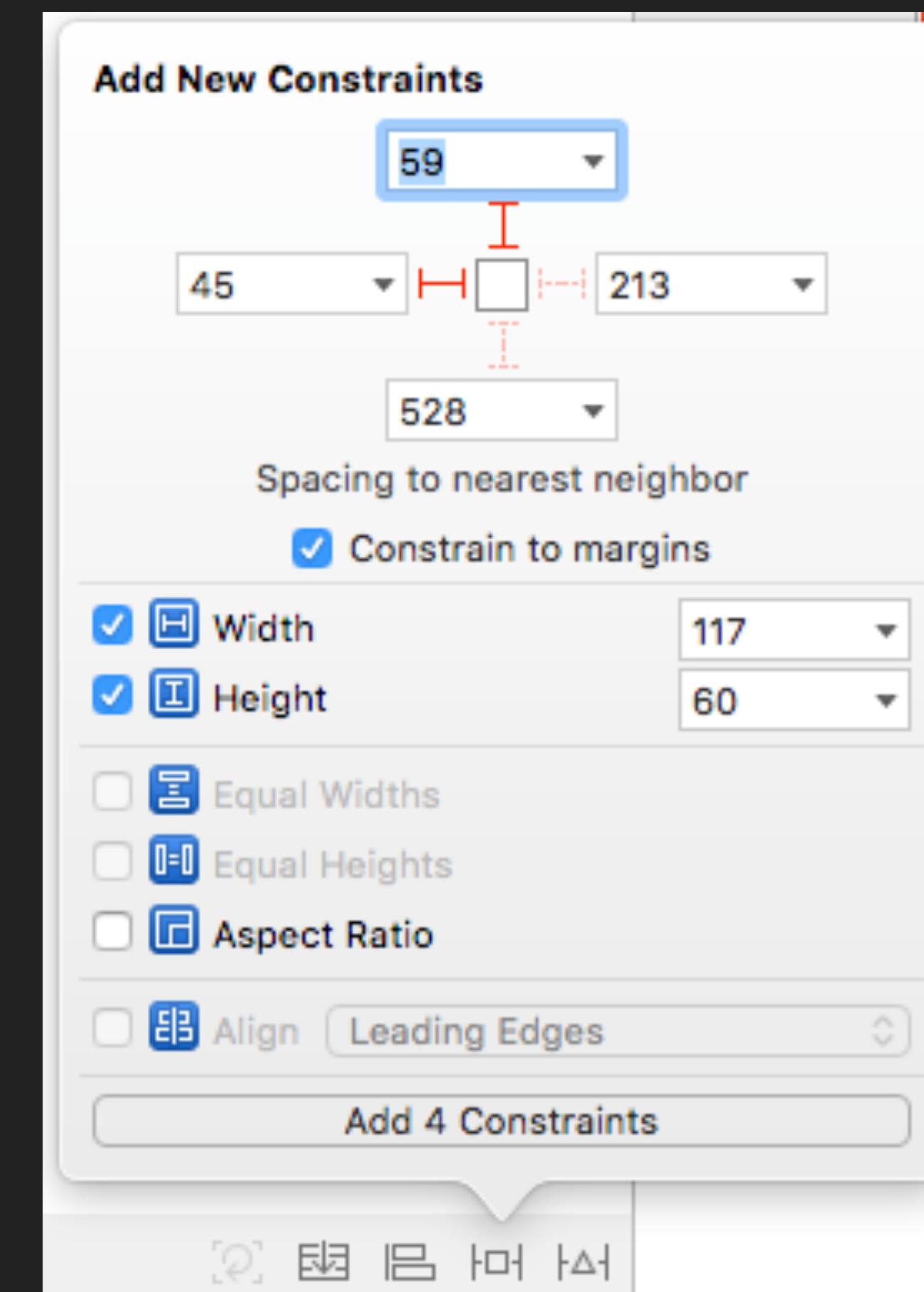
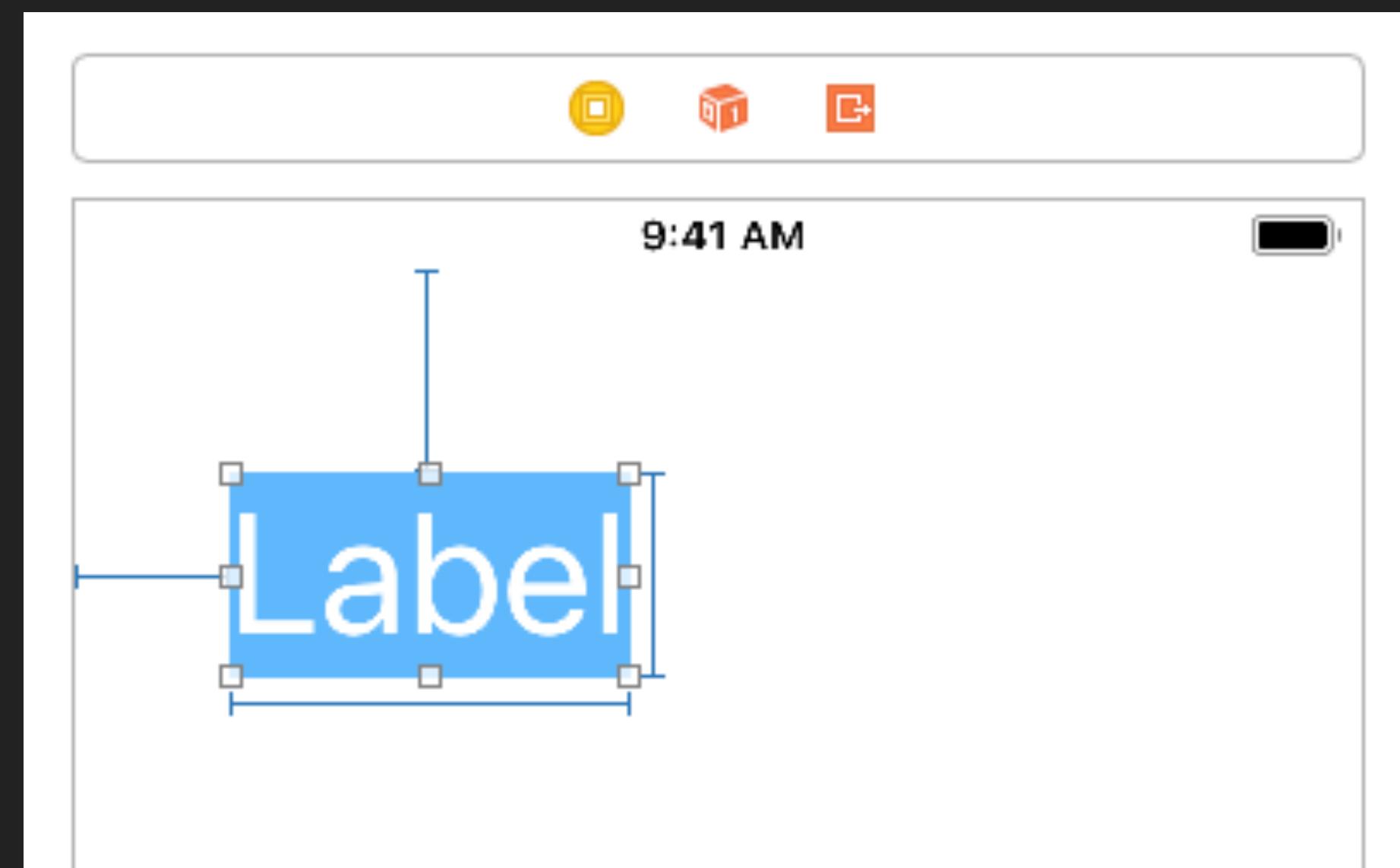
EVITANDO O ENCOLHIMENTO DO TEXTO



ALTERANDO CONSTRAINTS DE ACORDO COM O TAMANHO DE TELA

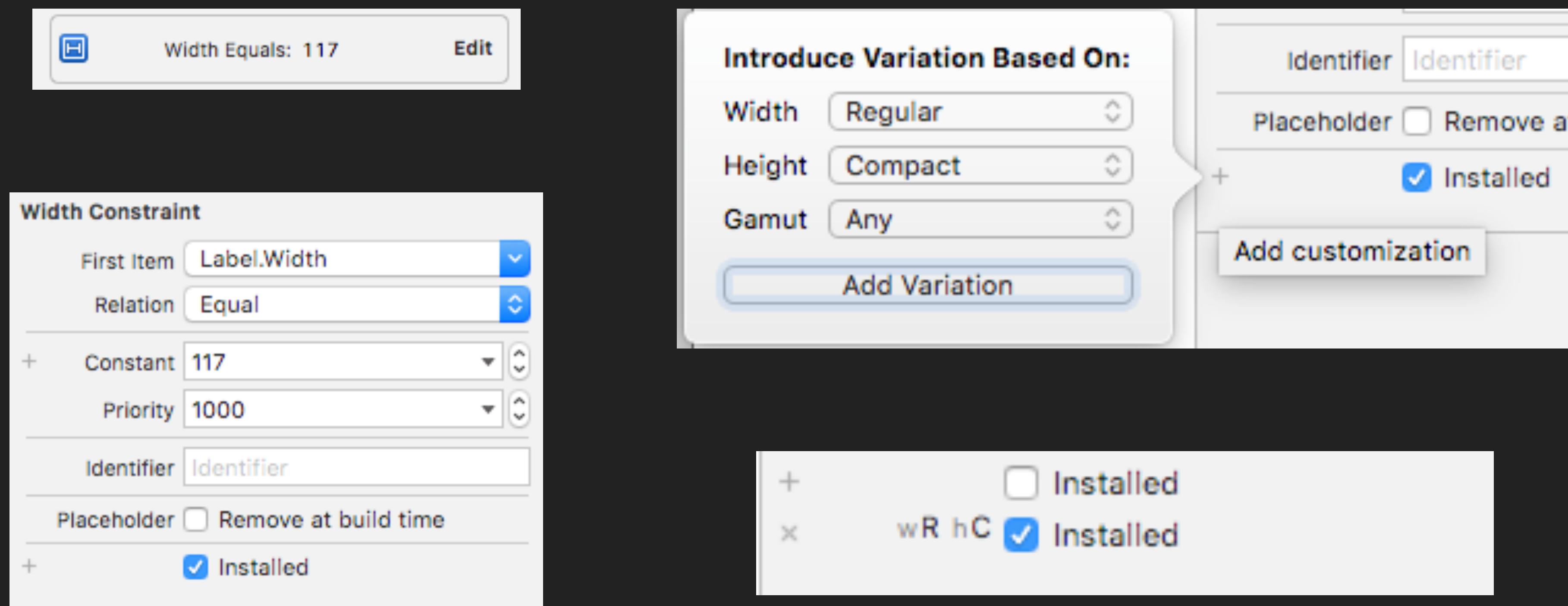
Uma constraint para um tamanho específico

Uma cópia dela com o tamanho para o outro caso



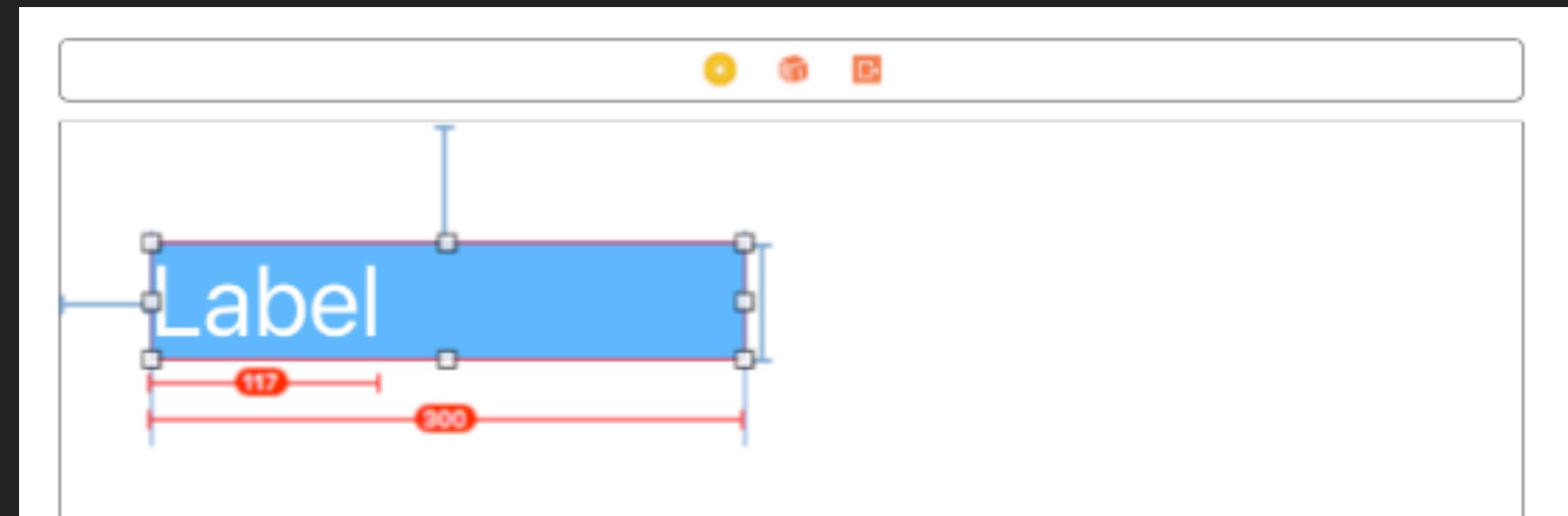
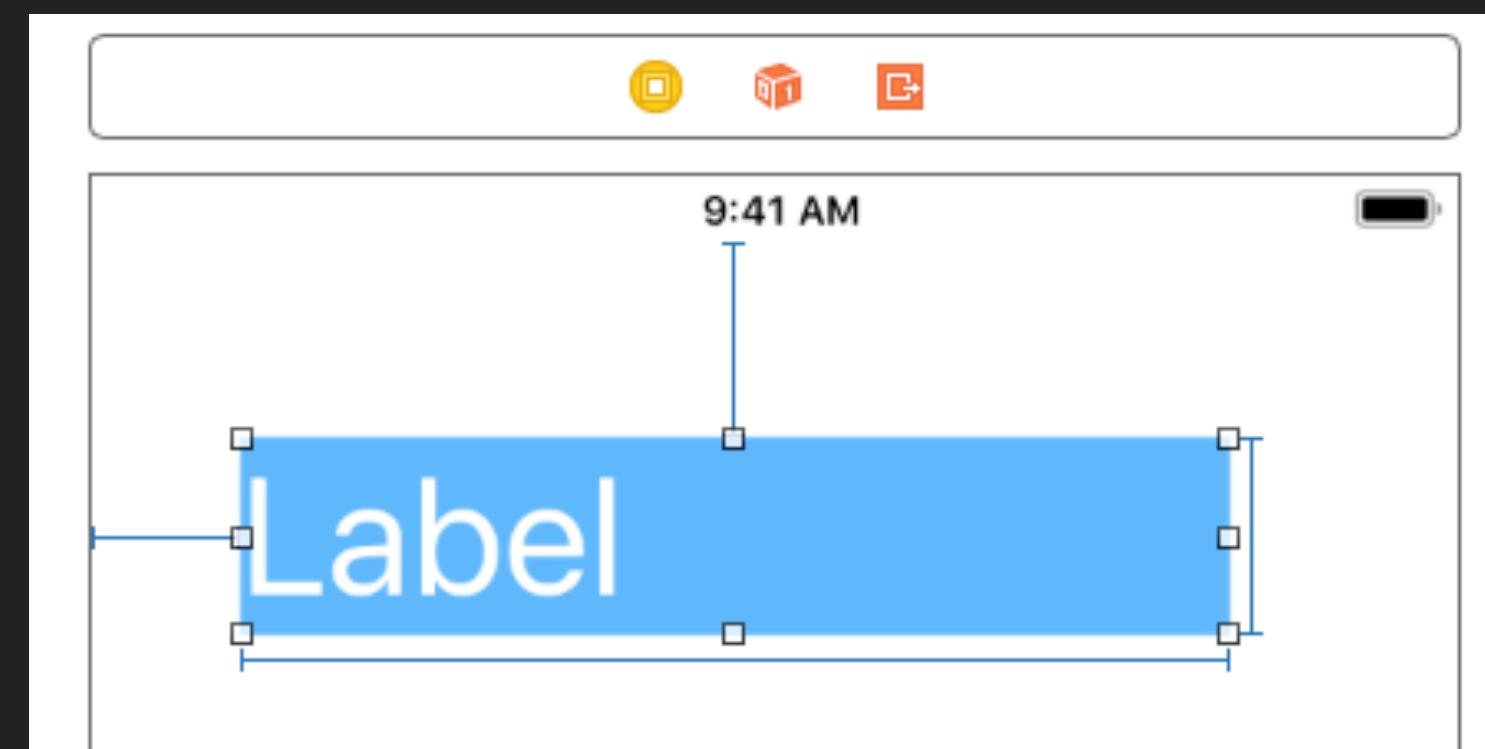
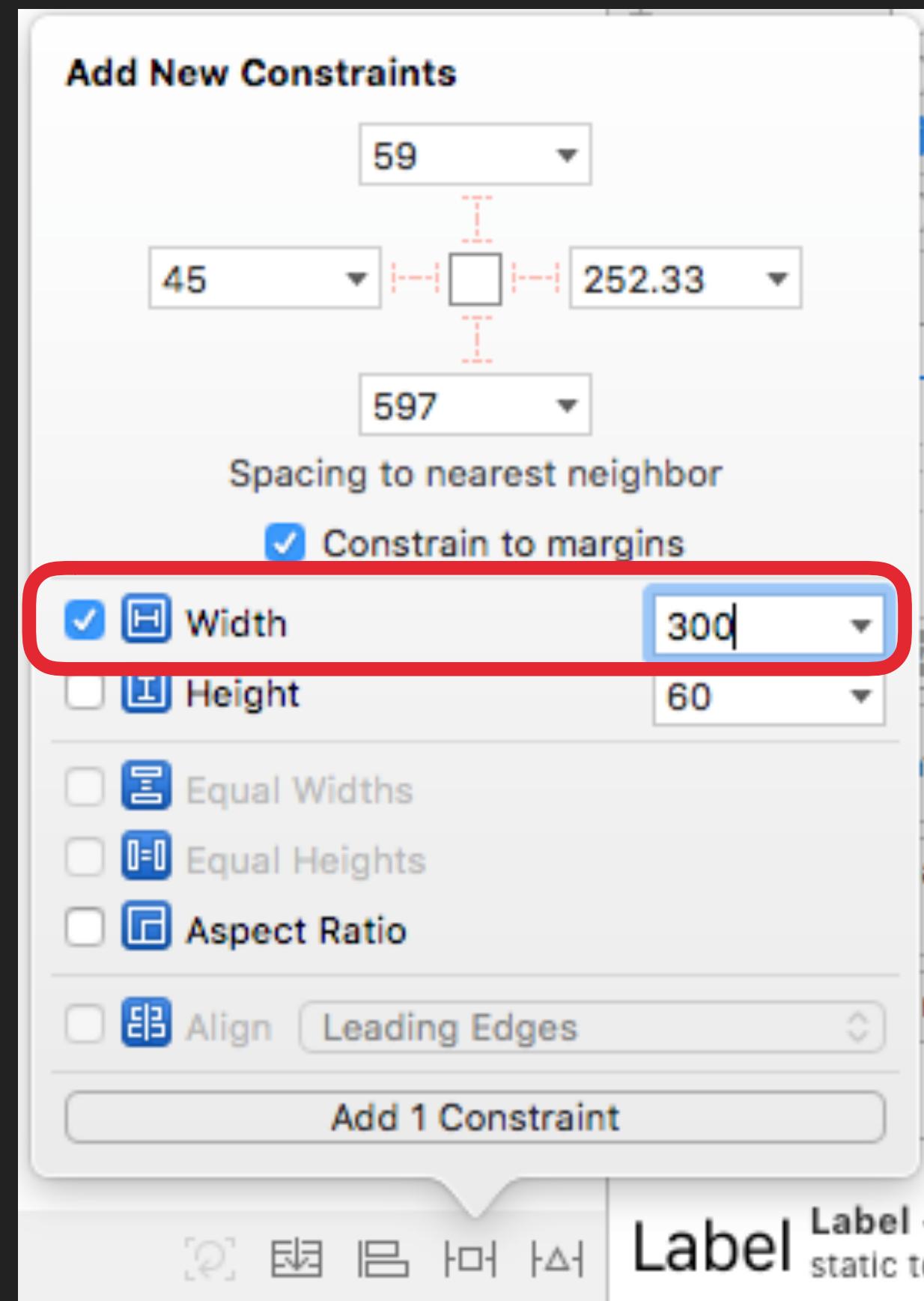
ALTERANDO CONSTRAINTS DE ACORDO COM O TAMANHO DE TELA

Criando a constraint para o tamanho específico (landscape no caso)



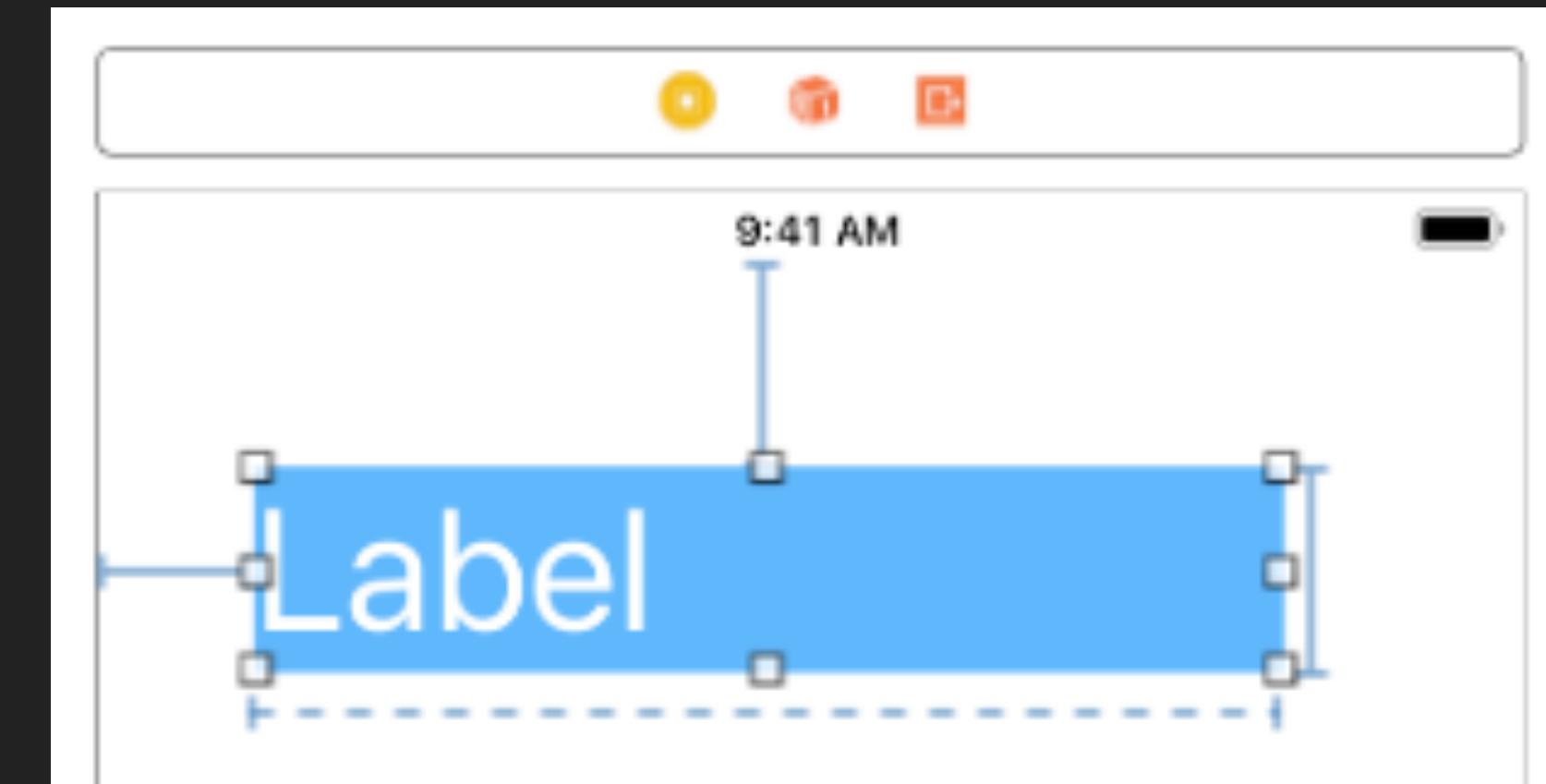
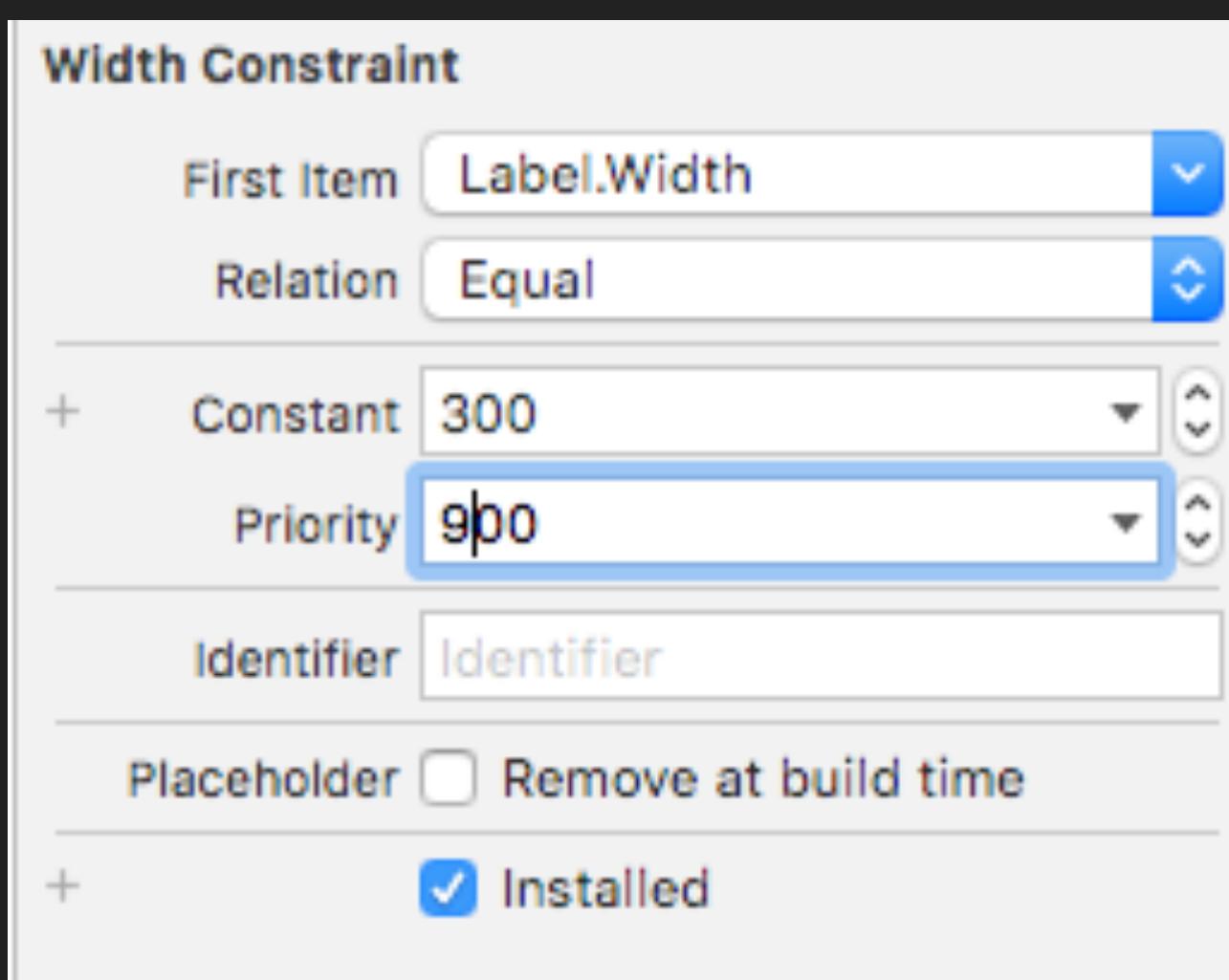
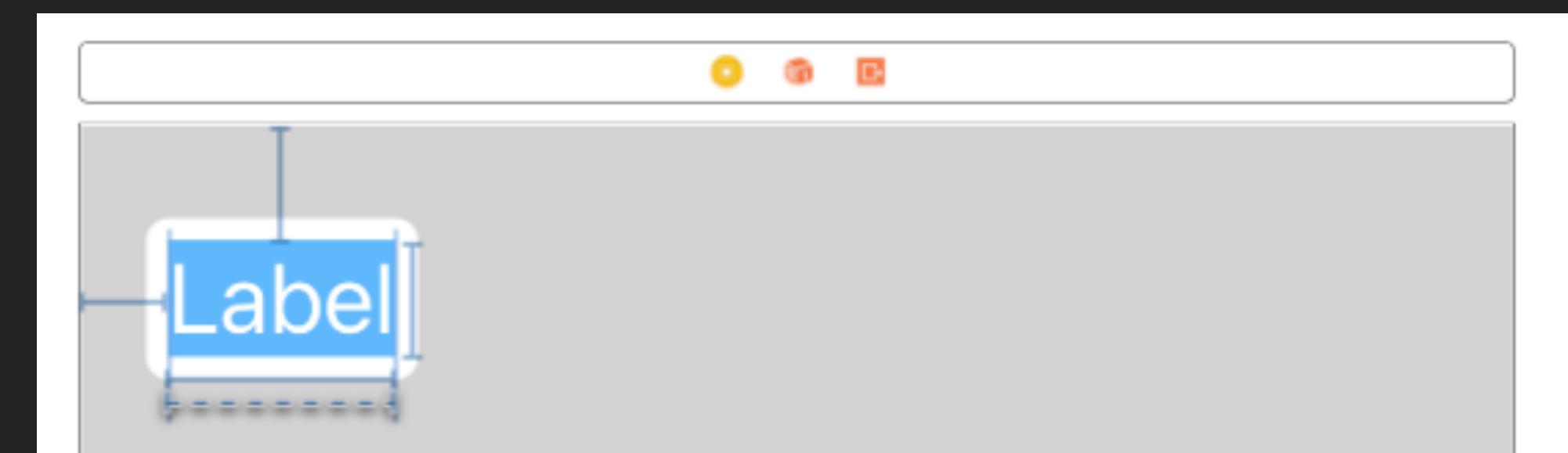
ALTERANDO CONSTRAINTS DE ACORDO COM O TAMANHO DE TELA

Criando a cópia para o restante

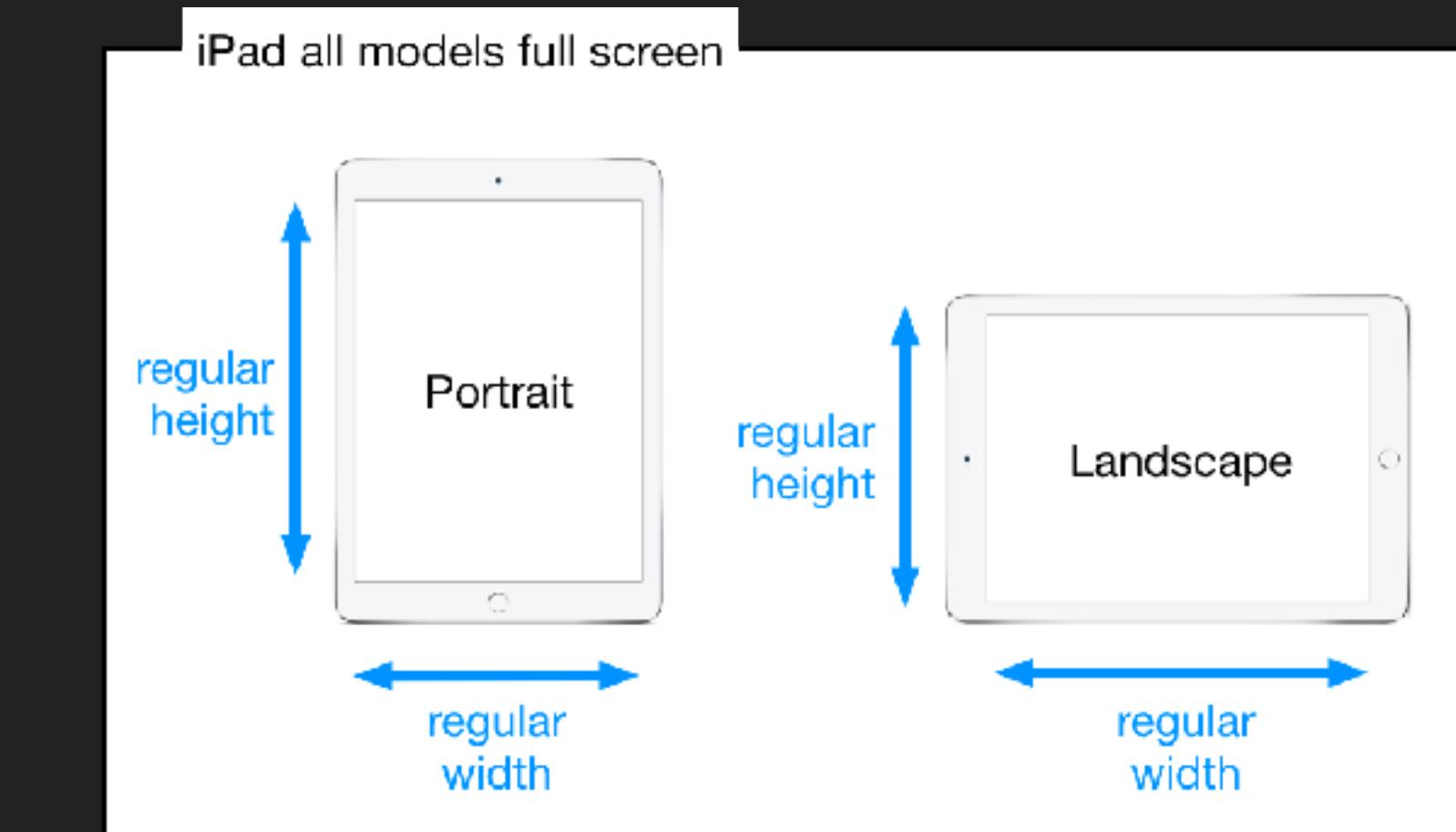
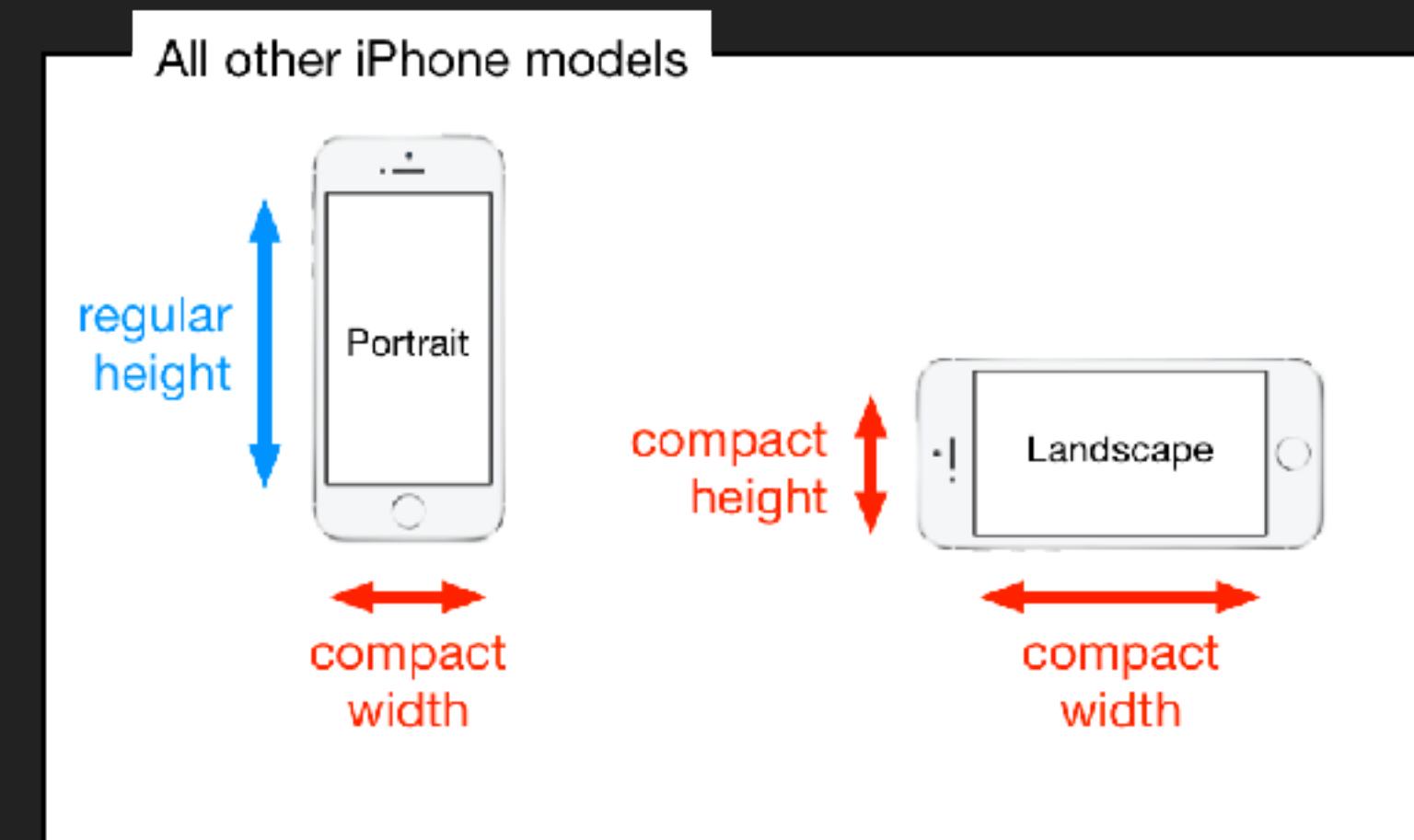
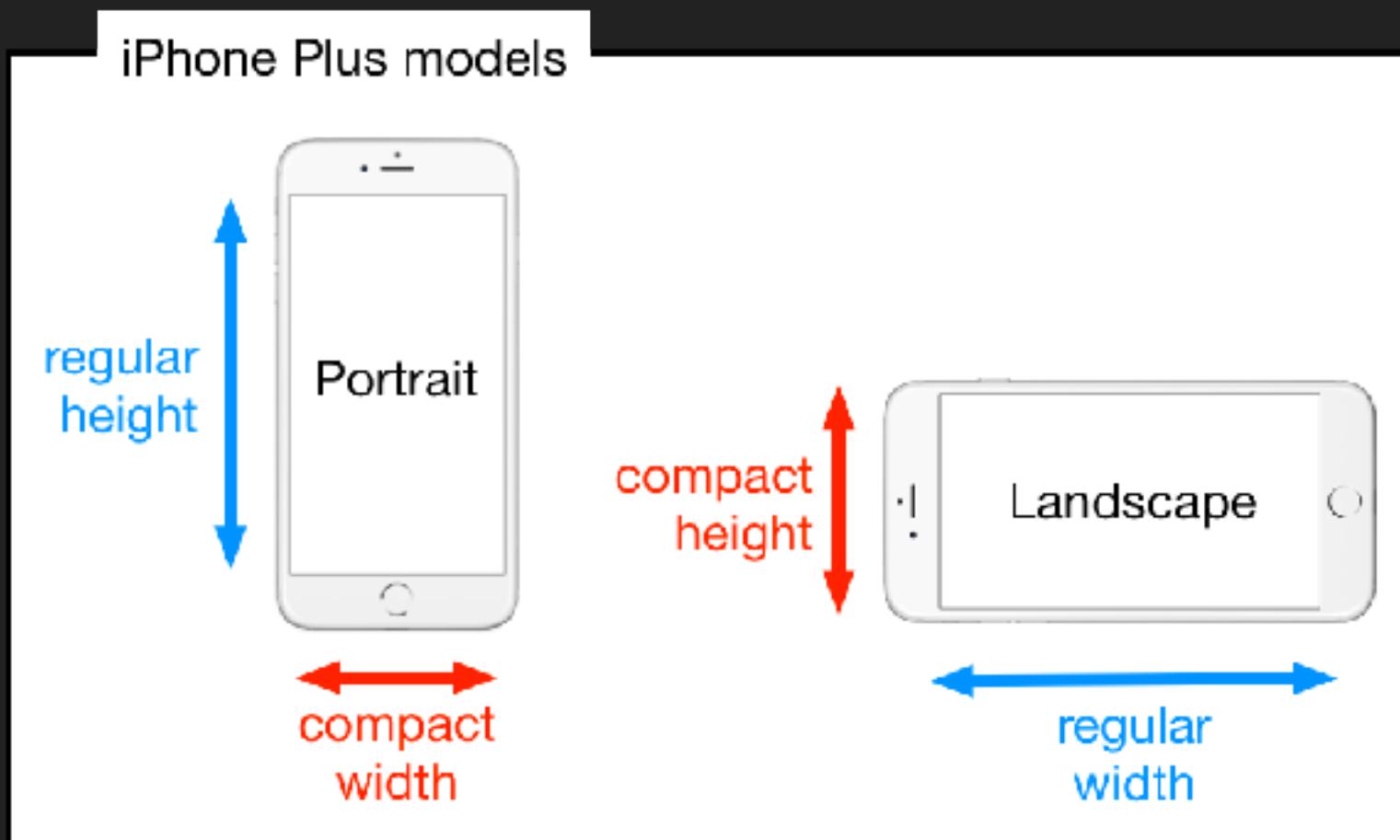
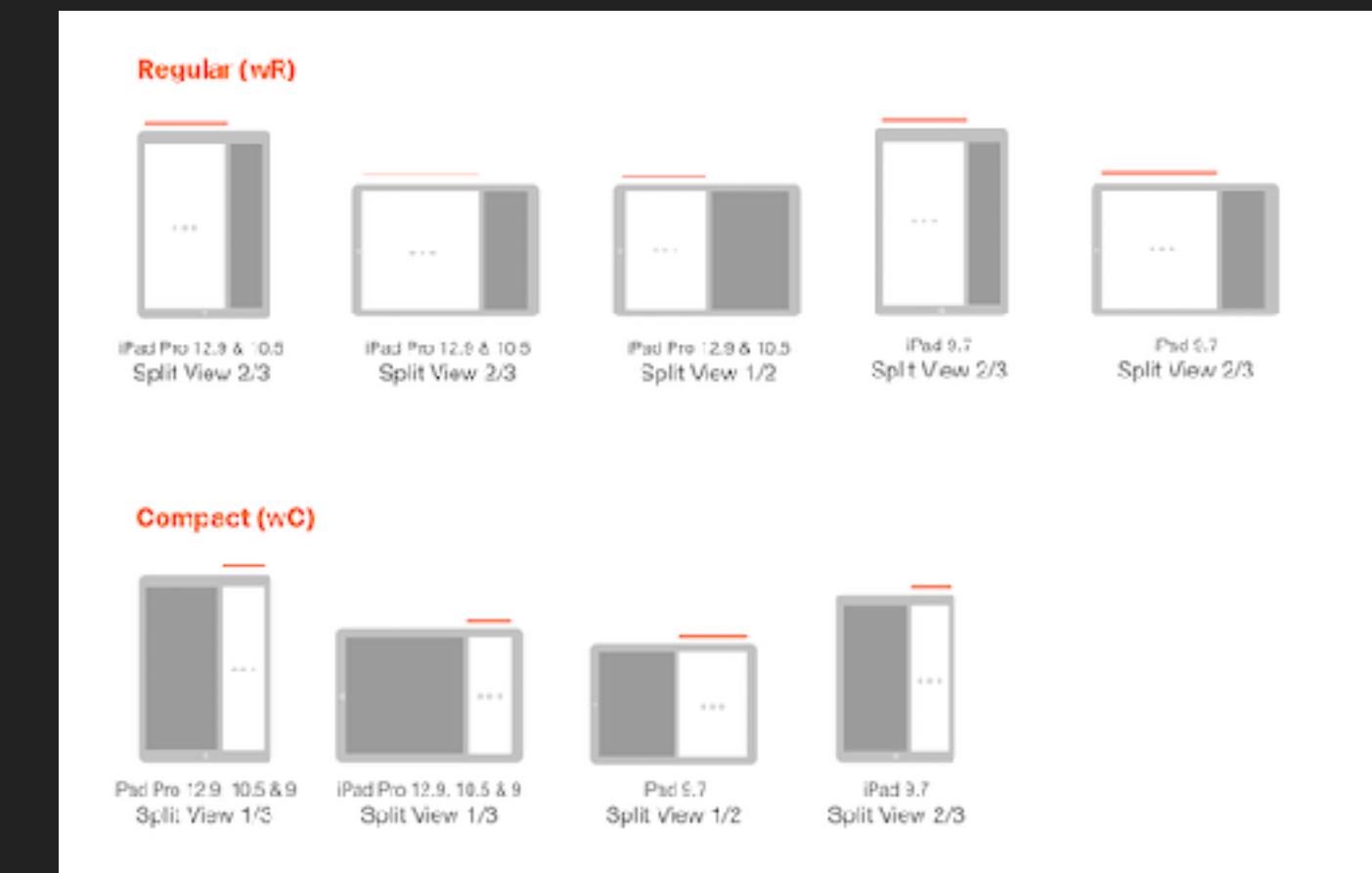
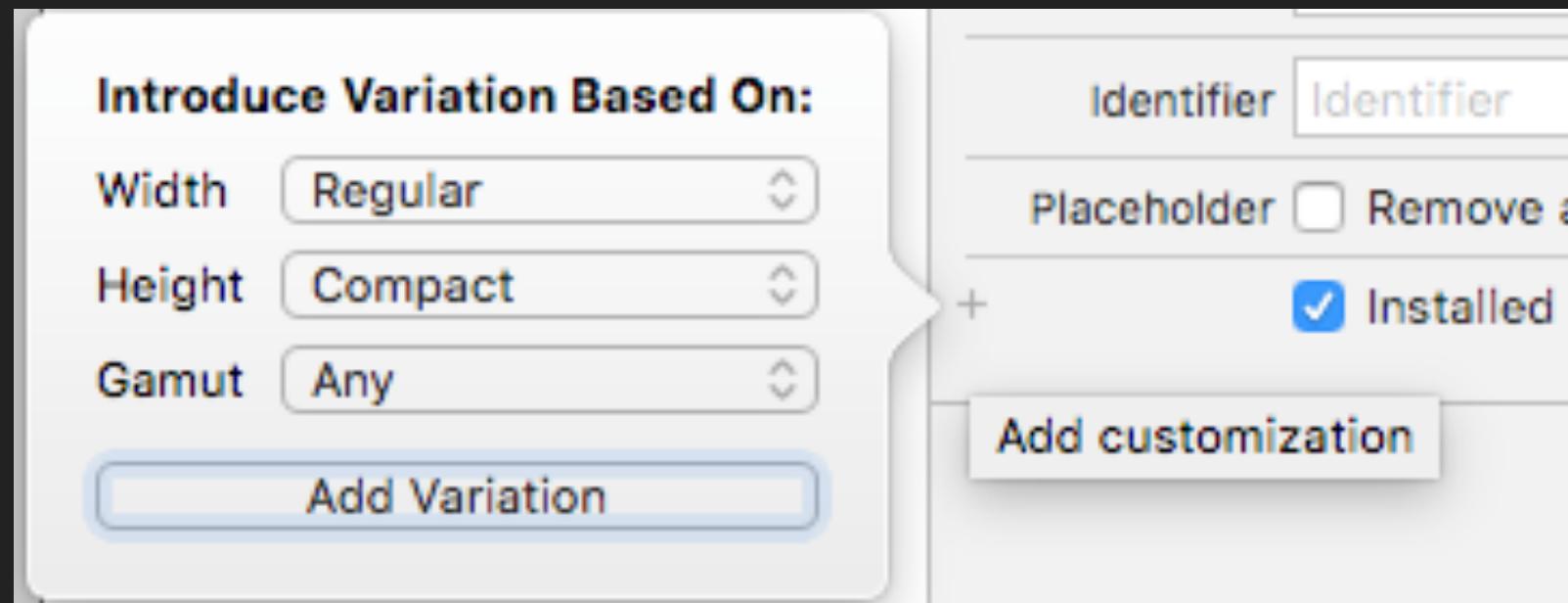


ALTERANDO CONSTRAINTS DE ACORDO COM O TAMANHO DE TELA

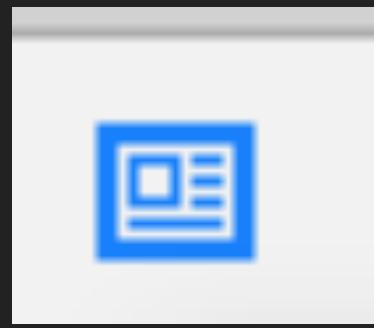
Corrigindo as prioridades



ALTERANDO CONSTRAINTS DE ACORDO COM O TAMANHO DE TELA



ALGUMAS OPÇÕES NO STORYBOARD

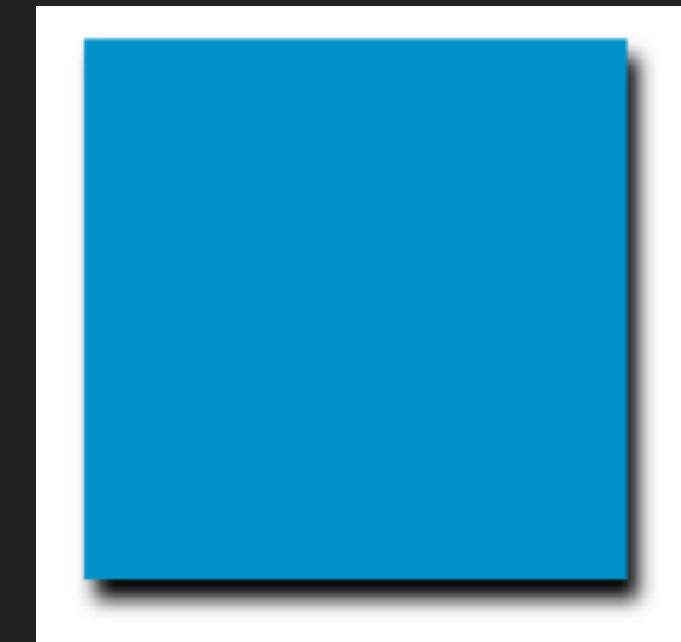
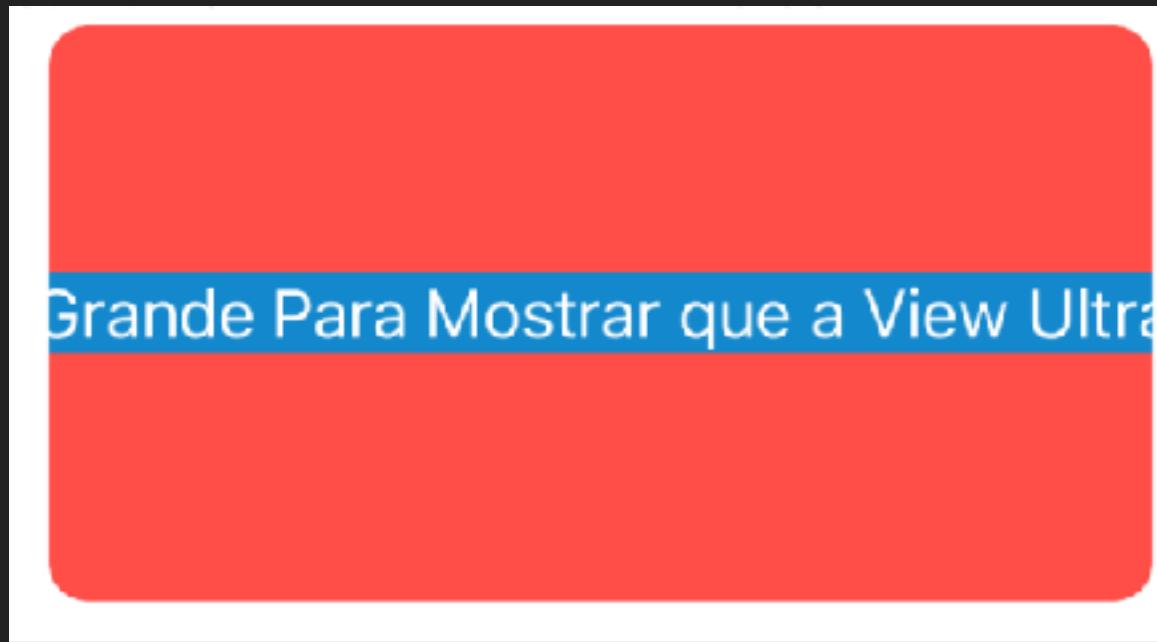


No Identity Inspector conseguimos criar algumas opções para diferenciar as Views

Key Path	Type	Value
layer.cornerRadius	Number	10
+ -		

User Defined Runtime Attributes		
Key Path	Type	Value
layer.borderWidth	Number	10
+ -		

User Defined Runtime Attributes		
Key Path	Type	Value
layer.shadowOffset	Size	{3, 5}
layer.shadowRadius	Number	3
layer.shadowOpacity	Number	1
+ -		



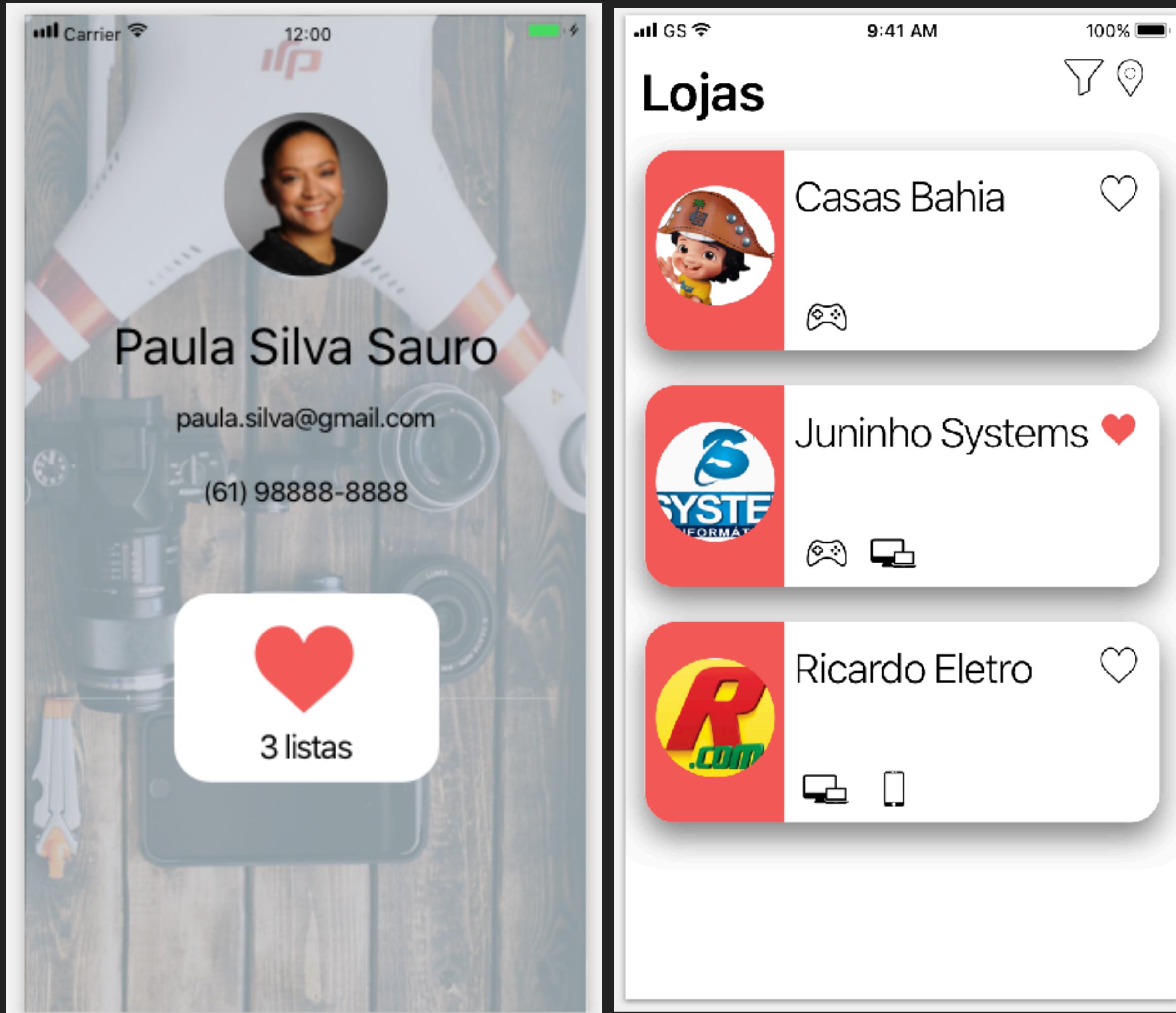
***Não é a forma mais utilizada!! É mais para o trabalho dessa aula!

HORA DA PRÁTICA!!!

Professor Renê Xavier

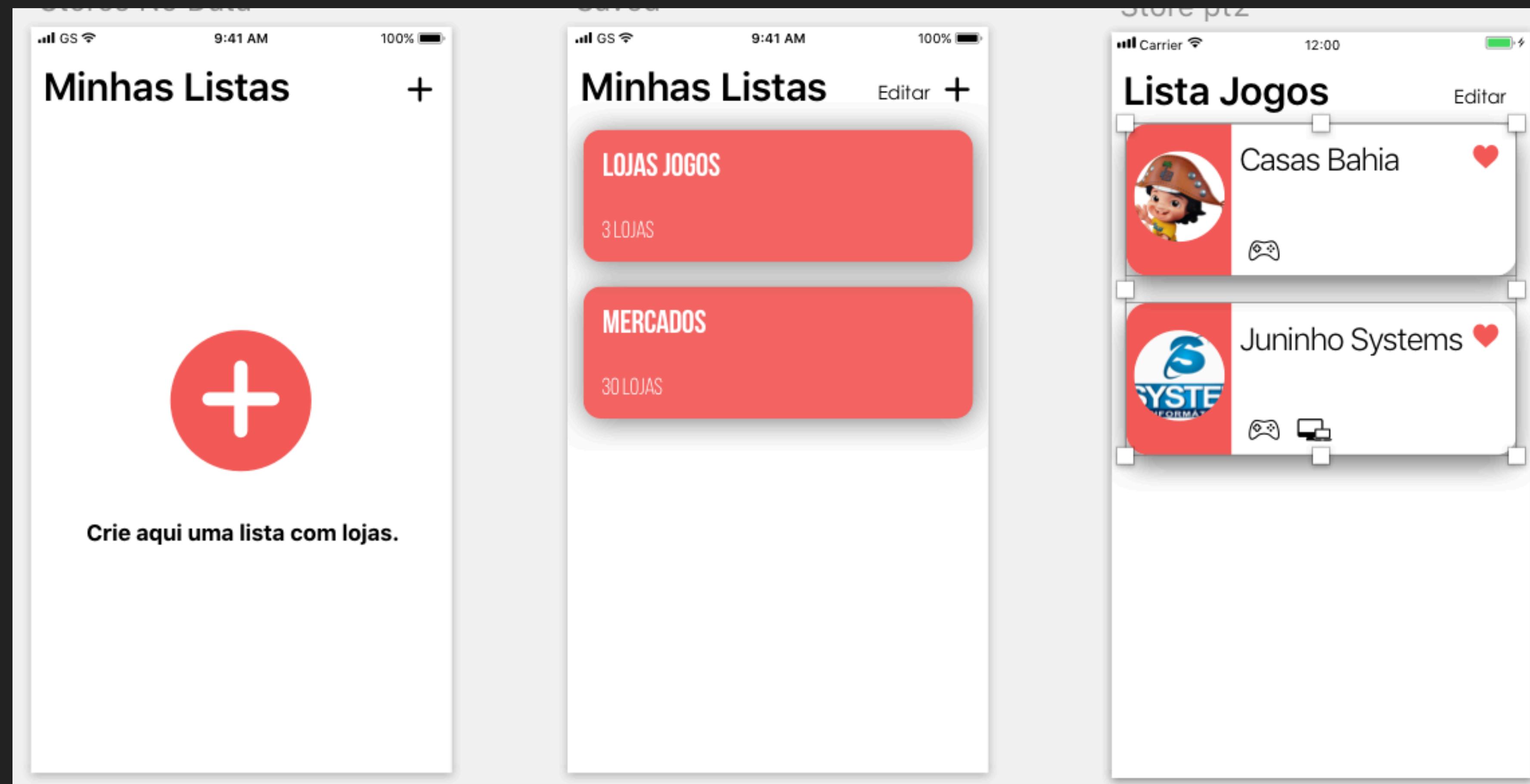
EXERCÍCIO DE AUTOLAYOUT

- ▶ Só existe um jeito de dominar o autolayout: colocando em prática e ganhando experiência;
- ▶ Então, vamos construir essas telas:



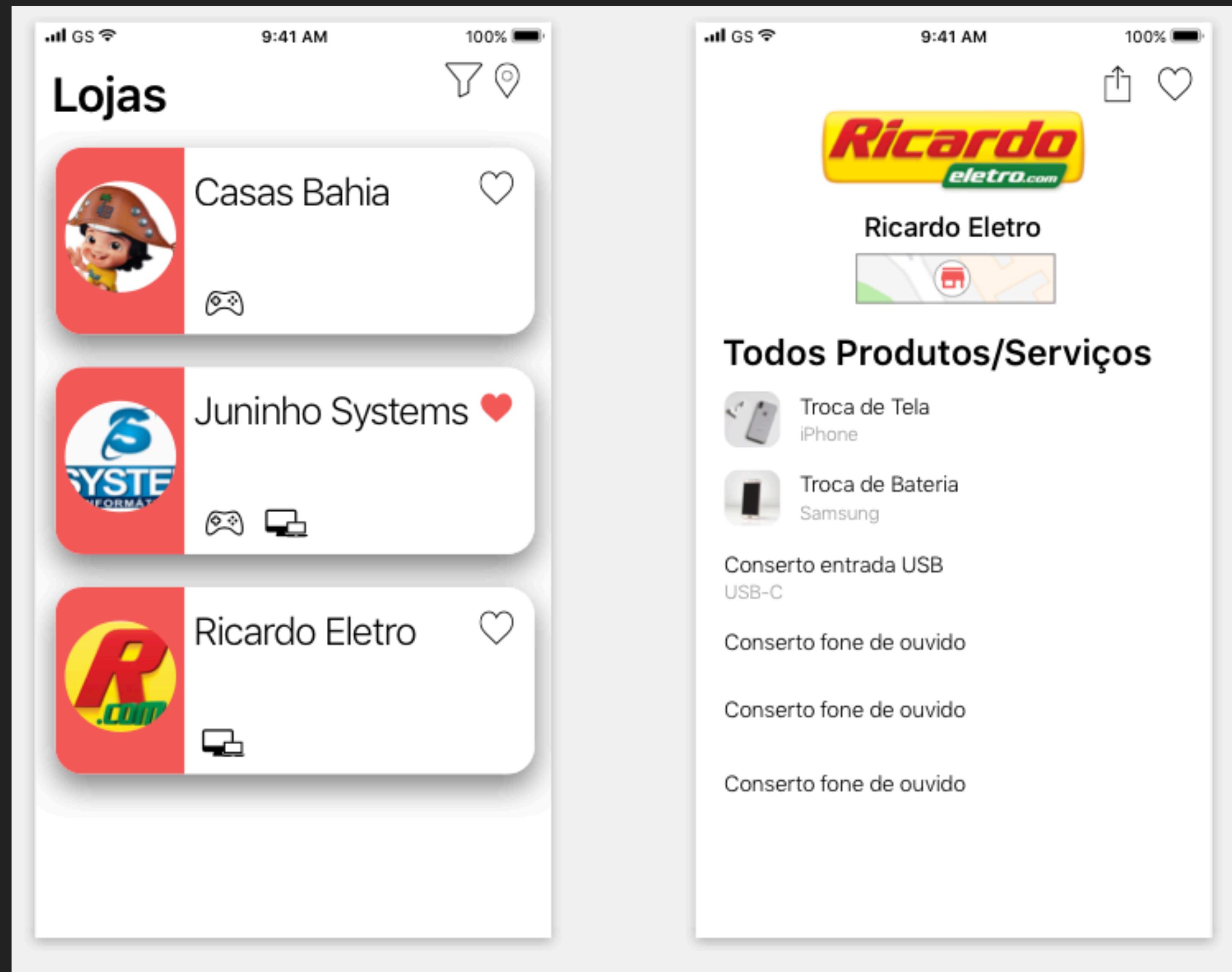
COLOCANDO A MÃO NA MASSA

EXERCÍCIO PARA CASA



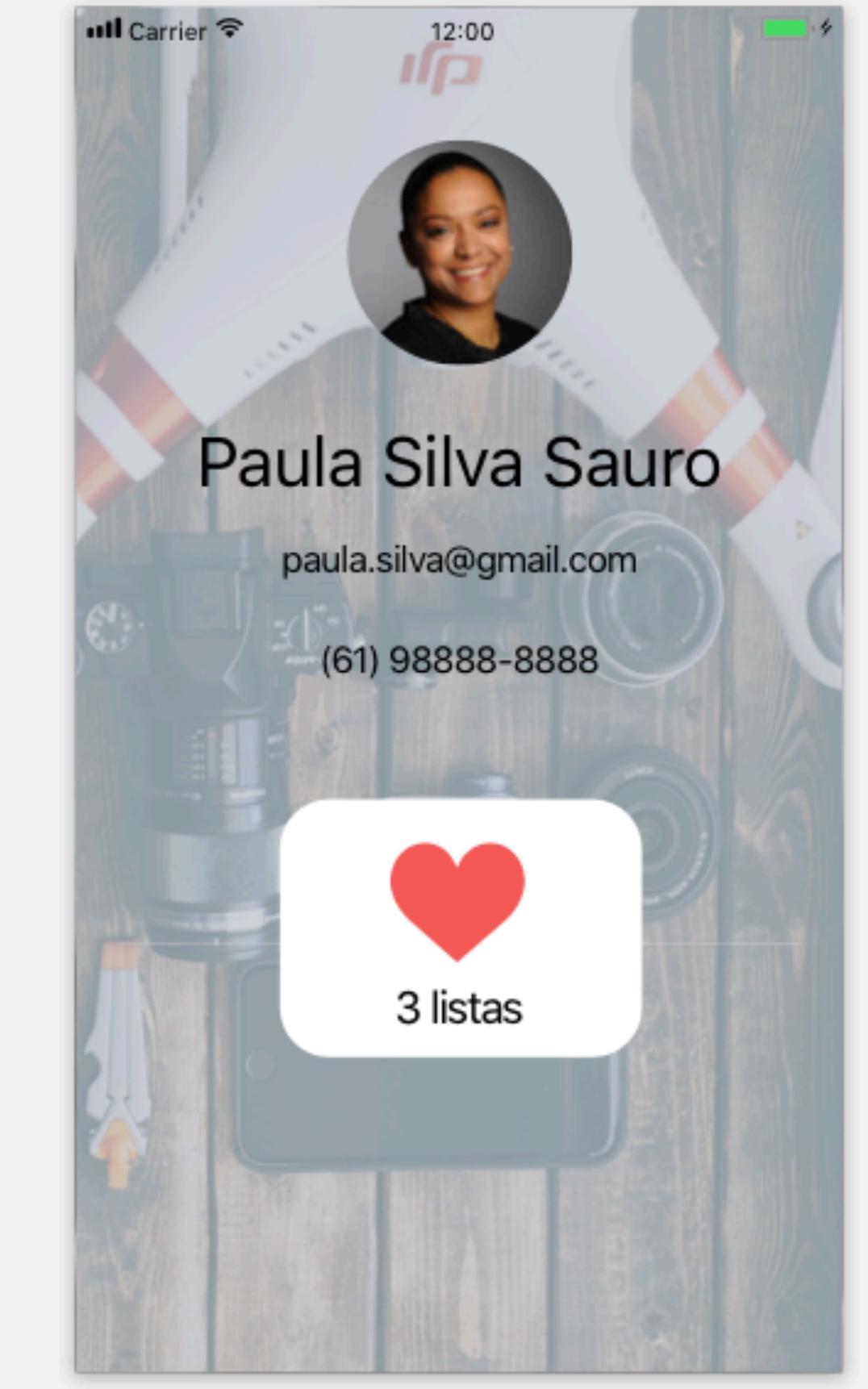
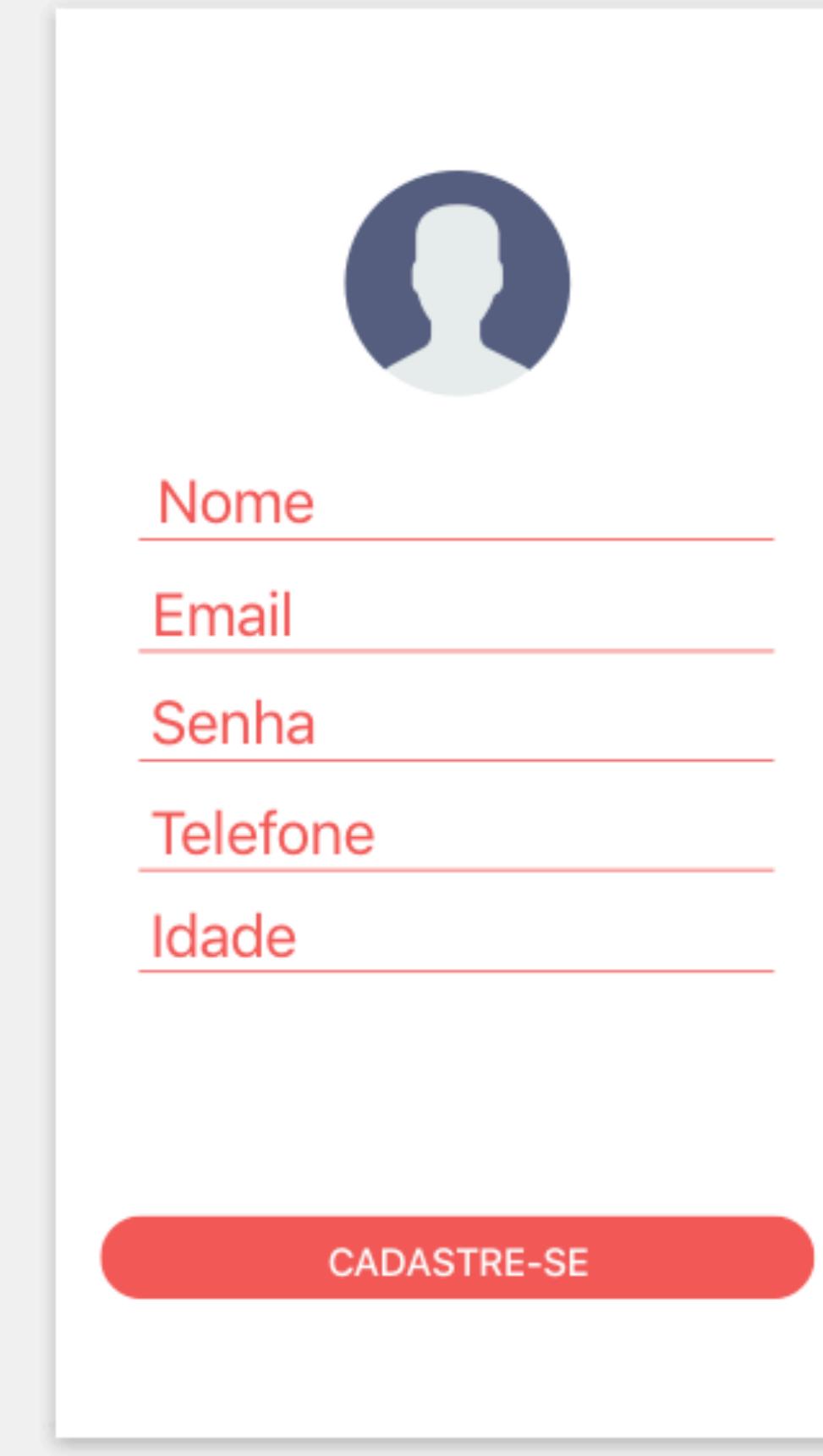
COLOCANDO A MÃO NA MASSA

EXERCÍCIO PARA CASA



COLOCANDO A MÃO NA MASSA

EXERCÍCIO PARA CASA



DESAFIO!!!

LINKS DE AJUDA

[https://blog.supereeasyapps.com/30-auto-layout-best-practices/](https://blog.supereasyapps.com/30-auto-layout-best-practices/)

<https://www.raywenderlich.com/160527/auto-layout-tutorial-ios-11-getting-started>

<https://developer.apple.com/design/human-interface-guidelines/ios/visual-design/adaptivity-and-layout/>

<https://useyourloaf.com/blog/size-classes/>

<https://www.bignerdranch.com/blog/designing-for-size-classes-in-ios/>

<https://tinyurl.com/ios-iesb-1>