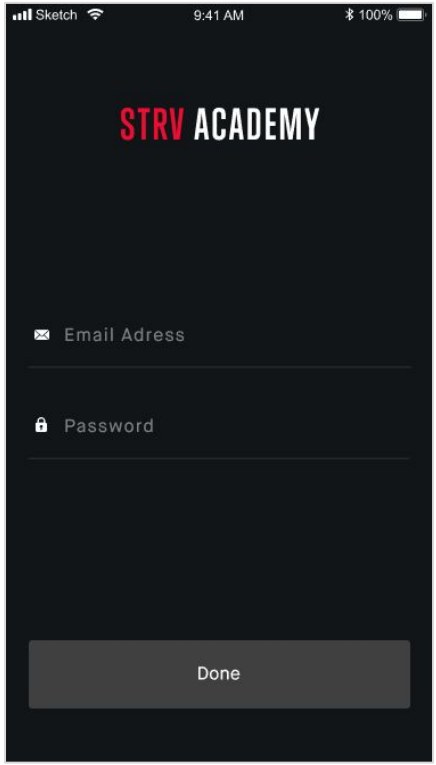
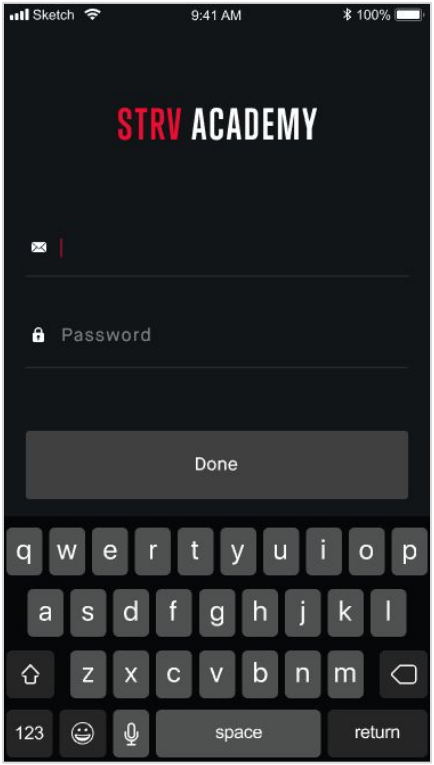
BASIC UIKIT

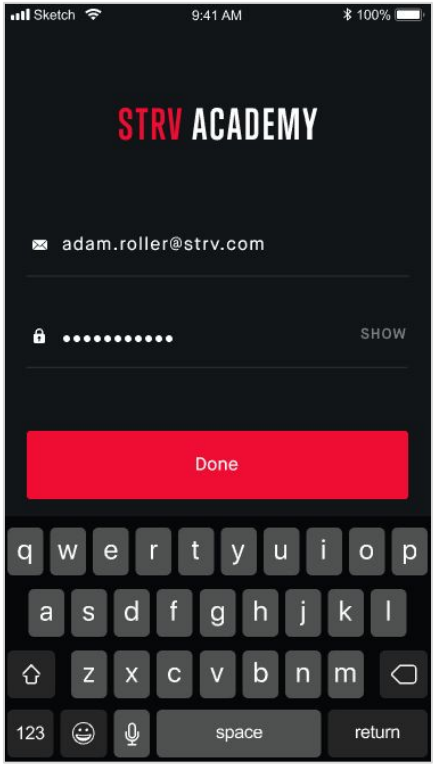
Jiri Ostatnicky, iOS Dev at STRV

STRV

LOGIN SCREEN

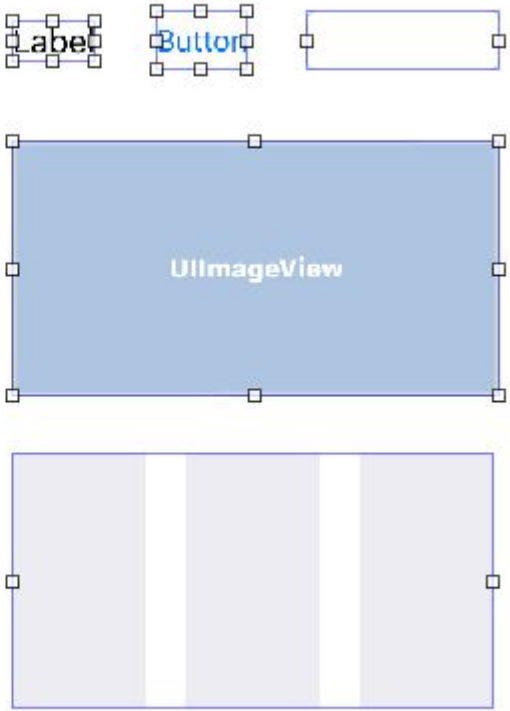






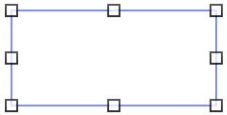
BASIC UI COMPONENTS

- UIView
- UILabel
- UIButton
- UITextField
- UIImageView
- UIStackView



UIView

- An object that manages the content for a rectangular area on the screen
- https://developer.apple.com/documentation/uikit/uiview



```
// Rectangular red view
let redViewRect = CGRect(x: 100, y: 200, width: 200, height: 100)
let redView = UIView(frame: redViewRect)
redView.backgroundColor = .red
view.addSubview(redView)
```

UILabel

- A view that displays one or more lines of read-only text
- https://developer.apple.com/documentation/uikit/uilabel


```
// Label
let label = UILabel(frame: CGRect(x: 0, y: 40, width: 200, height: 40))
label.text = "Hello, World!"
label.textColor = .gray
view.addSubview(label)
```

UIButton

- A control that executes your custom code in response to user interactions
- https://developer.apple.com/documentation/uikit/uibutton


```
// Button
let button = UIButton(type: .system)
button.frame = CGRect(x: 0, y: 100, width: 200, height: 40)
button.setTitle("Button", for: .normal)
button.setTitleColor(.red, for: .normal)
button.backgroundColor = .yellow
button.addTarget(self, action: #selector(didPressButton),
                 for: .touchUpInside)
view.addSubview(button)
```

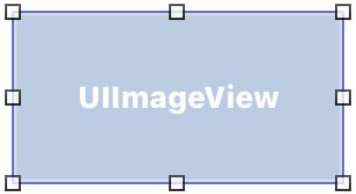
UITextField

- An object that displays an editable text area in your interface
- https://developer.apple.com/documentation/uikit/uitextfield


```
// Text field
let textFieldRect = CGRect(x: 0, y: 150, width: 200, height: 40)
let textField = UITextField(frame: textFieldRect)
textField.textColor = .gray
textField.placeholder = "Placeholder"
textField.tintColor = .red // Change the cursor color
view.addSubview(textField)
```

UIImageView

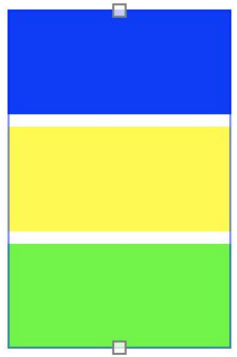
- Displays a single image or a sequence of animated images in your interface
- https://developer.apple.com/documentation/uikit/uiimageview




```
// Image view
let strvAcademyLogo = UIImage(named: "STRV Academy")
let imageView = UIImageView(image: strvAcademyLogo)
view.addSubview(imageView)
```

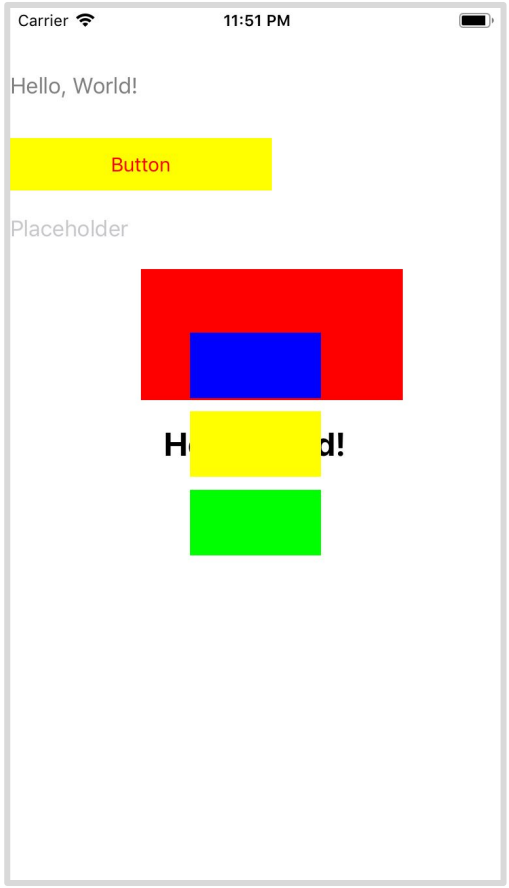
UIStackView

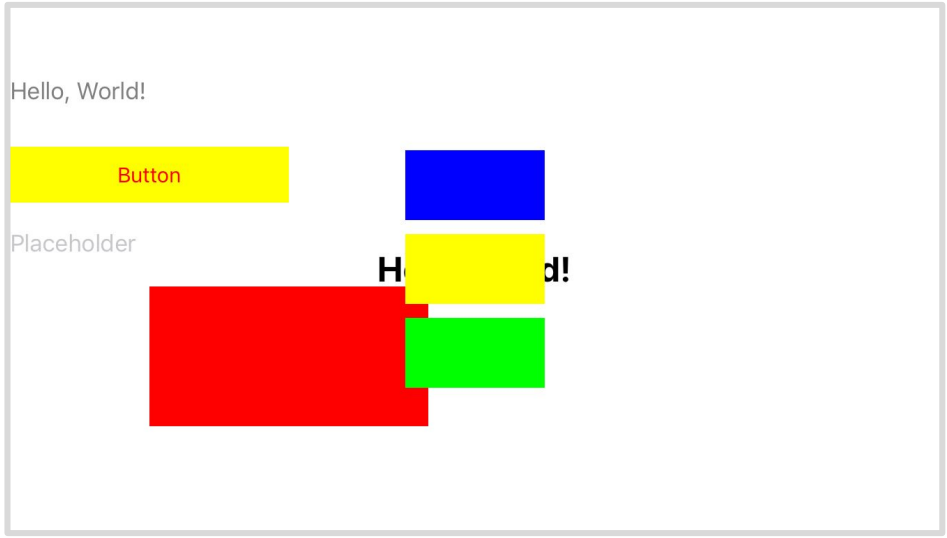
- A streamlined interface for laying out a collection of views in either a column or a row
- https://developer.apple.com/documentation/uikit/uistackview



```
// Stack view
let stackView = UIStackView(arrangedSubviews: colorfulViews)
// colorfulViews are on the next slide
stackView.axis = .vertical // .horizontal
stackView.distribution = .equalSpacing // .fillEqually, .fill
stackView.alignment = .center
stackView.spacing = 10
stackView.translatesAutoresizingMaskIntoConstraints = false
view.addSubview(stackView)

stackView.centerXAnchor.constraint(equalTo: view.centerXAnchor,
                                   constant: 0).isActive = true
stackView.centerYAnchor.constraint(equalTo: view.centerYAnchor,
                                   constant: 0).isActive = true
```

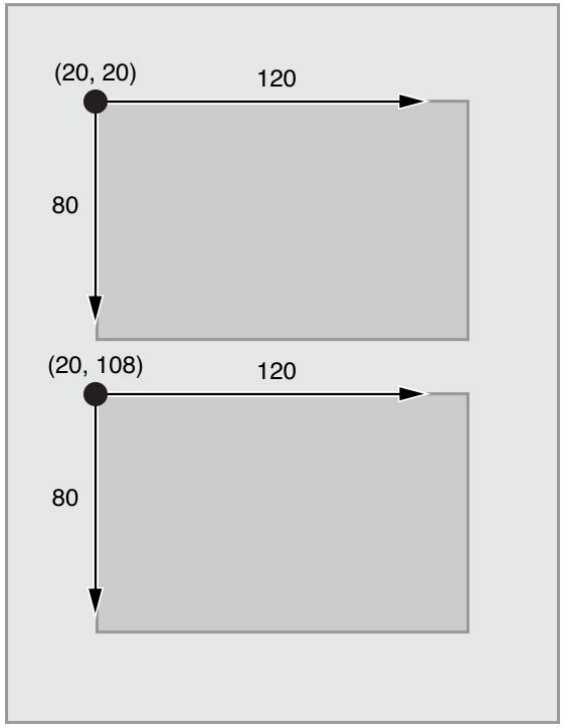
```swift
// Insert before stackView initialization
let colors: [UIColor] = [.blue, .yellow, .green]
let colorfulViews: [UIView] = colors.map { color in
     let smallView = UIView()
     smallView.backgroundColor = color
     smallView.widthAnchor.constraint(equalToConstant: 100).isActive = true
     smallView.heightAnchor.constraint(equalToConstant: 50).isActive = true
     return smallView
}
// ... stackView ...
```


Carrier
11:51 PM
Hello, World!
Button
Placeholder

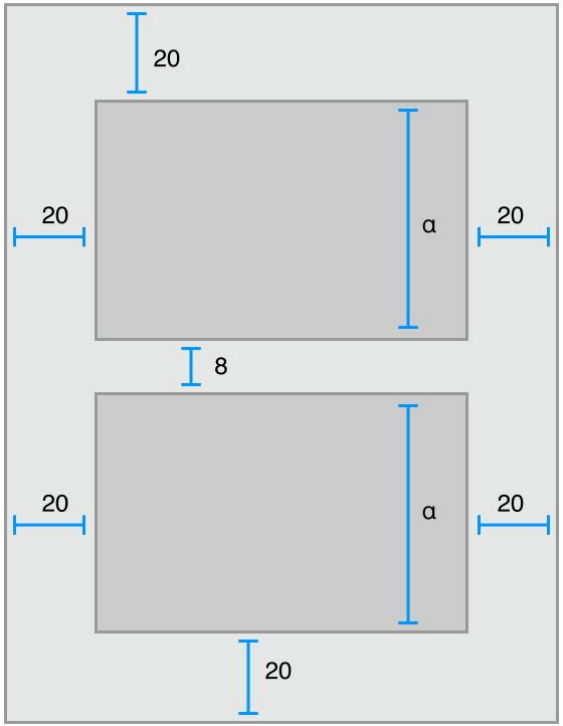

Hello, World!
Button
Placeholder

AUTO LAYOUT

FRAME-BASED LAYOUT VS. AUTO LAYOUT



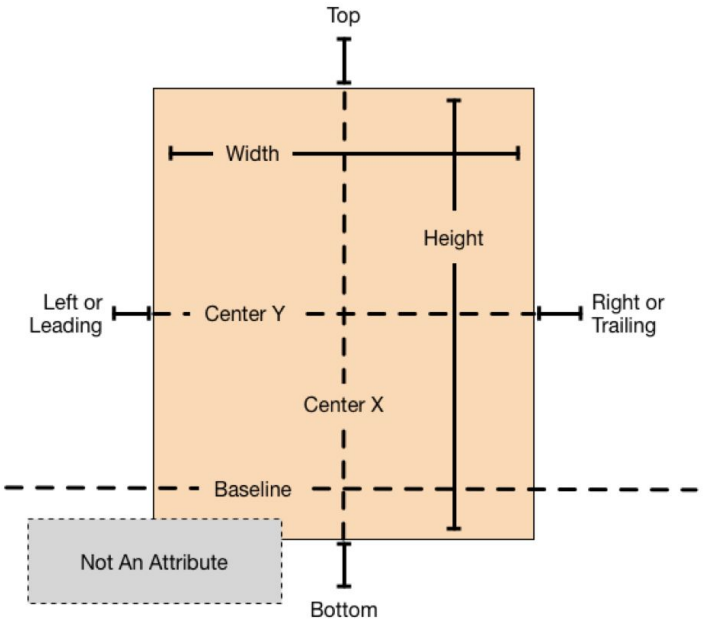
Frame-Based Layout

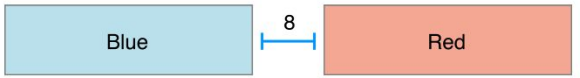


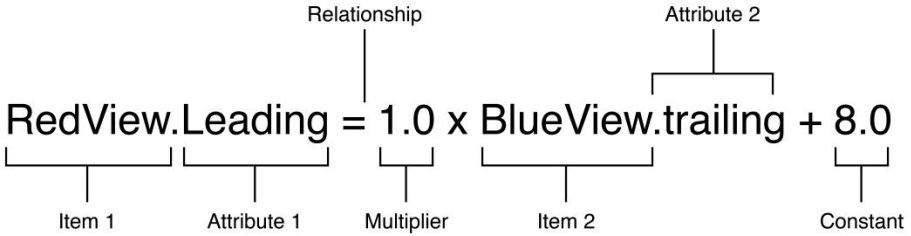
Auto Layout

CONSTRAINTS

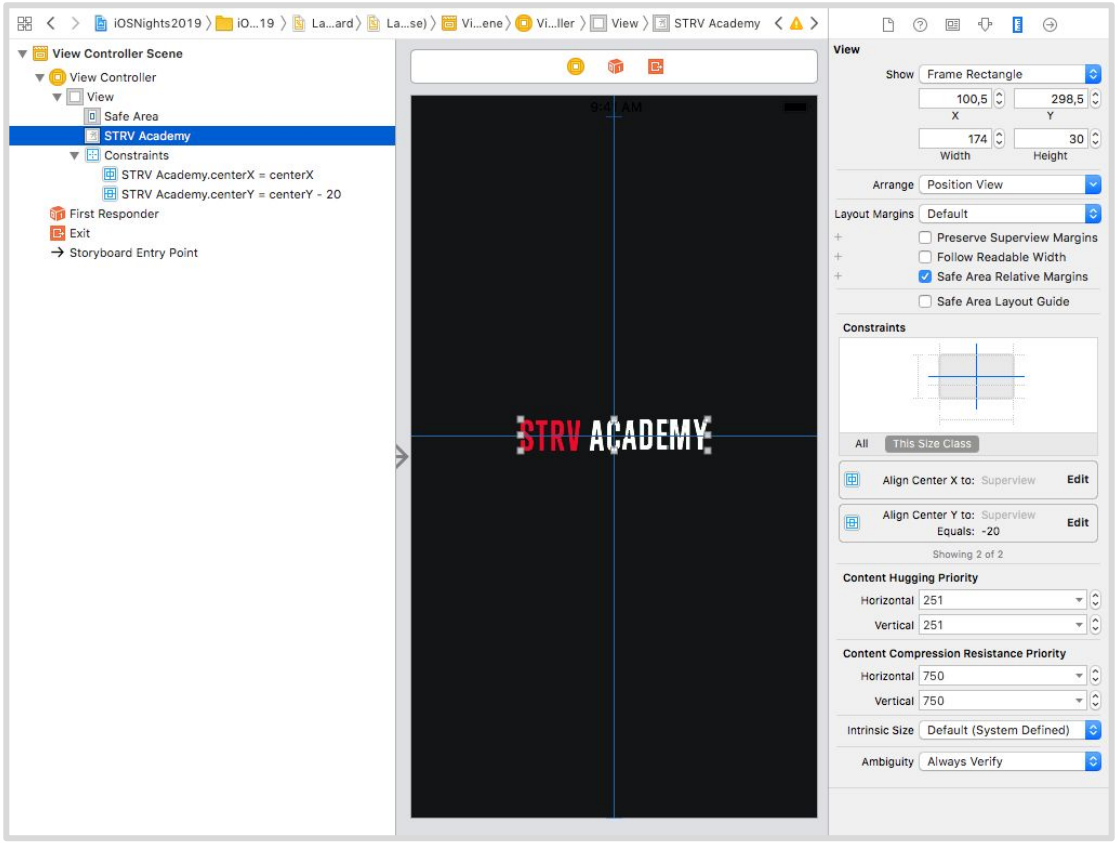
- https://developer.apple.com/library/archive/documentation/UserExperience/Conceptual/AutolayoutPG/AnatomyofaConstraint.html#//apple_ref/doc/uid/TP40010853-CH9-SW1







EXAMPLE: LOGO IN LAUNCH SCREEN



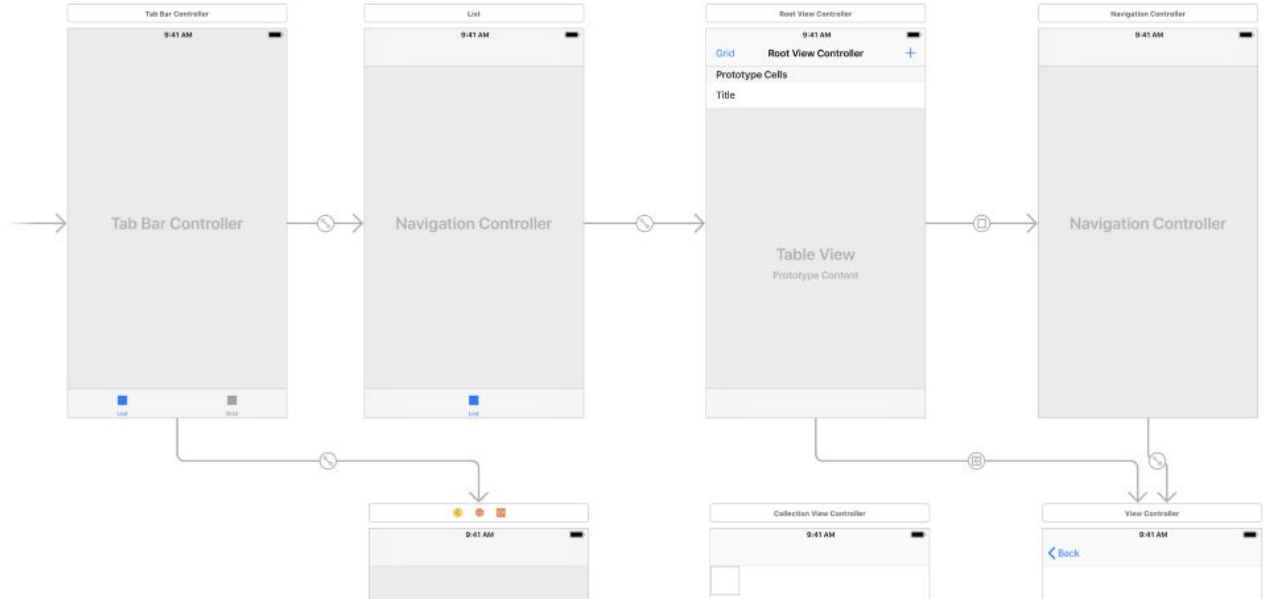
AUTO LAYOUT

- Auto Layout dynamically calculates the size and position of all the views in your view hierarchy, based on constraints placed on those views.
- **External changes** — when the size or shape of your superview changes
  - *The device rotates, support different screen sizes*
- **Internal changes** — when the size of the views or controls in your user interface change
  - *The content displayed by the app changes, Dynamic Fonts*

WHERE TO CREATE UI?

STORYBOARD & XIB (NIB)

- Options to define UI visually (not in a code)
- XML files
- Editing in Interface Builder



STORYBOARD

- Define ViewControllers (Tabs, Navigations)
- Can contain more of them
- Connections between of them
- File -> New -> File -> Storyboard (in User Interface section)

```
let vc = UIStoryboard(name: "LoginViewController",
                      bundle: nil).instantiateInitialViewController()
```

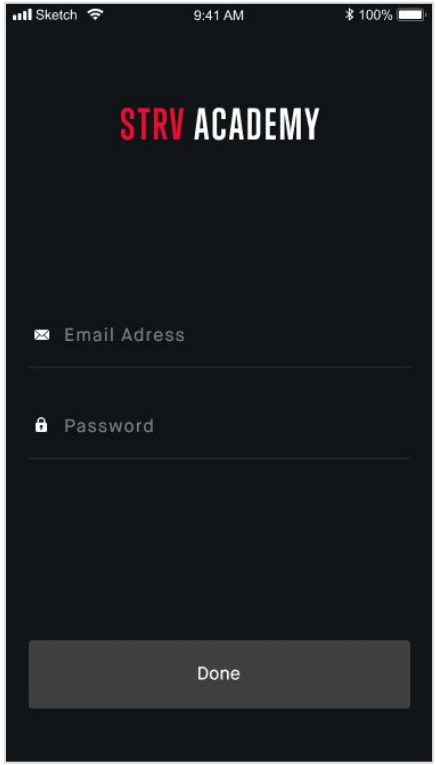
XIB (NIB)

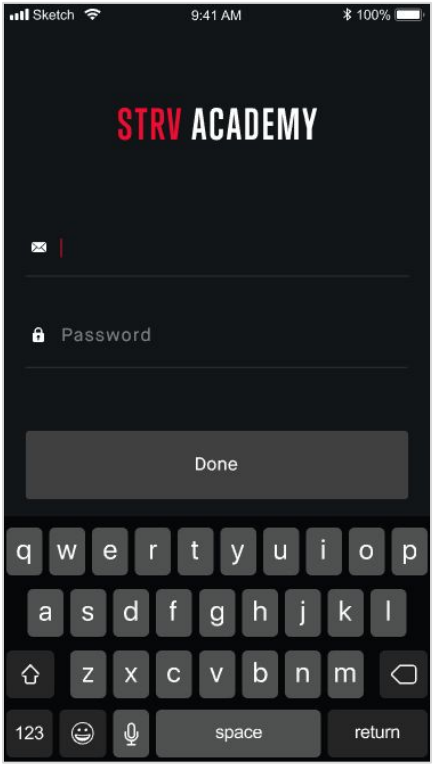
- Only for defining one (or more) view
- Usually for cells in table view
- **XIB** = Xml Interface Builder
- **NIB** = Nxt Interface Builder (NXT = NextStep = NS) — old one, replace by XIB
- File -> New -> File -> View (in User Interface section)

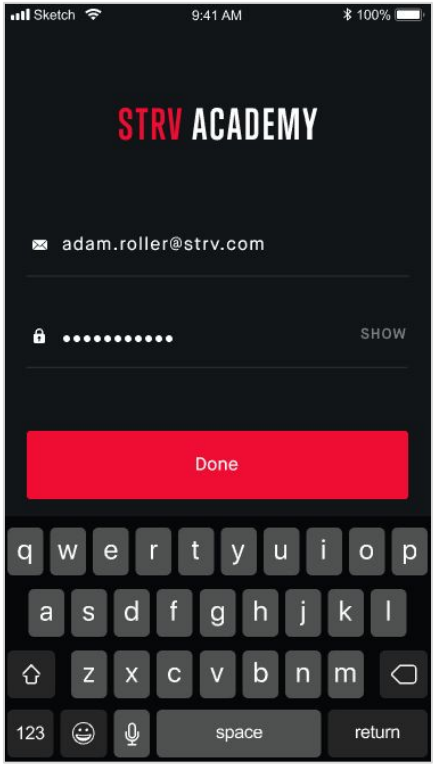
```
let myView = Bundle.main.loadNibNamed("MyView", owner: nil,
                                      options: nil)?[0] as? UIView
```

LET’S BUILD LOGIN SCREEN!

LOGIN SCREEN







ACADEMY APP DESIGNS

- Sketch file **STRV-iOS-Accademy-UI** in Resouces folder
- Download an app for it:
  - https://www.sketch.com — paid but first month is free
  - https://www.invisionapp.com/studio — for free (not necessary to login, just drag-and-drop on Invision app icon)

STATUS BAR

- Status bar style only for one screen. Add into LoginViewController class:

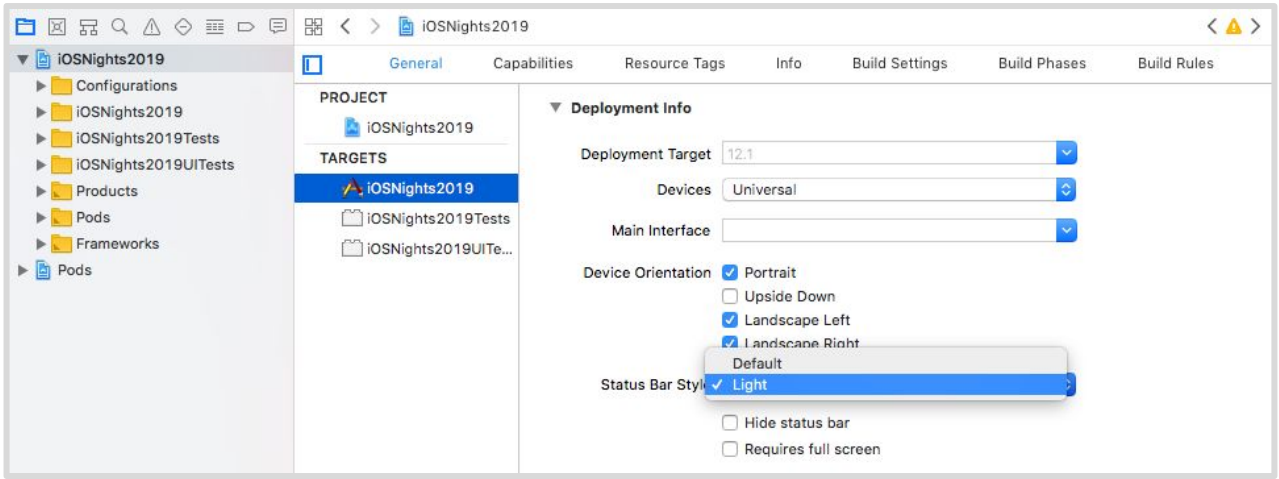
```
override var preferredStatusBarStyle: UIStatusBarStyle {
    return .lightContent
}
```

- Status bar style for while app. Add into Info.plist (Open As -> Source Code):

```
<key>UIViewControllerBasedStatusBarAppearance</key>
<false/>
```

STATUS BAR (IN LAUNCH TIME)

- iOSNights2019 -> iOSNights2019 in Targets -> General in top tabs -> Deployment Info



- Or add to Info.plist (Open As -> Source Code):

```
<key>UIStatusBarStyle</key>
<string>UIStatusBarStyleLightContent</string>
```

CUSTOM FONTS

https://developer.apple.com/documentation/uikit/text_display_and_fonts/adding_a_custom_font_to_your_app

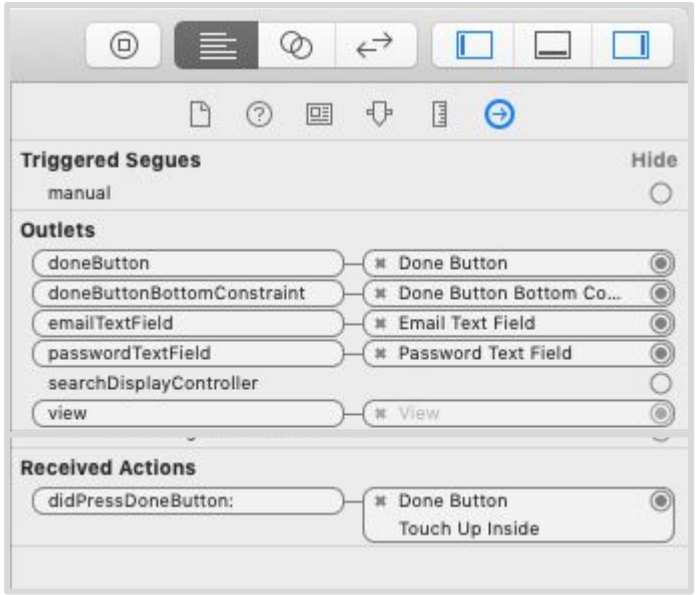
- Add to Info.plist (Open As -> Source Code):

```
<key>UIAppFonts</key>
<array>
        <string>Maison Neue Book.otf</string>
        <string>Maison Neue Bold.otf</string>
        <string>Maison Neue Demi.otf</string>
        <string>Maison Neue Medium.otf</string>
        <string>trump_gothic_east_bold.ttf</string>
</array>
```

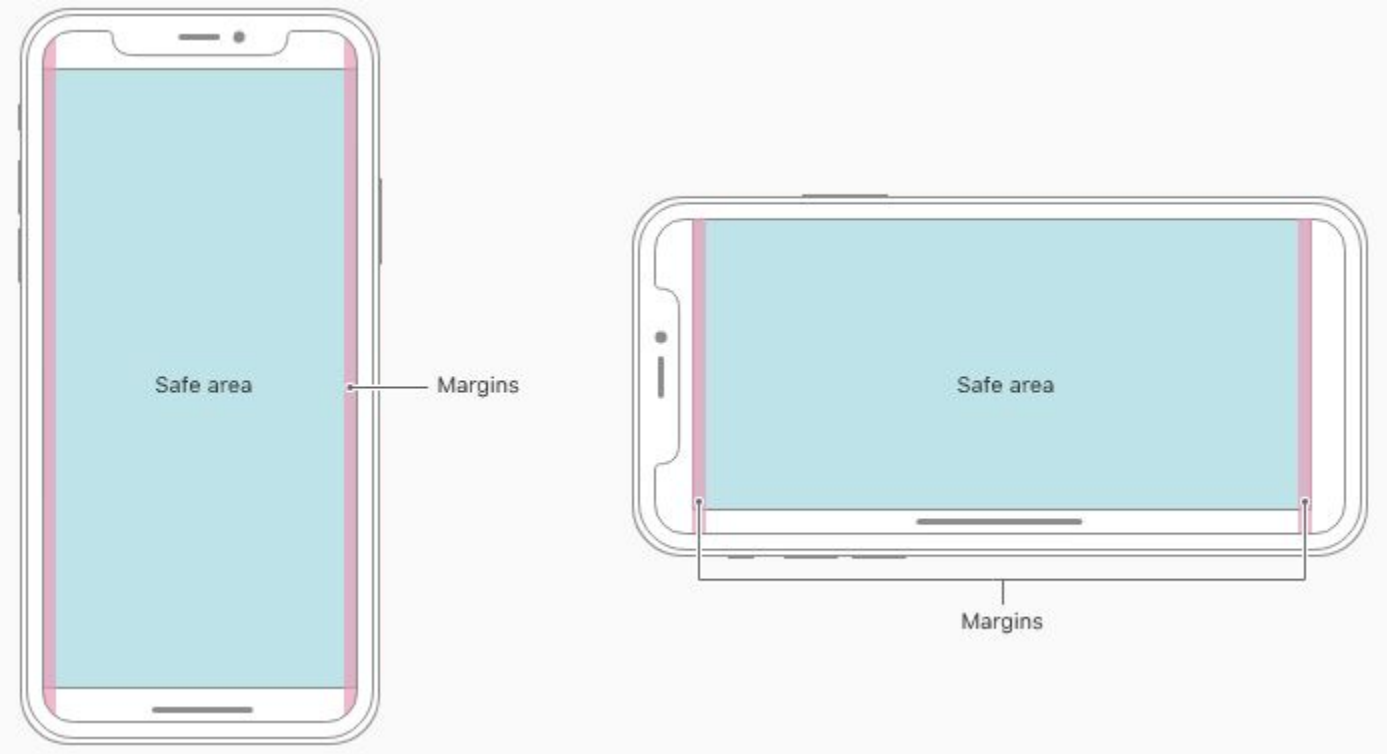
IBOUTLET & IBACTION

- **IBAction** and **IBOutlet** are macros defined to denote variables and methods that can be referred to in Interface Builder (https://stackoverflow.com/a/1643039/1054550)

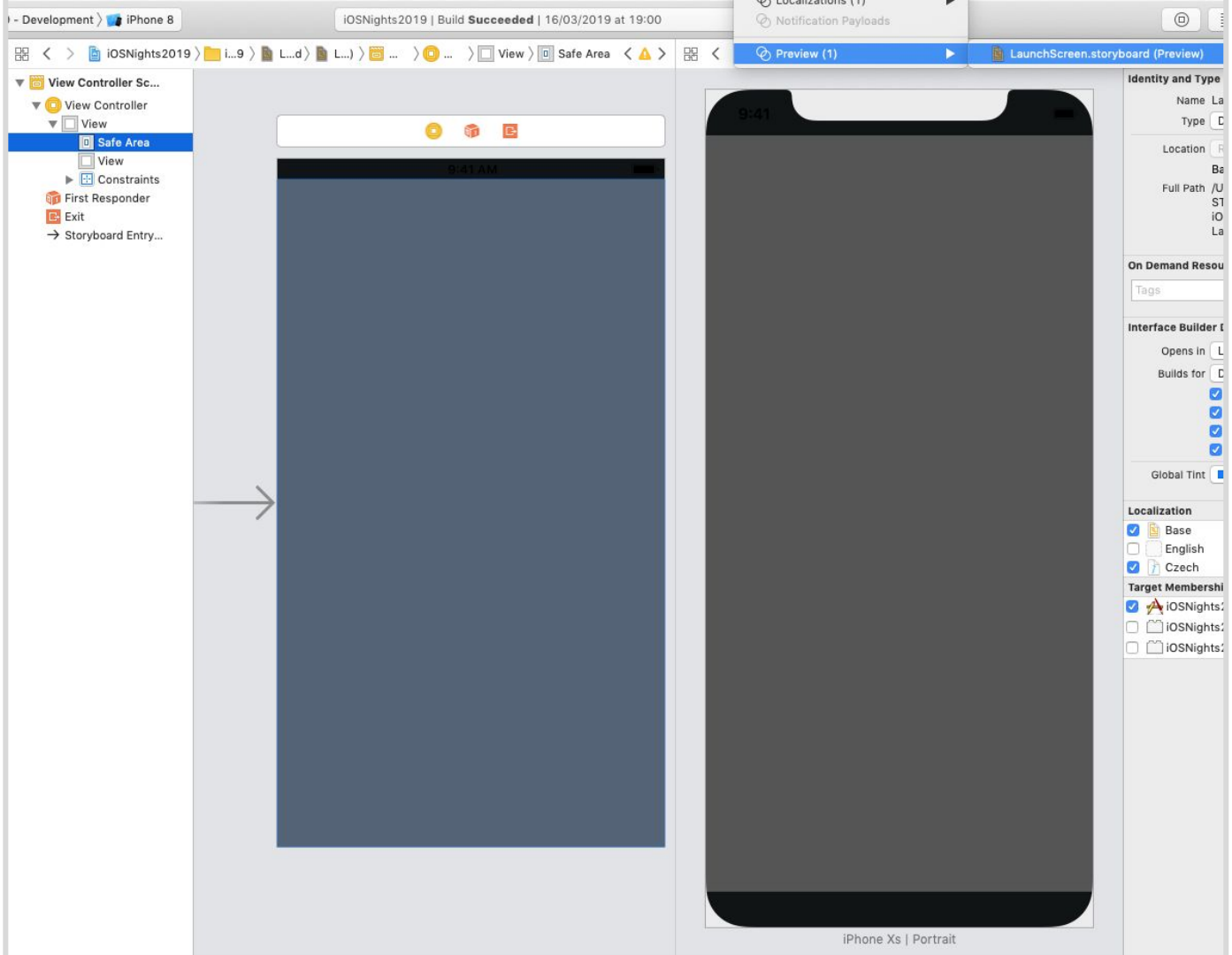
```
@IBOutlet var emailTextField: UITextField!

@IBAction func didPressDoneButton(_: Any) {
    print("Did press button")
}
```



SAFE AREA



SAFE AREA


iOSNights2019 | Build Succeeded | 16/03/2019 at 19:00
Preview (1)
LaunchScreen.storyboard (Preview)
View Controller Sc...
View Controller
View
Safe Area
View
Constraints
First Responder
Exit
Storyboard Entry...
9:41 AM
9:41
iPhone Xs | Portrait
Identity and Type
On Demand Resou
Interface Builder
Global Tint
Localization
Base
English
Czech
Target Membershi

COLORS SNIPPET

- UIColorExtension.swift — https://gist.github.com/ostatnicky/9562aa29fe560576812397405ede2247

TAP GESTURE

- https://developer.apple.com/documentation/uikit/uitapgesturerecognizer

```
// Tap gesture
let tap = UITapGestureRecognizer(target: self, action:
#selector(didTapOnView))
view.addGestureRecognizer(tap)

@objc func didTapOnView() {
    view.endEditing(true)
}
```

UITEXTFIELD INPUT OBSERVING

```
emailTextField.addTarget(self, action: #selector(didChangeInput),
    for: .editingChanged)
passwordTextField.addTarget(self, action: #selector(didChangeInput),
    for: .editingChanged)

@objc func didChangeInput() {
    print("Did change input")
}
```

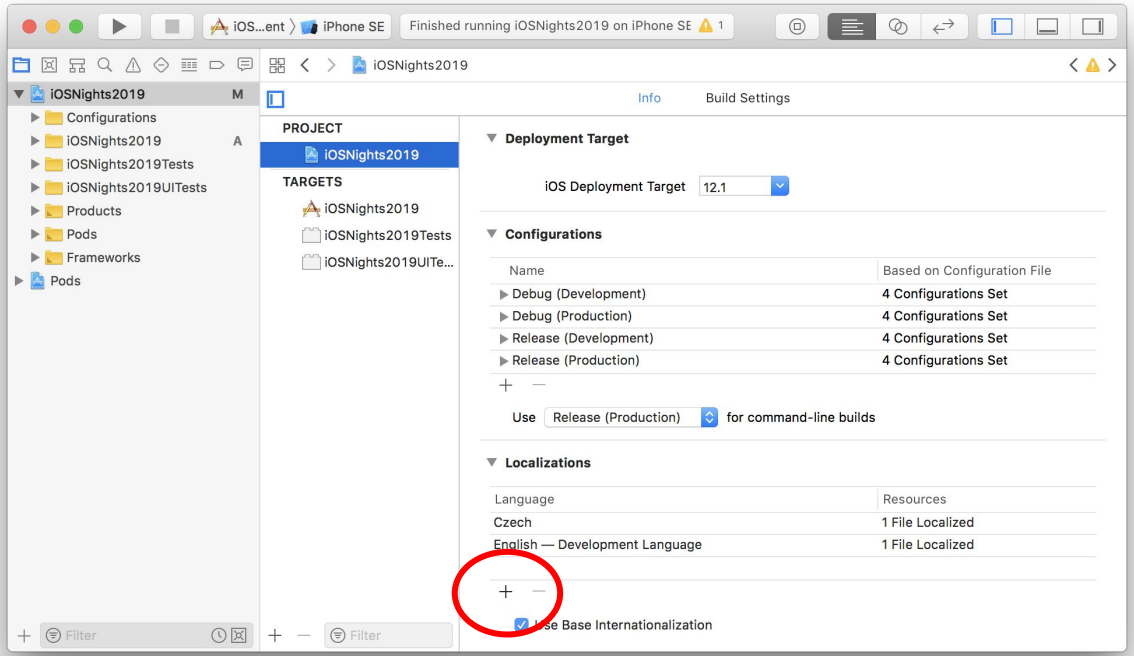
KEYBOARD NOTIFICATIONS

- https://gist.github.com/ostatnicky/835137abc05778a3be3206362630e78b
- … and add `registerKeyboardListeners()` to bottom of `setupUI`

LOCALIZATION

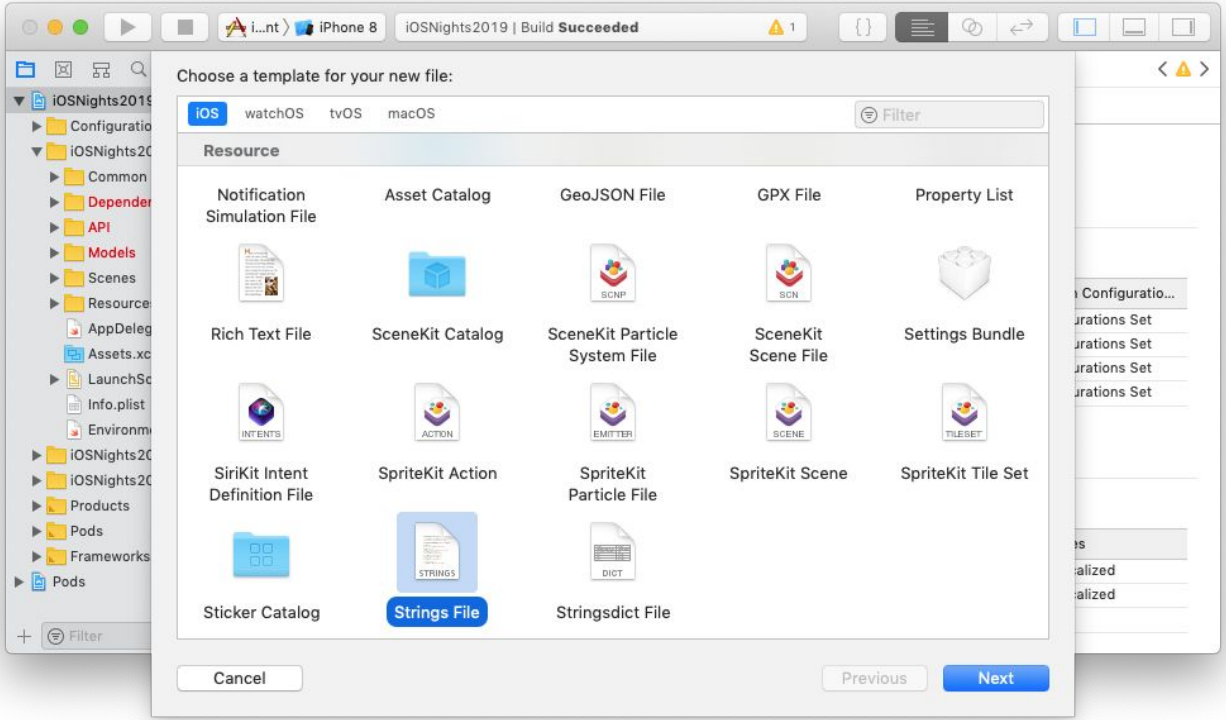
LOCALIZATION

- Add new language in the project localizations



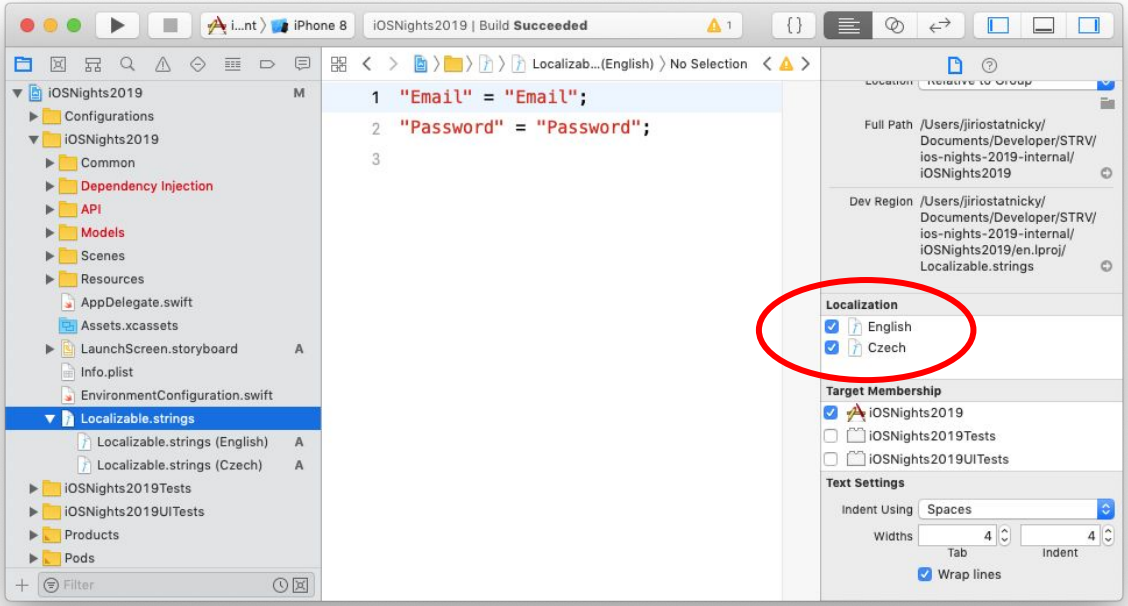
LOCALIZATION

- Create **Localizable.strings** by **File -> New -> File -> Strings File** under Resource tab of iOS



LOCALIZATION

- Localize that **Localizable.strings**
- Add `"key" = "value";` pairs



LOCALIZATION

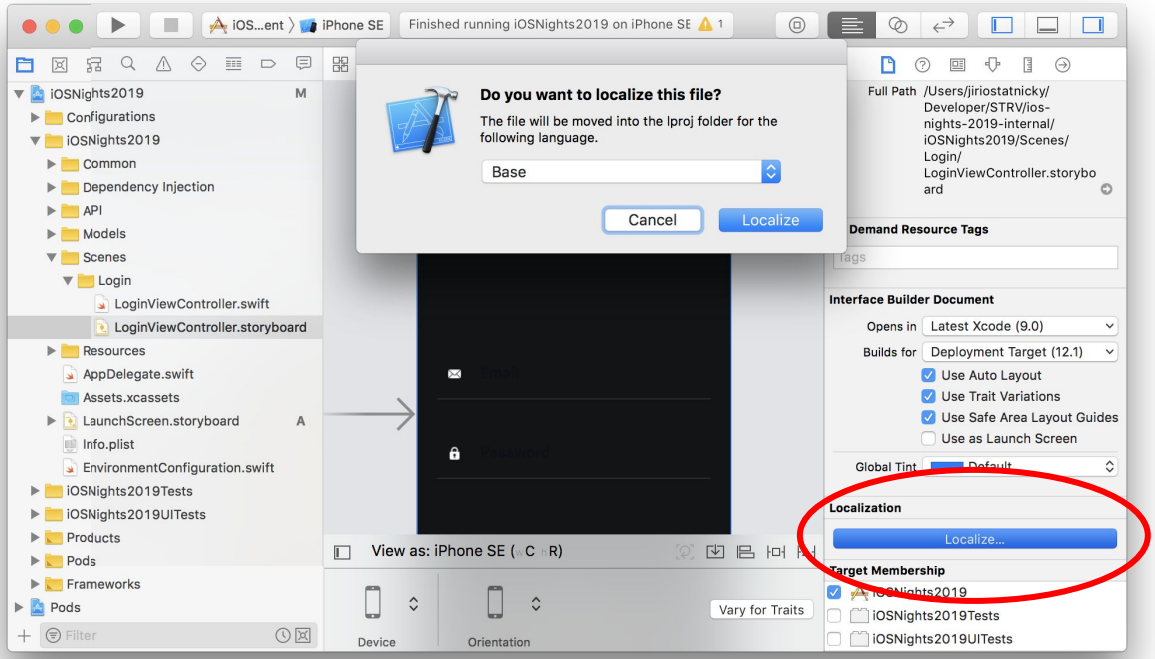
- Use **keys** in code by `NSLocalizedString(key: String, comment: String)`

```
let emailPlaceholderText = NSLocalizedString("Email", comment: "")
let passwordPlaceholderText = NSLocalizedString("Password", comment: "")
```

LOCALIZATION IN UI

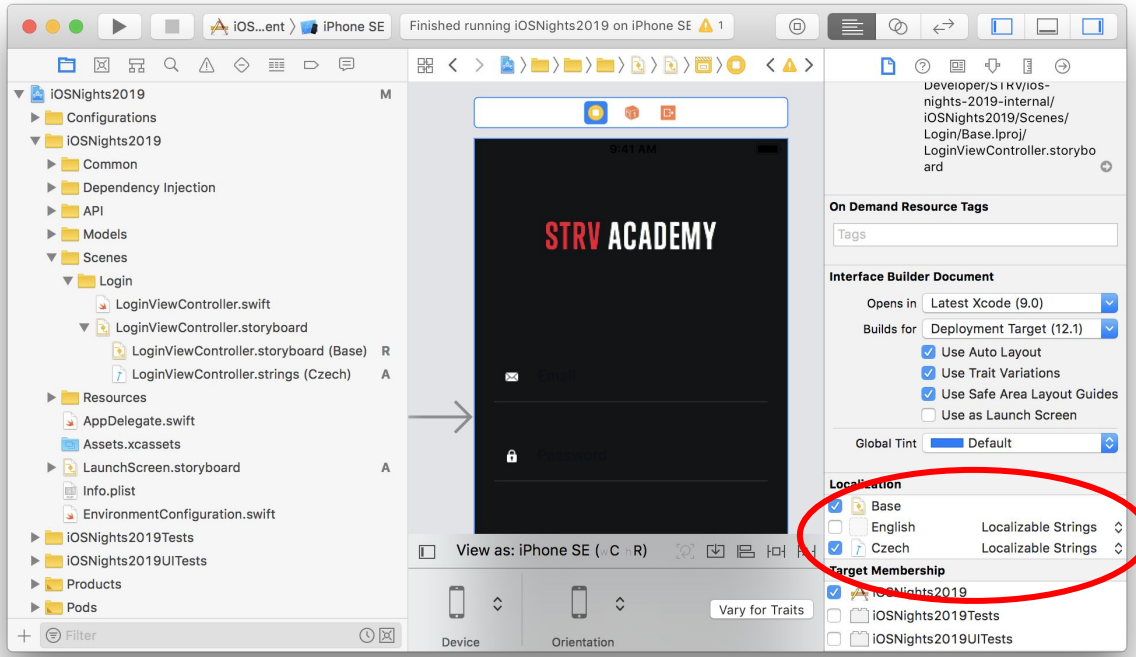
LOCALIZATION IN UI

- Localize LoginViewController.storyboard



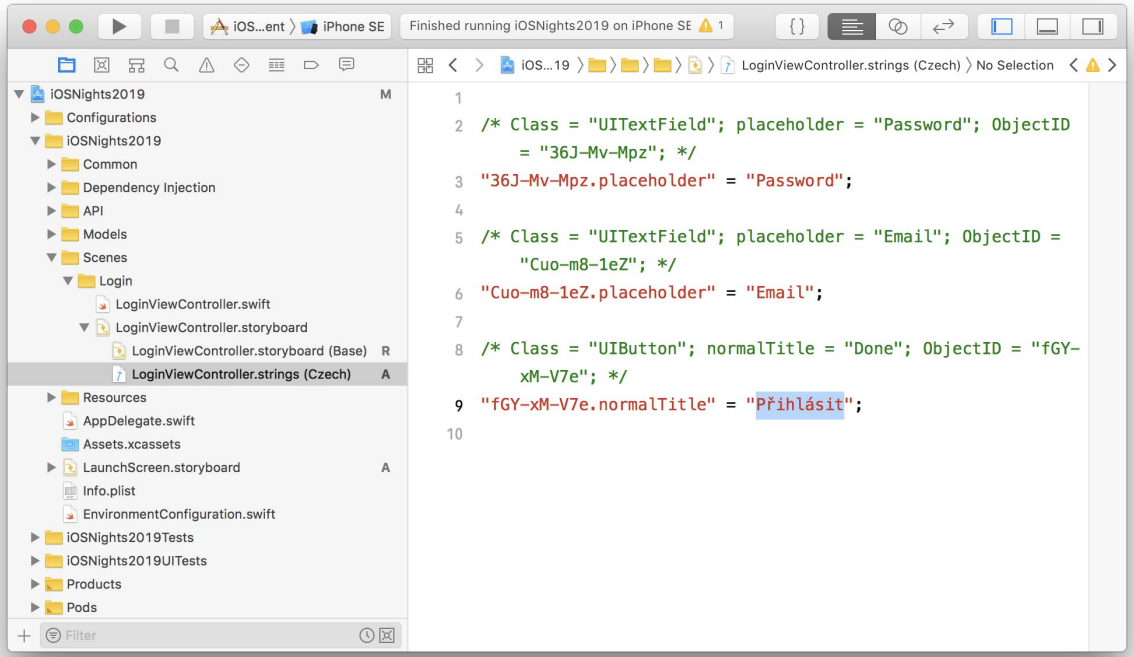
LOCALIZATION IN UI

- Check required language



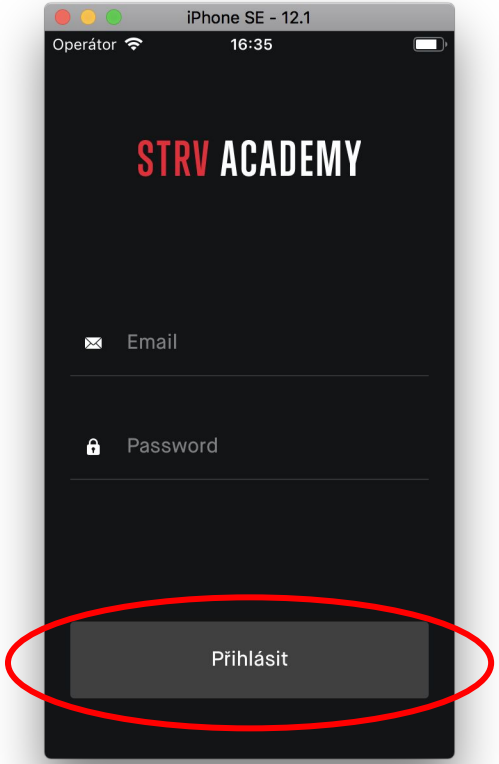
LOCALIZATION IN UI

- Translate to new language



LOCALIZATION

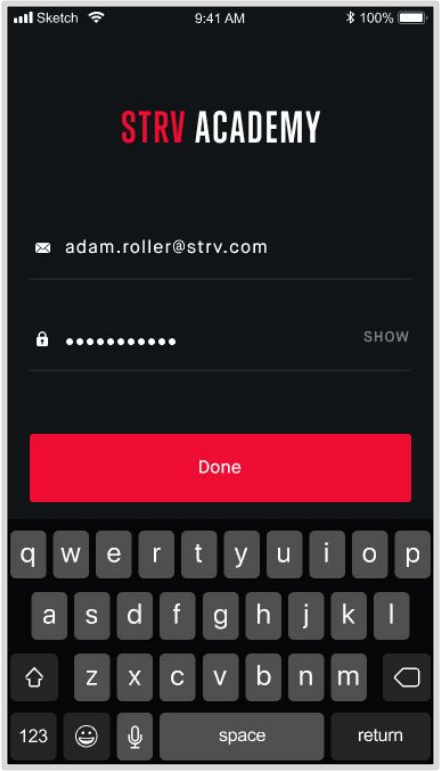
- Test it — be sure that you have the same language in iOS Settings
- OR BETTER: Product -> Scheme -> Edit Scheme… -> Run -> Options -> Application Language



HOMEWORK

HOMEWORK

- **Complete Login screen by the design** (if you haven't done it during the lecture time)
- **Add Show/Hide button for password textfield**
  - Hint: passwordTextField.isSecureTextEntry
- **Validate the email input format**
  - Done button is enabled only for a valid email



THAT'S IT

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REFERENCE

- UIKit https://developer.apple.com/documentation/uikit
- Auto Layout
  https://developer.apple.com/library/archive/documentation/UserExperience/Conceptual/AutolayoutPG/index.html#//apple_ref/doc/uid/TP40010853-CH7-SW1
- Localization
  https://medium.com/lean-localization/ios-localization-tutorial-938231f9f881

QUESTIONS

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