Canva



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About us

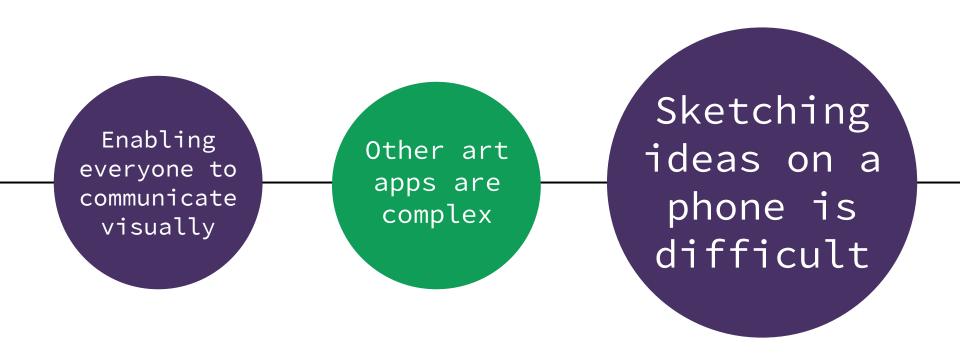
We're passionate about building great products that make people's digital interactions more fun. Despite being born just a few months ago, we have a team that is proficient with a number of skills. When we join efforts as a team, we are software developers, data analysts, economists, marketers, project managers, scientists and engineers.

We grew up in Sydney, Buenos Aires, Teheran and Nha Trang, and now we are excited to strategise and build innovative digital experiences for people all over the world!

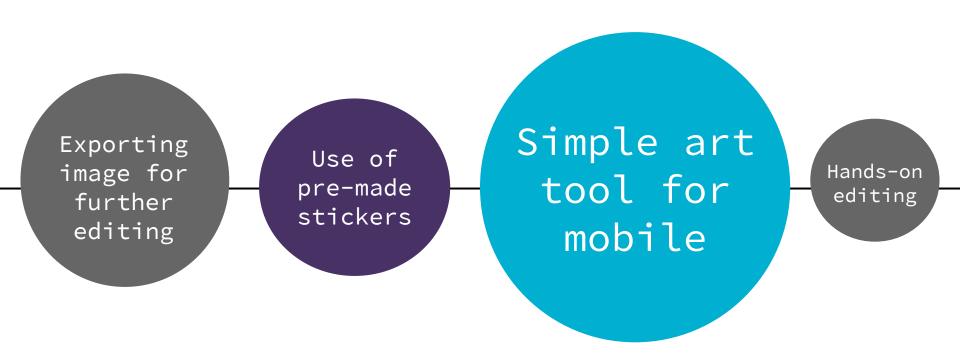
Our target audience



The problem we are trying to solve



How do we solve it?



But wait, how are we gonna track progress?

Must-Haves

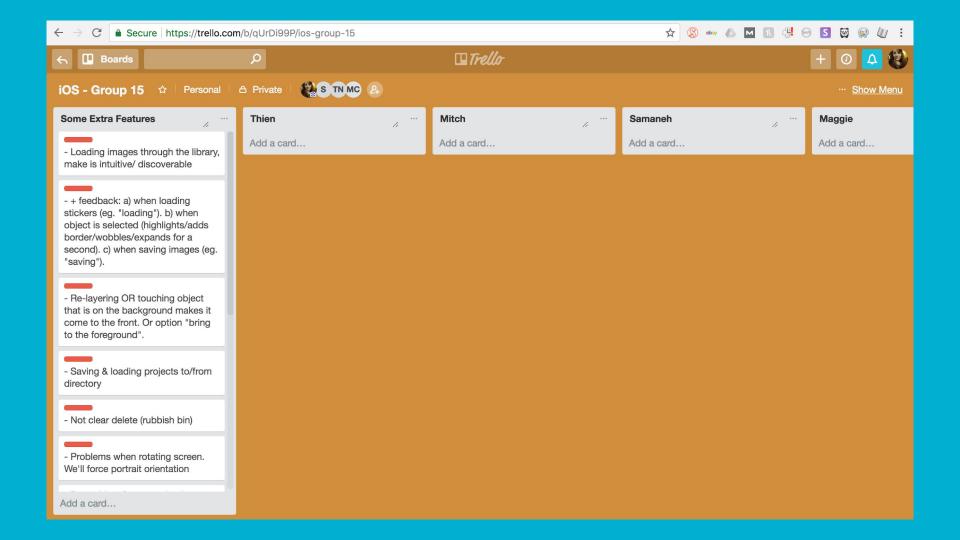
In red

Nice-to-Haves

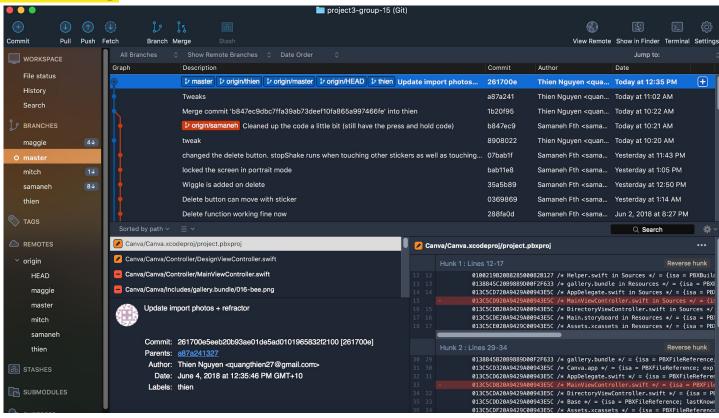
Everyone takes charge of some

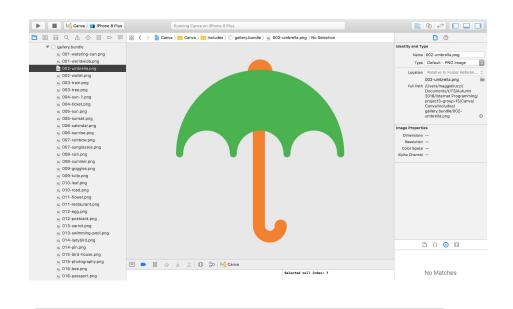
Extras

Stay at the common pool til someone takes charge



Code Tracking



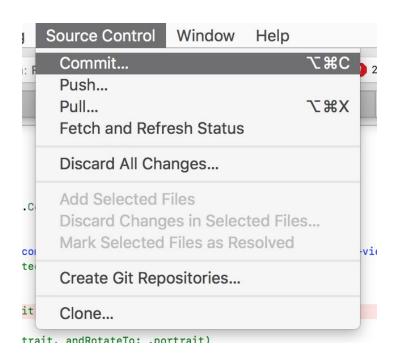


Sticker Bundle

.getImageFileNamesFromBundle(bundle: Global.Constants.galleryBundleName)

Preloading sticker library:

Asynchronous | Checking for errors



Pushing through Xcode

Xcode allows us to clone, fetch, pull, commit and push updated files to the chosen remote branch (eg. origin/maggie)

Touch Recognisers

- Dragging: location as touch begins and ends.
- Rotation: rotation before and after.
- **Pinch**: size before and after.

Multiple UIGestureRecognizer can be recognised simultaneously.



Design Pattern

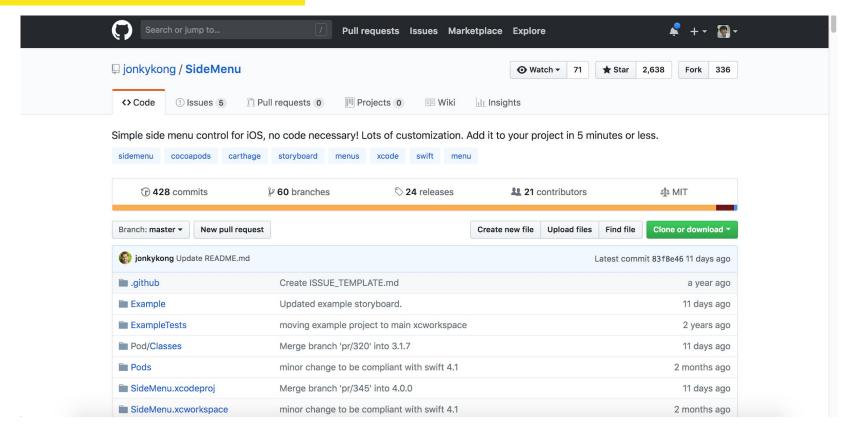
```
Canva ) iPhone 8 Plus
                                                                                                                     Running Canva on iPhone 8 Plus

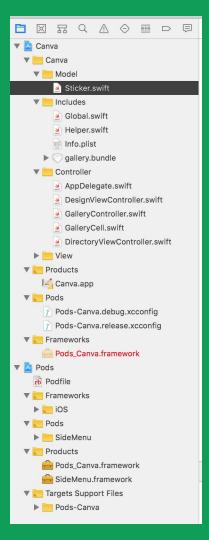
    Canva > Canva > Includes > 
                                                                                     IMPOIL OIKIL
▼ 🔼 Canva
    ▼ Canva
                                                                              12 class Helper {
                                                                              13
        ▼ Model
                                                                              14
                                                                                             static func getImageFileNamesFromBundle(bundle: String) -> [String] {
                 Sticker.swift
                                                                              15
                                                                                                    let fileManager = FileManager.default
        ▼ Includes
                                                                              16
                                                                                                    let bundleURL = Bundle.main.bundleURL
                 Global.swift
                                                                              17
                                                                                                    let assetURL = bundleURL.appendingPathComponent(bundle)
                Helper.swift
                                                                              18
                                                                                                    let contents = try! fileManager.contentsOfDirectory(at: assetURL, includingPropertiesForKeys: [URLResourceKey.localizedNameKey,
                                                                                                           URLResourceKey.creationDateKey, URLResourceKey.localizedTypeDescriptionKeyl, options:
                Info.plist
                                                                                                           FileManager.DirectoryEnumerationOptions.skipsHiddenFiles)
            ▶ gallery.bundle
        ▼ Controller
                                                                              20
                                                                                                    var images = [String]()
                                                                                                   for item in contents {
                 AppDelegate.swift
                                                                                                           images.append(item.lastPathComponent)
                 DesignViewController.swift
                 GalleryController.swift
                GalleryCell.swift
                                                                              25
                                                                                                    return images
                                                                              26
                 DirectoryViewController.swift
        ▼ View
                                                                                             static func preloadGallery() {
                LaunchScreen.storyboard
                                                                                                   // Load images in background thread
                Main.storyboard
                                                                              30
                                                                                                   DispatchQueue.global(qos: .userInitiated).async {
                                                                                                           if (Global.Constants.gallervImageFileNames.count > 0) {
               Assets.xcassets
                                                                                                                   for filename in Global.Constants.galleryImageFileNames {
    Products
                                                                                                                           guard let imageRef = UIImage(named: "\(Global.Constants.galleryBundleName)/\(filename)")?.cgImage else {
    ▶ Pods
                                                                                                                                  print("Image loading failed")
    ▼ Frameworks
                                                                                                                                  continue
       ▼ Pods_Canva.framework
                                                                                                                           let width = imageRef.width
            ▼ Headers
                                                                                                                          let height = imageRef.height
                    h Pods-Canva-umbrella.h
                                                                                                                           let colourSpace = CGColorSpaceCreateDeviceRGB()
▼ Pods
                                                                              40
                                                                                                                          let bitmapInfo: UInt32 = CGImageAlphaInfo.premultipliedFirst.rawValue | CGBitmapInfo.byteOrder32Little.rawValue
        rb Podfile
                                                                              42
                                                                                                                           guard let imageContext = CGContext(data: nil, width: width, height: height, bitsPerComponent: 8, bytesPerRow: width * 4,
    ▶ Frameworks
                                                                                                                                  space: colourSpace, bitmapInfo: bitmapInfo) else {
    ▶ Pods
                                                                                                                                  print("Image rendering failed")
    Products
                                                                                                                                  continue
    ► Targets Support Files
                                                                                                                           let rect = CGRect(x: 0, y: 0, width: width, height: height)
                                                                            △ ▶ [] △ ± ↑ [] ‰ 💋 Canva
  + Filter
```

Frameworks

- UIKit
- Core Graphics
- Image I/O

CocoaPod - SideMenu





```
private func exportImage( viewToExport: UIView?) {
   let imageRenderer = UIGraphicsImageRenderer(size: (viewToExport?.bounds.size)!)
    let image = imageRenderer.image { ctx in viewToExport?.drawHierarchv(in: (viewToExport?.bounds)!, afterScreenUpdates:
        true)}
   let imageData = UIImagePNGRepresentation(image)
   let pngImage = UIImage(data: imageData!)
   UIImageWriteToSavedPhotosAlbum(pngImage!, self, #selector(imageSaved( :didFinishSavingWithError:contextInfo:)), nil)
}
@objc func imageSaved( image: UIImage, didFinishSavingWithError error: NSError?, contextInfo: UnsafeRawPointer) {
    if let error = error {
        let alert = UIAlertController(title: "Save error", message: error.localizedDescription, preferredStyle: .alert)
        alert.addAction(UIAlertAction(title: "OK", style: .default))
        present(alert, animated: true)
    } else {
        let alert = UIAlertController(title: "Great", message: "Canva has been saved to your photos.",
            preferredStyle: .alert)
        alert.addAction(UIAlertAction(title: "OK", style: .default))
        alert.addAction(UIAlertAction(title: "Go to Camera Roll", style: .default) {(UIAlertAction) in {
           UIApplication.shared.open(URL(string:"photos-redirect://")!)
           1()1)
        present(alert, animated: true)
```

The importance of making readable code (eg. guessable names, consistent styling)

```
override func viewDidLoad() {
    super.viewDidLoad()

    // Uncomment the following line to preserve selection between presentations
    // self.clearsSelectionOnViewWillAppear = false

    // Do any additional setup after loading the view.
    if (Global.Constants.galleryImageFileNames.count > 0) {
        for filename in Global.Constants.galleryImageFileNames {
            self.images.append(UIImage(named: "\(Global.Constants.galleryBundleName)/\(filename)")!)
     }
}
```

```
func updateVisibleStickers(sticker: Sticker) {
    stickers.append(sticker)

    for sticker in stickers {
        if (!sticker.loadedIntoView) {
            self.canvaView.addSubview(sticker)

        sticker.loadedIntoView = true
        }
    }
}
```

```
func applicationWillEnterForeground(_ application: UIApplication) {
    // Called as part of the transition from the background to the active state; here you can undo many of the changes made
    on entering the background.
    Helper.preloadGallery()
}
```

```
@IBAction func buttonTakePhotoTapped(_ sender: Any) {
   if UIImagePickerController.isSourceTypeAvailable(.camera) {
     let imagePicker = UIImagePickerController()
     imagePicker.delegate = self
     imagePicker.sourceType = .camera;
     imagePicker.allowsEditing = false
     self.present(imagePicker, animated: true, completion: nil)
   }
}
```

```
@IBAction func buttonSaveToAlbumTouchUp(_ sender: Any) {
    self.generator.notificationOccurred(.success)
    self.exportImage(self.canvaView)
}
```

```
override func viewDidLoad() {
    super.viewDidLoad()
    // Do any additional setup after loading the view, typically from a nib.

let edgePan = UIScreenEdgePanGestureRecognizer(target: self, action: #selector(screenEdgeSwiped))
    edgePan.edges = .left
    view.addGestureRecognizer(edgePan)

Helper.preloadGallery()

canvaView.backgroundColor = Global.Constants.canvaBackgroundColor
}
```

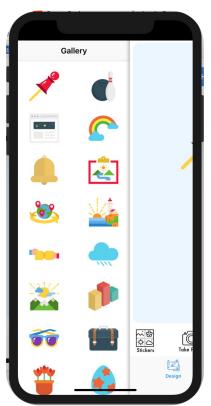
```
@objc func screenEdgeSwiped(_ recognizer: UIScreenEdgePanGestureRecognizer) {
   if recognizer.state == .recognized {
      self.performSegue(withIdentifier: "segueDesignToSideMenu", sender: self)
   }
}
```



The Canva Demo







Next in line

- Saving/loading artwork
- Layers
- Filters
- Sync with other social media apps (e.g. Instagram)
- More visual elements
 - Text fields
 - Simple shapes
 - External sticker packs
 - Ability to create stickers

Contact

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Any questions?