



# 'RSA' Project – Sleep Matters

Development/Programming  
Process

Daniel Wilkins

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## Introduction

The purpose of this document is to show a proof of concept with regards to the kind of application that I attempted to make. It was a prototype including only some aspects due to the timescale and other ongoing projects as well.

## Overview of the Different Application Screens in 'Xcode'

### Introduction/Overview

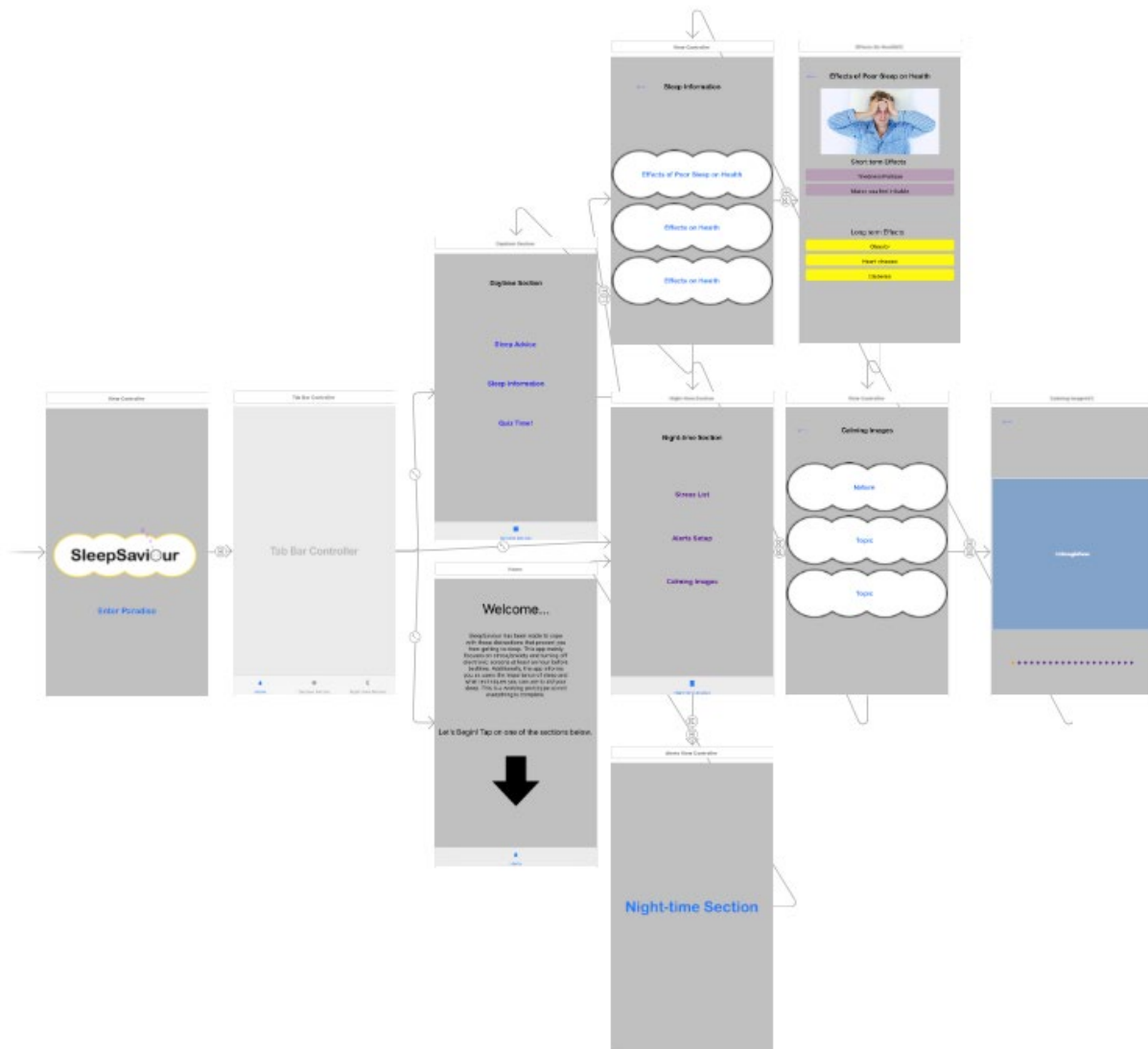
First of all, there would have been a loading screen where the logo appeared with a button called 'Enter Paradise'. Then after navigating from this, the user would have been taken to the home screen which would have welcomed the user to the application and underneath there was a navigation bar which included links to the home section, daytime section and night-time section.

In the daytime section, there were links to an advice section, information section and a quiz section where the user could have tested their knowledge obtained from the other two sections. The information link would have taken the user to a page where they could have learnt more about sleep in general and the advice link would have taken the user to a section where they could have learnt about techniques which would have helped with sleep.

Then the night-time section would have contained links to a stress list where the user would have been able to have entered a list of worries and then have screwed the list up into a ball, being able to throw it into a virtual bin. The night-time section would have also included an alerts section where the user would have been able to have set alerts reminding them of when to turn electronic screens off (hour before bedtime). The final aspect the night-time section would have contained would have been a calming images section where the user would have been able to have viewed different images by topic which would have helped reduce the stress that they were experiencing.

As will be seen further on in this document, I only focused on a few areas due to the timescale.

## The Different Screens of the Final Application



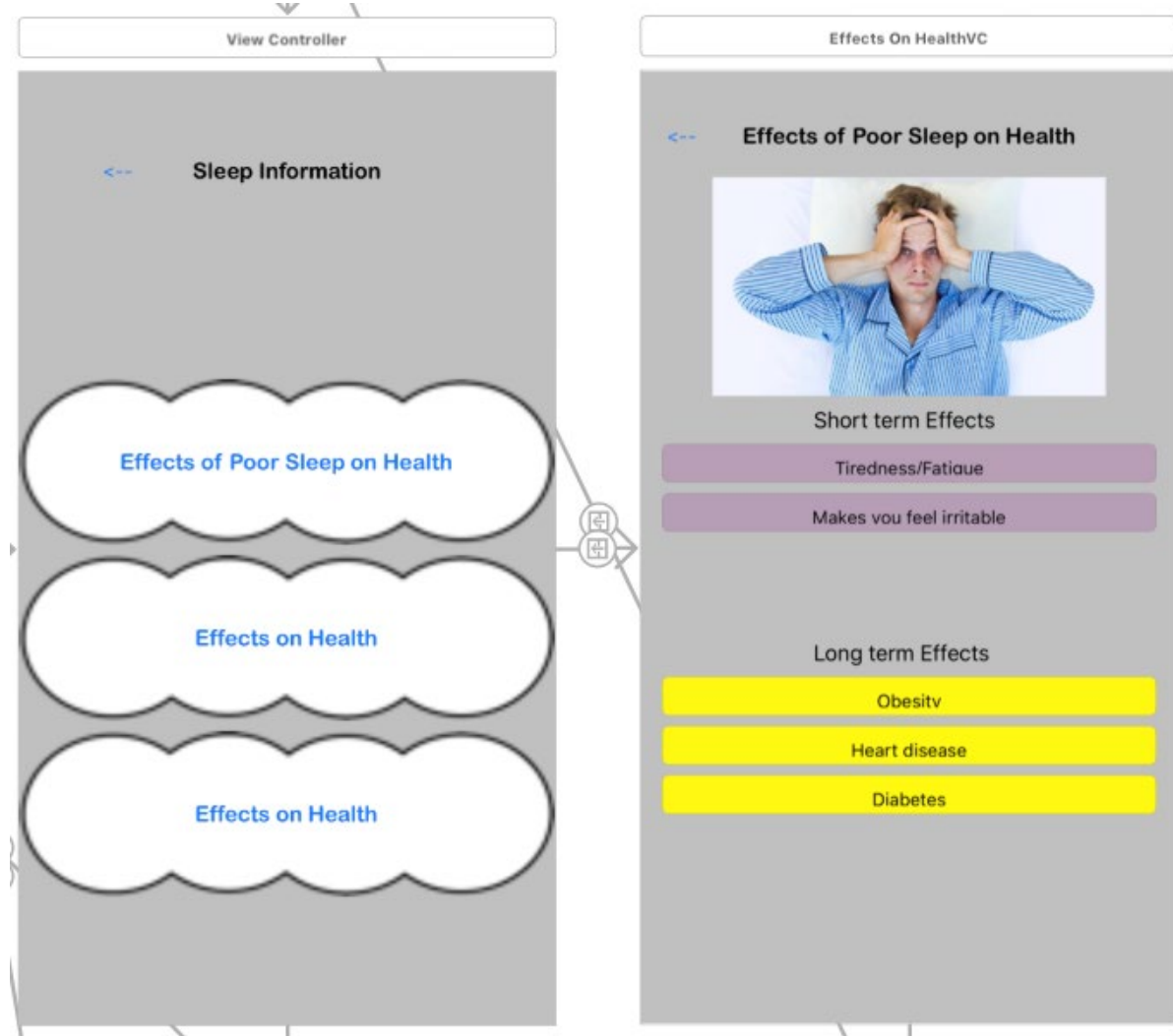
## The Daytime Section

### The Sleep Information Aspect

#### Introduction/Overview

As can be seen below, I created a couple of 'View Controllers' for part of the application, one which would have contained the links to different topics regarding sleep and one which would have displayed these topics. I added labels and an 'Image View' to the second 'View Controller' as well. This was a concept so therefore it was not fully complete.

#### The Created 'View Controllers'



## The Night-time Section

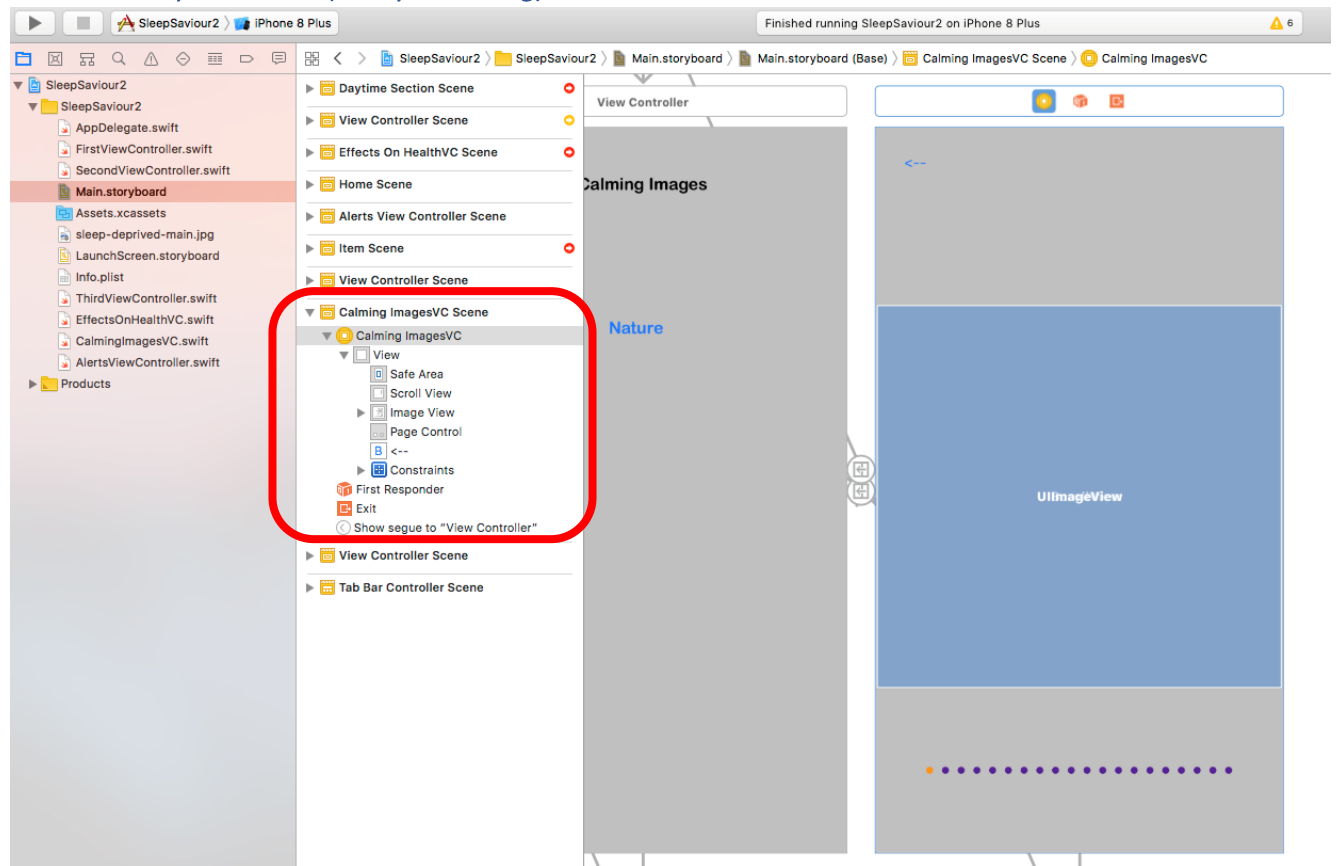
### The Calming Images Aspect

#### Allowing for the Section to Function

##### *Introduction/Overview*

For a proof of concept, I was able to implement some code that allowed for the user to scroll through a variety of images under the 'Nature' topic. I first of all created a 'ViewController' which was then assigned to a 'Swift' file, enabling myself to add additional capabilities to it via code. I then inserted a 'Scroll View', an 'Image View' and a 'Page Control'. The 'Scroll View' would have allowed for the user to scroll between images, the 'Image View' would have been where the images would have been placed and the 'Page Control' would have indicated as to which image the user was on. Then after implementing these aspects to my project, I followed a tutorial on 'YouTube' to create the actual behaviour of this section.

##### *The Main Storyboard View (Ready for Coding)*



## An Overview of the Code Determining the Behaviour with Explanation

### Introduction/Overview

The `'imgOne.image = UIImage(named: "Slide 1")'` for example basically assigned `'imgOne'` to the image set called `'Slide 1'` in the assets section of `'Xcode'`. This then allowed for the image to appear when the `'self.scrollView.addSubview(imgOne)'` occurred. This was the same for all of the others as well such as `'imgFive'` and `'imgEight'`. The `'scrollViewWidth'` and `'scrollViewHeight'` set the height and width of each frame. This whole code allowed for the horizontal scrolling of the calming images.

### The Actual Code



```

8 // CALMING IMAGES SECTION REFERENCE - https://www.youtube.com/watch?v=TsmlyL1VLc
9 import UIKit
10
11 class CalmingImagesVC: UIViewController, UIScrollViewDelegate {
12     @IBOutlet weak var imageView: UIImageView!
13     @IBOutlet weak var pageControl: UIPageControl!
14     @IBOutlet weak var scrollView: UIScrollView!
15
16     override func viewDidLoad() {
17         super.viewDidLoad()
18         self.scrollView.frame = CGRect(x:0, y:0, width:self.view.frame.width, height:self.view.frame.height)
19
20         let scrollViewWidth:CGFloat = self.scrollView.frame.width
21         let scrollViewHeight:CGFloat = self.scrollView.frame.height
22
23         let imgOne = UIImageView(frame: CGRect(x:0, y:0,width:scrollViewWidth, height:scrollViewHeight))
24         imgOne.image = UIImage(named: "Slide 1")
25
26         let imgTwo = UIImageView(frame: CGRect(x:scrollViewWidth, y:0,width:scrollViewWidth, height:scrollViewHeight))
27         imgTwo.image = UIImage(named: "Slide 2")
28
29         let imgThree = UIImageView(frame: CGRect(x:scrollViewWidth*2, y:0,width:scrollViewWidth, height:scrollViewHeight))
30         imgThree.image = UIImage(named: "Slide 3")
31
32         let imgFour = UIImageView(frame: CGRect(x:scrollViewWidth*3, y:0,width:scrollViewWidth, height:scrollViewHeight))
33         imgFour.image = UIImage(named: "Slide 4")
34
35         let imgFive = UIImageView(frame: CGRect(x:scrollViewWidth*4, y:0,width:scrollViewWidth, height:scrollViewHeight))
36         imgFive.image = UIImage(named: "Slide 5")
37
38         let imgSix = UIImageView(frame: CGRect(x:scrollViewWidth*5, y:0,width:scrollViewWidth, height:scrollViewHeight))
39         imgSix.image = UIImage(named: "Slide 6")
40
41         let imgSeven = UIImageView(frame: CGRect(x:scrollViewWidth*6, y:0,width:scrollViewWidth, height:scrollViewHeight))
42         imgSeven.image = UIImage(named: "Slide 7")
43
44         let imgEight = UIImageView(frame: CGRect(x:scrollViewWidth*7, y:0,width:scrollViewWidth, height:scrollViewHeight))
45         imgEight.image = UIImage(named: "Slide 8")
46
47
48         self.scrollView.addSubview(imgOne)
49         self.scrollView.addSubview(imgTwo)
50         self.scrollView.addSubview(imgThree)
51         self.scrollView.addSubview(imgFour)
52         self.scrollView.addSubview(imgFive)
53         self.scrollView.addSubview(imgSix)
54         self.scrollView.addSubview(imgSeven)
55         self.scrollView.addSubview(imgEight)
56
57         self.scrollView.contentSize = CGSize(width:self.scrollView.frame.width * 7, height:self.scrollView.frame.height)
58         self.scrollView.delegate = self
59         self.pageControl.currentPage = 0
60         // Do any additional setup after loading the view, typically from a nib.
61     }
62 }
63
64 func scrollViewDidEndDecelerating(_ scrollView: UIScrollView){
65
66     let pageWidth:CGFloat = scrollView.frame.width
67     let currentPage:CGFloat = floor((scrollView.contentOffset.x-pageWidth/2)/pageWidth)+1
68
69     self.pageControl.currentPage = Int(currentPage);
70 }

```

## Problems Experienced with the Calming Images Section

### *Introduction/Overview*

With regards to the 'scrollView' in the code, there was an issue that occurred with the images. They wouldn't be contained within the 'Scroll View' which therefore meant that they could have been scrolled vertically as well as horizontally. To solve this problem, I removed a line of code in 'CalmingImagesVC'.

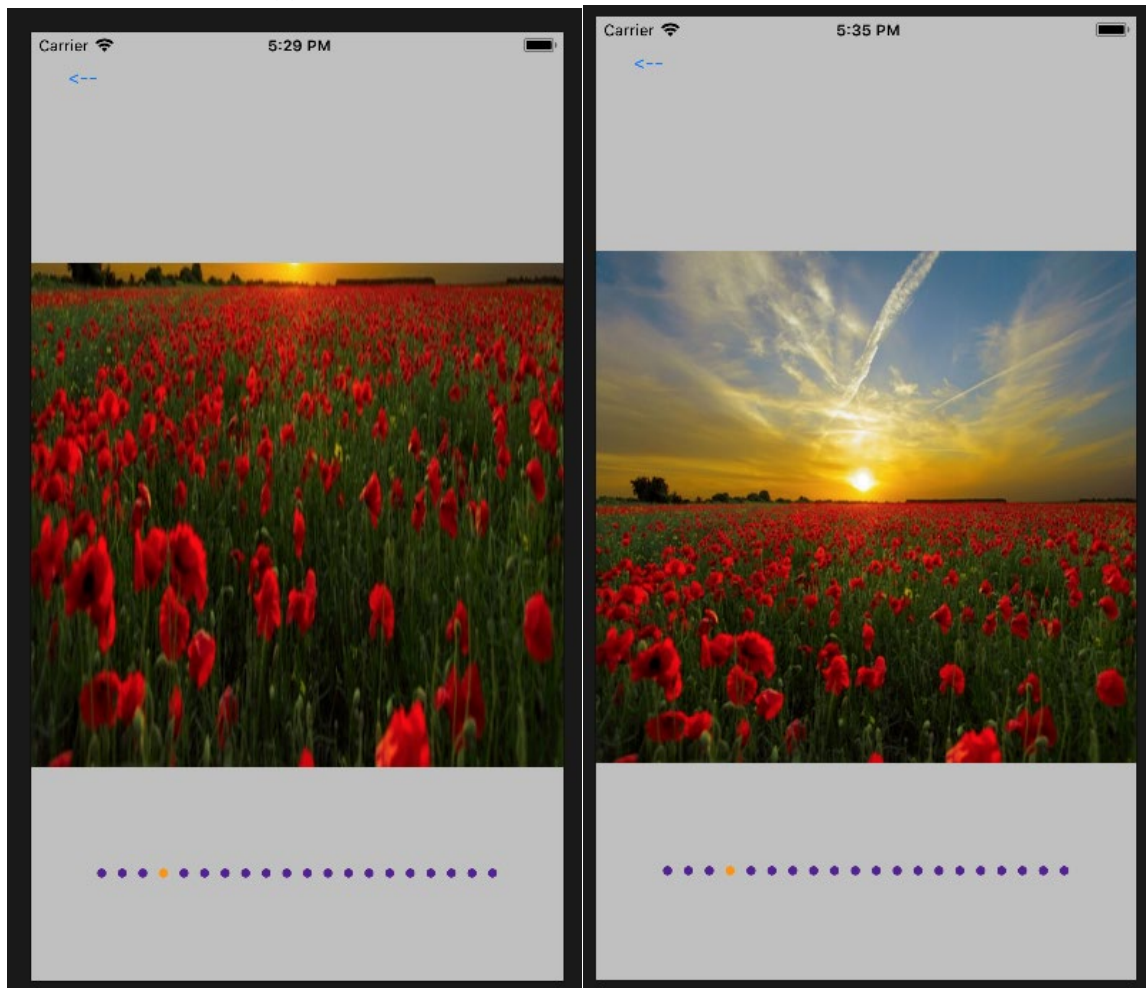
When trying to find the problem, I searched on the Internet and tried various different techniques to try and solve the issue but they wouldn't work. Then I thought if I commented out a piece of the code, maybe that would have worked. I noticed that nearer to the top of the code the height and width had been set and I thought this may have been the problem. Therefore, I commented it out and tested my application and it solved the issue.

### *The Applied Solution*

#### The Changed Code

```
override func viewDidLoad() {
    super.viewDidLoad()
    //self.scrollView.frame = CGRect(x:0, y:0, width:self.view.frame.width, height:self.view.frame.height)
    //There was a problem which was causing the images to be able to be vertically scrolled as the image didn't fit in the scrollView and I commented the code above which solved this issue
    let scrollViewWidth:CGFloat = self.scrollView.frame.width
    let scrollViewHeight:CGFloat = self.scrollView.frame.height
}
```

#### The Outcome on the Application



*Before the Solution*

*After the Solution*



## The Alerts Aspect

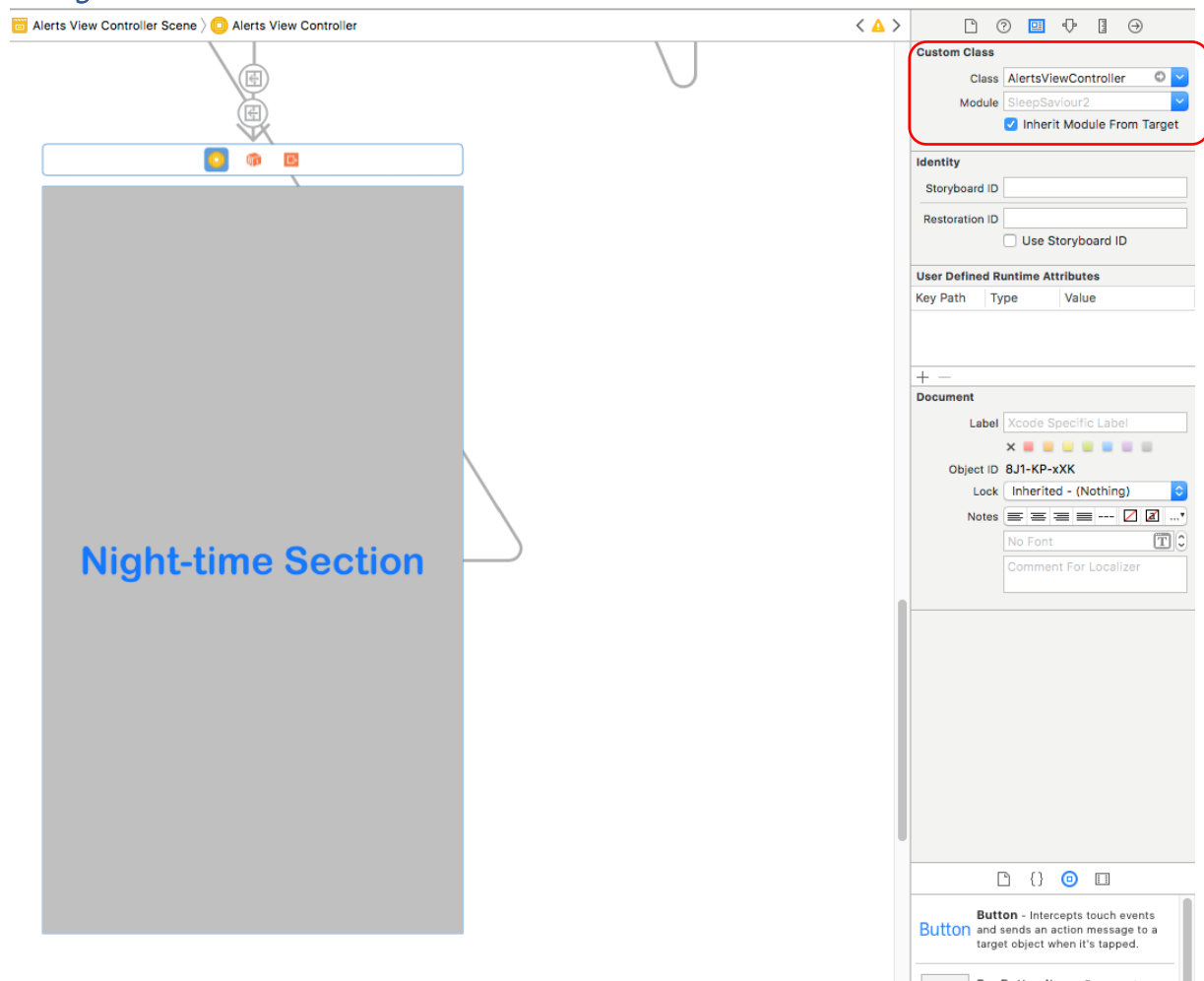
### Allowing for the Section to Function

#### *Introduction/Overview*

With regards to the alerts, I thought it would have been best to demonstrate the type of alert which would have appeared on the alerts section of the application due to the timescale of the project remaining as well as completing other projects. I believed this would have provided a good prototype of what my application could have done. I utilised the Internet again, finding another tutorial on 'YouTube' on how to write an alert in 'Swift'. To summarise what happened, when the user would have tapped on the 'Alerts Section' button on the night-time section page, they would have been taken to a new screen where a notification would have appeared, telling the user that it was an hour before their bedtime and that they should have switched off all electronic devices/screens.

Before adding the code into the alerts section, I first added a new 'View Controller' which I then assigned a 'Swift' file to called 'AlertsViewController'. This allowed myself to add some behaviour to the page. I also added a button called 'Night-time Section' which would have allowed the user to return to the night-time section after viewing the alert.

#### *Adding a New 'View Controller'*



## The Code Determining the Behaviour

### An Overview of the Code Causing the Alert to Appear

```

1 //
2 // AlertsViewController.swift
3 // SleepSaviour2
4 //
5 // Created by user on 22/11/2017.
6 // Copyright © 2017 danWilkins. All rights reserved.
7 //
8
9 import UIKit
10
11 class AlertsViewController: UIViewController {
12
13     override func viewDidLoad() {
14         super.viewDidLoad()
15
16         // Do any additional setup after loading the view.
17     }
18
19     override func viewDidAppear(_ animated: Bool) {
20         produceAlert(title: "1 hour before Bedtime", message: "Time to turn off all screens!")
21     }
22
23     override func didReceiveMemoryWarning() {
24         super.didReceiveMemoryWarning()
25         // Dispose of any resources that can be recreated.
26     }
27
28     func produceAlert (title:String, message:String)
29     {
30         let alert = UIAlertController(title: title, message: message, preferredStyle: UIAlertControllerStyle.alert)
31
32         alert.addAction(UIAlertAction(title: "Dismiss", style: UIAlertActionStyle.default, handler: { (action) in
33             alert.dismiss(animated: true, completion: nil)
34         }))
35
36         self.present(alert, animated: true, completion: nil)
37     }
38
39     /*
40     // MARK: - Navigation
41
42     // In a storyboard-based application, you will often want to do a little preparation before navigation
43     override func prepare(for segue: UIStoryboardSegue, sender: Any?) {
44         // Get the new view controller using segue.destinationViewController.
45         // Pass the selected object to the new view controller.
46     }
47     */
48
49 }

```

### An Explanation of the Key Aspects of the Code

The `produceAlert(title: "1 hour before Bedtime", message: "Time to turn off all screens!")` was calling the function `produceAlert (title:String, message:String)`.

The `alert.addAction(UIAlertAction)` added a button underneath the notification which allowed for the user to tap on it. In this case it was 'Dismiss' to close the notification.

```

override func viewDidAppear(_ animated: Bool) {
    produceAlert(title: "1 hour before Bedtime", message: "Time to turn off all screens!")
}

override func didReceiveMemoryWarning() {
    super.didReceiveMemoryWarning()
    // Dispose of any resources that can be recreated.
}

func produceAlert (title:String, message:String)
{
    let alert = UIAlertController(title: title, message: message, preferredStyle: UIAlertControllerStyle.alert)

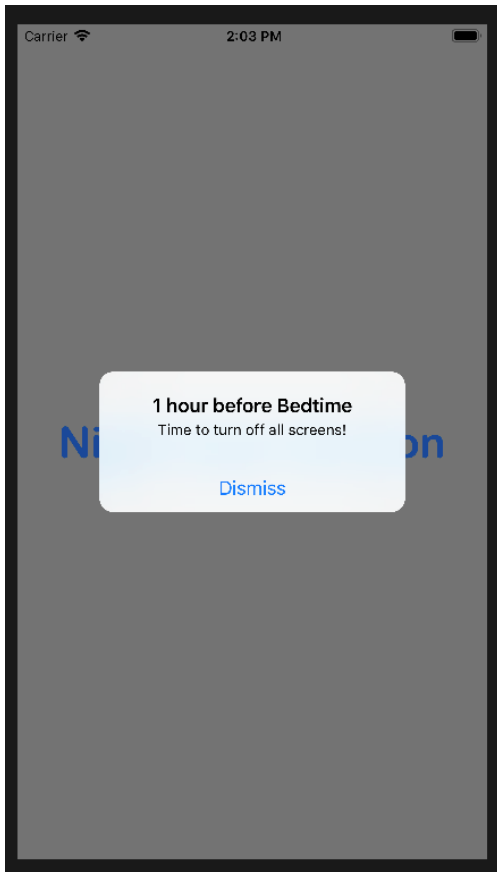
    alert.addAction(UIAlertAction(title: "Dismiss", style: UIAlertActionStyle.default, handler: { (action) in
        alert.dismiss(animated: true, completion: nil)
    }))

    self.present(alert, animated: true, completion: nil)
}

```

### The Outcome on the Application

*When the User Would Have Tapped on the Alerts Section, This Alert Would Have Then Appeared as can be Seen Below*



## Other Problems Experienced

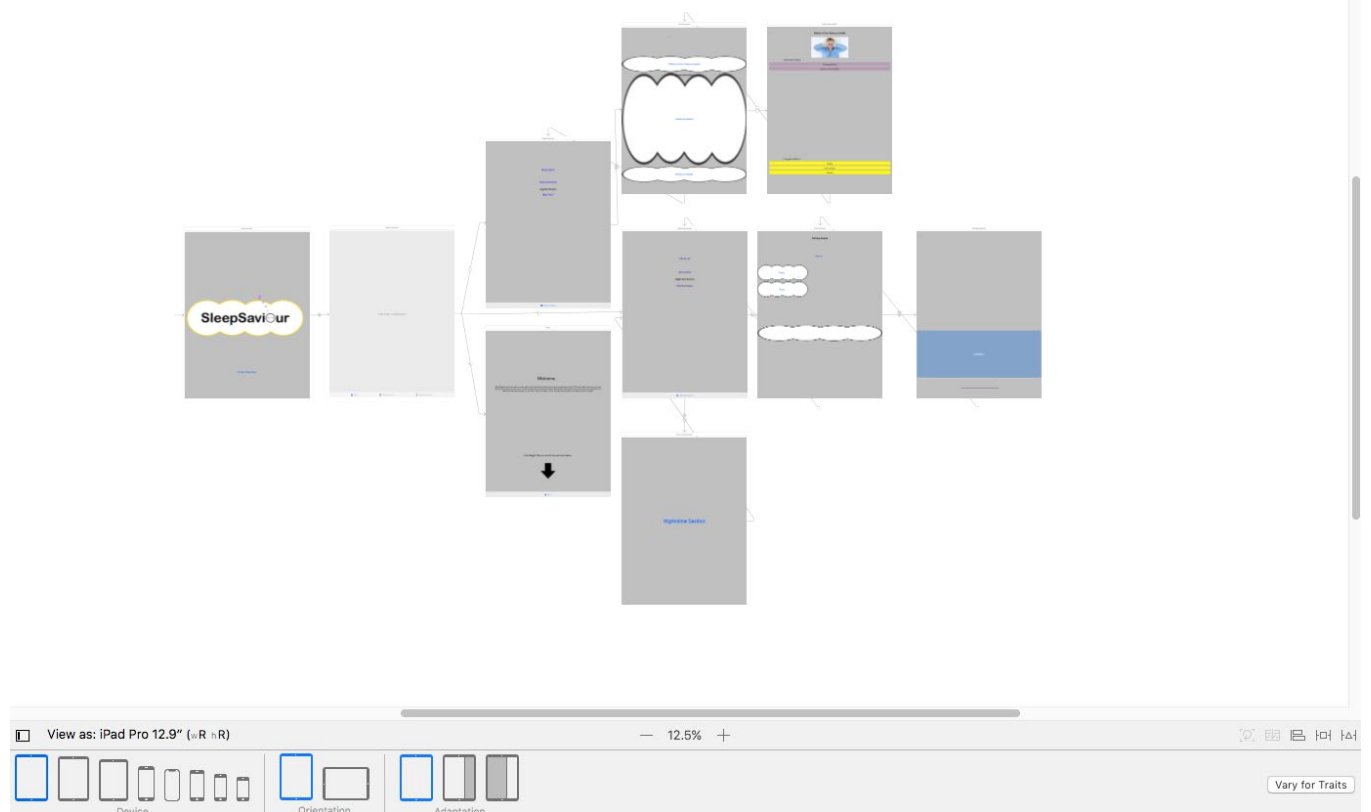
### Constraint Issues

#### Introduction/Overview

I currently had some issues with the constraints as some elements positioned themselves differently on different screen sizes.

This was a problem which would have needed to have been fixed to ensure that every piece of content appeared exactly the same on any screen size. Unfortunately, due to the amount of time remaining with other projects as well, this would have possibly been something to address in the following semester, if continuing with the project.

#### The Actual Issue ('iPad Pro' Example)



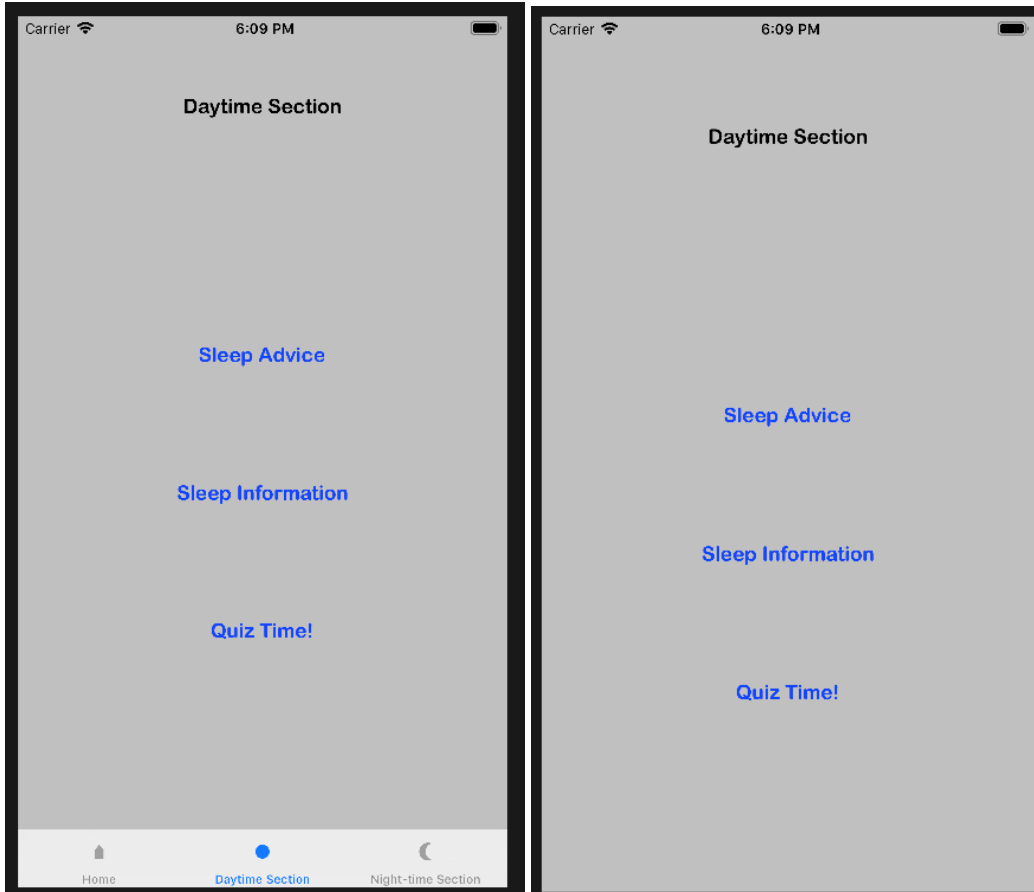
## Issues with the Tab Bar Navigation

### Introduction/Overview

I experienced an issue where the navigation bar at the bottom of the screen would have disappeared when navigating to a section from either the daytime or night-time sections. When returning to these screens, the navigation bar would have been gone which meant that the user wouldn't have been able to have navigated to another section on the application.

### The Actual Issue

*Before Selecting a Section e.g. 'Sleep Information', the Navigation was Apparent and the Navigation Bar Disappearing After Returning from a Chosen Section*



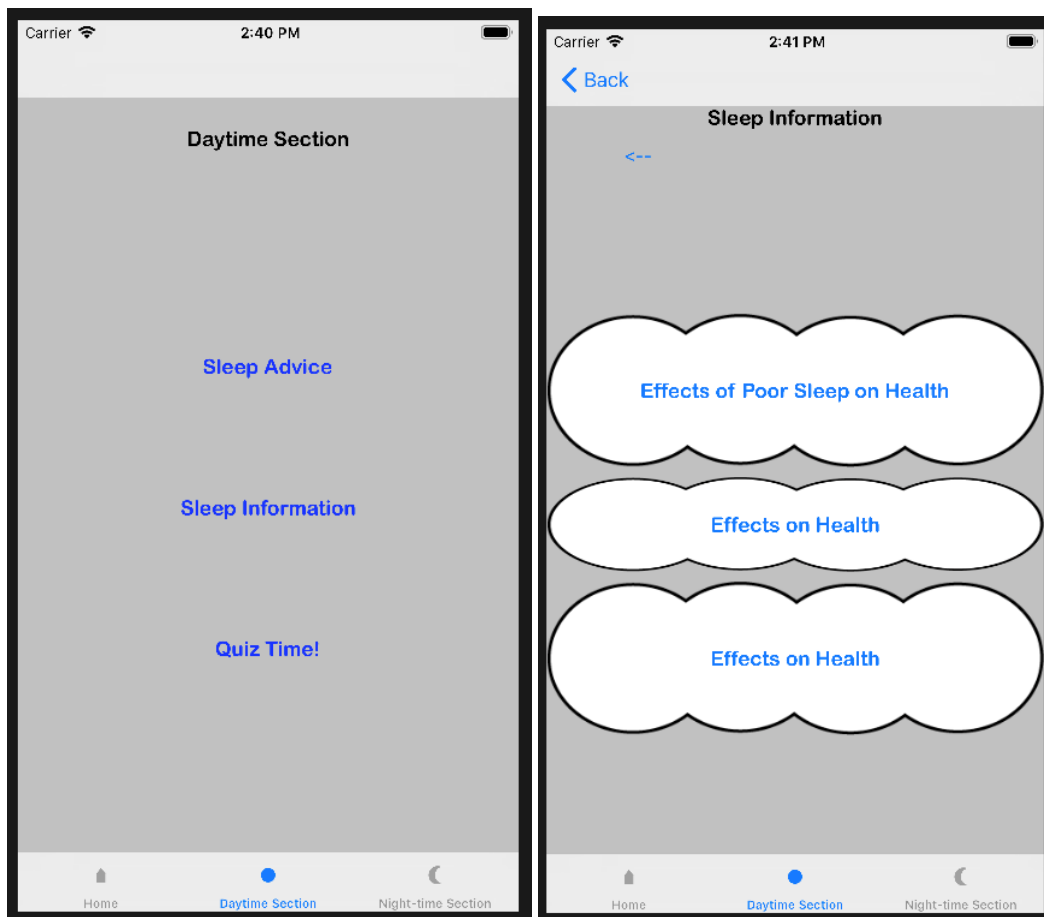
## A Possible Solution

### *Introduction/Overview*

After receiving feedback to try and resolve this, I researched about how to solve this problem and I found some information which informed myself that I had to click 'Editor', then 'Embed In' and then 'Navigation Controller'. This would have made sure that the tab bar navigation would have remained in the same place.

When I returned to the daytime section screen, the tab bar navigation remained in the same place. However, this caused other issues to arise. It then appeared when on the 'Sleep Information' screen which didn't suit the navigation that I would have liked in the application. Again, the constraints were an issue which, as previously mentioned, would have been fixed at a later date if continuing with the project. This testing at least provided one way in which I could have solved the issue but as previously stated, it caused other elements to become an issue.

### *The Possible Solution and Caused Issues*



## Adding Images

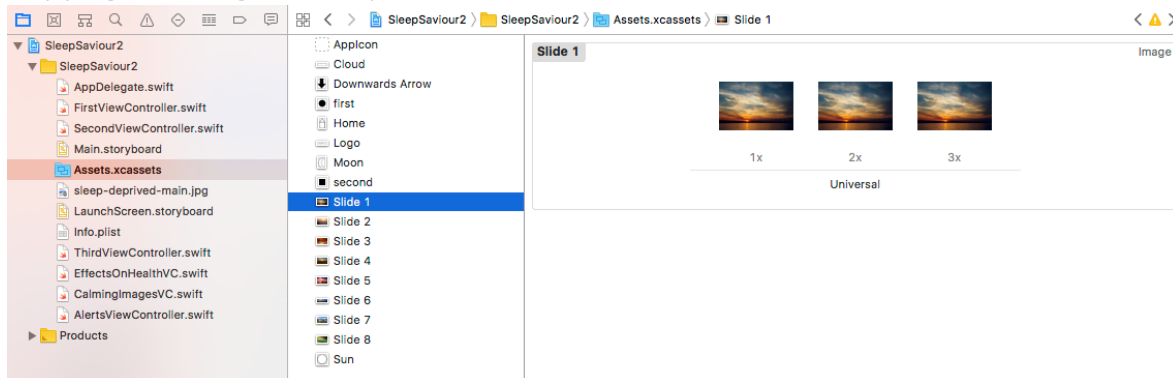
### Introduction/Overview

In order for myself to use images in 'Xcode', I had to copy across images by dragging them into the assets section of 'Xcode'.

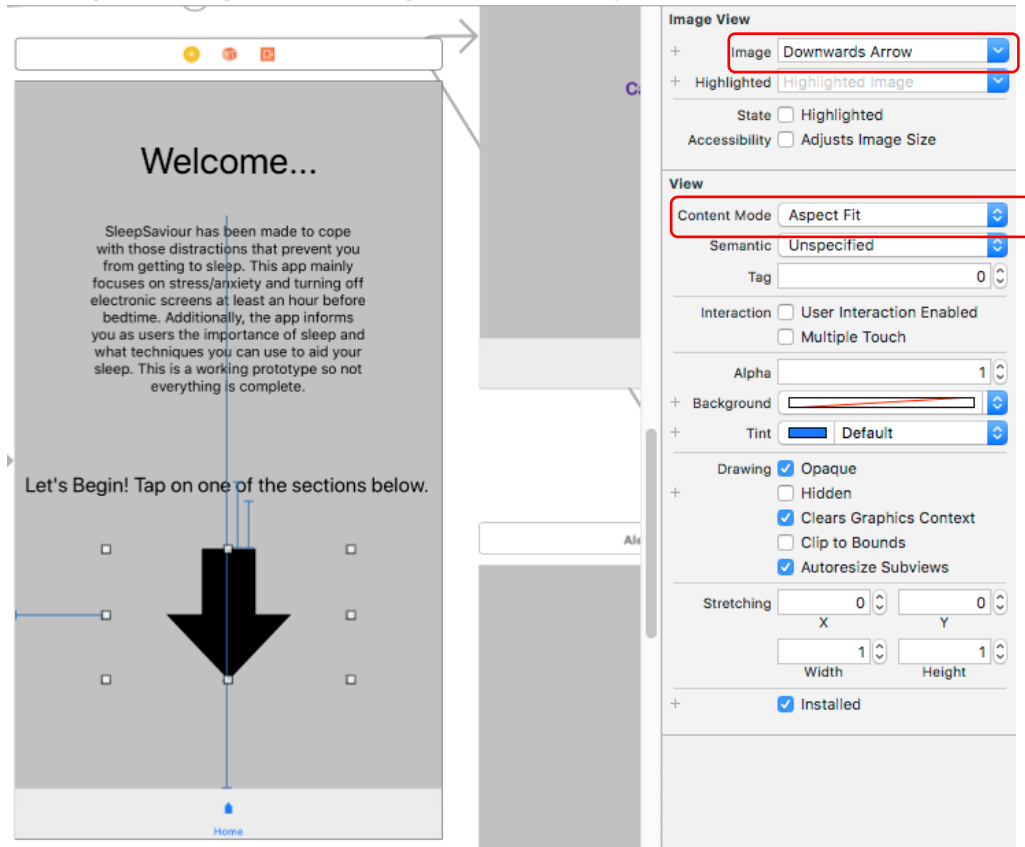
In the example below, I first of all had to create a new image set and then I could have copied my images across into the different boxes displayed below. Because at first, I had never used 'Xcode' before, I simply copied the image directly into the section under the assets folder on the left-hand side. This still worked but wasn't the correct process of doing so.

If wanting to place one of the images from the assets section of 'Xcode' into an 'Image View', I had to select the name I had given to that image under the dropdown list highlighted. I also selected 'Aspect Fit' so that the image wouldn't have been stretched and disproportioned.

### Copying the Image Directly into the Section Under the Assets Folder



### Adding the Image to an 'Image View' (Example)



## Exporting to a Device

### Introduction/Overview

Unfortunately, due to time constraints, I didn't manage to export the application onto an 'Apple' device to show it working on that device. However, from being told how to do this, I would have needed to plug the device in and go through a series of steps, ensuring that I had an 'Apple' 'ID'.

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**THERE WAS ANOTHER REFERENCE BUT I WASN'T ABLE TO INCLUDE IT AS I EXPERIENCED SOME DIFFICULTIES WHILST TRYING TO SAVE THE REFERENCE**

**THIS IS THE END OF THE DOCUMENT**