# CMPT 276 Term Project HW5
# SFUnwind - Requirements Document

*"**SFUnwind:***

*"Psychotherapy-based interventions for the prevention and management of panic disorders"*

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https://sites.google.com/view/sfuwind/

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# 1. Introduction

"SFUnwind - Psychotherapy-based interventions for the prevention and management of panic disorders" is an intervention tool for the victims of panic and anxiety disorders of all ages and walks of life. The tool will be delivered as a free iOS app, containing 4 primary components based on proven psychotherapy-based intervention methods developed to help those who suffer from panic disorders: meditative breathing exercises, positive affirmations and grounding techniques. Additionally, the application includes an alert feature that allows users to easily notify family or friends in the event that they require help or support during a panic attack.

Those with panic disorders will be attracted to download this application because of the limited number of applications available to assist them on the iOS platform, as well as its free cost and the effectiveness of its proven psychotherapy based intervention techniques.

# 2. Intended Audience List

This project's intended audience are people of any age or gender who experience panic attacks of any frequency. Additionally, the SFUnwind application provides specific support and resource information for students of Simon Fraser University.

It is reported that 28% of SFU Counselling Service clients cite anxiety as their primary reason for seeking counselling[11]. Additionally, in 2015 the average Simon Fraser Student student age was reported to be 21.7 years[10], and the majority of students were female[9]. Anxiety and panic disorders typically begin in late adolescence or young adulthood and women are twice as likely to develop a panic disorder than men[8]. As such, while SFUnwind is specifically intended for users of all genders and ages, it is expected for young adult females to make up a higher final proportion of the users who adopt the application for regular use, as they make up the majority of the SFU student demographic and are more likely to suffer from panic or anxiety related disorders.

Users of this application are expected to have the goal of personal harm reduction through the prevention, minimization or support for panic or anxiety disorders of any kind. Specifically, users are expected to be:

- Trying to prevent future panic attacks from occurring in the future.
- Be experiencing the early stages of a panic attack, and hoping to disrupt or minimize the negative effects of the event.
- To be seeking support when completely overwhelmed by feelings of panic or anxiety.

Users of this application are expected to have the basic working knowledge and experience with iOS devices, and competency or instruction in the usage of the touchscreen interfaces.

# 3. Features/Functional Requirements

## 1. Navigation Menu

### 1.1. Feature Navigation

As a user, I want to be able to use a navigation menu to switch between and access the four application features (the square breathing tab, the 5-4-3-2-1 Grounding tab, the Positive Affirmations tab, and the Panic Alert tab) so that I can easily navigate the application.

### 1.2. Feature Highlighting

As a user, I want to have the currently active feature screen to be highlighted in the navigation menu, so that I can quickly see what feature I'm currently on.

## 2. Square Breathing Feature Screen:

### 2.1. Start and Restart Square Breathing

As a user, I want to be able to tap a button that starts and restarts the Square Breathing feature so that I can start and restart the exercise at any time.

### 2.2. Square Breathing Help Screen

As a user, I want to be able to display a page containing help, info or instructions so that I can learn how to best use this application feature.

**2.3. Square Breathing**

> As a user, I want to be able to focus on a path designated by a square shape on the screen, my eyes travelling at a pace that is consistent with calm breathing so that I can control the pace of my breath.

**2.3.1. Square Breathing Vibrations**

> As a user, I want to be able to feel vibrations when I reach each corner of the designated path so that I can time my breathing and focus on being calm.

**2.4. Square Breathing Session Timer**

> As a user, I want to be able to see the current session time displayed in seconds so that I can keep track of the time spent successfully doing the exercise.

**2.4.1. Square Breathing Session Timer Restart**

> As a user, I want to have the time to be automatically reset to zero when I switch away from or restart this feature so that I can compare the session time with the total time.

**2.5. Square Breathing Total Timer**

> As a user, I want to be able to see the total time spent using this feature throughout all sessions so that I can learn about how much time in total I have spent performing the exercise successfully.

**2.6 Square Breathing Statistics**

> As a user, I want to be able to see records of my shortest, longest and average times using the square breathing feature so that I can track my progression.

# 3. 5-4-3-2-1 Grounding Technique

## 3.1. 5-4-3-2-1 Grounding Technique Help Screen

As a user, I want to be able to display a page containing help, info or instructions so that I can learn how to best use this application feature.

## 3.2. 5-4-3-2-1 Grounding Technique Photo Panel Fill

As a user, I want to see the photo panel to be incrementally filled with the thumbnailed photos I have taken with the capture button so that I can see that I am making progress.

### 3.2.1. 5-4-3-2-1 Grounding Technique Photo Panel Length Adjust

As a user, I want to see the photo panel's length become shorter by 1 thumbnail every 3 stages so that I can see that I have progressed into the next step of the exercise.

## 3.3. 5-4-3-2-1 Grounding Technique Goal Display

As a user, I want to see the current goal of the 5-4-3-2-1 Grounding execution, either "[SEE]", "[TOUCH]" or "[HEAR]", displayed to me so that I can aim the camera at the correct objects.

## 3.4. 5-4-3-2-1 Grounding Technique Capture Button

As a user, I want to be able to capture images through the phone's camera so that I can progress through the 5-4-3-2-1 Grounding exercise.

## 3.5. 5-4-3-2-1 Grounding Technique Gallery Finish

As a user, I want to see all the photos I have taken with the capture button in thumbnailed form so that I can see that I have finished the exercise.

## 3.6. 5-4-3-2-1 Grounding Technique Retry Button

As a user, I want to be able to retry the exercise at the end so that I can do the exercise as many times as I want without switching modes.

# 4. Positive Affirmations

## 4.1. Positive Affirmations Help Screen

As a user, I want to be able to display a page containing help, info or instructions so that I can learn how to best use this application's feature.

## 4.2. Positive Affirmations Create Mantra

As a user, I want to be able to insert a custom mantra into the mantra list so that I can have my own personalized mantras that can be used by the Positive Affirmations feature.

## 4.3. Positive Affirmations Delete Mantra

As a user, I want to be able to delete a mantra so that I can prevent undesired mantras from appearing.

### 4.3.1. Positive Affirmations Empty Mantra List Prevention

As a user, I want to be prevented from using the Positive Affirmations feature unless I have at least one mantra within the mantra list so that I can be less confused when all mantras are deleted.

## 4.4. Positive Affirmations Mantra Display

As a user, I want to see the currently selected mantra so that I can read the mantra that will be sent to me.

## 4.5. Positive Affirmations Mantra Selection

As a user, I want to be able to navigate through the mantra list so that I can find a specific mantra within the list. [13]

## 4.6. Positive Affirmations Mantra Frequency

As a user, I want to be able to select the frequency of when the mantra reminders will appear so that I can set how often I would like to receive the mantras as reminders.

### 4.6.1. Positive Affirmations Mantra Scheduler

As a user, I want to be able to fine-tune when the reminders will be sent to me so that I can schedule when the reminders would be most effective.

## 5. Panic Alert

### 5.1. Panic Alert Help Screen

As a user, I want to be able to display a page containing help, info or instructions so that I can learn how to best use this application's feature.

### 5.2. Panic Alert Contact List

As a user, I want to have a list of five entries available to create Panic Alert Contacts so that I can have the ability to create and store multiple panic alerts to send at any time.

#### 5.2.1. Panic Alert Contact Add

As a user, I want to be able to create a new Panic Alert Contact in an empty slot in the list so that I can have the ability to send a Panic Alert message.

#### 5.2.2. Panic Alert Contact Edit

As a user, I want to be able to edit contacts within the Panic Alert Contact so that I can customize their details and their associated Panic Alert messages.

#### 5.2.3. Panic Alert Contact Delete

As a user, I want to be able to delete contacts from the Panic Alert Contact List so that I can free up space in the list.

#### 5.2.4. Panic Alert Send

As a user, I want to be able to send a customized Panic Alert Message to any particular created Panic Alert Contact so that I can alert them when I am having a panic attack.

### 5.3. SFU Counselling Service Website Link

> As a user, I want to be able to access the SFU Counselling Service Website through a hyperlink so that I can receive help online on dealing with panic and panic attacks.

### 5.4. SFU Counselling Service Phone Number

> As a user, I want to be able to dial the SFU Counselling Service phone number that would be shown on the page so that I can receive help on the phone on dealing with panic and panic attacks.

# 4. Non-functional Requirements

## 1. Speed/Performance

1.1. There should be a delay of 0.5 seconds or less when the user switches between each of the 4 application feature screens using the menu bar.

1.2. The animated square element on the Square Breathing feature screen should be animated at a rate of 30 frames per second at all times when interacting with this exercise.

1.3. Notifications set via the Positive Affirmation feature screen should be displayed within +/- 0.5 seconds of the scheduled time in all circumstances.

1.4. The response time to user input towards buttons should be less than 0.1 seconds.

## 2. Size:

2.1. The final installed application size must be less than 512mB in size.

2.2. The application must use no more than 128mB of device memory (RAM) at any time.

## 3. Ease of use

3.1. Each intractable element on all 4 feature screen must be explained on the relevant help screen of accessed via that features help screen.

3.2. Users must experience an average of 5 or less input errors per screen when attempting to use any of the 4 application features for the first time. A sample of 5 users with no prior experience with the application is to be used to validate this test.

## 4. Reliability

4.1. The mean time to failure to the application should be greater than 12 hours, both including direct runtime and background processes of the application.

4.2. The application should have an availability rate of 97% or greater at all times, unless a critical software update to the system has occurred rendering the entire application or a subset of its features inoperable.

## 5. Robustness

5.1. If the application fails while running as a background process, then it will resume normal operation the next time it is launched.

5.2. If the application fails during active run-time, it will resume normal operation the next time it is launched.

5.3. The probability of data corruption on failure should be less than 1%, and less than 10% if the application is loading resources.

5.4. The probability that any application feature, event or interaction causes a failure should be less than 1%.

## 6. Portability

6.1. This application should be fully compatible with all iOS software versions from iOS 9 or above.

6.2.　The application will be compatible with all of the following iOS devices:

- iPhone 4
- iPhone 4S
- iPhone 5
- iPhone 5C
- iPhone 5S
- iPhone 6
- iPhone 6S
- iPhone 6S Plus
- iPhone SE

- iPhone 7
- iPhone 7 Plus
- iPhone 6 Plus
- iPod Touch 4G
- iPod Touch 5G
- iPod Touch 6G
- iPad 2
- iPad 3
- iPad 4

- iPad Air
- iPad Air 2
- iPad Mini
- iPad Mini 2
- iPad Mini 3
- iPad Mini 4
- iPad Pro

# 5. Example Tutorials / Scenarios:

## Task: Access a features help screen

1. Launch the "SFUnwind" application.

2. Access any of the 4 application feature screens (Panic Alert, 5-4-3-2-1 Grounding Exercise, Positive Affirmation or Square Breathing features) by swiping the screen left or right to reach the appropriate screen.



**<- Menu bar**
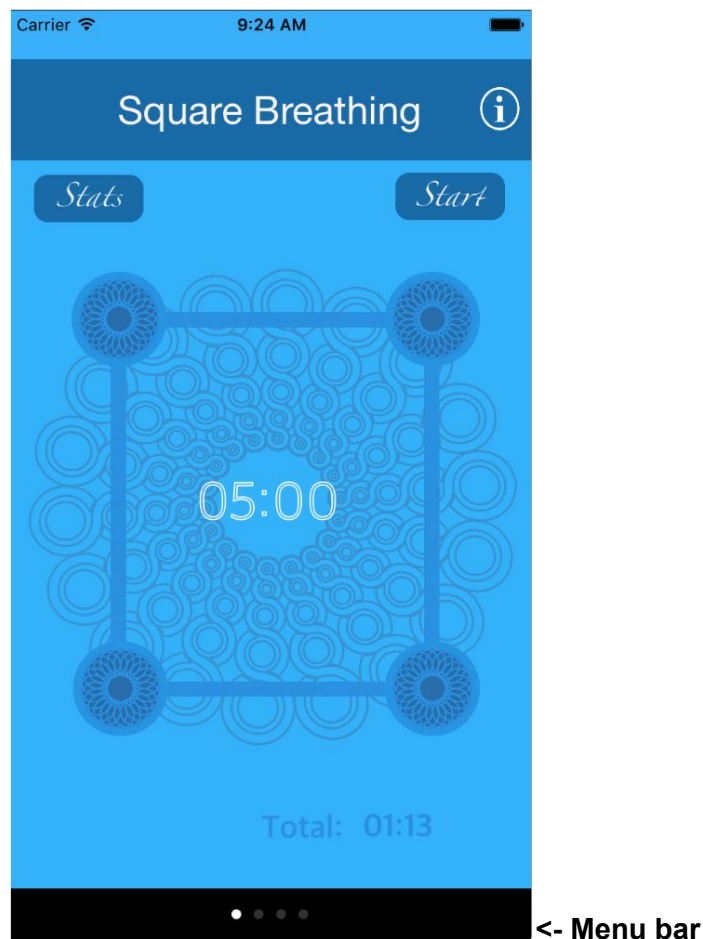
3. Tap the "info" icon to access the help information: 

4. The help information screen will be displayed as a popup above the current screen.
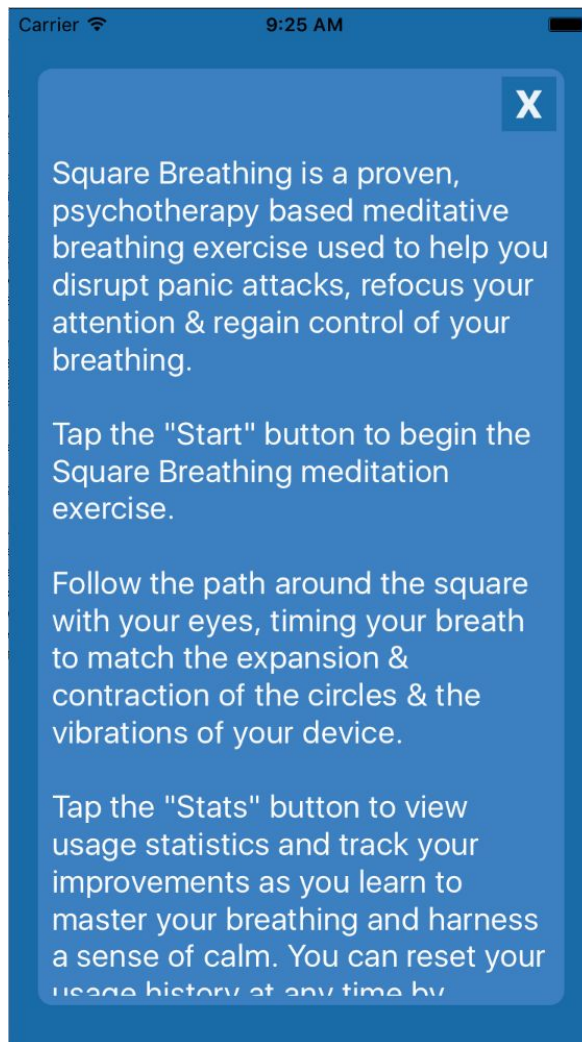


*Sample help screen, with placeholder text*

## Task: Contact SFU Health and Counselling Service

1. Launch the "SFUnwind" application.
2. Access the Panic Alert feature screen by swiping left or right until you reach the appropriate screen
3. To access the SFU Counselling service website, tap the "SFU Counselling Service Website" link located on the page.

   3.1. The link will open in the iOS default system browser

4. To contact the SFU Counselling service by phone, tap the SFU Counselling service phone number located on the page.

4.1.    The phone number will open in the iOS default system dialer.
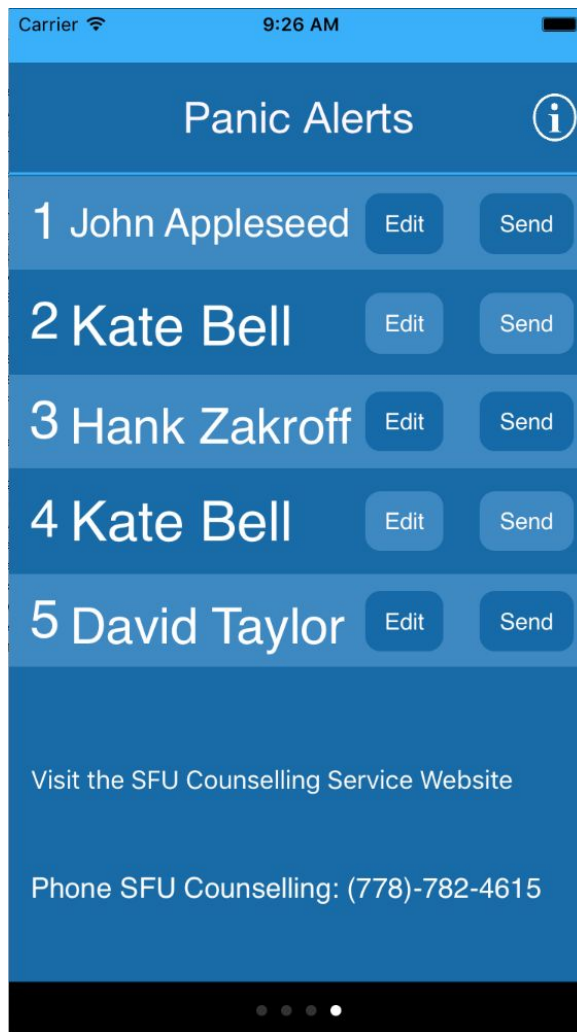


*Note the "Visit the SFU Counselling Service Website" and "Phone SFU Counselling: (778)-782-4615" hyperlinks at the bottom of the page*

## Task: Use the Grounding Exercise feature

1. Launch the "SFUnwind" application.

2. Access the Grounding Exercise feature screen by tapping the appropriate menu item.

3. You will be prompted to take 5 pictures of things you can see by the text contained in

   [ see ]

   the camera reticle:

4. Tap the "Capture" button to take a picture:  CAPTURE

5. You will be prompted to take 5 pictures of things you can touch by the text contained in the camera reticle.

6. Tap the "Capture" button again.

7. You will be prompted to take 5 pictures of things you can hear by the text contained in the camera reticle.
   - *This activity will continue counting down until taking only one photo is required for each see/touch/hear category.*

8. Once you are done taking photos, all the captured images will appear on the screen in a gallery of thumbnail sized images. There will be 45 images displayed in total.
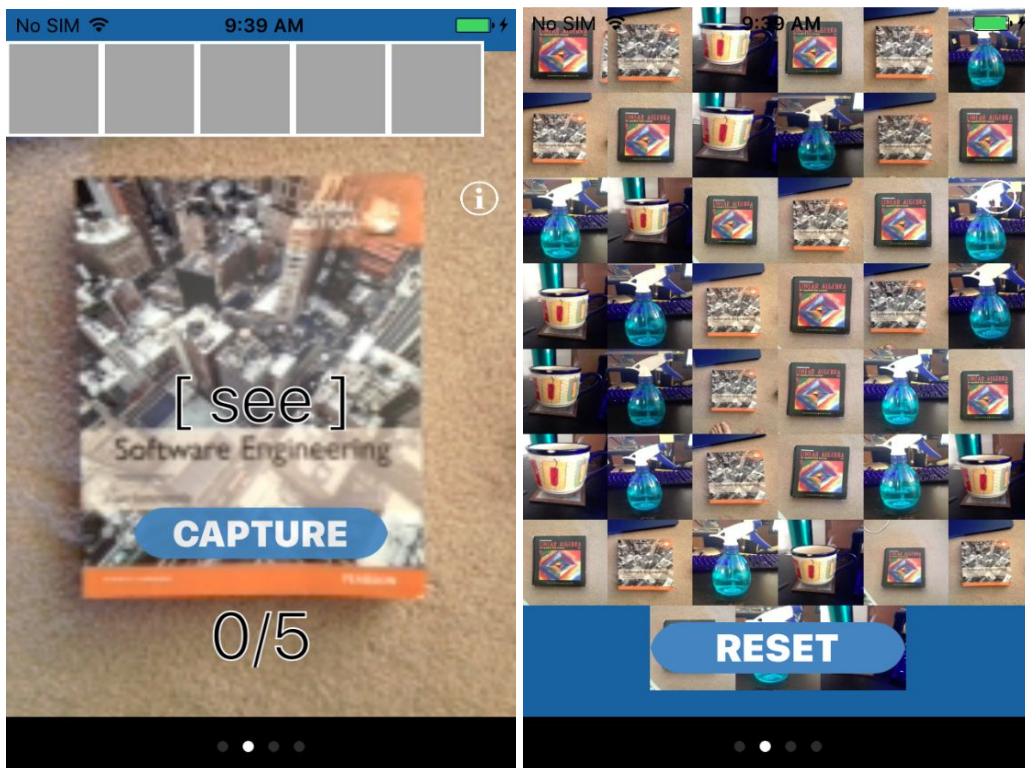
9.     Tap the "Reset" button below the gallery to restart the feature exercise.

**RESET**

## Task: Use the Square Breathing feature

1.     Launch the "SFUnwind" application.

2.     Access the Square Breathing feature screen by tapping the appropriate menu item.

3.     Click "Start" to activate this feature.     **Start**

4.     Follow the path around the square with your eyes, synchronizing your breath with the animated corners and vibrations.

● *Both the current activity time and the total activity time timers will be updated as the user interacts with the square.*

5.     Click "Start" at any time to restart the activity timer:     **Start**

6.     Tap the "Stats" button to access the statistics screen     **Stats**

● *The current session timer will be reset if you switch the screen to other feature.*
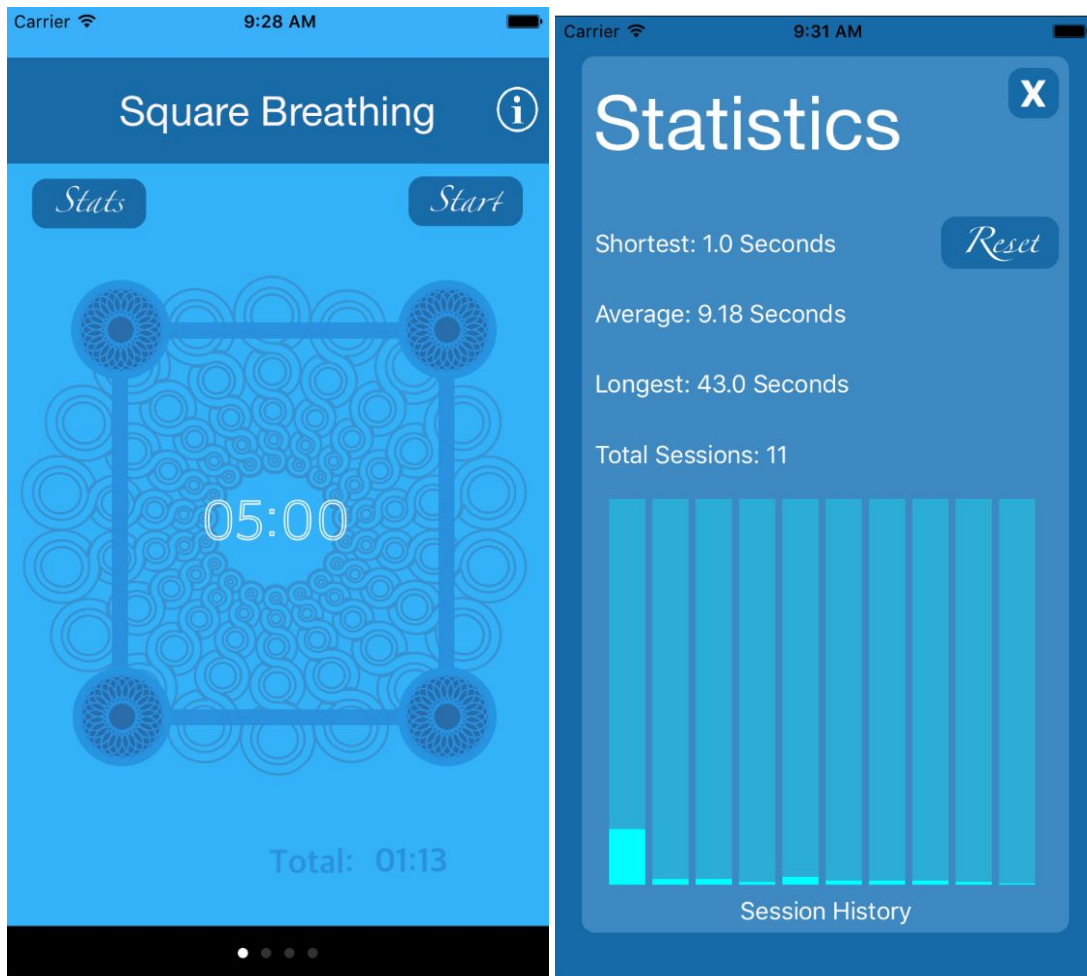
## Task: Create a new Panic Alert

1. Launch the "SFUnwind" application.

2. Access the Panic Alert feature screen by tapping the appropriate menu item.

3. Tap the "Create" button on an empty alter slot to create a new panic alert: 

4. Select a contact from your iOS contact list.

5. Using the iOS system keyboard, enter a custom message that you would like to send to your selected contact if a panic attack strikes.
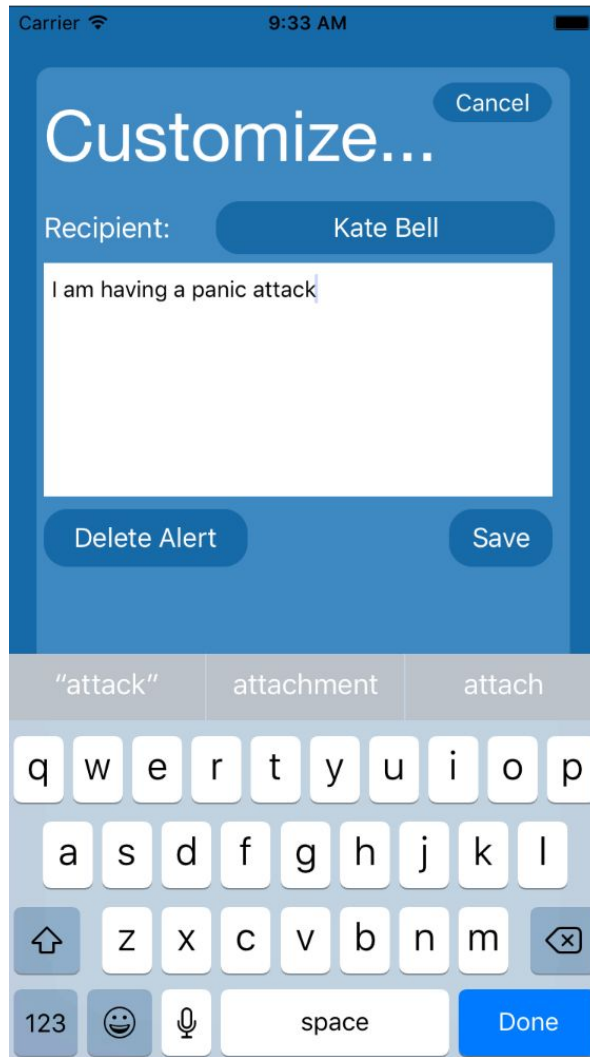
6. Tap "Save" to save your panic alert:
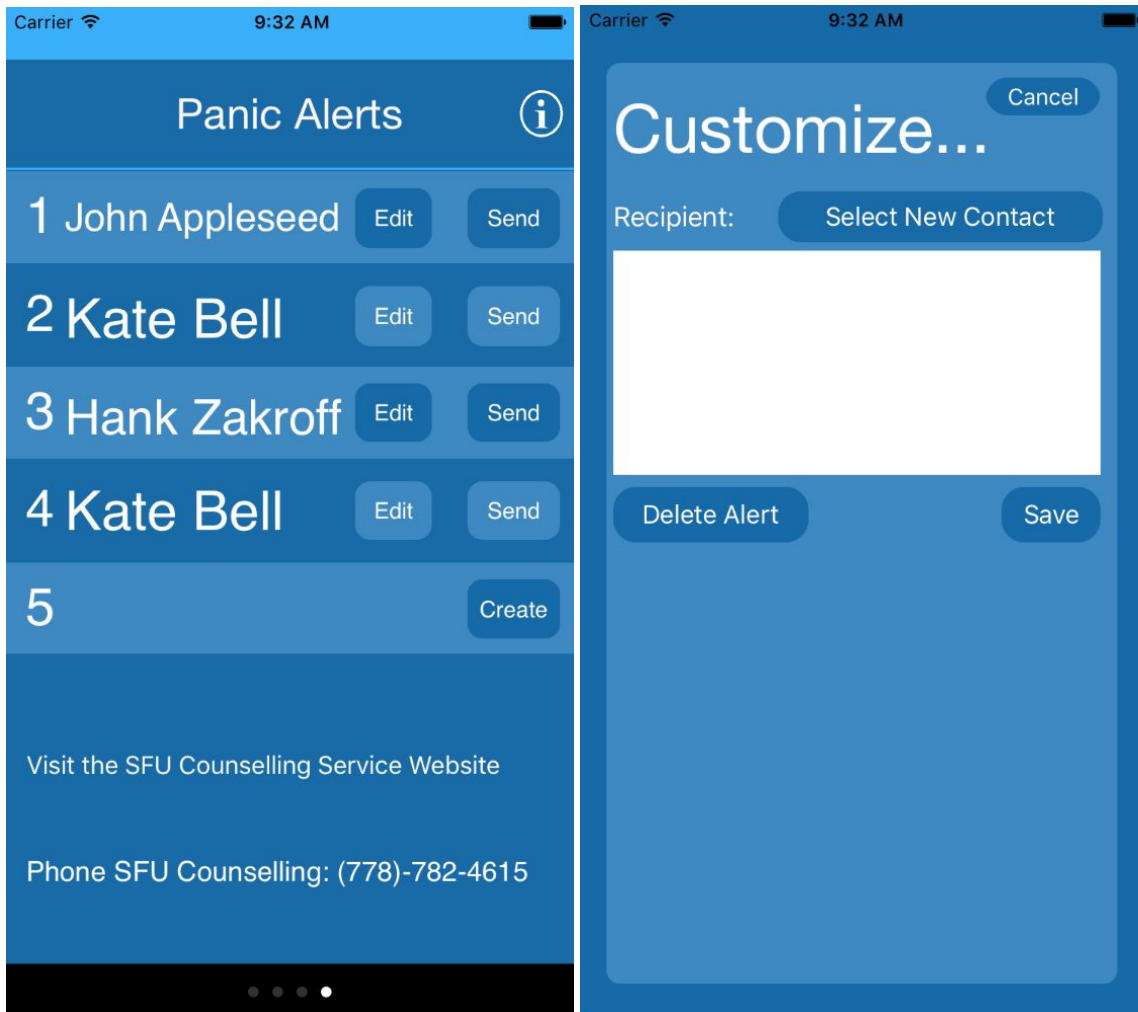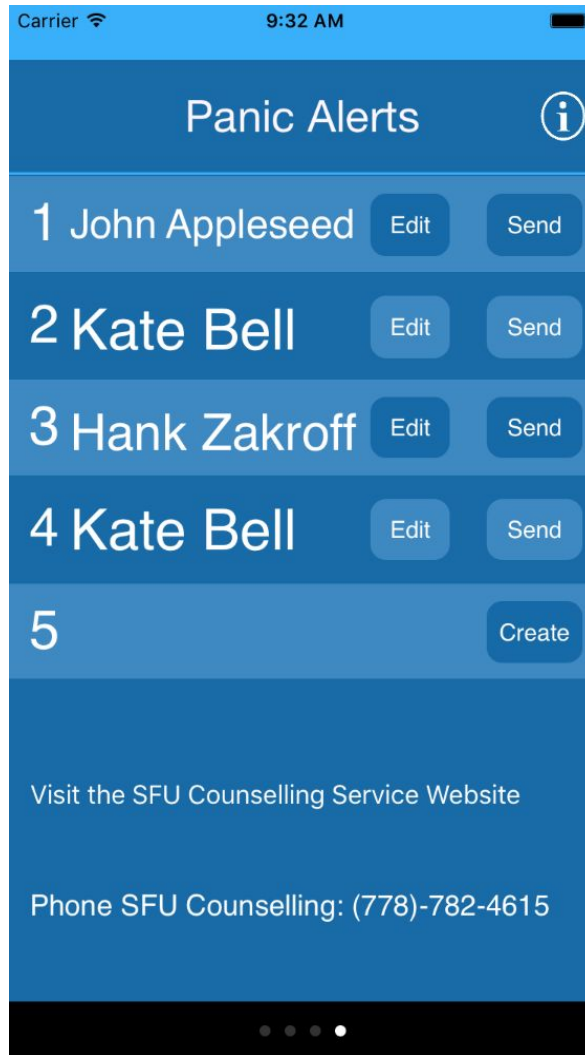
## Task: Edit an existing Panic Alert

1. Launch the "SFUnwind" application.

2. Access the Panic Alert feature screen by tapping the appropriate menu item.

3. Tap the "edit" button near the person's name to enter the message that you would like to send: Edit

4. Edit the existing message text using the iOS system keyboard.

5. Tap "Save" to save the message when you want to save the message content:
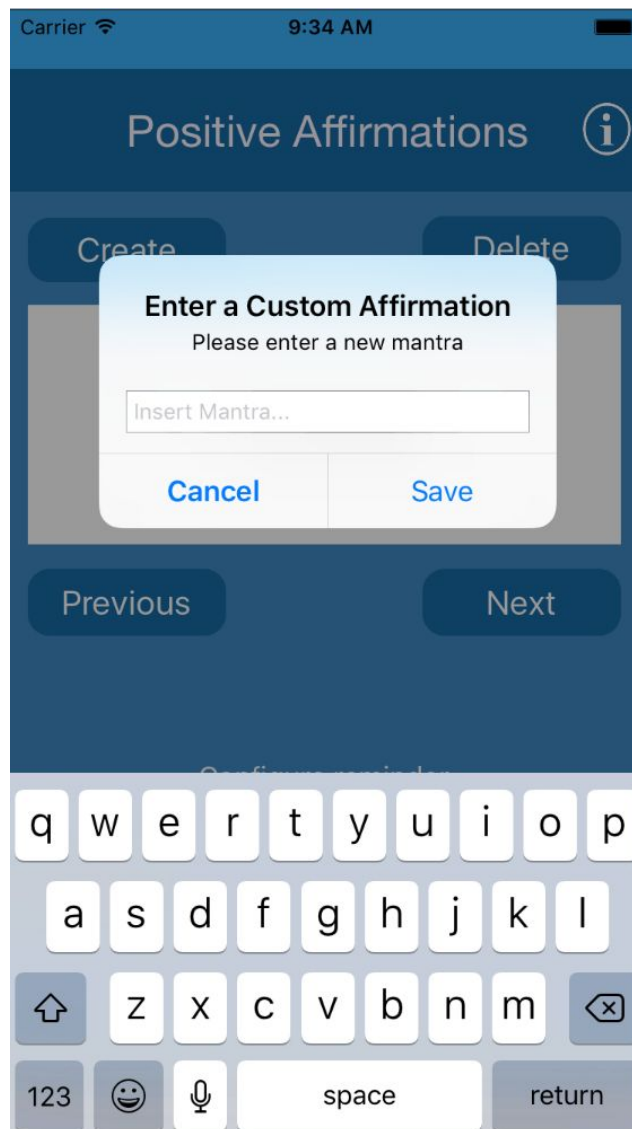   Save

## Task: Send a Panic Alert

1.  Launch the "SFUnwind" application.

2.  Access the Panic Alert feature screen by tapping the appropriate menu item.

3.  Tap the "Send" button next to the desired pre-existing contact to send your pre-written panic alert message:

Task: Add a user-created positive affirmation message

1.  Launch the "SFUnwind" application.

2.  Access the Positive Affirmation feature screen by tapping the appropriate menu item.

3.  Tap the "Create Mantra" button: 

4.  Enter your custom positive affirmation mantra message into the input dialog.

5.  Tap "Save" once you're satisfied with the message content.

- *Your positive affirmation mantra will be the currently selected mantra.*



## Task: Delete a positive affirmation message from the application

1. Launch the "SFUnwind" application.

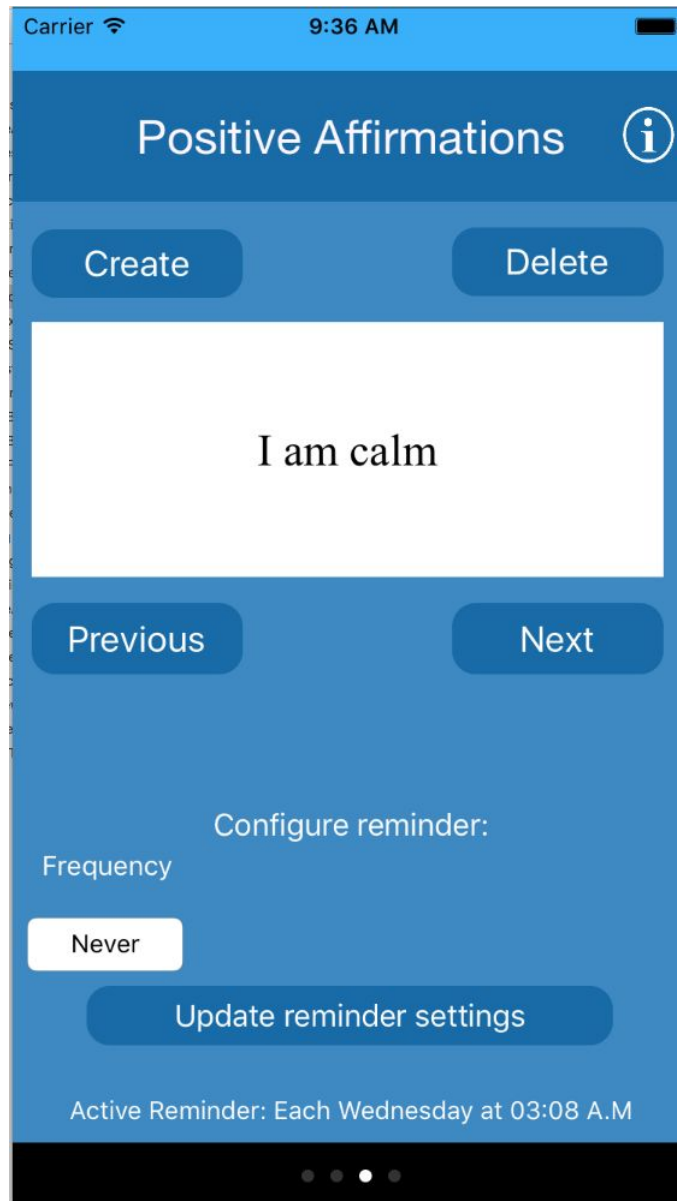2. Access the Positive Affirmation feature screen by tapping the appropriate menu item.

3. Tap "PREVIOUS" or "NEXT" to find the message you want to delete:

4. Click the button "DELETE MANTRA" to delete the message which is currently in display: Delete



# 6. Glossary:

## 1. Panic

A sudden and overwhelming sense of fear, foreboding or intense tension that results in a physical, mental or emotional reaction. Panic can cause irrational, hysterical or otherwise out of character behavior.[1]

### 2. Anxiety

A feeling of uneasiness, apprehension, mental distress or tension that can be related to or a precursor for feelings of panic.[2]

### 3. Panic/Anxiety Disorder

A recognized mental health issue typically characterized by frequent and/or extreme bouts of anxiety or panic.[3]

### 4. Intervention

A process that attempts to prevent, interrupt or minimize the physical, mental or emotional effects of a panic or anxiety related event.

### 5. Psychotherapy

A professional field of mental health care that deals in the treatment and management of psychological disorders.[4]

### 6. Positive Affirmation/Mantra

A statement or assertion that contains a positive intention, and is repeated with the intent of improving one's mental state and/or enforcing a positive worldview.[5]

### 7. Grounding

A technique or strategy used to refocus one's attention on their physical surroundings, with the intent of distracting or disrupting negative or anxiety provoking thought patterns.

# 7. Citations:

[1] "The definition of panic", *Dictionary.com*, 2017. [Online]. Available: http://www.dictionary.com/browse/panic. [Accessed: 18- Feb- 2017].

[2] "The definition of anxiety", *Dictionary.com*, 2017. [Online]. Available: http://www.dictionary.com/browse/anxiety. [Accessed: 18- Feb- 2017].

[3] "The definition of anxiety disorder", *Dictionary.com*, 2017. [Online]. Available: http://www.dictionary.com/browse/anxiety-disorder. [Accessed: 18- Feb- 2017].

[4] "The definition of psychotherapy", *Dictionary.com*, 2017. [Online]. Available: http://www.dictionary.com/browse/psychotherapy. [Accessed: 18- Feb- 2017].

[5] "The definition of affirmation", *Dictionary.com*, 2017. [Online]. Available: http://www.dictionary.com/browse/affirmation. [Accessed: 18- Feb- 2017].

[6] R. S. Pressman and B. R. Maxim, *Software engineering: A practitioner's approach*, 8th ed. New York: McGraw Hill Higher Education, 2014, pp. 132–223.

[7] I. Sommerville, *Software engineering (9th edition)*, 9th ed. Boston: Addison-Wesley Educational Publishers, 2010, ch. 4, pp. 83–115.

[8] "Section B - Anxiety disorders", *Statcan.gc.ca*, 2015. [Online]. Available: http://www.statcan.gc.ca/pub/82-619-m/2012004/sections/sectionb-eng.htm#a1. [Accessed: 31- Jan- 2017].

[9] "Unique Undergraduate Headcount by Full-time/Part-time Status, Sex and Faculty: Table ST-07", *Simon Fraser University Institutional Research and Planning*, 2017. [Online]. Available: https://www.sfu.ca/irp/students.html , https://www.sfu.ca/content/dam/sfu/irp/students/documents/ST07.pdf. [Accessed: 31- Jan- 2017].

[10] "Undergraduate Age Distribution by Full-Time/Part-Time Status -- Fall: Table ST-20", *Simon Fraser University Institutional Research and Planning*, 2017. [Online]. Available: https://www.sfu.ca/irp/students.html, https://www.sfu.ca/content/dam/sfu/irp/students/documents/ST20.pdf. [Accessed: 31- Jan- 2017].

[11] D. Leroy and R. Dhaliwal, "SFU Health and Counselling Services - CMPT 276 Overview", *Simon Fraser University: Saywell Hall 10041*, 2017.

[12] T. Gregory, *iPhone 5 - Vertical and Horizontal image template*. 2017. [Online]. Available: http://www-bcf.usc.edu/~trinagre/itp140-20153/Prototyping.html, http://www-bcf.usc.edu/~trinagre/itp140-20153/images/Prototype_iPhone5_HorVert.png [Accessed: 31- Jan- 2017].

[13] C. Harra, "35 Affirmations That Will Change Your Life", *The Huffington Post*, 2017. [Online]. Available:

http://www.huffingtonpost.com/dr-carmen-harra/affirmations_b_3527028.html.
[Accessed: 07- Mar- 2017].

[14]T. Allan, "Panic Attacks Positive Affirmations", *Free Affirmations.org - The world's largest collection of free positive affirmations*, 2017. [Online]. Available: http://www.freeaffirmations.org/panic-attacks-positive-affirmations. [Accessed: 28- Mar- 2017].

[15]"Positive Affirmations", *No Panic*, 2017. [Online]. Available: http://www.nopanic.org.uk/positive-affirmations/. [Accessed: 28- Mar- 2017].

[16]"Zen & Anti-stress Mandalas - 100% Mandalas Zen & Anti-stress", *Free-mandalas.net*, 2017. [Online]. Available: http://www.free-mandalas.net/themes/zen-anti-stress/. [Accessed: 28- Mar- 2017].

[17] keywordSuggest.org, *Mental Illness*. 2017 [Online]. Available: http://keywordsuggest.org/gallery/552451.html [Accessed: 02- Apr -2017]

[18] Vector News, *Fear of the unknown*. 2017 [Online]. Available: http://vectornews.eu/news/society/33344-fear-of-the-unknown-common-to-many-anxiety-disorders.html [Accessed: 02- Apr -2017]

[19] BitNo, *Anxiety*. 2017 [Online]. Available: https://i0.wp.com/www.bitno.net/wp-content/uploads/2015/03/shutterstock_56941108.jpg [Accessed: 02- Apr -2017]

[20]Creative VIP, *iPhone 7 Template*. 2017 [Online]. Available: https://creativevip.net/resource/iphone-7-mockup/ [Accessed: 02- Apr -2017]

[21]*Rain On Dry Leaves Sound*. 2017 [Online]. Available: http://www.orangefreesounds.com/rain-on-dry-leaves-sound/ [Accessed: 02- Apr -2017]

[22]B. McFerrin, *Don't Worry Be Happy*. 2017.