

# **MOBILE APPATHON CHALLENGE 2019**

**San Francisco State University**



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## Table of Contents

ABSTRACT .....	2
IDEA DESCRIPTION .....	3
Problem Statement .....	3
Target Audience .....	4
Key Idea .....	4
DESIGN THINKING PROCESS.....	6
Empathize .....	6
Define .....	7
Ideate .....	9
Prototype .....	11
Test .....	12
TECHNICAL DESIGN.....	16
Technology Platform.....	16
Wireframe Design .....	16
Data Structure Design .....	16
Business Model .....	17
Key Partners .....	19
Value Proposition.....	19
Competitors .....	19
Revenue Stream.....	20
Break Even Analysis .....	22
VALIDATION .....	23
DEMONSTARTION .....	23
REFERENCE .....	24
APPENDIX 1: DESIGN THINKING DEVELOPMENT PROCESS .....	25
APPENDIX 2: REVENUE MODEL DETAILS .....	26
APPENDIX 3: COST AND BENEFIT ANALYSIS .....	28
APPENDIX 4: BREAK EVEN ANALYSIS .....	29



## ABSTRACT

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The percentage of people suffering from mental health illness globally, has rapidly grown over the years. With limited resources available only to a handful, majority of the people tend to not seek help as they are bound by constraints including lack of funding, lack of knowledge, lack of appropriate resources and the social stigma surrounding mental health. Our mobile application, Revive, is here to address this chronic issue by providing a platform for people in need of help, by connecting them to valuable resources.

Finding a mobile application which integrates features such as motivational reading, songs to calm the soul, inspirational speeches, guided meditation and connecting you to professional services, to help relieve stress and negative emotions clouding your mind is often hard. If you are someone who is looking for such an application which provides all the necessary features under one roof, you are definitely a part of our target group. Revive will cater to all those problems by delivering unique features, such as real time scheduling of appointments with counsellors, mood tracking and analysis of report, and even one-click payment option.

By following the Design Thinking Process, we were able to understand the users' needs and insights. With the outputs that we obtained from the process, we were able to carefully curate the mobile application, Revive, to benefit the needs of every user. We offer all the functions to our users on a subscription basis at a reasonable price, excluding the charges levied by the counsellors. Revenue will be generated through a freemium business model, affiliate fees and advertisements.



## IDEA DESCRIPTION

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### Problem Statement

During our initial brainstorming session, we came to an understand that we wanted to contribute to the society and do our part in helping the world heal and make it a happier place. Upon doing intense research, it came to our knowledge that mental health care is a global issue which is not being handled as much as it should be. Approximately 1 in 5 adults in the United States alone (46.6 million) experience mental illness in a given year and only one in 27 people with depression receive the necessary treatment.

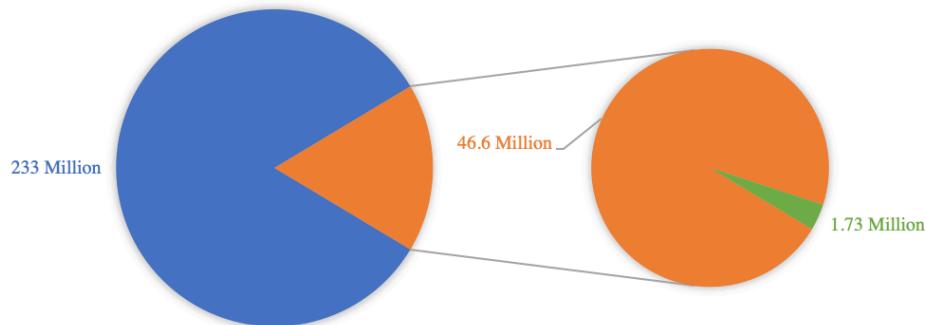


Figure 1: Representation of People who seek professional help

A lack of resources for those dealing with mental health issues is a major problem around the world. And in countries with more money, the care isn't necessarily better. In fact, all countries can be thought of as developing countries in the context of mental health. Every year of healthy life lost to mental illness, it is found that global health donors had provided \$0.85 while for HIV/AIDS, they had provided \$144 for every year, and \$48 for TB and Malaria.

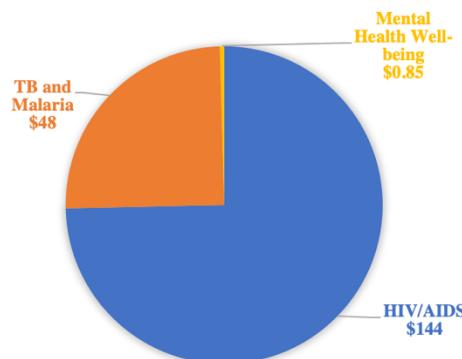


Figure 2: Global Health Donors for HIV/AIDS, TB and Malaria, and Mental Health Wellbeing



Research suggests that mental well-being is equally important to physical well-being of our body, if not more. Some people are unaware that they are suffering from a mental illness and go undiagnosed. Reasons behind this could be multiple folds including lack of resources, lack of knowledge and the social stigma surrounding mental illness. It is a misconceived notion that having mental illness will deem you insane. Experts disagree. There exists a plethora of mental illness – stress, anxiety, depression, post traumatic syndrome disorder and so on. Depression by itself can be explained on different levels and on the basis of various reasons. What may affect one person may not affect another as deeply; this doesn't mean they are suffering, nevertheless.

## **Target Audience**

After doing our research on the underlying reasons to why people are being affected and their reasons to why they are not seeking help, we set out to talk to 20 individuals, young business professionals and students in their mid 20s and early 30s. Through these interviews, we saw a common trend. One of the main reasons why they did not seek professional help was because they were hesitant, intimidated and feared they would be judged. Secondly, getting appointments with counsellors is often time consuming and are not always in the near future.

Keeping all these factors in mind, we formulated the idea and design for our mobile application, Revive, using detailed Design Thinking Process.

We came up with two personas, a fictitious user that represents our target audience and a fictitious counsellor to offer their service. Throughout the whole project these personas have helped us keeping in mind for the bottom line for the need to design the application and the concrete problems we strive are trying to solve through our mobile application solution. The results gained through the interview process that built the foundation for our persona development is discussed in the next section.

## **Key Idea**

In order to come up with relevant solutions that would potentially solve the discussed mental health illness related issues, we performed a brainwriting session. We clustered these solutions in accordance to the problem area they would address.

Our key idea is to provide a platform for easy access to resources, relevant information and immediate support. To incorporate those requirements, we proposed a mobile application solution with the following main features:

- Reading articles: Reading is the best way to relax and even six minutes can be enough to reduce the stress levels by more than two thirds, according to new research.
- Music: Listening to music can have a tremendously relaxing effect on our minds and bodies, especially slow, quiet soft music. This type of music can have a beneficial effect on our physiological functions, slowing the pulse and heart rate, lowering blood pressure, and decreasing the levels of stress hormones.



- Videos: Motivational and encouraging speeches from influential personalities such Kelly McGonigal([https://www.ted.com/talks/kelly\\_mcgonigal\\_how\\_to\\_make\\_stress\\_your\\_friend/transcript?language=en](https://www.ted.com/talks/kelly_mcgonigal_how_to_make_stress_your_friend/transcript?language=en)) as well as Yoga for stress relieving are some of the most effective ways to cope with stress.
- One-click payment option that appears at the bottom of the selected route (requires users to save their credit or debit card information within the app)
- “Payment History” feature (can be used as proof of payment or to get reimbursed for travel by employer).
- Find a friend to talk to by maintaining anonymity.
- Find a counsellor and make appointments with as and when needed, at your convenience.
- Contact number and directions to nearest local services and clinics in case of emergencies.
- Security feature that allows users to save emergency contact information and provides users with several emergency phone numbers.



## DESIGN THINKING PROCESS

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For this project, we used Design Thinking Process as a method of meeting and understanding the user needs and desires in a technologically feasible and strategically viable way. We followed the following five steps:

- Empathize: Learn about the users target for whom we are designing by observation, survey or interview.
- Define: Create a point of view and persona based on their needs and insights, to define the problem statement.
- Ideate: Brainstorm and come up with as many creative solutions as possible.
- Prototype: Build a representation of one or more of the ideas to represent our solutions to others.
- Test: Share our prototyped ideas with our original users for feedbacks.

### Empathize

In today's world, everyone is busy juggling multiple tasks at hand, work, education, social life and their private life. This can often leave the person under extreme levels of stress and on the long run, other mental health issues such as depression or anxiety. The constant pressure to be updated at all times, can be exhilarating and stressful. Amidst all this, they find little time to talk to someone regarding what they are going through or express their feelings. For this step, we brainstormed and identified the target users for our Revive mobile application and the problems they face in regard to their mental health problems. The potential users include students who are constantly stressed out about multiple deadlines, including homework, assignments, test, finals, securing internships, paying off their student loans etc.; people are going through hard times such as losing a loved one, breakup or any other factors which can affect their mental wellbeing. The major problems we identified include was that they were hesitant to seek help due to the fear or being judged and not finding the right resources to turn to. In order to better understand the needs of our target customers, we did the interview of 10 questions with 20 people from 20 to 30 years old students at San Francisco State University. During the interview, we also observed their tone, excitement or frustration about their current mental wellbeing. We also asked for their suggestions on future features they hope the application should have. Our purpose of doing the interview is to empathize and understand the pain points of these students who are working hard at school and go through high levels of stress on regular basis, so we could come up with practical solutions and features for our Revive mobile application.



Based on the interview answers, the needs are privacy, easy and fast access to immediate stress relieving resources, fast appointments with counsellors and communication with others who would like to help. The insights we got are:

- the users are fear of being judged, they don't want to wait for weeks to meet their counsellor
- they want someone to talk to at the moment who has been in their shoes before.

## Define

In this step, we finalize the problems and identify the persona for our target user as below:

### Persona



Name: Carrie Jiang  
Age: 21 - 25  
Gender: F  
Education Level: Undergrad  
Occupation: Student

#### Stress Factors:

- I was stressed about my exam and could not sleep the whole night.
- I feel most stressed about endless assignments and catching up with due dates.
- Time management and balancing academics and personal life is the most challenging
- Career, figuring out my future goals as well as keeping up with assignments is very stressful.

#### One thing you wish you knew before:

- I wish I had access to online resources or on-campus resources for meditation.
- It is necessary to let things which are bothering you out.
- If you don't have anyone to talk to, get something helpful by reading.
- I wish I knew how to prioritize my task efficiently, as I do now, so I wouldn't have spent all those years being so stressed!

#### Coping Mechanisms:

- Piano music helps me a lot.
- I always talk to my family; they support me a lot.
- Mediation is very helpful.
- Talking it out with my Professors helps me a lot to cope with the stress.
- Sometimes it is nice to listen to songs and chill with friends.
- I build a support system for myself.
- I take a stroll to clear my head.
- I even exercise and play soccer at times to relieve stress.

#### Your Advice:

- Meditate. Stay calm.
- Don't take life too seriously!
- Life keeps going!
- Prioritizing tasks is crucial!



## Point of View

User: Carrie is a student pursuing higher education and gets stressed from academic pressure.

Need: To kind resources easily to relieve stress for peace of mind.

Insight:

- It is important for Carrie to stay calm and focused in order to finish her assignments in time and with accuracy
- It is also important for Carrie to be stress free to have an overall good mental health and improve it.

## Persona



Name: Dr. Susan Chen  
Age: 36 - 40  
Gender: F  
Education Level: Ph.D.  
Occupation: Counselor

### Stress Factors:

- It would be hard to implement it because you really need someone to pick up the phone at 10PM or 3 AM. It would be a challenge.
- My schedule is quite full. We need to meet around 50 students per week.
- I have counselled many students and their main problem is coping the stress of academics.
- I have also encountered students who have recently moved here to start school as they feel detached from their family.

### Coping Mechanisms:

- Students need to come in person because we need to know the reason they come for an appointment; we will have a small chat.
- I usually suggest students to schedule to meet me in person from time to time to check on their progress.

### Your Advice:

- I have handled many cases of students who feel stressed, and this app will help them to calm their minds through music therapy and motivational reading as well.
- Any changes in a current system will take time to incorporate.

## Point of View

User: Susan is a counselor at San Francisco State University.

Need:

- To have more resources (counselors) at hand
- Have a faster, more streamlined scheduling system.

Insight:

- Students can have a chance to contact legitimate external resources available on the app.
- It is important for Susan to have more counselors in their department to ease the tight schedule of one another. This will help the counselor to offer sessions on Revive app.
- Students need to find ways to soothe themselves through music and articles while they wait for their appointments.



## Ideate

Our suggested solutions are to help the users by providing fast and easy access to resources to relieve stress and feel better. To arrive at our solutions, we used the inputs and feedbacks which we received from the interviews to develop an experience journey map. Additionally, we asked ourselves questions as to how we might better the overall application. To provide a clearer understanding of the working of the mobile application, we developed a visual storyboard to help visualize the reason and the purpose behind developing Revive mobile application.

### User Experience Map:

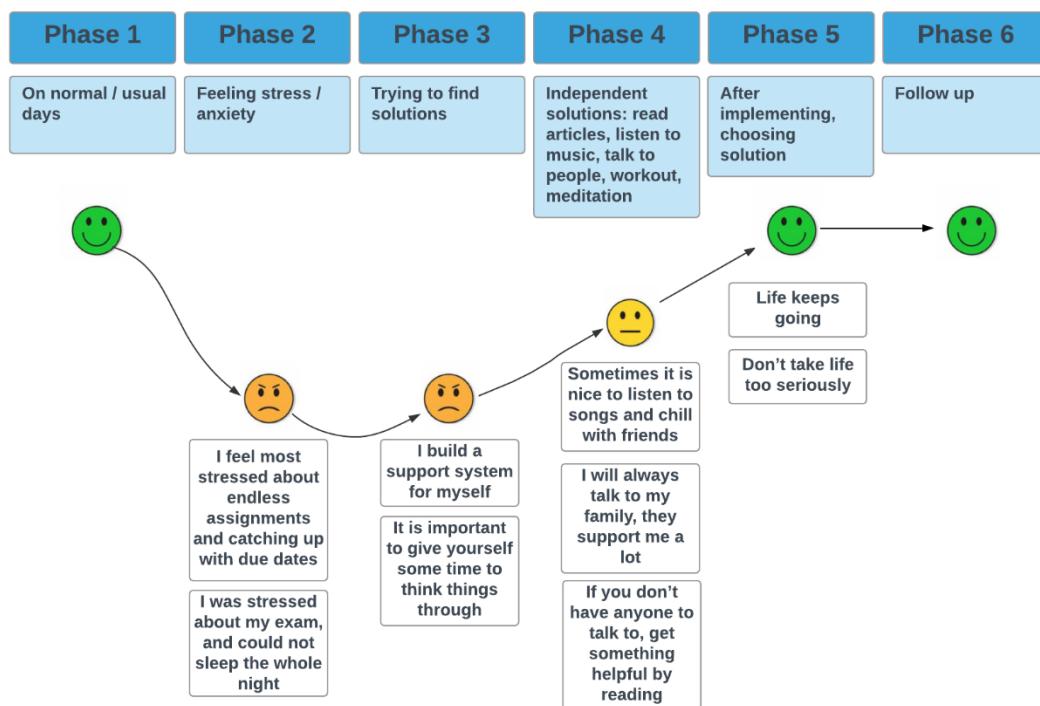


Figure 3: User Experience Map

### How might we help students destress?

1. How might we connect students to counsellors?
2. How might we improve on user experience?
3. How might we create awareness about the app?
4. How might we gather more content for the users?
5. How might we filter content?
6. How might we monetize the app?
7. How might we make UX easier?
8. How might we increase user reviews and comments?
9. How might we make the app more attractive?
10. How might we tackle privacy concerns (phishing)?
11. How might we include more areas of mental health?
12. How might we improve on the Beta version?



13. How might we use the data collected to analyze and improve UX?
14. How might we maintain licensing?
15. How might we gather past user experience?
16. How might we analyze returning users?

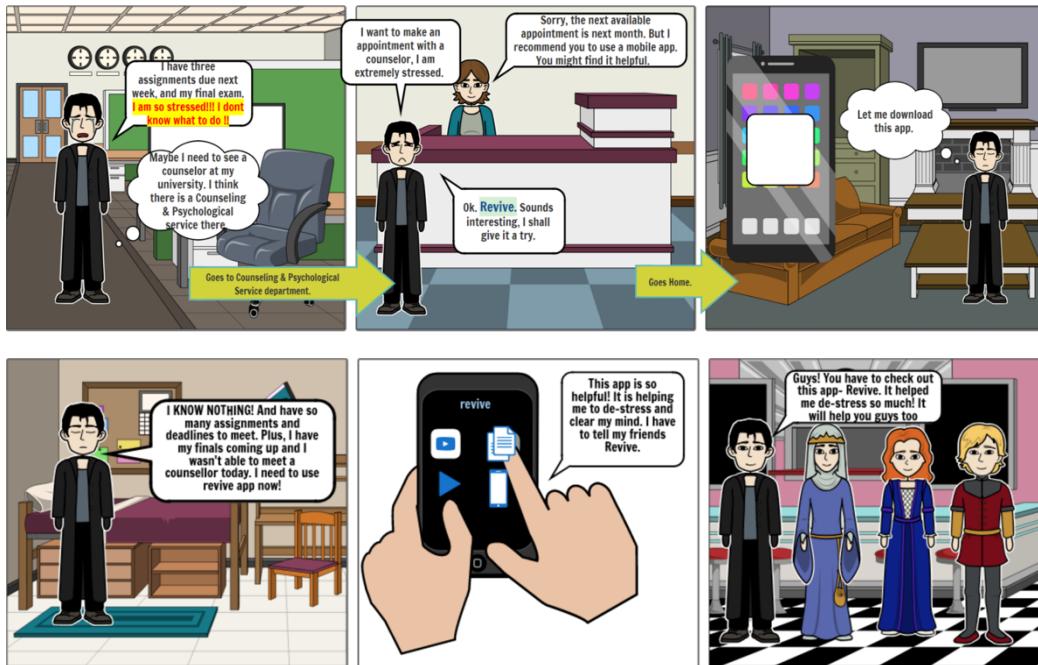
How might we improve on user experience?

- Revive is a straight forward app with a very easy way to create a profile and start using right away. The main features are easily accessible on the main page. Based on user reviews on content and recommending different content that they like to see; we would like to build Revive completely around the preferences of our users. Users are able to save articles to read later on, favorite audio content that they would like to listen to again (basically like a playlist) based on their preferences, Revive will recommend similar audio files and readings that it believes the user may enjoy.

How might we create awareness about the app?

- Since one of the main problems we are trying to solve is regarding stress levels amongst students, we will partner with the Counselling and Psychology department at SFSU because that is the first place SFSU students go to when they need to deal with stress. The Counselling and Psychology department can refer students to Revive while they wait to be seen by the counsellors. Users can also share music and articles with friends who already use the app, and even invite others to create a profile on Revive.

Digital Storyboard:





## Prototype

We identified the user interface that would allow the users to navigate the mobile application easily. We first sketched the layout of the application on paper, later implement the same on Xcode. We discussed and evaluated the interface, functions and possible improvement internally within the group, as well as externally with potential users.

Low fidelity prototype:

We first developed a low fidelity, including the various pages for users such as a navigation menu for to browse through the various articles, browse through our carefully curated music library, and find contact numbers and location using “Google Maps” to reach local services.

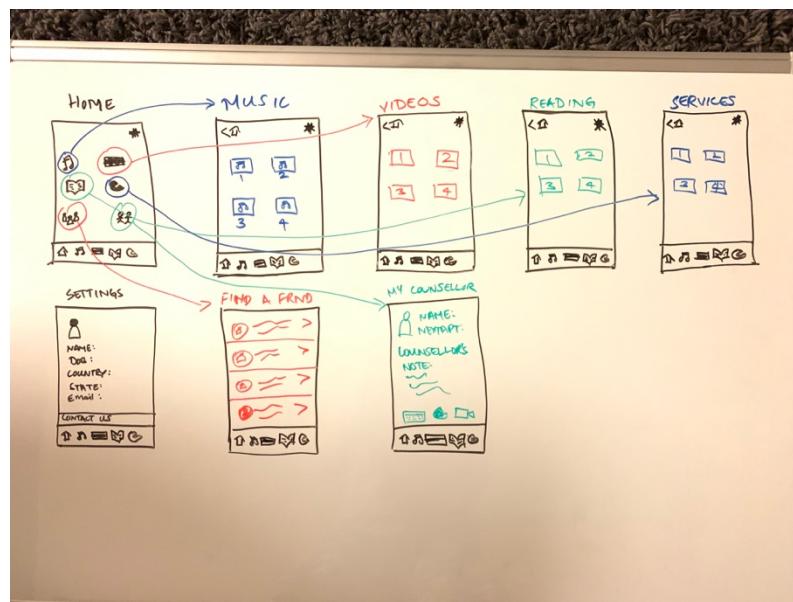


Figure 4:Low Fidelity Prototype

High fidelity prototype:

After getting feedbacks from our Low fidelity Prototype, we went ahead to create a High-Fidelity Prototype using Xcode. We also included the new feature of “Find a Friend” and “My Counsellor” which the users could contact people who can relate to and understand their feeling, to help the users through hard times; and connect to their counsellor and keep tracks of appointments and follow up details. The phone numbers of the users are confidential and not shown in the application in order to secure the user privacy.

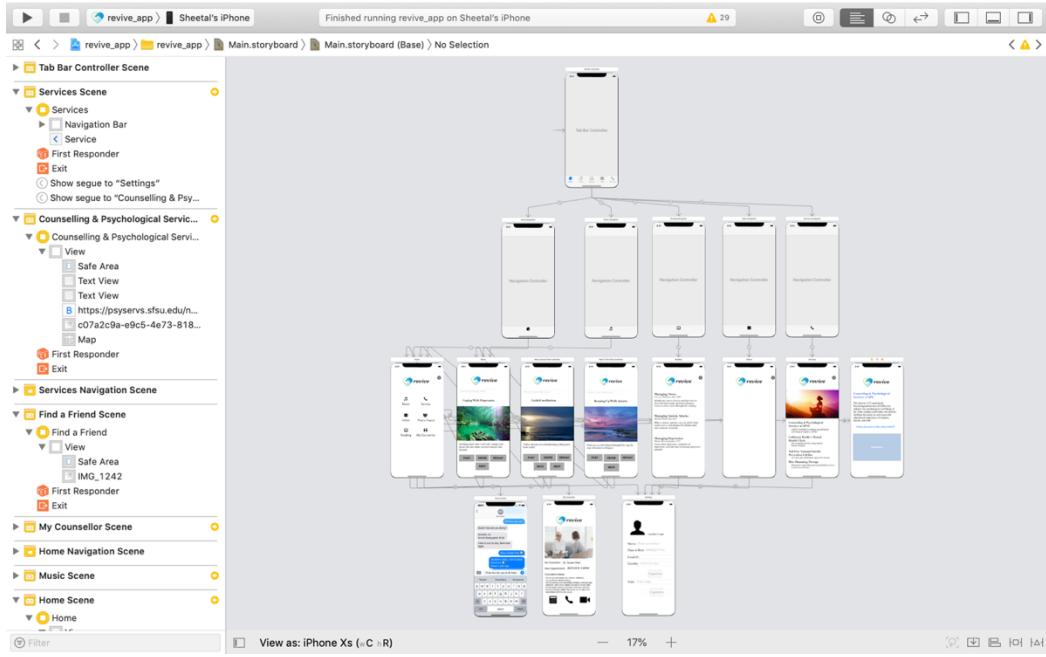
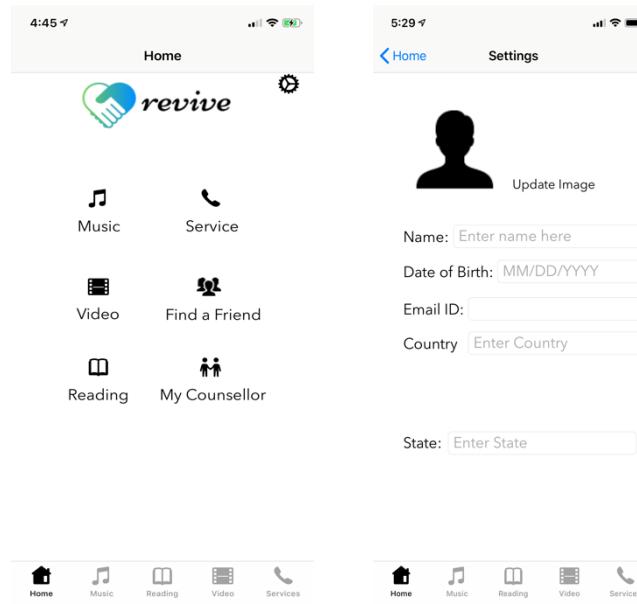


Figure 5: High Fidelity Prototype

## Test

The Core Functionality Implementation of our application, Revive includes the implementation of several features for our mobile application, Revive. Below are the modules that we designed to implement our solution.

As soon as we open the application, after logging in, we see the Home page with all the features in it including Music Tracks, Video Clips, Reading Articles, Contact and Locations to local Services, Find a Friend and connect to your Counsellor. Additionally, you can set up your profile as well as shown below:





The Music module has a collection of tracks that the user can navigate through. The screens are as shown below:

The figure displays three mobile application screens from the 'revive' app. Each screen shows a title at the top, a large image of a natural scene (forest, sunset over water, or a beach), a descriptive subtitle, and a control bar at the bottom with buttons for PLAY, PAUSE, REPLAY, BACK, and NEXT.

- Coping With Depression**: Subtitle: "Soothing music that won't only change your mood, but also make you feel relaxed, and focused." Control bar: PLAY, PAUSE, REPLAY, BACK, NEXT.
- Guided meditation**: Subtitle: "Follow the process of meditating to find peace from within." Control bar: PLAY, PAUSE, REPLAY, BACK, NEXT.
- Keeping Up With Anxiety**: Subtitle: "Find ways to feel relaxed through this step-by-step relaxation techniques." Control bar: PLAY, PAUSE, REPLAY, BACK.

Watching short videos is an affordable alternative to costly and time-consuming ways we try to harness happiness. A new study from the University of California, Berkeley and BBC Earth shows that we can harness the mental health benefits of going outside and experiencing nature by simply watching wildlife videos. Additionally, an estimated 80 to 90 percent of visits to the doctor are stress related but **only less than 3% of doctors** talk to their patients about how to reduce stress. In a national survey, over 85% of people who did yoga reported that it helped them relieve stress. To cater to this, we have cherry picked some video including yoga exercise which the user can watch as and when required.

The figure shows a screenshot of a YouTube video player. The video thumbnail features a person performing a downward dog yoga pose. The video title is "RELEASE STRESS RELIEF". Below the video, the text reads "Stress Release & Stress Relief Yoga Class - Five Parks Yoga" and "27K views". At the bottom of the screen, there is a navigation bar with icons for Home, Music, Reading, Video, and Services.



4:45 ↗

Reading

### Managing Stress

Lawrence Robinson, May 2019

*Identify the source of stress and find ways to deal with them using self-help techniques. Learn to relieve stress through this reading!*

### Managing Anxiety Attacks

Melinda Smith, May 2019

*What is anxiety and how you can ask for help. Learn ways to self-diagnose by finding signs and symptoms of anxiety.*

### Managing Depression

Marina Marcus, January 2019

*Learn about depression, symptoms of depression, and find ways to manage depressive episodes.*

4:45 ↗

Reading Article1

HelpGuide

#### Stress Management

##### Using Self-Help Techniques for Dealing with Stress



about stress. The bills won't stop coming, there will never be more hours in the day, and your work and family responsibilities will always be there. But there is a lot less control than you might think. In fact, the simple realization that you're in control of your life is the first step to managing stress. Stress management is all about taking charge of your life. There are lots of ways to do this, and the more you practice, the better how successful you'll seem, the more steps you can take to relieve the pressure and regain control.

#### Why is it so important to manage stress?

If you're living with high levels of stress, you're putting your entire well-being at risk. Stress wreaks havoc on your mental equilibrium, as well as your physical health. It diminishes your ability to think clearly, function effectively, and enjoy life.

Effective stress management, on the other hand, helps you break the hold stress has on your life, so you can be happier, healthier, and more productive. The ultimate goal is a balanced life, with time for work, relationships, relaxation, and fun—and the resilience to hold up under pressure without burning out. But stress management is not a one-size-fits-all. That's why it's important to experiment and find out what works best for you. The following stress management tips can help you do that.

#### Tip 1: Identify the sources of stress in your life

Stress management starts with identifying the sources of stress in your life. This isn't as straightforward as it sounds. While it's easy to identify major stressors such as changing jobs, moving, or a going through a divorce, pinpointing the sources of chronic stress can be more complicated. It's all too easy to overlook how your own thoughts, feelings, and behaviors contribute to your stress levels. Sure, you may know that you're

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constantly worried about work deadlines, but maybe it's your procrastination, rather than the actual job demands, that is causing the stress.

To identify your true sources of stress, look closely at your habits, attitude, and excuses:

- Do you explain away stress as temporary ("I just have a million things going on right now") even though you can't remember the last time you took a breather?
- Do you define stress as an integral part of your work or home life ("Things are always more around here, and as a result of work I'm stressed out. I have a lot to do."

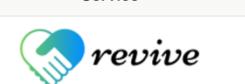
Home Music Reading Video Services

Home Music Reading Video Services

There might arise certain unavoidable circumstances where one needs to visit a clinic or a service center. We have provided a list of the same which are close to SFSU so the students can reach these places quickly.

4:46 ↗

Service



### Counseling & Psychological Services at SFSU

*CAPS is available to enhance psychological well-being of students at SFSU.*

### California Pacific's Mental Health Clinic

*Life changing and life saving mental health treatment.*

### Toll Free National Suicide Prevention Lifeline

*24/7 free and confidential support for anyone*

### Blue Humming Therapy

*Humanistic counselling and mental health services*

Home Music Reading Video Services

Reading is the best way to relax and even six minutes can be enough to reduce the stress levels by more than two thirds, according to new research. Psychologists believe this is because the human mind has to concentrate on reading and the distraction of being taken into a literary world eases the tensions in muscles and the heart. Reading works best, reducing stress levels by 68 per cent, said cognitive neuropsychologist Dr David Lewis. He found that when someone reads, silently, for six minutes the heart rate slows down and the tension in the muscles is eased.

4:46 ↗

Counselling & Psychological Services, S...



### Counseling & Psychological Services (CAPS)

The mission of Counseling & Psychological Services (CAPS) is to enhance the psychological well-being of the entire campus community and thereby facilitate the retention and successful educational experience of students, faculty, and staff.

<https://psyservs.sfsu.edu/node/31>

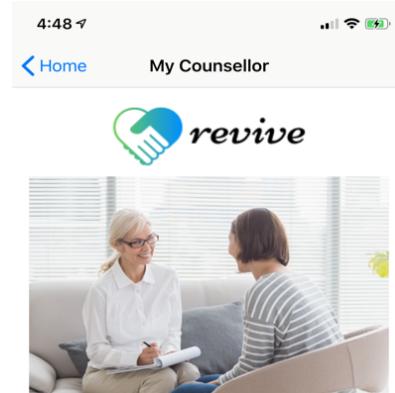


Home Music Reading Video Services



The ‘Find a Friend’ screen helps the user to connect to friends or volunteers who can register with Revive to help people in need. The user will be able to connect to other who have been through the same rough patch and can relate and understand to what they are going through, by maintaining complete anonymity.

We also provide the user with a platform to stay in touch with their counsellor at all times. In the ‘my Counsellor’ page, the user will be able to view their counsellors’ details, next appointment with their counsellor, any notes or advice from their counsellor with their next follow up. Additionally, on this page, the user will also be able to schedule or make changes to their appointment, and FaceTime their counsellor





## TECHNICAL DESIGN

### Technology Platform

We used XCode app development tool and Swift programming language. Xcode is an Integrated Development Environment (IDE) for macOS containing a suite of software development tools developed by Apple for developing software for macOS, iOS, watchOS, and tvOS. First released in 2003, the latest stable release is version 10.2. Swift is a general-purpose, multi-paradigm, compiled programming language developed by Apple Inc. for iOS, macOS, watchOS, tvOS, Linux, and z/OS. Swift is designed to work with Apple's Cocoa and Cocoa Touch frameworks and the large body of existing Objective-C code written for Apple products.

### Wireframe Design

Used Xcode to develop the Wireframe Design. The explanation of the wireframe design with screenshots is as shown below:

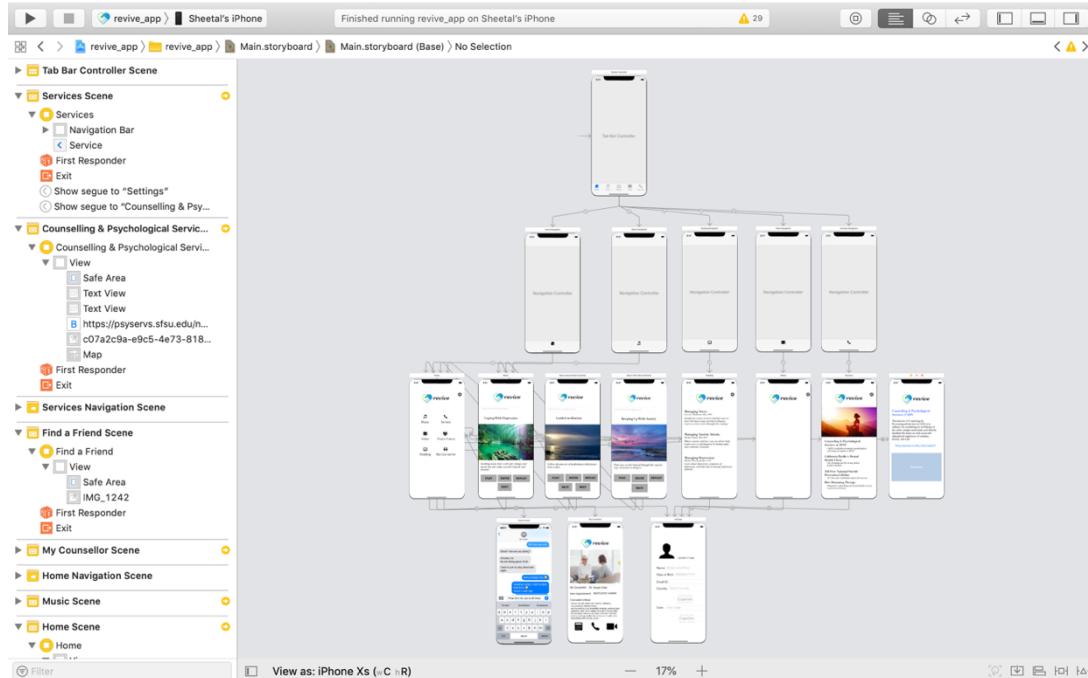


Figure 6: Wireframe Design

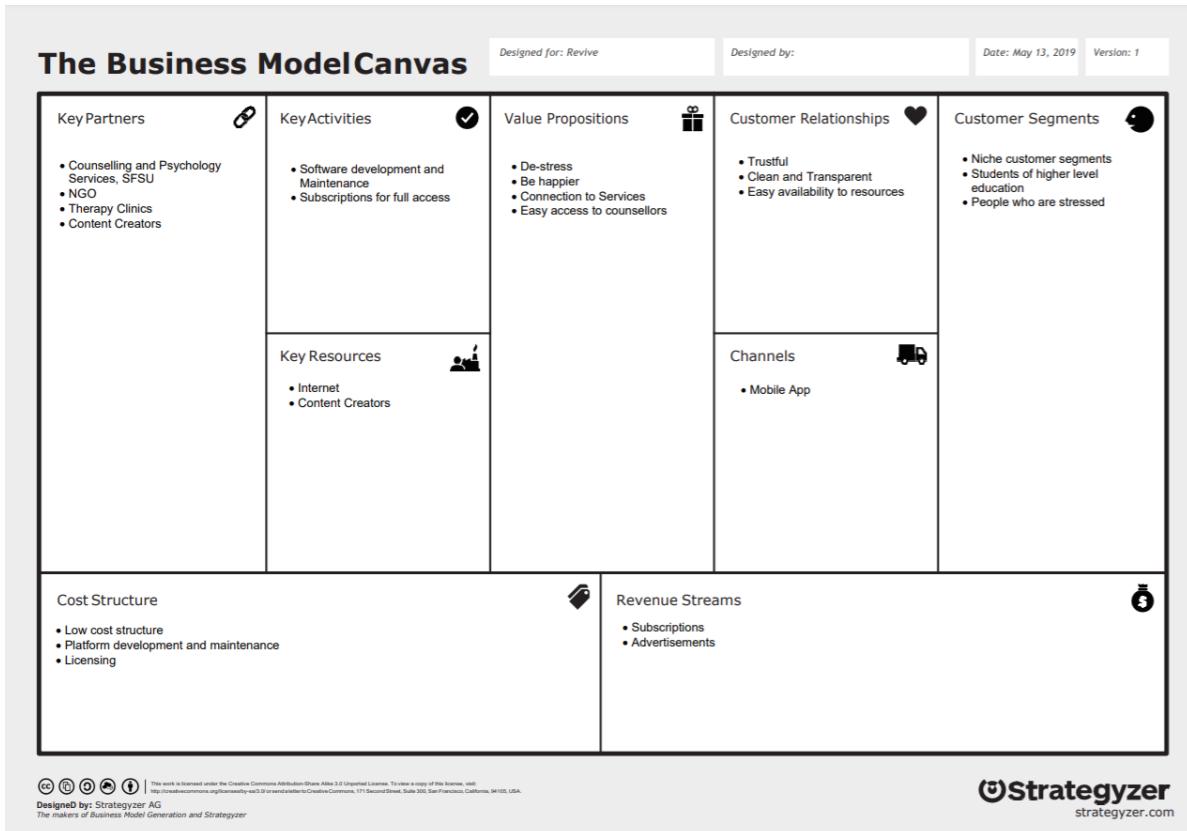
### Data Structure Design

We used Linked List data structure to list everything in each module. A linked list is a collection of values arranged in a linear unidirectional sequence. A linked list has several theoretical advantages over contiguous storage options such as the Swift Array, including constant time insertion and removal from the front of the list, and other reliable performance characteristics.



## BUSINESS CARE

Based on our ideas for business plan brainstorm, we followed the business canvas model to consolidate all information and constructed our key partners, key activities, value propositions, target customers, competitors, channel and revenue streams and cost structure. The details are below.



### Business Model

Even though we started developing our app with the intention to help people with their mental health, our business objective is to maximize profits. We intend to gain revenue through typical sales or subscription fees. Additionally, our app will also generate income through transaction and affiliate fees. The idea behind this strategy is to eliminate all barriers that might stop potential users from initially downloading our app and experiencing the numerous benefits.

Since our company has not yet established as a well-known brand, we expect that sales and subscription fees would hold users back from utilizing our app solution. By offering all app functions at a very low cost, excluding the payment fee to the counsellors, it will be easier to gain market prominence and user acceptance. We expect that users will tolerate our transaction fee after experiencing the other benefits of our application and realizing the convenience the payment



option offers. From our field research we know most people will use the features as needed. This will be beneficial to us because the more transactions occur the better in regard to revenue generation.

We want to eventually build up to a large user base and conduct several transactions each week in order to effectively make use of the transaction and affiliate fee revenue models. Transaction fees of 12 percent of the transactions with counselling services will be charged for every purchase made by users within the app; for example, a user that makes an appointment with their counsellor for an hour's session through our app will be charged \$56 (\$50 + 12%) instead of the regular fee of \$50 + additional charges and taxes levied by the clinics to for the same session, which roughly approximates to \$75. We based the fee amount on similar revenue models that are widely accepted among users.



Figure 7: Comparison of Total Cost per Session

Moreover, we plan to work with the local counselling services and clinics such as Counselling and Psychology Services at San Francisco State University, Blue Humming Therapy and California Pacific Mental Health Clinic.



Figure 8: Potential Partners



## Key Partners

Our key partners for supplies would be content provider, server or Web hosting provider, 3rd party app developer, and Apple stores. These partners are to assist in building the app, publish it and managing the app maintenance. For the key partners as channels reaching the end users, we would work with universities as well as property management of rental apartment.

This specific module leads the user to a list of service facilities that will have registered with our application. This will enable their users to use this app for free. Once the user selects a specific service, the screen containing the details of the facility locations situated in various blocks is displayed. The screen also shows details about the number of services along with directions to reach the clinic.

We have also plan on implementing in-app texting feature as well as FaceTime calling feature to enable the users to connect with their friends and counselors to have a conversation with them regarding their state of mind.

We also plan to work with music subscription providers such as Spotify or YouTube to feature music and video tracks on our mobile application for in-app viewing.

## Value Proposition

Revive's primary selling points are to save the end users time in connecting to the right resources. The experience will provide the users to read meaning articles and even have a guided meditation session to help calm their minds and reduce their stress level.

## Competitors

There are two competitors for Revive: BetterHelp and Headspace.

BetterHelp is an online portal that provides direct-to-consumer access to behavioral health services. The online counseling and therapy services are provided through web-based interaction as well as phone and text communication.



Headspace is an English-American online healthcare company, specializing in meditation. It was incorporated in May 2010 in London, England by Andy Puddicombe and Richard Pierson.



## Revenue Stream

Revive's channels include utilizing AdWords and agencies to raise words of mouth, as well as reaching to university service center, local services and clinics to engage more end users. Revive's revenue is forecasted for the next three years and is generated from premium app purchase revenue, partner revenue and ad revenue. With the estimated growth rate and revenue generated through these channels (Appendix 2), we will achieve a valuation of around \$1,511,320.

## Cost Benefit Analysis

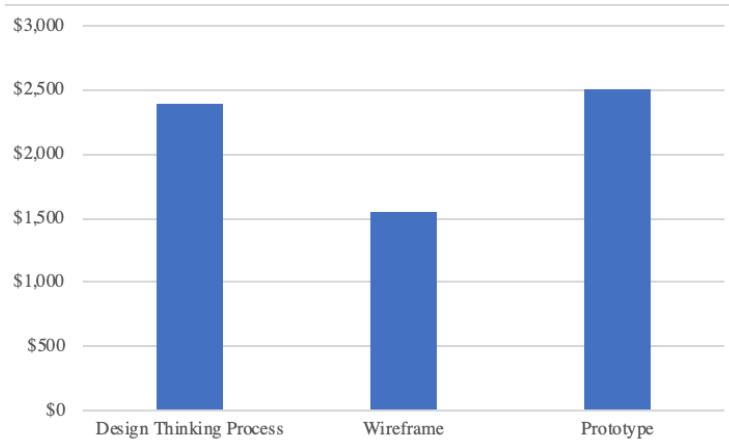
If you compare the previously discussed benefits with the costs of our project, you will clearly see that the app solution is worthwhile developing (Appendix 3). For the development of our mobile app solution, we estimate total cost of \$50,500 based on several cost elements, ignoring the costs for office space and purchase of equipment to focus more on the directly app related costs. Also, we were able to use Xcode free of charge.

The **design thinking process** regarding the project took us about four weeks. For finding an apparent problem area, conducting field research, defining the problem statement and persona, coming up with ideas, and determining the app solution, we estimate a cost of \$2,400 ( $4*4*3*50$ ).

The cost element reflects hiring four professionals with technical knowhow as well as professionals to curate the contents of the application. Each work about three hours per week at a rate of \$50/h on the tasks.

The **wireframe development cost** about \$1,550 ( $(4*4*50) + (15*50)$ ). The feature and design structure of the wireframe were determined in a four-hour group meeting. The wireframe programming itself was performed by one member of the project team within a time of 15 work hours.

The team took roundly 50 hours for the **prototype development**; consequently, it accounted for about \$2,500 ( $50*50$ ).



*Figure 9: Current Development Cost: Cost for Design Thinking Process, Wireframe Design and Prototype Development*

In order to create a fully functional app with the right look and feel additional tasks need to be performed, such as **front-end programming** to develop appropriate design features or integration of real-time data from different data sources. The additional programming work needed to completely reflect our wireframe design within the actual app will be the most time-consuming part and will account for most of the estimated future development tasks. In total, we believe our team could finish the app solution within a month working full-time on it. This would result in costs of about \$32,000 (4 team members \*4 weeks \*40 h \* \$50).

Furthermore, there are certain cost elements that need to be taking into consideration to maintain the app. **Maintenance cost** include hardware (server, etc.), and software (Xcode, etc.) related usage fees, and future debugging costs of the app. Since the industry norm is to expect app maintenance costs to be roughly 15 to 20 percent of the original development costs (Chomko, 2012), we calculated future maintenance cost to be \$7,590 per year (0.2\*\$37,950). The cost structure breakdown is as shown in Appendix 3.

Moreover, we think it is necessary to run **marketing campaigns** within the first three months after the app launch in order to gain a user base and generate publicity within the market. We suggest conducting advertising through social media platforms such as Facebook and Instagram in addition to offline banner ads within service centers and clinics.

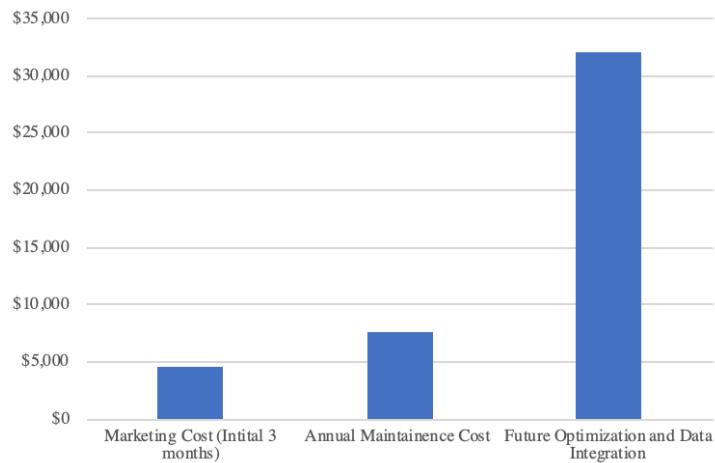


Figure 10: Total Development Cost: Cost for Marketing, Annual Maintenance and Future Optimization and Data Integration

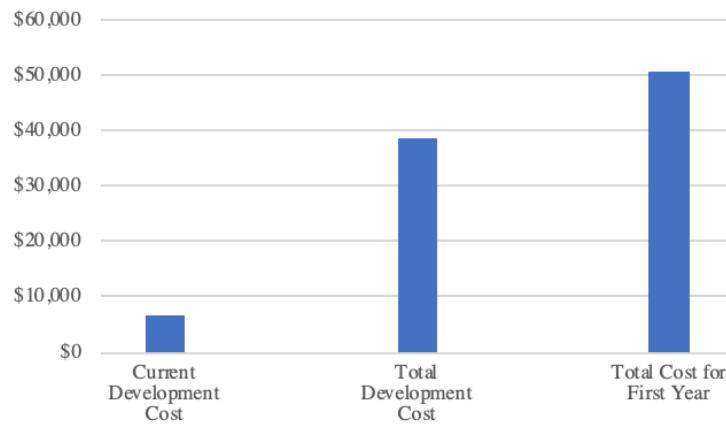


Figure 11: Current Development Cost, Total Development Cost and Total Cost for the First Year

## Break Even Analysis

It is important to know at which exact revenue amount our app solution will start making profits. To simplify the calculation our analysis period is only one year. From our cost analysis we know that exceeding \$50,540 within the first 12 months will lead to profits. Our break-even analysis for the first year shows that transaction amounts of about \$421,166.67 would be necessary to achieve the revenue goal if we solely partnered with public transportation firms (Appendix 4). If we partnered solely with professional counsellors, about 10 percent of that value would need to be generated. Because we expect all companies to decide to work with us, the necessary transaction value will be somewhere in between those two presented values. We are confident that we can already reach that value within 12 months. Additionally, future costs will be lower than first year's cost, which will ease reaching the revenue targets to continue to operate profitable as a business.



## VALIDATION

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In this step our goal is to find some validations of a ‘product-market fit’ and to answer the question if the developed product Revive is the solution that people want. A product-market fit means that

- The users are willing to pay for the product.
- There is a moral and economically viable way to acquire users.
- The market is large enough for the business to sustain.
- A strict privacy policy in place to respect and protect user information.

We tested Revive with some of the students and received the following feedback:

- Most users enjoyed reading the articles from the Revive library.
- Positive response for features like Find a Friend and My Counsellor.
- Enjoyed the guided meditation available on the Revive app and said they “felt calmer”.

## DEMONSTRATION

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Please find our YouTube video for Revive’s demonstration as the link here:

<https://youtu.be/4w9HPMPSh-o>



## REFERENCE

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## APPENDIX 1: Design Thinking Development Process

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In the initial phase of the project, we brainstormed the various problems we would want to cater to. We also made a list of questions we intended to ask the interviewees to get their inputs. Using these inputs, we were able to come up with solutions and the design of the mobile application.





We worked on developing a low fidelity prototype and presented the same using storyboard to explain the functionalities of the application to our classmates.

Upon receiving feedback on the prototype, we developed the mobile application using Xcode. After the development, we did test runs to check for any technical errors.





## APPENDIX 2: Revenue Model Details

User base	Rate	Visitors	Users
Visitors			
		100,000	
	5.0%		5,000
Free users			
	80.0%		4,000
Profitability	Freemium	Paying	Total
	57,143	8,529	65,672
User profitability			
Subscription revenue	\$0.00	\$4.99	\$0.65
Page views	\$3.00	\$6.00	
Advertising revenue / 1000 page views (CPM)	\$5.00	\$5.60	
Advertising revenue	\$0.02	\$0.03	\$0.02
Total revenue	<b>\$0.02</b>	<b>\$5.02</b>	<b>\$0.67</b>
Service cost	\$0.01	\$0.63	\$0.09
Gross profit	<b>\$0.00</b>	<b>\$4.39</b>	<b>\$0.57</b>
Business profitability			
Subscription revenue	\$0	\$42,559	\$42,559
Advertising revenue	\$960	\$287	\$1,247
Total revenue	<b>\$960</b>	<b>\$42,845</b>	<b>\$43,805</b>
Service costs	\$800	\$5,373	\$6,173
Gross profit	<b>\$160</b>	<b>\$37,472</b>	<b>\$37,632</b>
Fixed costs		\$20,000	
Net profit			<b>\$17,632</b>
Business valuation			
Annual net profit			\$211,585
Discount rate			14.0%
Valuation			<b>\$1,511,320</b>



## APPENDIX 3: Cost and Benefit Analysis

Cost	Benefit
Design Thinking Process	\$2,400
Wireframe	\$1,550
Prototype	\$2,500
<b>Current Development Cost</b>	<b>\$6,450</b>
Future Optimization and Data Integration	\$32,000
<b>Total Development Cost</b>	<b>\$38,450</b>
Annual Maintenance Cost	\$7,590
Marketing Cost (Initial 3 months)	\$4,500
<b>Total Cost for First Year</b>	<b>\$50,540</b>
	<b>To App Users:</b> Connect and support from people who have experienced the same. Motivational reading articles to uplift mood. Peaceful and serene audio tracks to help calm the mind. Guided meditation to help release stress. Contact and direction to nearby services and clinics, in case of emergencies.
	<b>To professionals and Counsellors:</b> Tracking and scheduling appointments are made easier. Fast and easy follow up with users Help to loosen up schedule by setting up remote counselling sessions.



## APPENDIX 4: Break Even Analysis

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### **Break Even Analysis for User**

Total Revenue - Total Cost = 0

(Transaction Value \* 12%) - \$50,540 = 0

Transcation Value = \$50,540/0.12

Transaction Value = \$421,166.67

### **Break Even for affiliate fee**

(Transaction Value \* 10%) - Total Cost = 0

(Transaction Value \* 10%) - \$50,540 = 0

Transaction Value = \$50,540/0.10

Transaction Value = \$505,400