

DEPRESSION MANAGEMENT & SUICIDE CONTROL ANDROID
APPLICATION “TAKE CARE”

MD. ASHIKUR RAHAMAN



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A report submitted
in partial fulfilment of the requirements
for the degree of
Bachelor of Science in Computer Science and Engineering

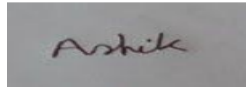
UNIVERSITY OF LIBERAL ARTS BANGLADESH
Dhaka, Bangladesh

June 2021

DECLARATION

I declare that this report entitled “*Depression Management & Suicide Control Android Application ‘TAKE CARE’*” is the result of my own research except as cited in the references. The report has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature :

A rectangular box containing a handwritten signature in dark ink. The signature appears to be 'Ashik' written in a cursive, slightly slanted style.

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CERTIFICATE OF APPROVAL

The project report entitled “*Depression Management & Suicide Control Android Application ‘TAKE CARE’*” is submitted to the Department of Computer Science and Engineering at University of Liberal Arts Bangladesh (ULAB) in partial fulfillment of the requirements for the degree of Bachelor of Science.

Dated: June 12, 2021

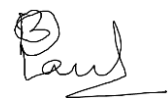
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DEDICATION

To my stunning guardians, who gave me perpetual love, trust, consistent consolation throughout the long term, and for their petitions.

To my tutors and companions for their understanding, backing, love, and for persevering through the high points and low points during the finish of this proposition.

This report is dedicated to them.

ACKNOWLEDGEMENT

I wish to communicate my most profound appreciation to each one of the individuals who helped me, somehow, to finish this undertaking. Above all else, I say thanks to Almighty who gave me strength, bearing and reason all through the task.

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My friends and family gave me feedback and suggestions that helped to improve my project. I am really thankful to them.

ABSTRACT

Depression is a common illness worldwide, with more than 264 million people affected [\[1\]](#). Depression can lead to suicide. Close to 800 000 people die due to suicide every year [\[2\]](#). It is estimated that in Bangladesh, 4.1% of the population (total cases 6 391 760) has depression, and 4.4% (total cases 6 900 212) has anxiety disorder [\[3\]](#). With the increase of mobile phone users, applications become popular to help mental health, manage depression, suicide control and so on. As most of the applications in such category are available in general or area based context, I have built TAKE CARE especially for Bangladesh users having local service providers and relevant services.

Keywords: Mental Health, Depression, Depression Management, Suicide, Suicide Control, Android Application

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LIST OF ABBREVIATIONS

CSE	Computer Science and Engineering
ULAB	University of Liberal Arts Bangladesh
DM	Depression Management
SP	Suicide Prevention

CHAPTER 1

INTRODUCTION

1.1 Project Idea

Several websites have been searched and the idea “Suicide Control App” [\[4\]](#) is selected and further modified into “TAKE CARE” a Suicide Control & Depression Management Android Application.

1.2 Similar Work

Google play store has been explored, several research articles including “Suicide prevention and depression apps’ suicide risk assessment and management: a systematic assessment of adherence to clinical guidelines” [\[5\]](#) have been followed to determine the features of the work “TAKE CARE” (depression management & suicide prevention app). They have researched on 2690 relevant apps using the terms “depression,” “depressed,” “depress,” “mood disorders,” “suicide,” and “self-harm.” Among them 69 apps were systematically accessed (29 depression management apps, 3 depression management & suicide control apps & 46 suicide prevention apps).

Strategies are given below:

- Tracking of mood and suicidal thoughts
- Development of a safety plan
- Recommendation of activities to deter suicidal thoughts
- Information and education
- Access to support networks

- Access to emergency counselling

There are several features that are essential to be a successful suicide control application.

Table 1.1 shows Strategies offered by the apps

1.2.1 Chat-bot apps

Chat-bot apps are used to give help and assistance and they are artificially intelligent. Moodpath, Wysa, Youper are chat-bot apps.

Figure 1.1, 1.2, 1.3 shows some chat-bot apps

1.2.2 Other apps

Several applications are available to support mental health, suicide control, depression management. Relevant apps are discussed here.

1.2.2.1 Talklife App

TalkLife is a social media based app where users can share their feelings and get support from the community.

Figure 1.4 shows Talklife app

1.2.2.2 StayAlive App

Stay Alive is an app offers emergency counselling helpline, safety plan development, mood tracking, mood statistics and other important features. It is a suicide prevention application.

Figure 1.5 shows StayAlive app

1.2.2.3 What's Up? - A Mental Health App

This application uses Cognitive Behavioral and Acceptance Commitment Therapy to cure depression naturally without drugs.

1.2.2.4 Happify App

Happify app is for those who want to remove negative energy from their body. This application consists of fun science activities and games that help you relax your mind. To overcome depression and sadness, all you need is a little bit of fun. Besides, you can easily train your brain to focus and reduce stress, anger, and anxiety. Moreover, you can also track your progress anytime.

1.2.2.5 Daylio – Diary, Journal, Mood Tracker

Daylio is a combination of a personal journal as well as a mood tracker. It is the best mood swings tracker app that lets you know the fluctuation trend of your mood and emotions. All you need to do is simply add your ongoing activities as per your mood. This is how you can take care of your mental, emotional, and physical health.

1.2.2.6 Depression CBT Self-Help Guide App

This is a depression self-help guide that informs you of the symptoms, treatments, suggestions, and myths about depression. Furthermore, it improves your mood with a few motivational features and a tracking diary. Additionally, it comes with relaxation music for stress relief and healing. This app helps you learn to manage stress and anxiety for a better life.

1.2.2.7 MoodTools – Depression Aid App

MoodTools comes with an easy and effective tool system that lets you reduce depression without medicines. Moreover, it shows you some motivational videos to overcome clinical depression and anxiety. It also lets you create a suicide safety plan in case of an emergency.

1.2.2.8 BRIGHTMIND: MEDITATION App

Brightmind is special in that its fundamental center is to teach how to ponder. Numerous audits acclaim the application's capacity to really make you stand by and zeroing in on your own care, and we can't help but concur. With figuring out how to all the more likely contemplate, you'll end up reasoning all the more unmistakably and decidedly, just as dozing better to get you through these dim and anxious evenings.

1.3 Take Care Features

There are six main features in Take Care application. Each main features have several sub-features. Total eleven features are available in Take Care.

Figure 1.6 shows App Homepage

1.3.1 Emergency Counseling Helpline

Holds several service providers. 999 is national emergency service for Bangladesh. “Moner Bondhu” is providing counseling and support for mental health problems. “Kaan Pete Roi” is available for people who want to talk about anything. Trained volunteers are available for callers. Users can directly call through this feature and by clicking the logo users are redirected to corresponding service provider’s website.

Figure 1.7 shows Emergency Counseling Helpline

1.3.2 Safety Plan Development

Users can write safety plan idea and solution and follow Safety Plans in crisis moments to reduce risk factors.

Figure 1.8 shows Safety Plan Development

1.3.3 My Support Team

This works as a contact list where users can save contact info of persons that h/se will contact in crisis moments to go through unwanted moments.

Figure 1.9 shows My Support Team

1.3.4 Breathing Exercise

Breathing Exercise helps users to calm down and relief stress. Sound alert is available to exercise closing eyes and customizable breathing exercise is also available to exercise any number of cycles and user defined cycle duration.

Figure 1.10 shows Breathing Exercise

1.3.5 Task Manager

Task manager is important to keep track of daily works. Here user can add a task, mark as completed and see all tasks, incomplete tasks and completed tasks.

Figure 1.11 shows Task Manager

1.3.6 Education

An online course on mental health in “Moner Bondhu”, verywellmind, heathline, how to sleep better article related several website links are given.

Figure 1.12 shows Education

1.3.7 Depression Test

Several depression tests are available and in TAKE CARE “PHQ-9 assessment” is used. The PHQ-9 is a brief, easily administered and scored screening questionnaire that can be used to improve the recognition rate of major depression and facilitate treatment [\[6\]](#). Based on the answers user can have mild, moderate, moderately

severe, major depression. A link is also given that redirects to a website gives information about PHQ-9 assessment.

Figure 1.13 shows Depression Test

1.3.8 Mood Tracking

User has to select an emoji and describe why this feelings. There are six type of emoji ‘happy’, ‘very happy’, ‘sad’, ‘very sad’, ‘neutral’, ‘confused’. This helps to track user mood if h/se is feeling bad in several days.

Figure 1.14 shows Mood Tracking

1.3.9 Mood Statistics

All tracked moods are shown here from recent to oldest with time & date. And user can have an idea of what h/se has been going through.

Figure 1.15 shows Mood Statistics

1.3.10 Let’s Bloom

Here several you-tube video links are available for users. “Who am I”, “Six Ideas from Eastern Philosophy”, “The School of Life”, “Psychotherapy” are the sections with several videos.

Figure 1.16 shows Let’s Bloom

1.3.11 Social Media

Here user can share his/her thought and save any post. Anonymous user is an option where user can post hiding his/her identity. It is a platform where several users interact with each other.

Figure 1.17 shows Social Media

1.4 Working with Database

SQLite is used as internal storage and Firebase is used as external storage. Without Social Media feature applicant can run even if there is no internet connection. As Firebase is a cloud database, internet connection is a must to run Social Media feature.

1.4.1 SQLite

For Safety Plan Development, My Support Team and Mood Tracking SQLite database is used. Safety, Team and Mood table is used in SQLite database in Take Care application.

1.4.2 Firebase

Firebase is a cloud database. In Take Care application, Firebase is used to store user information and Social Media feature. Firebase is a real time database and users can get updated instantly any data changes or updates in the database.

Figure 1.18 shows Firebase

1.5 App Link

<https://drive.google.com/file/d/1DnNXxgLR65PKVyuAV9AlUD0QNMmx5sMV/view?usp=sharing>

1.6 Table

Corresponding tables are given here.

Table 1.1: Strategies offered by the apps [7]

Type of Strategies	DM	DM & SP	SP
Tracking of mood or suicidal thoughts	17	1	10
Safety plan development	2	-	24
Activities to deter suicidal thoughts	15	1	17
Information and education			
Suicide Related	2	3	30
Emergency Contact Related	20	3	42
Access to support networks	2	1	25
Access to emergency counseling			
By Counsellor	-	-	9
By Emergency Helpline	9	1	36

DM depression management, SP suicide prevention

1.7 Figure

Corresponding figures are given here.

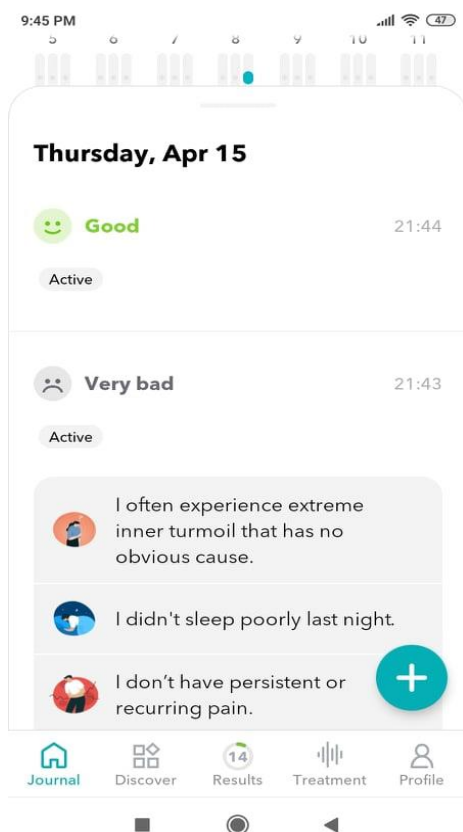
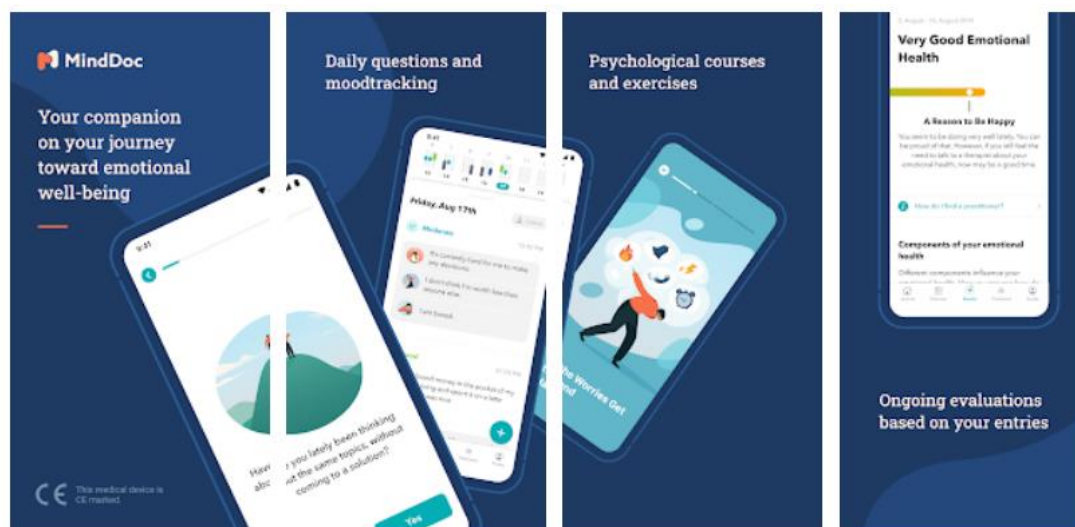


Figure 1.1: Moodpath App

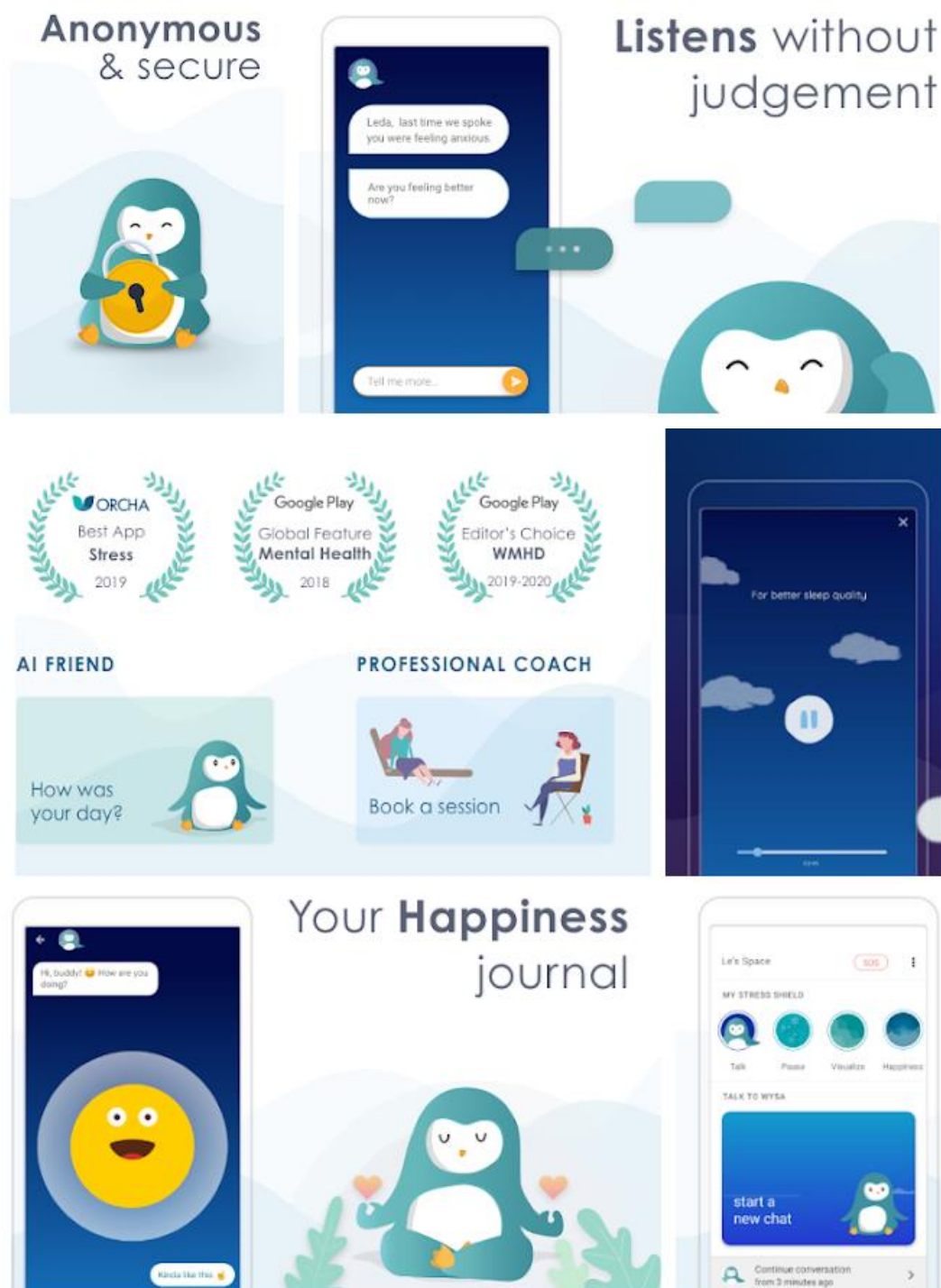


Figure 1.2: Wyasa App

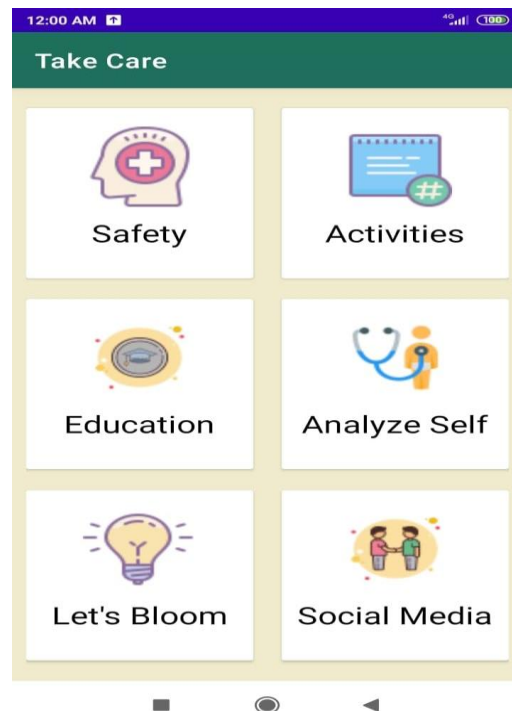


Figure 1.6: App Home Page

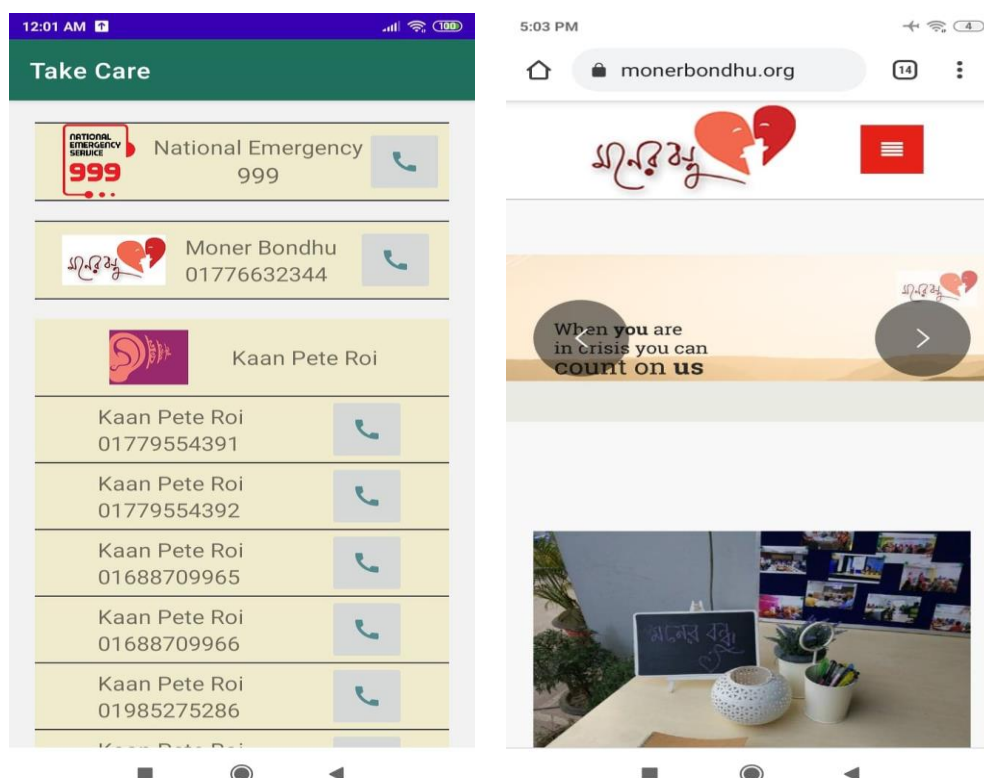


Figure 1.7: Emergency Counseling Helpline

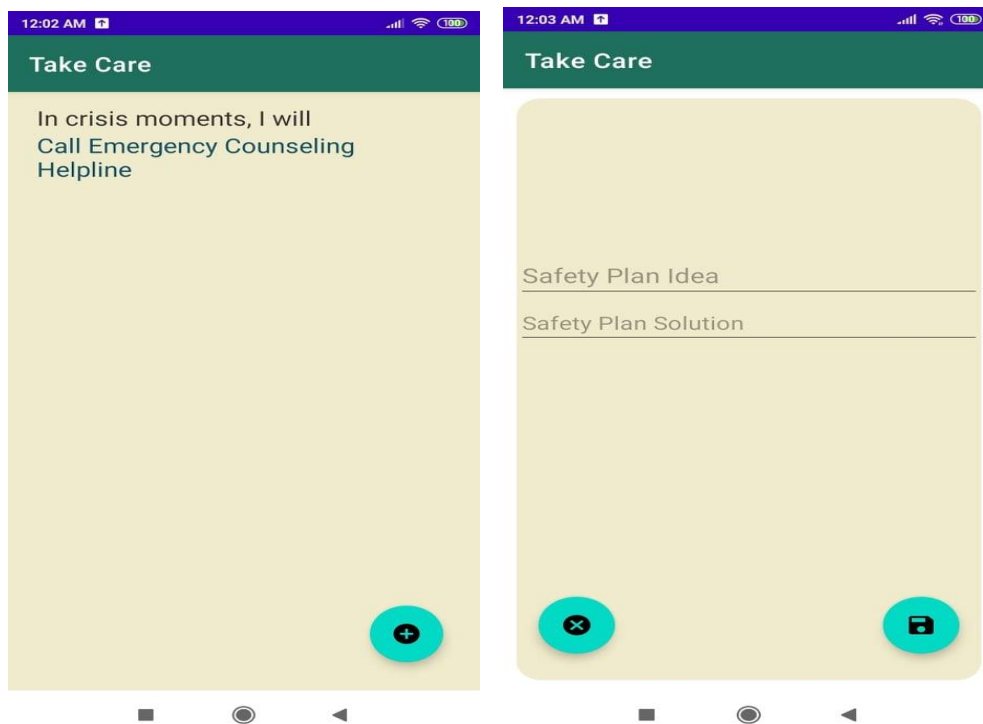


Figure 1.8: Safety Plan Development

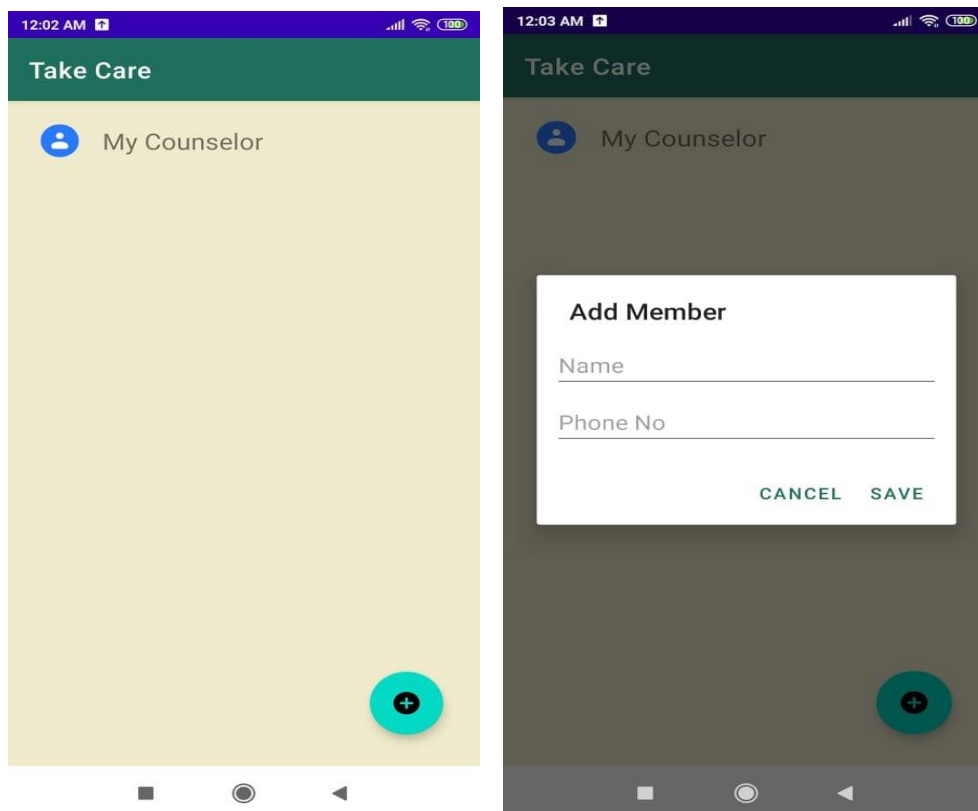


Figure 1.9: My Support Team

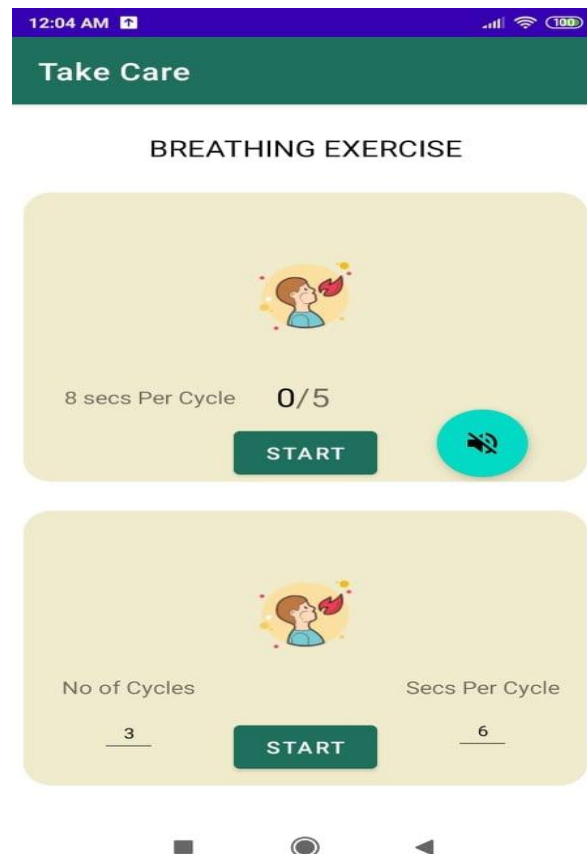


Figure 1.10: Breathing Exercise

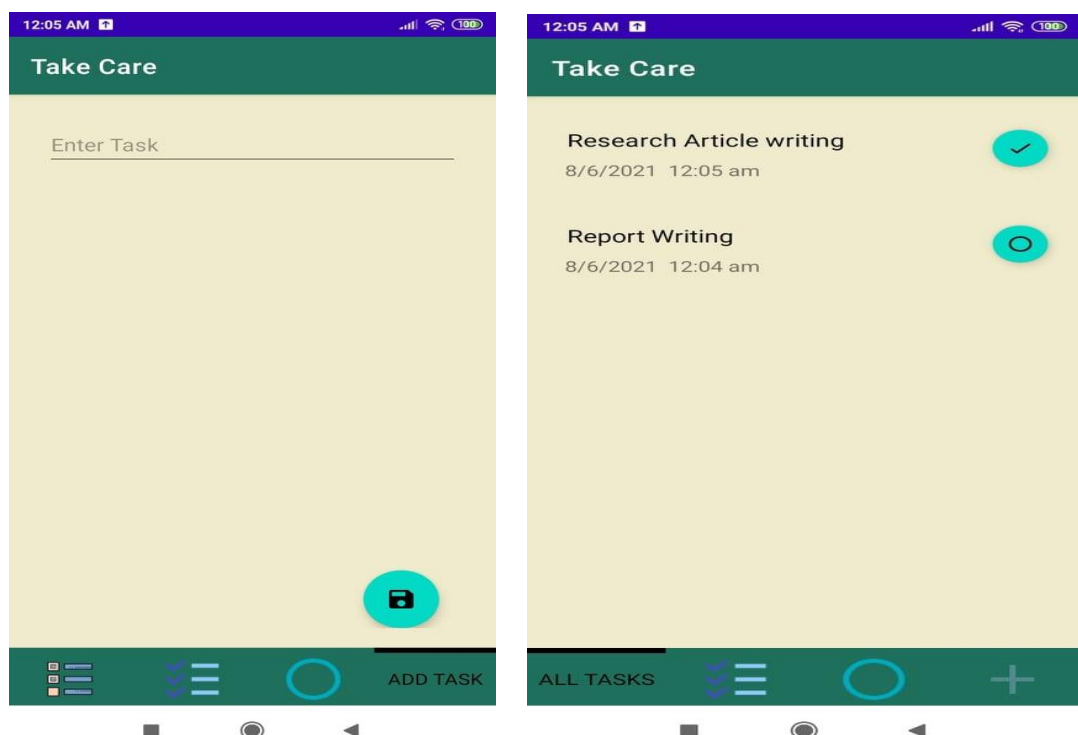


Figure 1.11: Task Manager

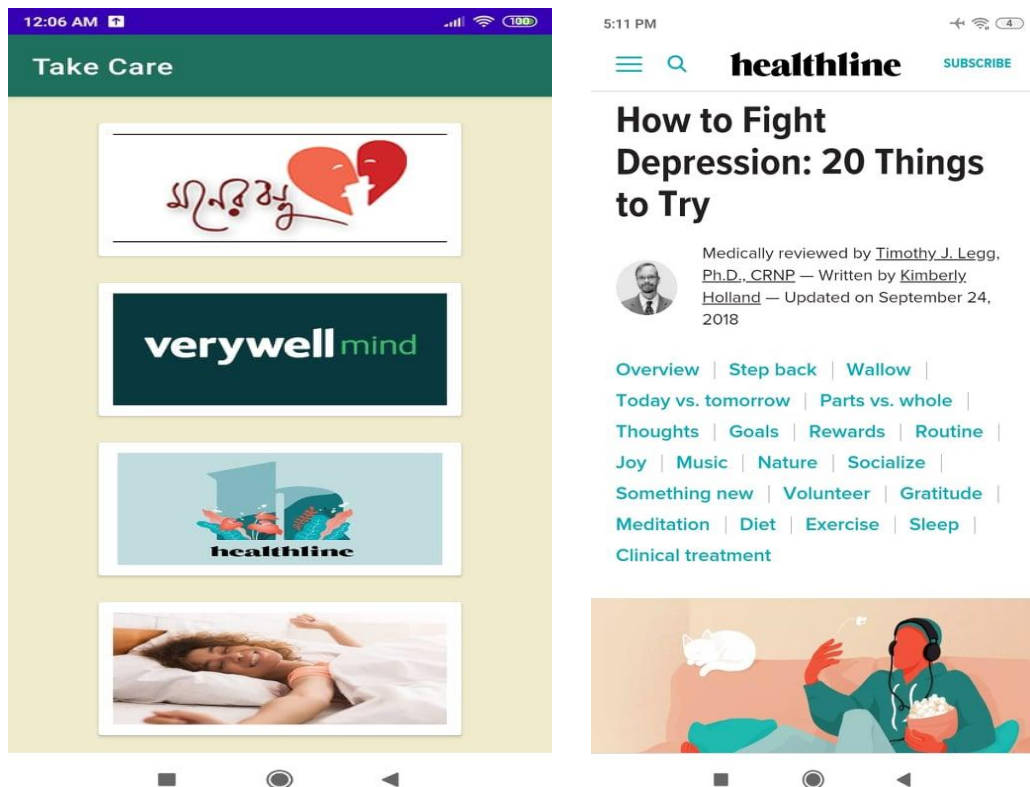


Figure 1.12: Education

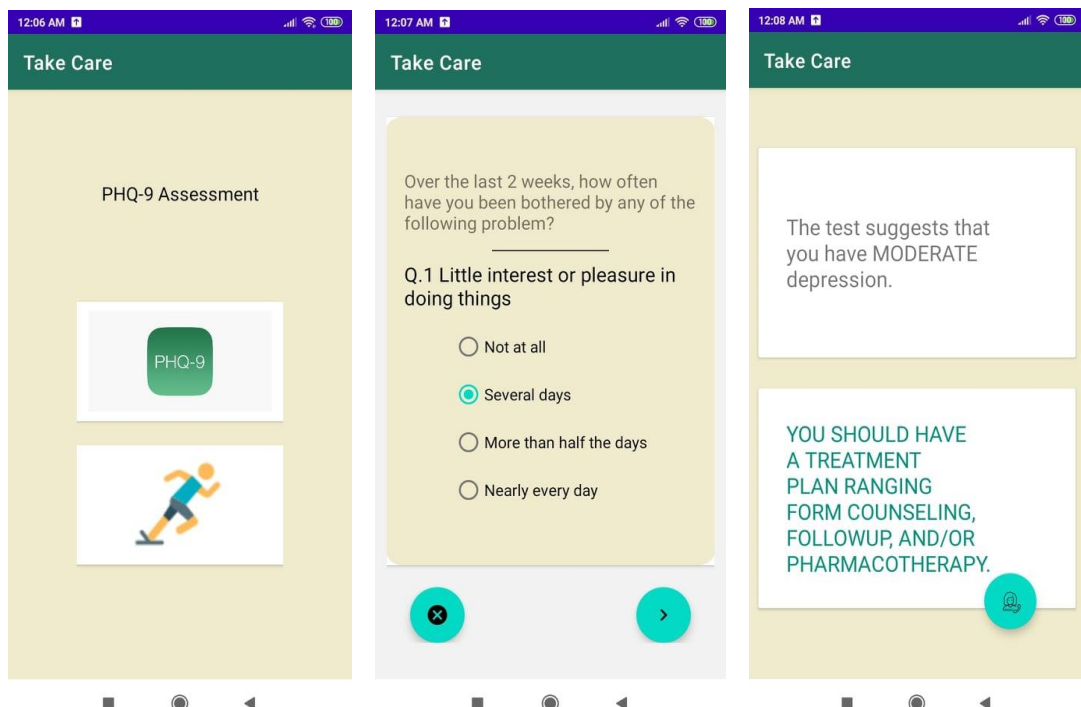


Figure 1.13: Depression Test

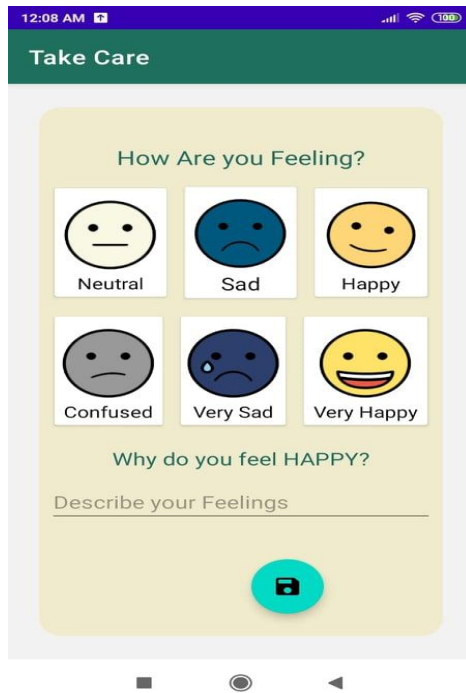


Figure 1.14: Mood Tracking

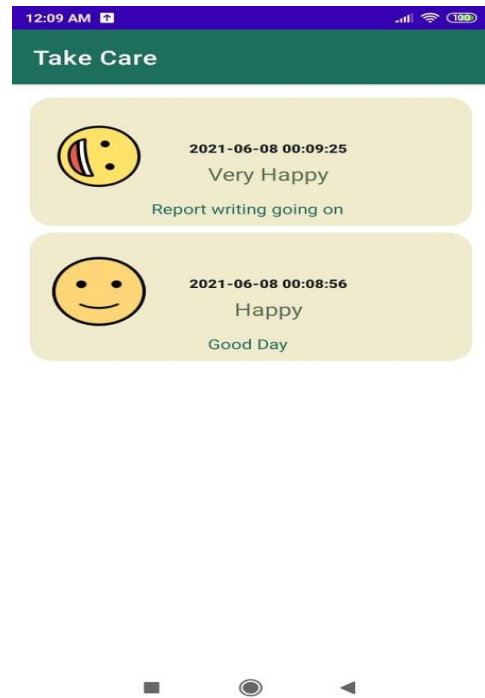


Figure 1.15: Mood Statistics

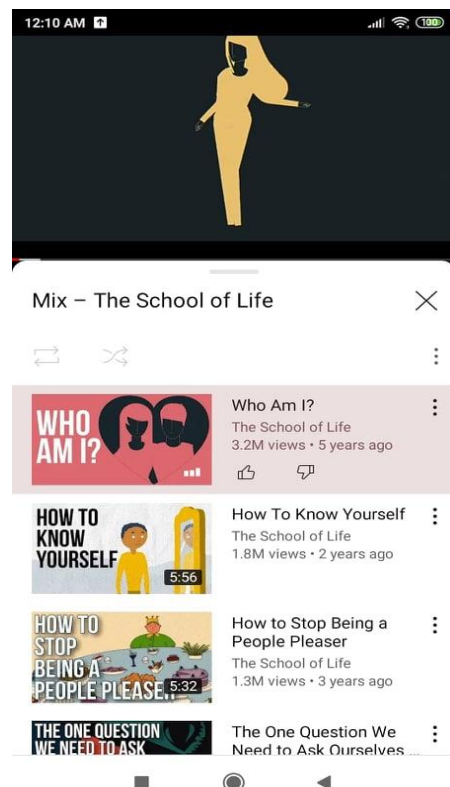
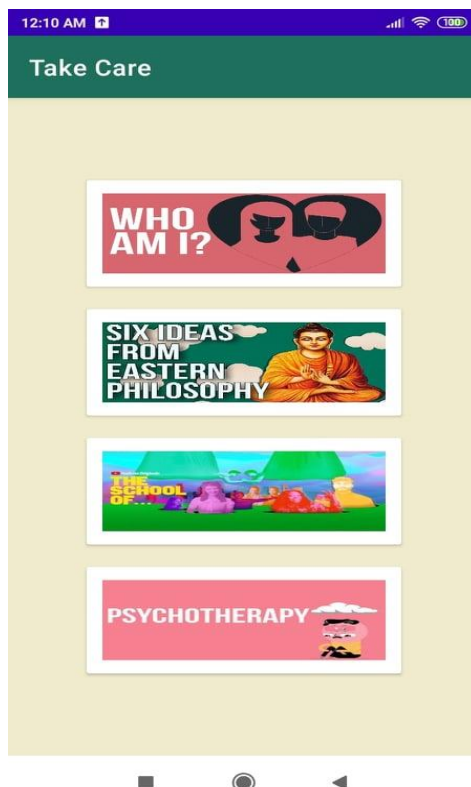


Figure 1.16: Let's Bloom

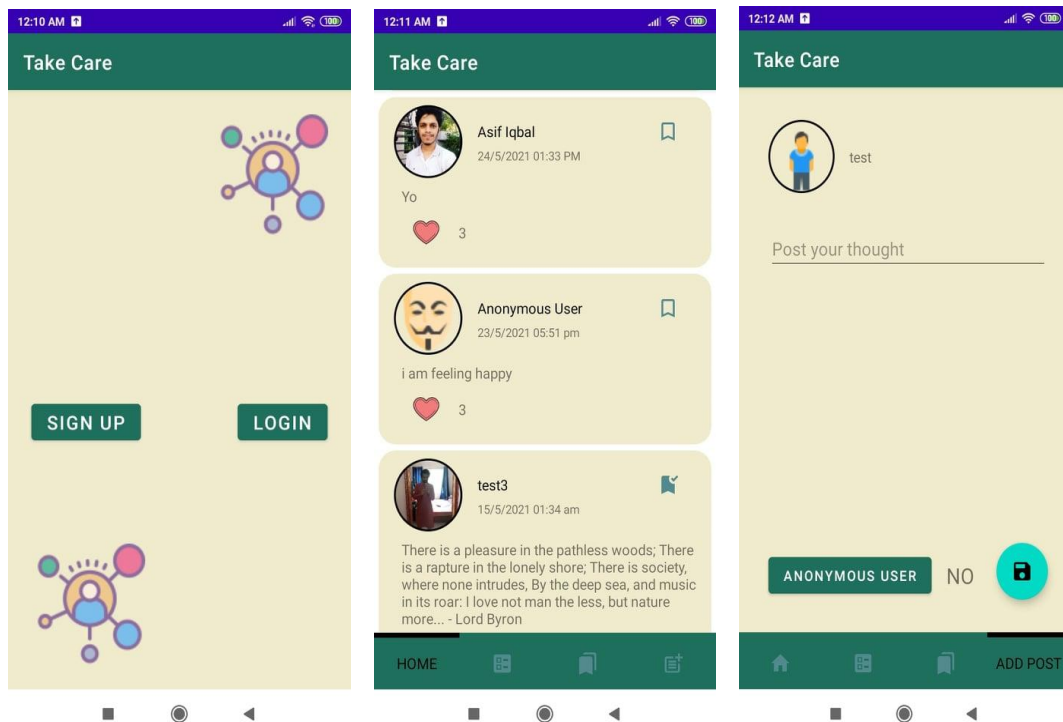


Figure 1.17: Social Media

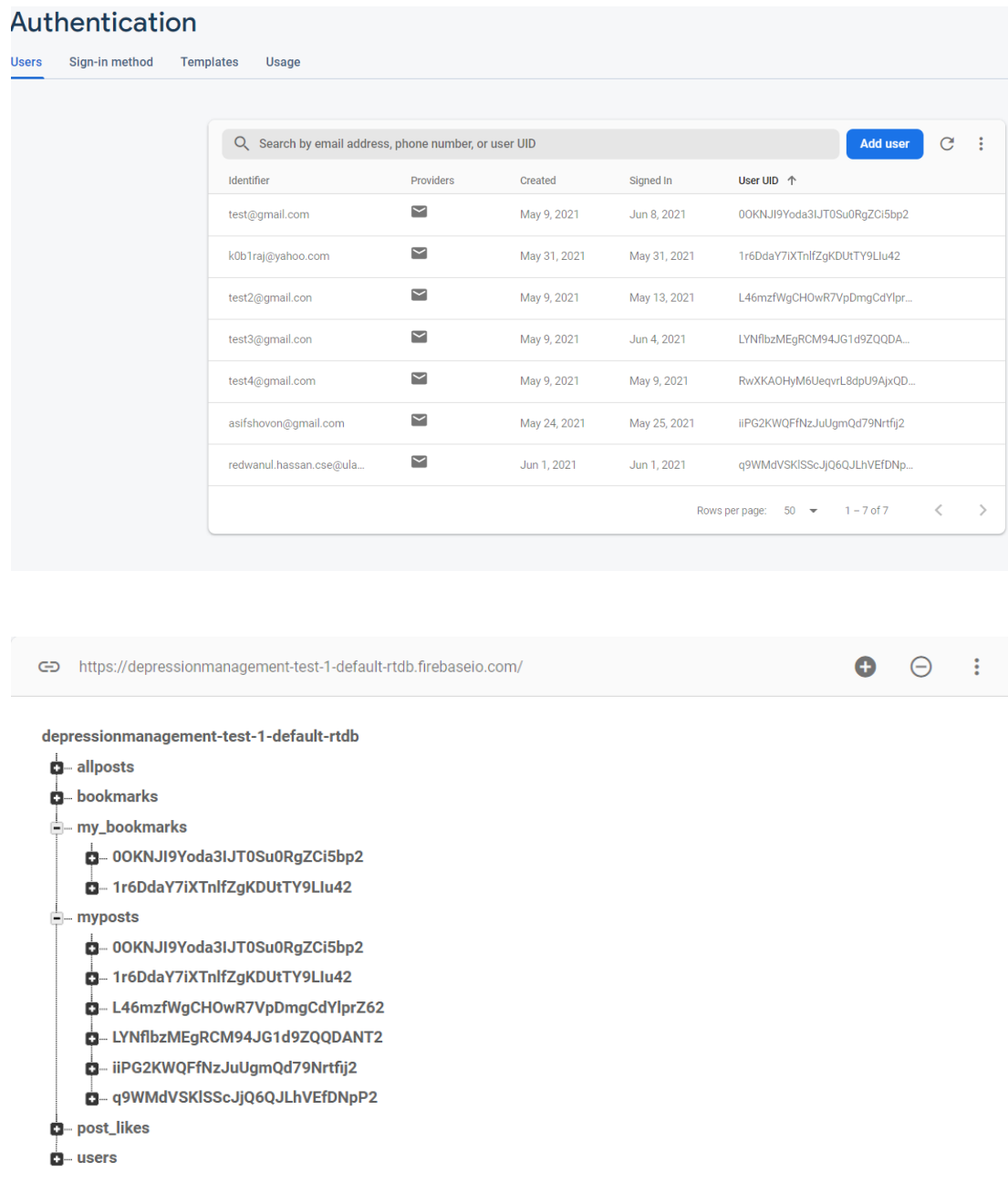


Figure 1.18: Firebase

CHAPTER 2

LITERATURE REVIEW

With the increase of mobile phone users, the health app market has grown to include about 318,000 apps [8], of which more than 10,000 are mental health apps [9]. Previous research on suicide prevention and depression apps focused on systematic assessment of adherence to clinical guidelines [10], The Role of Mobile Phone Technology in Understanding and Preventing Suicidal Behavior focused on the effectiveness and limitations of using mobile apps [11], app store descriptions of apps [12], or assessing suicide prevention strategies offered by apps [13]. No studies talks explicitly about the features needed to build a depression management & suicide control application. Several applications in Google Play Store has been assessed to determine the features.

There are eleven features have been selected and based on the features an android application has been built “TAKE CARE” a depression management & suicide control application.

Feature	Description	User Context
Emergency Counselling Helpline	Contact information of several organizations are given here	Bangladesh
Safety Plan Development	User can make a safety plan to follow in crisis moments	World-wide
My Support Team	User can make support team and contact in crisis moments	World-wide
Key Activity (Breathing Exercise)	User can relax and calm oneself by breathing exercise	World-wide
Task Manager	Task manager to manage daily tasks	World-wide
Education	Several important mental health related blog links are given here	World-wide
Depression Test	PHQ-9 assessment to determine user's mental health condition	World-wide
Mood Tracking	Track user's mood with reason	World-wide
Mood Statistics	User can view all tracked moods	World-wide
Let's Bloom	Video links are given to enrich oneself	World-wide
Social Media	Interaction with other user's with anonymous functionality	World-wide

Table: TAKE CARE Features

CHAPTER 3

DISCUSSION

As the number of mobile phone users are increasing day by day, mental health related mobile applications are gaining popularity. Some research suggests that, people like to get support for mental health problems virtually than going physically to a counsellor or a therapist. With the alarming anxiety & depression rate in Bangladesh, mental health related application like TAKE CARE will help to educate users, manage their daily works, build a community and get necessary services provided by voluntary organizations like ‘Kaan Pete Roi’, mental health organization like ‘Moner Bondhu’ with small charges (free service for students) and national emergency helpline. With technical limitations artificial intelligence chat bot is not included in the application.

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