



Team Members: Disha Bhan, Het Veera, Neha Surana, Priyanka Savla and Sahana Basapathi

Project name: Vikara (basically means – change, change of form, change of mind, disease)

Problem statement:

Mental health awareness is one of the most pressing issues currently faced in the healthcare industry. Considering the fact that the U.S. Centers for Disease Control and Prevention (CDC) estimates that one out of five adults suffer from at least one mental illness each year, raising awareness about mental health is significantly important. There is no denying that it should receive a higher priority.

Treating and maintaining good mental health conditions is crucial for stabilizing constructive behaviors, emotions, and thoughts. Unfortunately, everything related to mental health faces a fair amount of stigma. It is extremely important to promote good mental health efforts and work towards overcoming the barriers that hold us back from addressing mental health issues. Hence, we are planning to create a Web Application which will help people in gaining awareness about their mental health and help them in coping with their mental problems.

Brief project description:

Maintaining a positive mental health and treating any mental health conditions is a crucial step towards formulating constructive behaviors, emotions, and thoughts. With our Web Application, we aim towards fostering positivity and productivity amongst our users by providing them with a one-stop platform for their emotional / mental well-being.

Project outcomes or deliverables or final goals:

Our one-stop emotional/mental well-being platform will allow the users to assess their emotional/ mental state. We want to help our users manage their emotions and help them get a better sense of awareness about their mental health so that we can provide them with the best resources to make them feel better again. With the help of a mood survey and the user's speech/ text inputs, our Chatbot (Vikram) will perform sentiment analysis and detect any potential mental indisposition our user might have. To help cope with the detected mental condition, Vikram will recommend events, recreational activities, products, videos, blog posts, and nearby psychological clinics so that our users feel composed again. We will allow our users to log in/ sign up, keep a

track of their current mood, book soulful recreational events, write and view labeled blog posts, access information about nearby psychological clinics and shop for locally manufactured products for their emotional/mental well-being. We want to improve the moods of our users, reduce their anxiety, enhance their sense of inner peace, help them in thinking more clearly and boost their self-esteem.

Project team members and their roles:

1. **Sahana:** ML Architect and Developer
2. **Disha:** Full Stack Developer and UX Designer
3. **Neha:** Full Stack Developer and UX Designer
4. **Priyanka:** Full Stack Developer and ML Developer
5. **Het:** Full Stack Developer and Backend Architect

Assumptions:

1. Our web application will be compatible with available browsers.
2. There won't be any problems when our web application incorporates machine learning logic.
3. The web application will be a go-to platform for any possible mental health-related resources.
4. Minimum application downtime (only during the maintenance cycle/ maintenance phase).
5. All relevant resources (nearby consultant information, events, doctors listings) will be available at any time on the application.
6. Local suppliers will deliver products on time.
7. Data aggregation from different platforms will always be consistent and available.
8. The web application will be comprehensible by all types of users (regardless of their technical expertise, age, etc.)
9. The web application will be resistant to a data breach (User data), will follow all security guidelines, and data privacy (no user data will be shared in any form or leaked publicly), unless consented by the user and if it is of utmost importance.
10. Payment information (credit card or PayPal information) used for purchasing products on the application will be safe and secure.
11. The making/developing of our web application will go as per the proposed timeline.

Risks:

1. Missing code completion deadlines due to various reasons (personal, other commitments etc.) can affect and delay the feature development and introduce backlogs.
2. Bugs in the code might break the intended functionality of the application.

3. Incorrect estimations (detected mental health issues/categories, invalid or incomplete dataset usage to train model, etc.) might impact the reliability and performance of our application.
4. Missing out key psychological aspects while developing / working on a feature.
5. Emerging competitors with the same / similar product idea and feature may drastically affect the user count.
6. Service recommendations provided to users might not prove to be useful.
7. Might lose the application codebase due to human error and inaccurate backup strategies.

Timeline for completion (you can use the course schedule as a guide, but try to be more detailed):

Bi-Weekly Sprints

Bi-Weekly Sprints	Milestones Planned
Week 1&2 (Aug 22)	<ul style="list-style-type: none"> ● Group Formation and Member Role Specification ● Project Topic Exploration and Selection ● Collaboration Platform Setup ● Project Initiation and Research
Week 3&4 (Sep 5)	<ul style="list-style-type: none"> ● Project Scope Determination ● Project Planning ● Requirements Gathering ● Development of User Stories ● Agile Board Setup ● Project Planning ● Product Roadmap Creation
Week 5&6 (Sep 19)	<ul style="list-style-type: none"> ● Prototyping and UX/ UI Design ● Data and Information Gathering (including finalizing survey fields and dataset) ● APIs selection ● System Architecture Design ● Project Development Initiation ● UML diagrams ● Sprint 1 Planning ● Test plan documentation
Week 7&8 (Oct 03)	<ul style="list-style-type: none"> ● Object Oriented Design ● Sprint 1 Execution:

	<ul style="list-style-type: none"> - User Login Functionality - Home Page - Database Setup - Labels Identification - Categorisation of Products and Events based on Identified Labels - Server Setup - UI Development - Unit Testing <ul style="list-style-type: none"> ● Product Development ● Documentation ● Design Decisions and Implementation ● ML Model Training (survey predictions) and Survey creation ● Data Cleaning and Pre processing. ● Backlog Updation
Week 9&10(Oct 17)	<ul style="list-style-type: none"> ● Continue working on Sprint 1 ● NLP model data collection ● Identification of bugs and Integration ● Integration process ● Documentation ● Sprint 2 Planning ● Creating Test Cases ● Backlog Updation ● Sprint review and retrospective
Week 11&12 (Oct 31)	<ul style="list-style-type: none"> ● Continue working on Sprint 2 ● Sprint 2 Execution: <ul style="list-style-type: none"> - Blog Functionality - Chat Bot Functionality - Shopping Functionality - Events Functionality - API Integration - Video Categorization - Mood Journal Functionality

	<ul style="list-style-type: none"> - Unit Testing ● Creating Test Cases ● Documentation ● Testing Functional Requirements ● Code Integration ● Sprint 3 Planning ● Backlog Updation ● Sprint review and retrospective ● Identification of bugs
Week 13&14 (Nov 14)	<ul style="list-style-type: none"> ● Continue working on Sprint 3 ● Sprint 3 Execution <ul style="list-style-type: none"> - Paypal Sandbox setup - Code Deployment - Code Testing - NLP for mental illness identification model training - Labels for blogs (APIs/train model) - ML Label Integration to Blog, Products, Events - Unit Testing ● Testing Non Functional Requirements ● Documentation ● Work on the final product submission ● Sprint review and retrospective
Week 15&16 (Nov 28)	<ul style="list-style-type: none"> ● Deployment of Web App, Databases on chosen server and final testing in the production environment.

Team Communication plan:

Our team decided on making use of online collaboration tools such as [Notion](#) and [When2Meet](#) for planning and executing our Agile project. We will use [GitHub](#) for coding collaboration and [Google Drive](#) for document sharing. We will meet online once every Monday for weekly updates on [Zoom](#). We plan to meet in person bi-weekly on Wednesdays and Saturdays to solve any blockers and for project implementation and integration.

The Case for the System

Need for the system: Why do we need this product? What purpose does it serve? What key feature does it include?

The primary motivation behind the idea is to help people with possible mental illness to have a space where they can explore various blogs and access stories and experiences which other users have shared, view recreational events, access nearby therapy sessions, listed clinics, and shop products for their mental wellness. In today's market, it is hard to find an application that strives to bring all possible resources to the user facing any mental distress.

Our proposed system aims at helping people to meet and interact with others in similar dilemmas, seek help and share their stories. The user has the freedom to choose the method in which they wish to seek help, like they can choose to watch motivational youtube videos, check nearby therapists locations, list of helpline numbers, or just read some motivational blogs.

The key feature here is the personalized recommendation to a user based on the mental illness detected. We are not being stringent in these recommendations and take surveys periodically (or ask for a response to questions like how are you doing today?, could you describe your state of mind?) to gauge the user's improvement and state of mind.

If your system is an app, why does it have to be a mobile app (not a desktop or a web application)?

Our project is a web application since all the developer's expertise in the team lie in the tech stack needed to build a web application. Although, expanding to build a mobile is part of the future scope.

Current market: What are the other systems that have goals similar to your system (mention some examples)?

In our research, we found a few commonalities in some of the apps. Apps like MindFit and MindKit focus on changing people's mood and help them in coping up with their mental illness by providing them with their inhouse content which can be customized by users. We envisage to achieve the same by aggregating content and providing it to the user based on the category of mood/mental illness they fall in. These apps also have a feature which enables users to write journals, which will help the app better understand their mood/ mental illness. While other systems are focused on dealing with specific kinds of mental illnesses, we aim to provide a platform to evaluate and then provide help to cope with a wide range of mental health issues.

What criticism do you have about them?

During our research, we found that most of these systems are running on a paid subscription model which makes it difficult for people from varying economic backgrounds to get help for their mental health issues.

Some of these top-rated apps are only supported on iOS devices which limit the reach of the app. These apps don't aggregate content and upload their in-house content instead.

Competitive analysis: What is "new" about the system? Is it the idea, or is it the way it approaches a solution that already exists?

Vikara provides a platform for aggregating products and events that gives the user the freedom to choose. As described before, there are plenty of mental health applications that cater different solutions to overcome the problem. The approach in ours is different compared to current applications as far as our research is concerned.

How do you think your system will be different or better than existing products?

Vikara doesn't require any prior knowledge of people's mental illness/mood. It takes a survey which will be based on certain metrics which involves basic behavioral questions followed by an optional text response to get a better understanding of one's state of mind. Our primary goal is to present solutions that draw content from several platforms together. The primary distinction is the user's individualized recommendation based on the identified mental ailment. We don't have any guidelines for these recommendations, and we frequently survey users to see how they've improved.

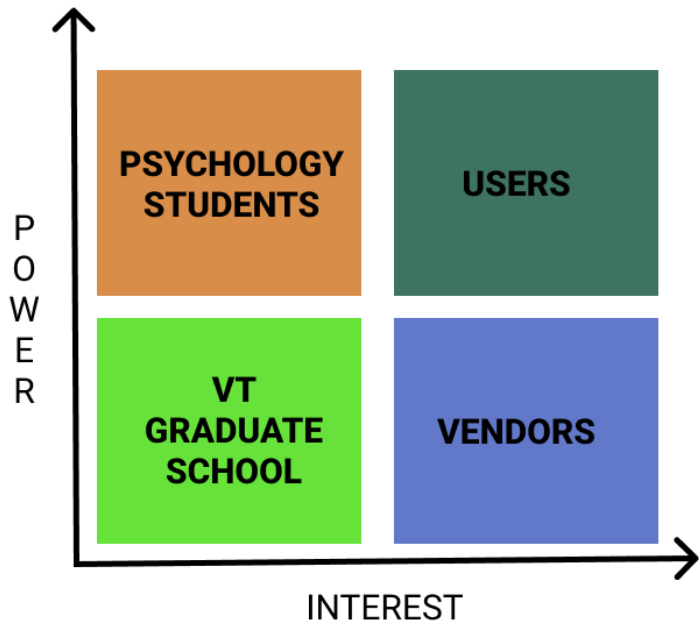
Stakeholder Analysis

Stakeholder register:- Users (people with possible mental illness, families), local vendors, suppliers, distributors (will be using our platform to sell their products), physicians/doctors/consultants in the user's neighborhood (care givers), psychology students, Virginia Tech grad school.

Name	Position	Contact Info	Business needs	Influence	Classification (Resistor, Supporter, Neutral, Leader)
End Users	Primary Users	-	Customer experience and feedback	High	Neutral
Local vendors	Supplier	-	Products and Services	Medium	Supporter
Psychology students	VT students	-	Data and information	Medium	Supporter

Virginia Tech grad school	Owner	(540) 231-8636	Infrastructure	High	Leader
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Stakeholder Matrix:



Team Dynamic

What skills do your team members bring to this project?

Technically, Disha, Het, Neha and Priyanka bring Software Engineering and Development skills whereas Sahana would be contributing to the Machine Learning portion of the project. All the members would be equally involved in the development, testing, documentation and project management.

What skills are missing, and you'll need to learn to deliver the system?

Domain knowledge about cognitive psychology would be crucial to understanding the importance of parameters that are part of the dataset for predictions in the application. Integrating our machine learning model with our Front-end and back-end applications. Hosting our web application using some reliable hosting service is a step which will require some thorough research.

How are you planning to obtain such missing skills?

We plan to engage with psychology students to learn more about the field and get their inputs on how to improve the metrics for our survey. We will learn about integrating our machine learning model and hosting the web application by reading appropriate documentation and referring to videos and other resources.