

Artificial Intelligence  
PROJECT REPORT  
Group-12

# ADVIKA - Let's talk about it

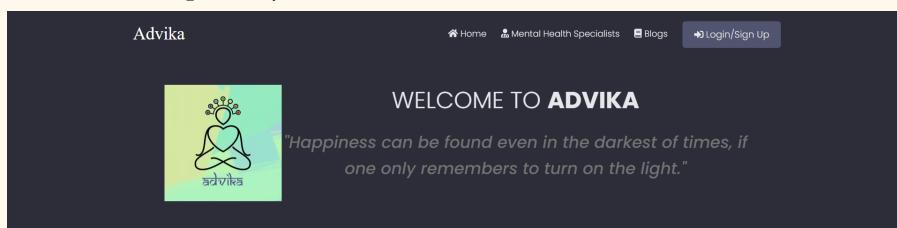
## A Mental Health Website



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## PROBLEM STATEMENT

A pandemic is more than just a medical emergency; it affects people and society, causing chaos, anxiety, stress, stigma, and xenophobia. The dynamics of a pandemic, including the amount of severity, degree of flow, and after-effects, are heavily influenced by an individual's behaviour as a unit of society or a community. Isolation, social alienation, and the shutdown of educational institutions, employment, and entertainment venues forced people to stay at home in order to assist break the transmission cycle. The restrictive measures, on the other hand, have clearly had a negative impact on people's social and mental health. In recent years, there has been a rise in public awareness of mental illness and the need for treatment. This is due in major part to initiatives aimed at raising awareness of depression, addiction, bipolar disease, and suicide, as well as more celebrities openly discussing their personal mental health issues. Despite this advancement, many people who require mental health treatment do not seek it. According to a survey conducted by the World Health Organization, between 30 to 80 percent of people suffering from mental illnesses do not seek treatment. This includes 50% of people who have bipolar disorder, 55% of people who have panic disorder, 56% of people who have significant depression, and a staggering 78 percent of persons who have alcohol use disorder. People don't talk about mental health therapy or refuse to receive it because of the stigma attached to it. Furthermore, these treatments are not inexpensive, thus there are a variety of reasons why mental health is frequently overlooked.



### About Us

We are dedicated to not only help the user to work on their mental health but also helps in raising awareness and People who are not doing well mentally need resources (meditation, blogs), want to talk to someone or maybe just need some guidance from experts or even track your days for how you have been doing, this all can be done in one place.

### Our Features



Contact a Mental Health Specialist



Read and Write Blogs



Keep track of your daily moods



## WORKFLOW

After considering all of society's current issues, we decided to launch Advika-Talk Let's About It, a mental health website. It's an all-in-one online platform for all of your mental health needs. We believe that there is currently no platform that can meet the needs of a variety of users while also being user-friendly. The website serves as a friend with whom individuals may discuss their feelings, making it simpler for them to confess and feel better about themselves, allowing them to be more productive and energetic in life.

Our website Advika is not just a website but a whole package having various attractive features that not only help the user to work on their mental health but also help in raising awareness and also lending a helping hand to those in need.

People who are not doing well mentally need resources (meditation, blogs), want to talk to someone or maybe just need some guidance from experts, or even track your days for how you have been doing, this all can be done in one place.

Advika will have the following features that will try to solve the current problems in the society regarding mental health and would also try to make the people aware of mental health:

 <b>01</b> <b>CHATBOT</b>	 <b>02</b> <b>BLOGS</b>
<p>The user can interact with the chatbot and not be scared to talk to a bot and feel better.</p>	<p>The website will also have blogs on mental health so, users can refer to them or read them to collect information on mental health.</p>
 <b>03</b> <b>PLANNER/TRACKER</b>	 <b>04</b> <b>PSYCHOLOGIST / SPECIALIST</b>
<p>The user can record on the website how their day went and can refer to them later on to check for any pattern of any mental illness.</p>	<p>The user can also find information about psychologists/Specialists on our website.</p>

**Advika**

Home Mental Health Specialists Blogs Inbox Tracker Appointments Account Logout



**Utkarsh Goel ✓**

Dr. Utkarsh Goel is one of the best psychiatrists in Chennai, currently associated with Apollo Hospitals. 1000 Rs per session

Mental Health Specialist  
Based in Chennai

[Send Message](#) [Create An Appointment](#)

### ABOUT ME

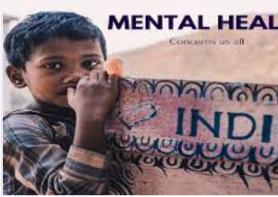
Dr. Utkarsh Goel, M.D., is a board-certified psychiatrist with a certificate of additional qualifications in addiction psychiatry, a dedicated community psychiatrist with extensive experience in public and private inpatient and outpatient settings, and an experienced psychiatric administrator who continues active clinical practice with seriously mentally ill and dually diagnosed patients.

### QUALIFICATION

**Bachelor's degree in psychology**

I graduated from Harvard with a Bachelor's in psychology.

### BLOGS



**Is Mental Healthcare Equally Accessible To All Indians?**  
By Utkarsh Goel  
100% Positive Feedback (1 Vote)

MentalHealth Anxiety



**Are We Chasing Unhappiness?**  
By Utkarsh Goel  
0% Positive Feedback (0 Votes)

MentalHealth Anxiety



*(User Interface and contacting a Mental Health Specialist)*

**Advika**

- [Home](#)
- [Mental Health Specialists](#)
- [Blogs](#)
- [Inbox](#)
- [Tracker](#)
- [Appointments](#)
- [Account](#)
- [Logout](#)

## SEARCH FOR BLOGS

Search by Blog Title

Search

### TAGS

Selfcare(3)   Selflove(4)   MentalHealth(6)   Anxiety(7)



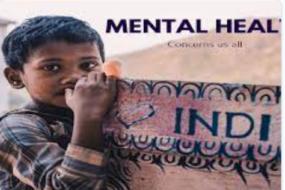
**HELP YOUR CHILD WITH LEARNING DISABILITY THROUGH REMEDIAL THERAPY.**  
By Rishabh Kaushik  
100% Positive Feedback (1) Vote

Selfcare   Selflove



**Is Mental Fitness Part of Your Workout Routine?**  
By Shishir  
100% Positive Feedback (1) Vote

MentalHealth   Anxiety



**MENTAL HEALTH**  
Concerns us all  
**Is Mental Healthcare Equally Accessible To All Indians?**  
By Utkarsh Goel  
100% Positive Feedback (1) Vote

MentalHealth   Anxiety



**What to Eat for Optimal Mental Health**  
By Naman Cheetu  
100% Positive Feedback (1) Vote

MentalHealth   Anxiety



**Are We Chasing Unhappiness?**  
By Utkarsh Goel  
0% Positive Feedback (0) Votes

MentalHealth   Anxiety



**Tips For Getting Through the Worst Days**  
By Kunal Mahajan  
0% Positive Feedback (0) Votes

MentalHealth   Anxiety   Selfcare  
Selflove

1   2   Next >

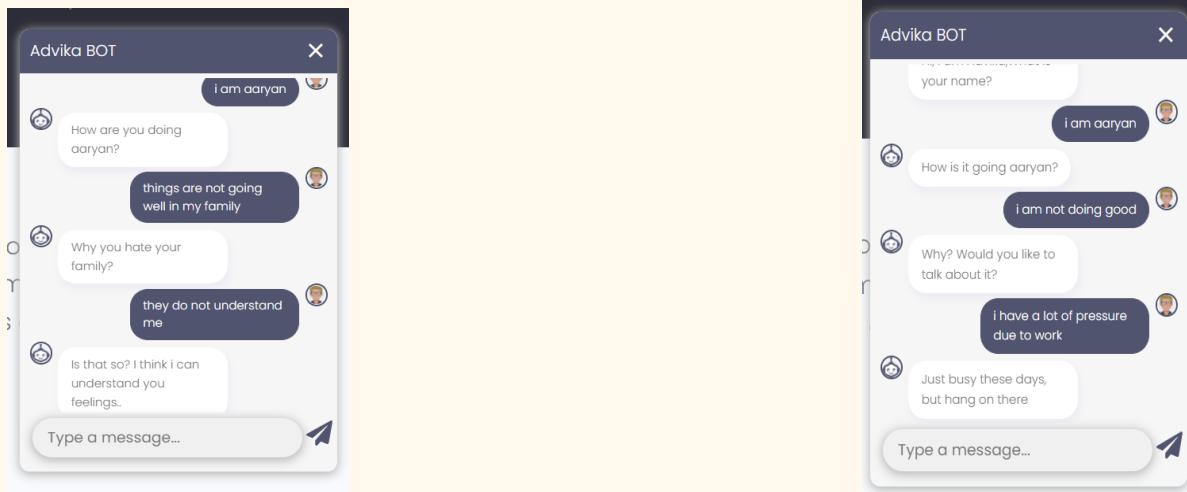


*(Reading and Writing Blogs is one of most important feature of our website)*

# AI MODELS/COMPONENTS

## 1. CHATBOT

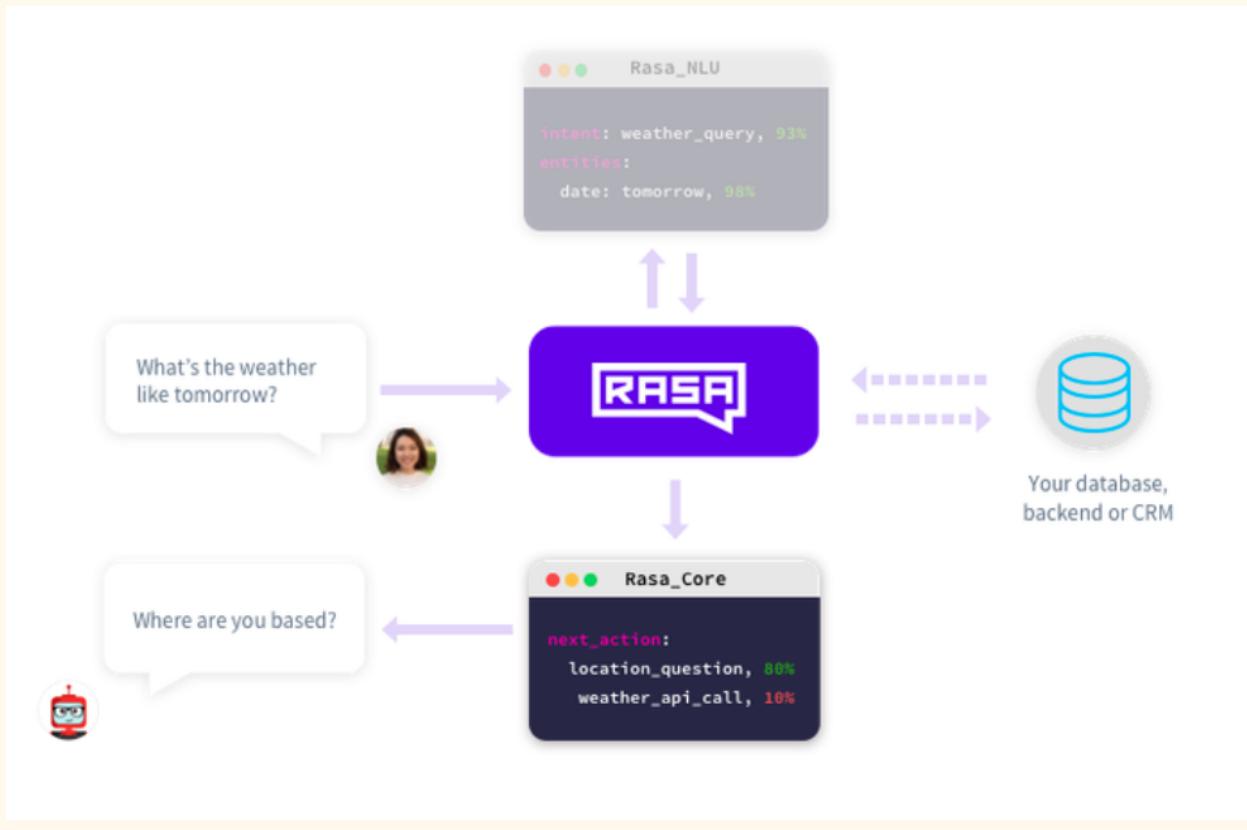
Chatbots are artificial intelligence systems that can communicate and engage with humans in spoken, written, and visual languages. Chatbots have the potential to be effective tools for people with mental illnesses, especially those who are afraid of being stigmatised, if they seek help. So, we thought of developing a chatbot for our mental health website so that people can find a friend on our website and talk about things that they usually don't, and feel better.



(User Interaction with the Chatbot in the Website)

We implemented the chatbot using RASA Framework which is an open-source machine learning framework for building AI assistants and chatbots for the following reasons:

- The best part about the open-source platform is that they can be integrated into existing systems without any hassles, which will be beneficial to leverage all the benefits of various backend systems too.
- The Rasa platform is customizable and flexible enough to modify as per your needs that saves your business funds and also helps you get accurately what you want.
- Rasa offers the option to monitor various analytics and data of your AI chatbot. This platform allows you to generate a report which helps you to understand how your users are engaging with AI chatbots and vice versa.
- The Rasa AI chatbot works based on interactive learning
- There is no need to adjust and can run the conversational AI on whichever platform you prefer.
- Rasa never works as a state machine. It is being an AI chatbot, it will be conversing with real people, and the conversations also act as data for the chatbot.



(RASA Framework)

## CHATBOT WORKING

Rasa has two main components:

- **Rasa NLU (Natural Language Understanding):** Rasa NLU is an open-source natural language processing solution for intent classification (determining what the user is asking), entity extraction in the form of structured data from the bot, and assisting the chatbot in understanding what the user is saying.
- **Rasa Core:** Instead of utilising an if/else statement, a chatbot framework with machine learning-based dialogue management takes structured information from the NLU and predicts the next optimal action using a probabilistic model like an LSTM neural network. It also employs reinforcement learning to enhance the prediction of the next best action under the hood.

In other words, the Rasa NL U's job is to interpret the input provided by the user in the form of structured data and Rasa Core's job is to decide the next set of actions performed by the chatbot. Rasa Core and Rasa NLU are independent of each other and can be used separately.

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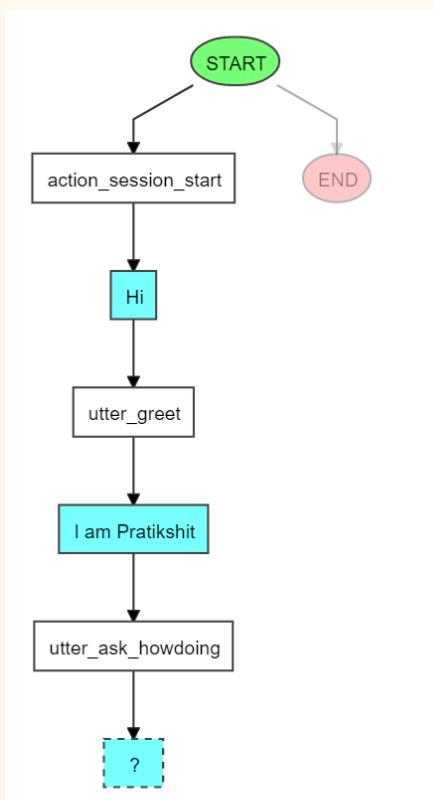
2021-11-26 22:49:31 INFO root - Rasa server is up and running.
Processed story blocks: 100% | 54/54 [00:00<00:00, 1568.7iit/s, # trackers=1]
Bot loaded. Visualisation at http://localhost:5006/visualization.html .
? Your input -> Hi
? Your NLU model classified 'Hi' with intent 'greet' and there are no entities, is this correct? Yes
-----
chat History
# Bot YOU
1 action_listen
2           Hi
            intent: greet 0.99

Current slots:
  name: None, session_started_metadata: None

? The bot wants to run 'utter_greet', correct? Yes
-----
chat History
# Bot YOU
1 action_listen
2           Hi
            intent: greet 0.99
3   utter_greet 1.00
  would you like to introduce yourself?

Current slots:
  name: None, session_started_metadata: None
-----
```

(Chatbot Interacting and Learning)



(Chatbot Visualization)

## 2. MOOD TRACKER

Mood Tracker is one of the most important and unique features of our website. This feature can be used by the user to track their moods over a period and see why they were sad/happy and can be later on used by the user to even show it to the mental health specialist. The mood tracker contains two sentiment analysis implementations, PatternAnalyzer (based on the pattern library) and NaiveBayesAnalyzer are two tools for analysing patterns (an NLTK classifier trained on a movie reviews corpus). PatternAnalyzer is the default implementation, but you can change it by passing another implementation. The NaiveBayesAnalyzer, for example, returns a named tuple of the type Sentiment(classification, p\_pos, p\_neg).

The screenshot shows a user interface for a mood tracker. At the top, there is a dark header bar with the name "Adviqa" and various navigation links: Home, Mental Health Specialists, Blogs, Inbox, Tracker, Appointments, Account, and Logout.

Below the header, there is a summary dashboard with four cards:

- TOTAL ENTRIES**: 8
- STREAK**: 1
- MOOD CHANGE**: 0.59
- AVG MOOD Pattern**: -0.03

On the left side, there is a section titled "Today's Day Description" containing a "Day Description" button and a "MY DAY" text area. The "MY DAY" text area contains a paragraph about the user's day, mentioning their iPhone shutting down and them forgetting their laptop charger.

On the right side, there is a "Tracker Trend" chart showing mood fluctuations over time. The x-axis represents dates from November 5, 2021, to November 26, 2021. The y-axis represents mood values ranging from -0.5 to 0.5. The chart shows a general upward trend with some fluctuations.

At the bottom center, there is a button labeled "See all Day Descriptions". On the far right, there is a small circular icon with a stylized face.

(Mood Tracker Page)

## OTHER FEATURES

### 1. BLOGS

Mental health experts often feel the need to express their opinions and thoughts on some broadcasting platform so as to benefit those people who are going through various mental illnesses. Also, people who have fought against their mental illnesses, depression and other personal battles and won, are often motivated to help others facing the same problems.

Keeping this in mind, we have implemented a blogs section in our website wherein people can express their thoughts, opinions and testimonies.

People struggling with mental health can read these blogs and feel motivated and positive.

Our blog application also provides the functionality to rate blogs (upvote/downvote) and add comments. A user can also contact the author of a particular blog via the separate inbox functionality.

### 2. MHS INBOX

Once a user finds his/her suitable specialist from the ‘Mental Health Specialists’ page, the user can contact the specialist using the built-in inbox feature. Here, the user and the specialist can chat about any issues and get a one-on-one consultation.

### 3. APPOINTMENT BOOKING

We also provide the feature of book appointments for therapy/consultation sessions from the Mental Health Specialist of your choice. The Mental health specialist has the ability to confirm or reject an appointment generated by any user.

Once the appointment has been confirmed or rejected, an email is sent to the user.

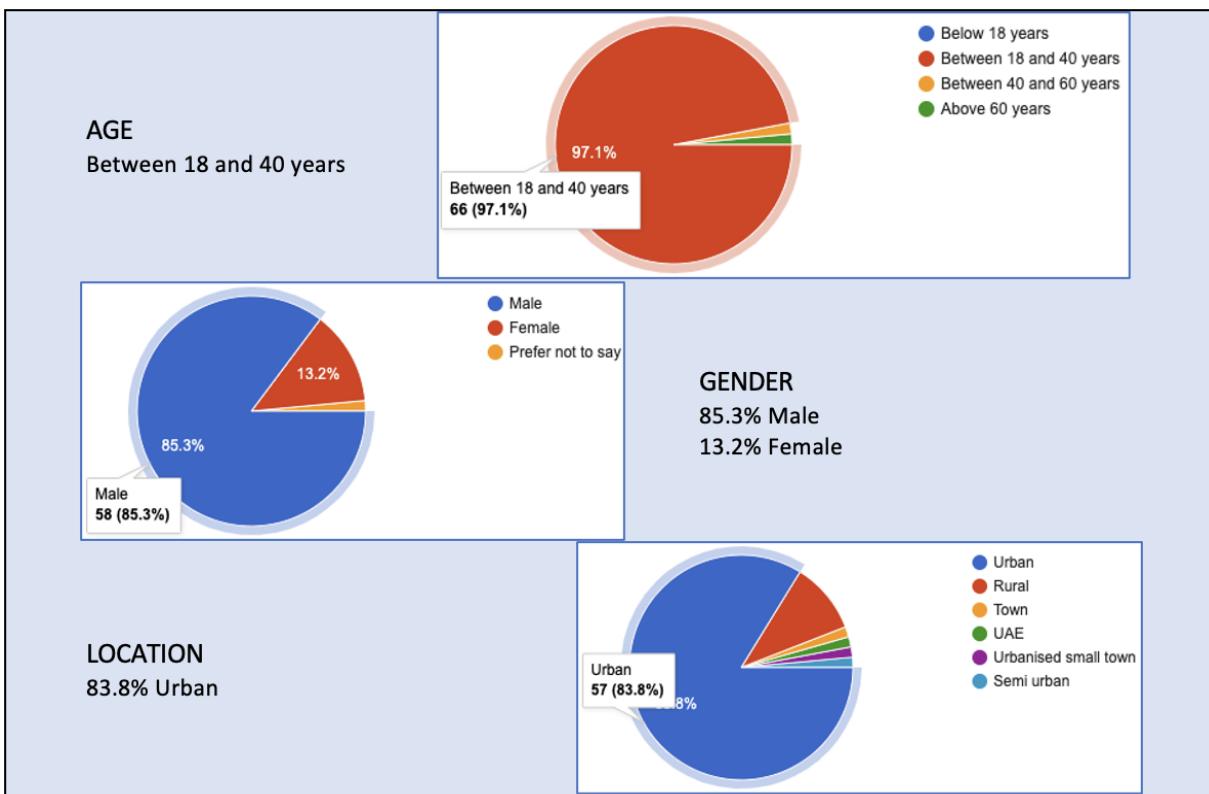
## OBSERVATIONS FROM SURVEY

Mental health has a direct impact on academic success and it is important to cultivate practices that support emotional well-being. When mental health is overlooked, it can have detrimental effects on the individual and the community. 1 in 4 adults live with a mental health disorder.

1,100 college students die by suicide each year and regrettably, suicide is the 2nd leading cause of death for college students.

We had conducted a survey to assess the mental health of different individuals in different age groups and the impact of online mental health platforms in the current scenario.

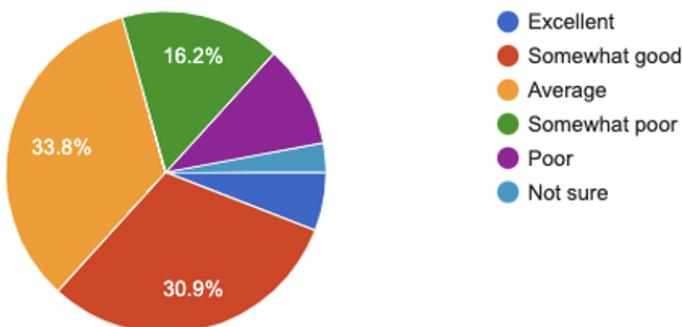
### DEMOGRAPHIC



## KEY OBSERVATIONS

Overall how would you rate your mental health?

68 responses



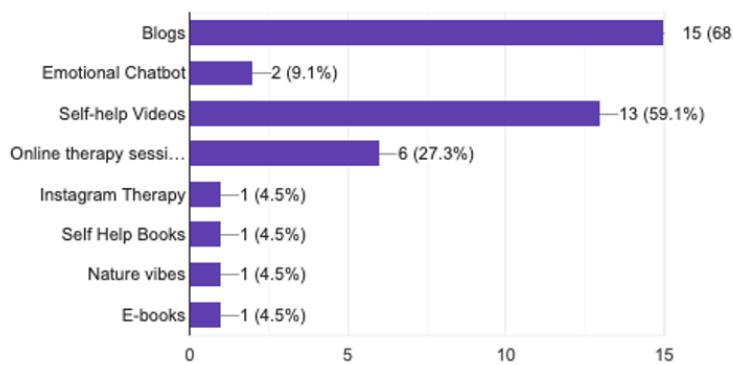
From the above statistics, it can be inferred that most people do face mental health issues or are concerned about their mental-wellbeing.

Maximum, 33.8% of people who took the survey rated their mental health as 'Average', 30.9% rated it as 'Somewhat good' and 16.2% rated it as 'Somewhat poor'.

Hence, there is a clear need to address this issue and our team has come up with a solution, Advika, a mental-health website, which imparts mental-wellbeing.

If yes, which of the following resources have you referred to?

22 responses



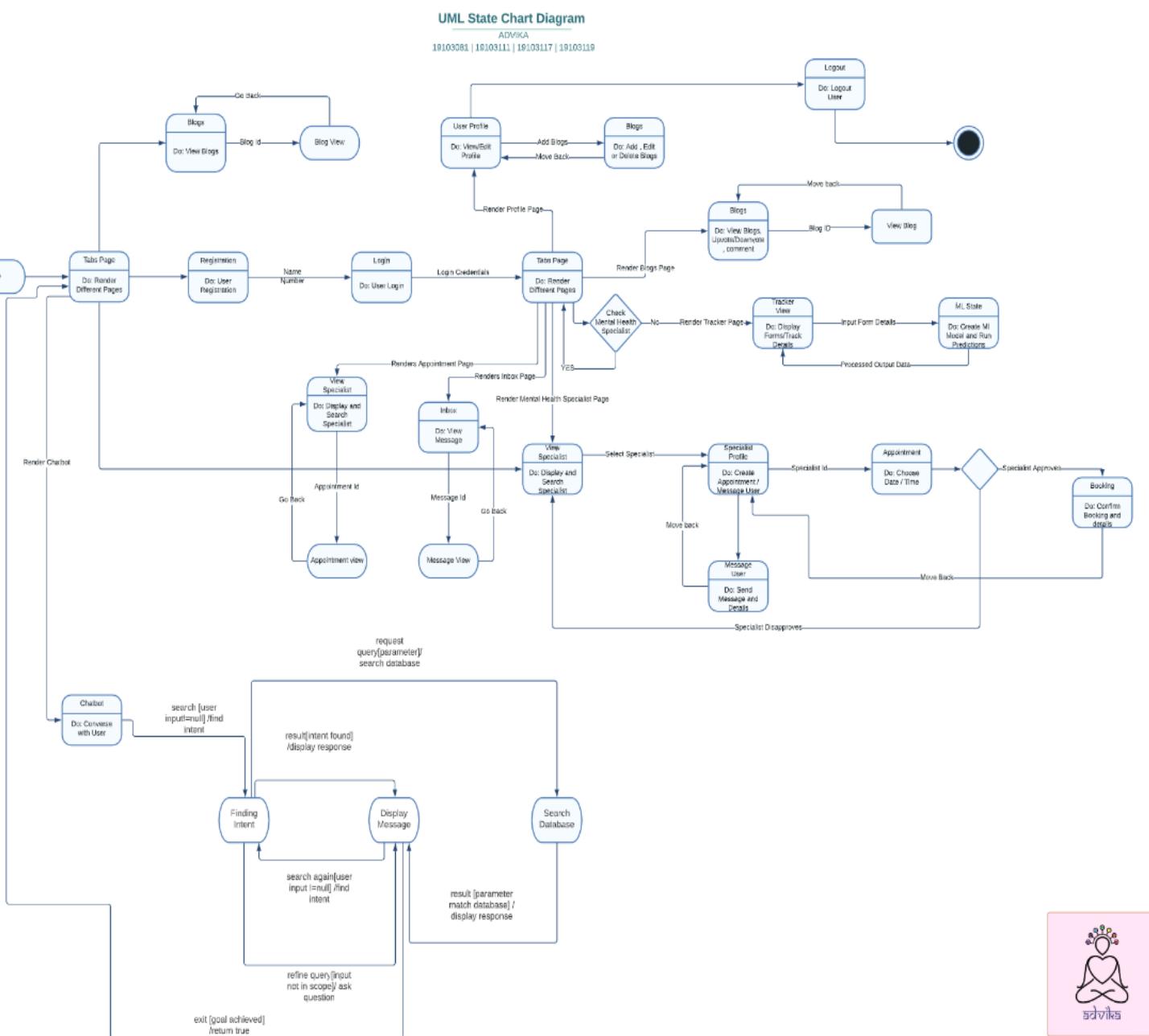
In our project, we have included all of the online resources and features that most of our surveyed people have already referred to in the past.

Our primary objective was to create a single platform which culminates all of these popular features that users generally expect from a mental health website.

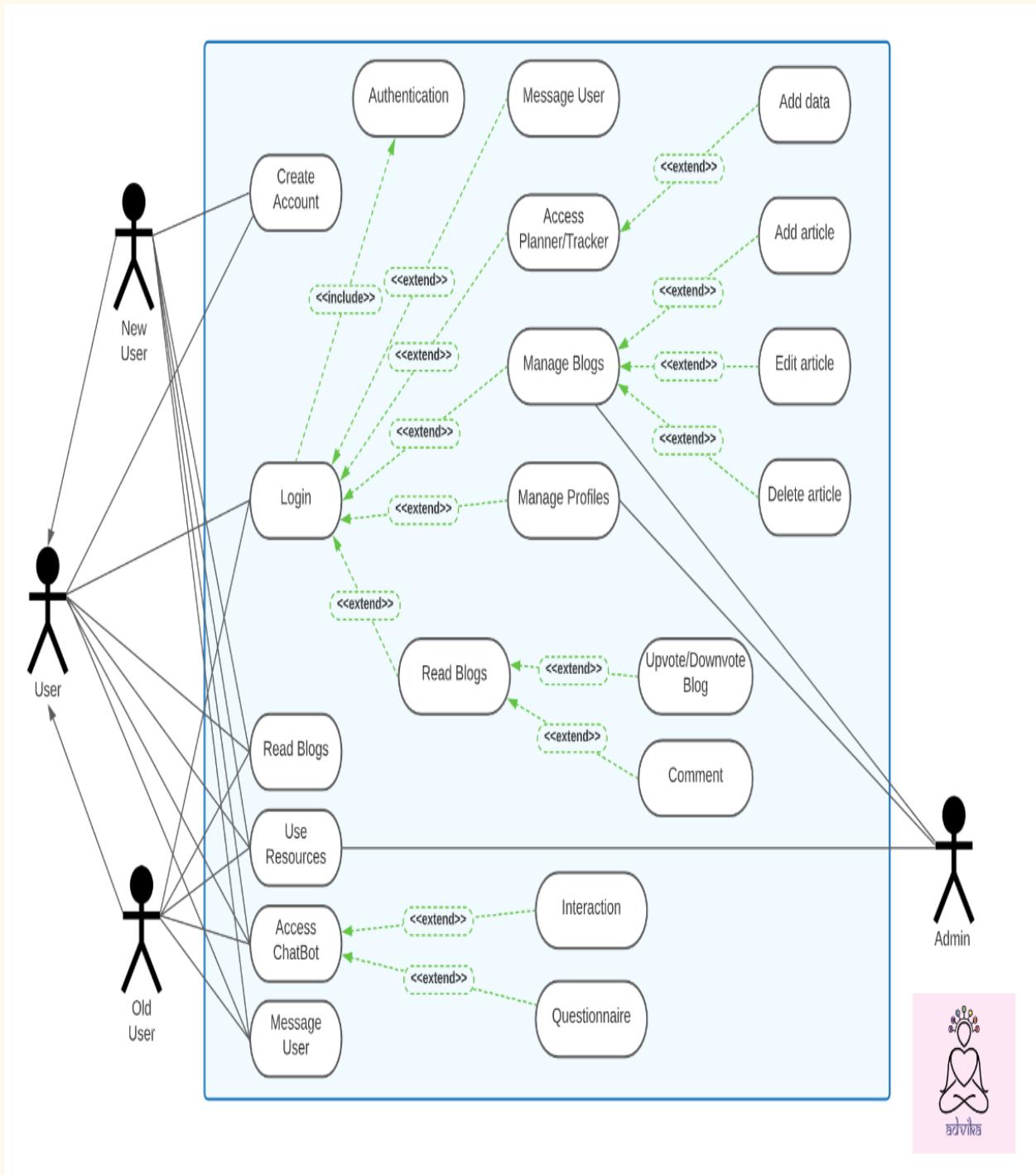
We have attempted to create a one-of-its-kind website that takes the best of all resources available on a single platform.

Reading and writing blogs, contacting mental health specialists, self-help videos, an emotional chatbot and mood tracker are all included in our website and focus on catering to the varied needs of all types of users.

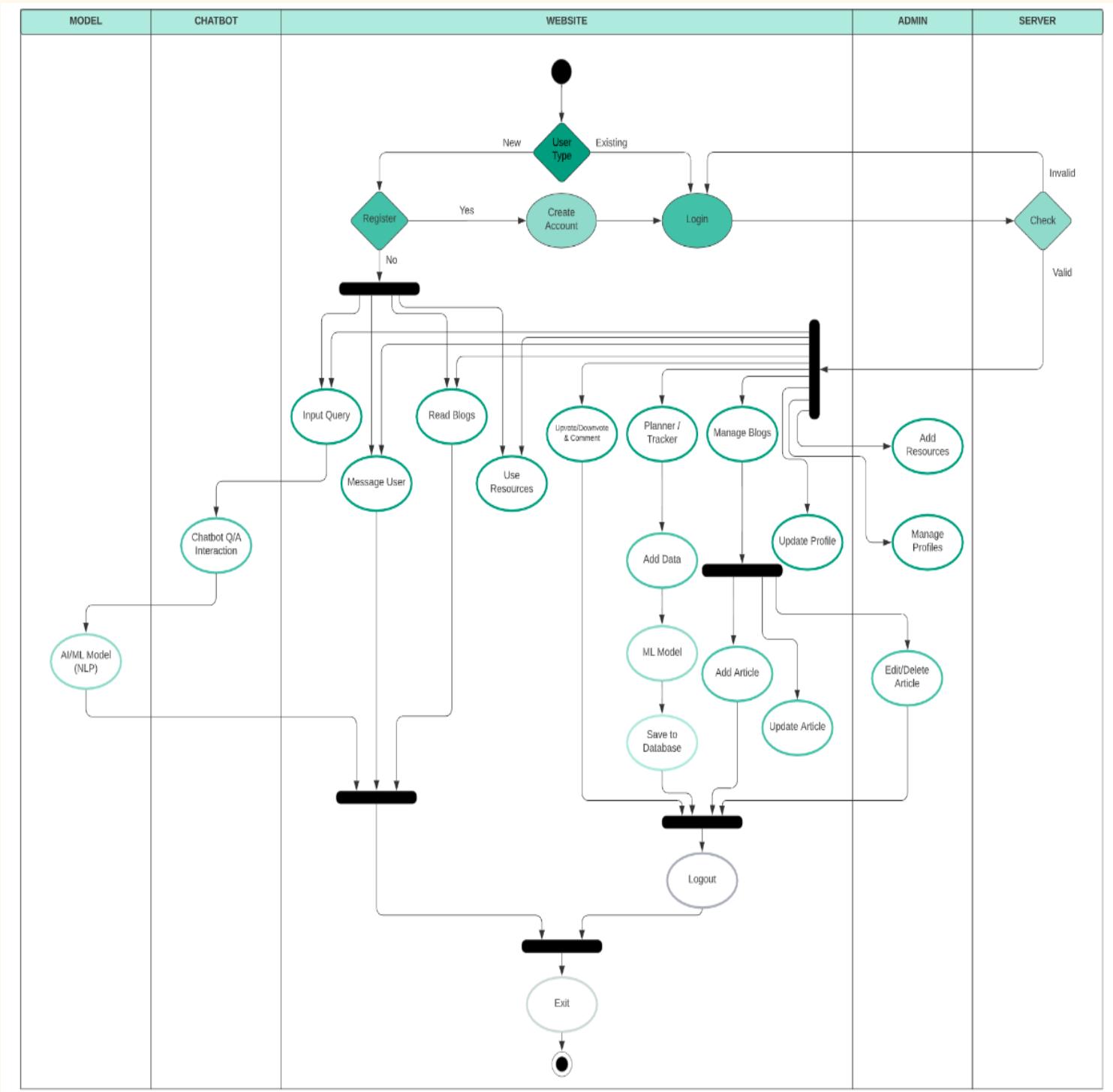
# State Chart Diagram



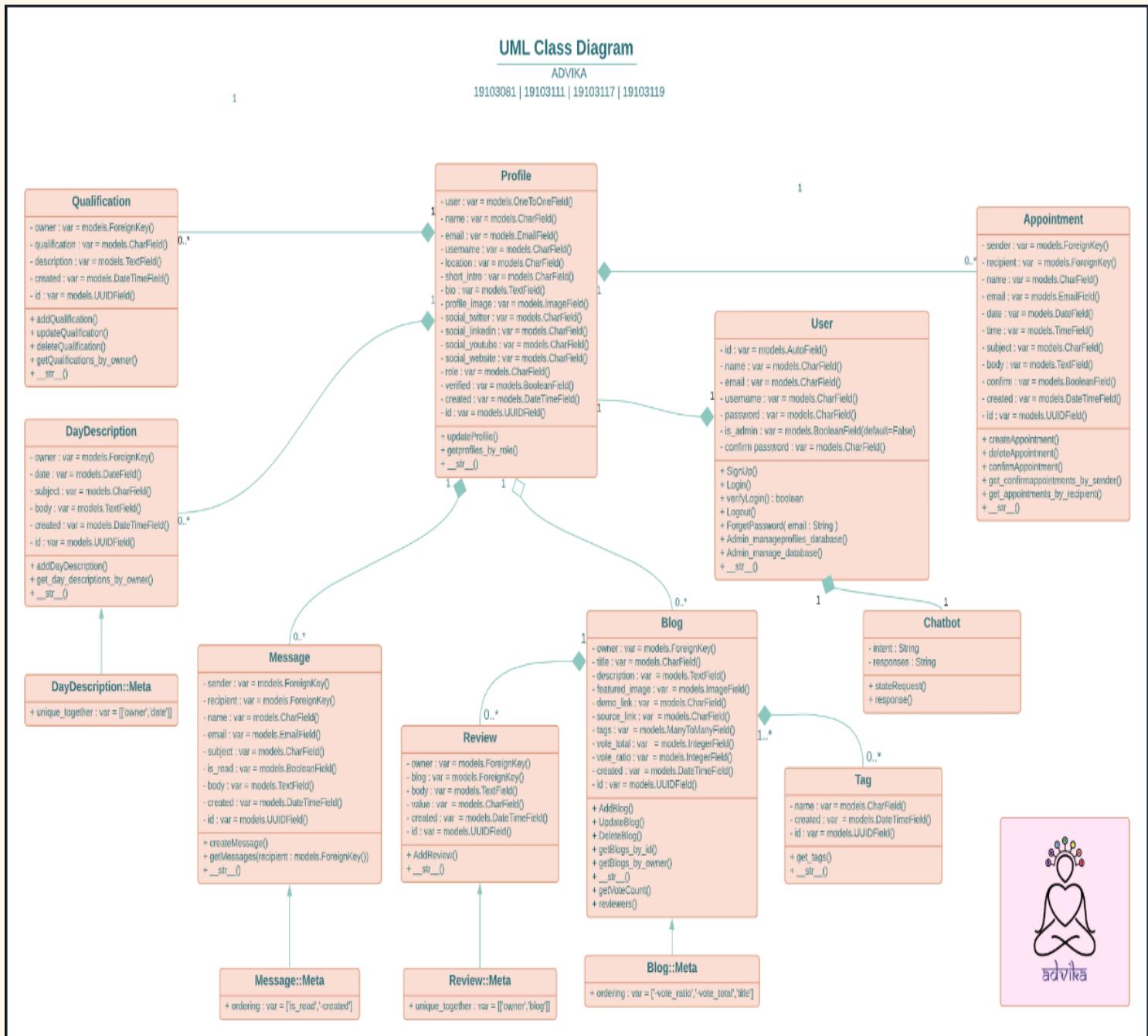
# Use Case Diagram



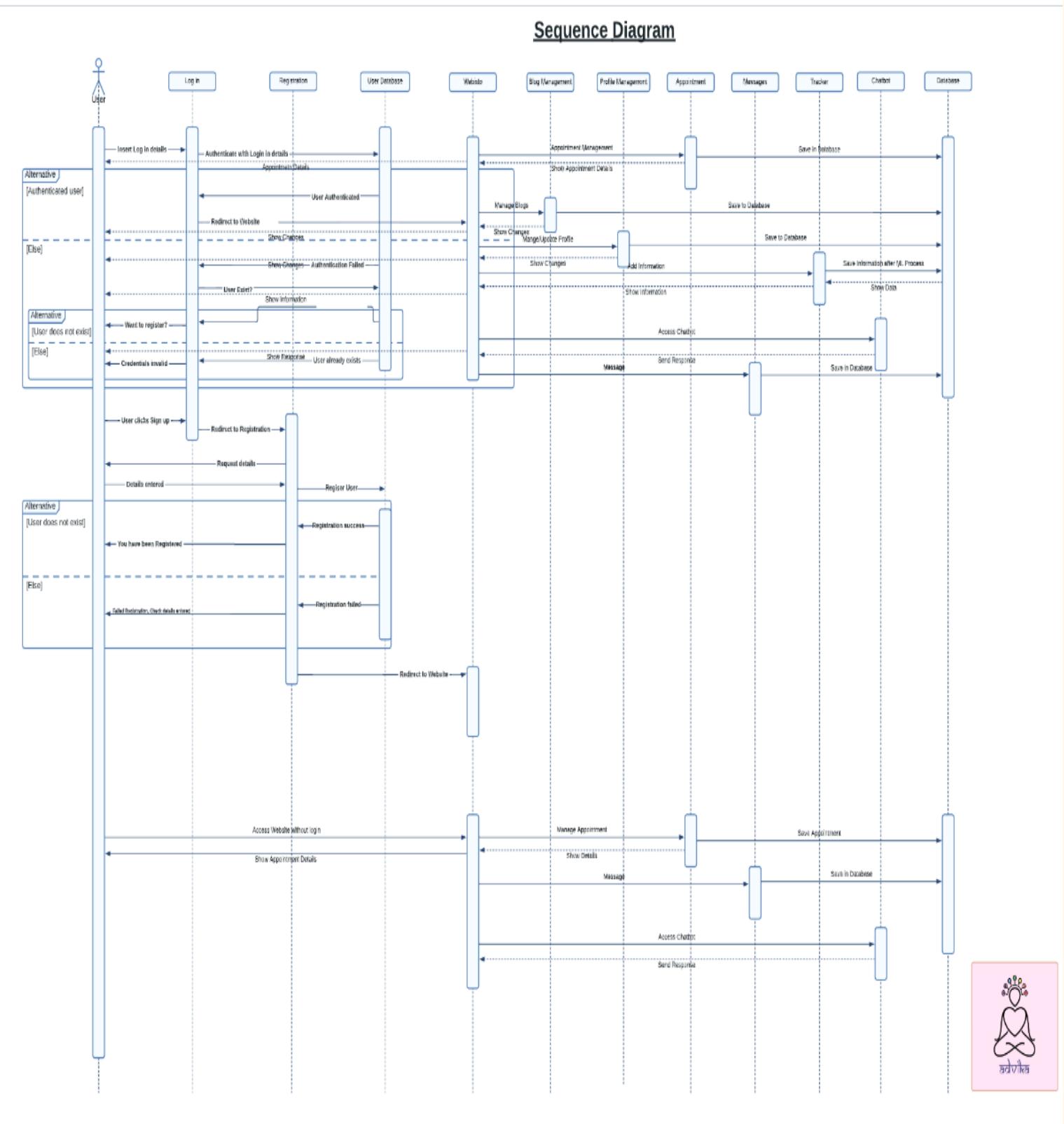
# Activity Diagram



# Class Diagram



# Sequence Diagram



## CONCLUSION

We wanted to build/develop something that could help people talk/learn more about mental health issues because due to the stigmatization of mental health issues it is difficult for people to talk about it. We built Advika to achieve all of the above things and used various technologies to achieve this goal. We developed a site that is all-in-one, which included blogs for more awareness, appointment booking with mental health specialists all across the globe, a mood tracker to track your moods, and a chatbot with whom you can talk without the fear of getting judged. We wanted to make this world a better place for everyone and building this website it's a step towards a happier world.

## FUTURE SCOPE

- We will monetize the website and add transaction features
- Making the site available in various languages
- Adding videos/other types of resources
- Open a physical fitness segment of the website

## REFERENCES

- <https://textblob.readthedocs.io/en/dev/>
- <https://docs.djangoproject.com/en/3.2/>
- <https://rasa.com/docs/rasa/>
- <https://github.com/RasaHQ>
- <https://github.com/Advika-Minor-Project/SE-Submissions>