Inner Ease: Adult Mental Health And Wellness

Submitted to the
Department of Master of Computer Applications
in partial fulfilment of the requirements
for the Mini Project (MCAP1)

by

Rana Dhruv
1MS22MC033

Under the guidance of

Assistant Professor
Dr. Madhu Bhan

Department of Master of Computer Applications

RAMAIAH INSTITUTE OF TECHNOLOGY

(Autonomous Institute, Affiliated to VTU)
Accredited by National Board of Accreditation & NAAC with 'A+' Grade
MSR Nagar, MSRIT Post, Bangalore-560054
www.msrit.edu

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RAMAIAH
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DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

CERTIFICATE

This is to certify that the project entitled **Inner Ease: Adult Mental Health and Wellness** is carried out by

Student Name	USN
Rana Dhruv	1MS22MC033

students of 3rd semester, in partial fulfillment for the Mini Project (MCAP1), during the academic year 2023-2024.

Guide **Head of the Department**

Dr. Madhu Bhan

Name of Examiners **Signature with Date**

1.

2.

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I would like to acknowledge that this project was completed entirely by me and not by someone else.

Rana Dhruv

1MS22MC033

DECLARATION

I hereby declare that the project report entitled "**Inner Ease: Adult Mental Health and Wellness**" based on study undertaken by me, towards the partial fulfilment for the Mini Project (MCAP1) carried out during the 3rd semester, has been compiled purely from the academic point of view and is, therefore, presented in a true and sincere academic spirit. Contents of this report are based on my original study and findings in relation thereto are neither copied nor manipulated from other reports or similar documents, either in part or in full, and it has not been submitted earlier to any University/College/Academic institution for the award of any Degree/Diploma/Fellowship or similar titles or prizes and that the work has not been published in any specific or popular magazines.

Place: Bangalore Name: Rana Dhruv

Date: USN: 1MS22MC033

ABSTRACT

The goal of the Mental Health Care for Adults online application is to offer users complete mental health education and assistance. Users may register on this platform, provide personal information, and access a variety of materials related to mental health. The application guarantees a flawless user experience by using the Next.js framework for UI development and Node.js with Express.js for backend communication.

After registering, customers may receive individualized health information and monitor their advancement over time by logging into their accounts. The application's main feature is a health check module that allows users to enter their symptoms and basic medical data. The application suggests possible illness labels based on this input, giving users a better understanding of their mental health.

Additionally, the app helps users connect with medical specialists by offering details on physicians that specialize in pertinent conditions. Data security and dependability are guaranteed by the application's integration with MySQL Workbench for database management.

All things considered, the Mental Health Care for Adults online application empowers people to take charge of their mental health by providing a user-friendly interface, personalized health insights, and access to expert care.

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1. Introduction

1.1 Overview

The web application Mental Health Care for Adults is a comprehensive resource aimed at helping users become more conscious of and supportive of mental health concerns. Fundamentally, the platform provides a range of tools meant to enable people to properly manage their mental health. Users may safely register accounts and get personalized services that are catered to their individual requirements thanks to faster user registration and authentication processes. The Health Check Module, which allows users to enter symptoms and basic health data to produce probable illness names and obtain useful insights into their mental health condition, is the application's most notable feature. Users may trust that the information in this directory is accurate and relevant. Mind games designed to enhance cognitive abilities and a blog area providing insightful information and resources on mental health issues complement these features. Moreover, users may investigate worldwide mental health patterns via an analysis website and offer input to continuously improve the platform's functioning. The Mental Health Care for Adult online application aims to be a comprehensive resource for those looking to proactively manage their mental health. It is powered by Next.js for UI development, Node.js with Express.js for backend connectivity, and MySQL Workbench for database administration.

1.2 Problem Definition

In today's world, getting timely mental health treatment is still quite difficult. This difficulty is made worse by the dearth of widely available platforms that are specifically designed to provide mental health care. The inefficiency and accessibility of traditional healthcare systems frequently prevent people from getting the support they need and contribute to the stigma associated with mental health problems. An extensive web application devoted to adult mental health treatment is desperately needed to solve this. Accessible tools for mental health awareness, health screenings, relationships with medical experts, educational materials, and peer support should all be available on such a platform. In order to guarantee user confidence while disclosing sensitive information, data security and privacy are crucial. This online application attempts to empower people to proactively manage their mental well-being, lessen stigma, and create a supportive community around mental health treatment by offering a centralized centre for mental health resources and assistance.

2. Literature Survey

TITLE	YEAR	METHODOLOGY	OUTCOME
Mental health knowledge and awareness among university students in Bangladesh	2022 Oct 18	Data was gathered from five disciplinary schools across 96 universities in Bangladesh, with students selected proportionally. Excluded were medical, public health, and psychology students due to potential prior exposure to mental health concepts in their curriculum.).	Knowledge and awareness domains were rated on a scale of one to five, with scores ranging from 24 to 120 for knowledge and 12 to 60 for awareness. Scores were categorized using an 80 percent cut-off (96 for knowledge, 48 for awareness) to indicate higher or lower levels of knowledge and awareness. .
Psychosocial work exposures and health	2021 Oct 1	A systematic review conducted between 2000 and 2020, following PRISMA guidelines, surveyed PubMed, Web of Science, Scopus, and PsycINFO databases. It included literature reviews and IPD-Work consortium studies examining the link between psychosocial work exposures and health outcomes, providing meta-analytic pooled estimates, and evaluating review quality.	The analysis comprised 72 reviews and IPD-Work studies, emphasizing job strain, cardiovascular diseases, and mental disorders. Stronger associations were found between psychosocial factors and mental disorders than cardiovascular diseases, particularly with job/high strain and long working hours linked to coronary heart diseases, stroke, and depression, alongside

			other significant associations.
The severe outbreak of COVID-19 has affected the mental health of Indians	June 20, 2020	This review aims to define and implement peer support (PSWs) in local mental health services, addressing methodological questions such as evidence selection and intervention definition. A pluralistic approach was adopted, considering multiple sources of evidence and data types. Published literature mainly consists of qualitative studies, with small sample sizes and descriptive designs. Randomized manipulation may change peer services based on inclusion and empowering culture. Understanding narrative, personal, and qualitative accounts is valuable for understanding PSW's effectiveness in mental health services.	A notable portion of participants reported moderate to extremely severe levels of depression (25%), anxiety (28%), and stress (11.6%). Binary logistic regressions found associations between mental health symptoms and factors such as employment status, gender, and binge drinking, highlighting their significance in predicting depressive, anxiety, and stress symptoms.

3. Hardware and Software Requirements

3.1 Hardware Requirements

- Processor: Multi-core processor with sufficient processing power to handle web traffic.
- RAM: At least 4GB RAM, though higher amounts may be necessary depending on the expected user load.
- MySQL Server or similar database management system capable of handling relational data efficiently.

3.2 Software Requirements

- **Frontend Framework**: Utilize Next.js for frontend development to ensure efficient rendering and seamless user experience.
- **Backend Framework**: Implement Node.js with Express.js to handle server-side logic, routing, and API endpoints.
- **Database Management System**: Utilize MySQL Workbench for database management, ensuring secure storage and efficient retrieval of user data.
- **User Authentication**: Implement user authentication and authorization functionalities using libraries like Passport.js to ensure secure user access to the application.

4. Software Requirements Specification

4.1 System Features

4.1.1 User Management:

This feature includes functions for managing profiles, authenticating users, and registering new users.

Functional Requirement:

Req 1 : Users will be able to create accounts on the system by entering the required personal data (password, email address, and name, for example).

Req 2 : Users will be able to safely log in with their credentials.

Req 3 : Error handling: When an incorrect input is entered during the registration or login procedure, the system should display the relevant error messages.

4.1.2 Health Check Module:

With the use of this tool, users may enter symptoms and get suggested illness names based on those entries.

Functional Requirement:

Req 1 : Users shall be able to input their symptoms and basic health data through a user-friendly interface
Req 2 : The system shall process user inputs and generate potential disease names based on symptom matching algorithms.
Req 3 : Error handling: The system should provide error messages for unsupported inputs or technical issues during the health check process.

4.1.3 Doctor Directory Management:

Doctor profiles in the directory can be added and deleted by administrators.

Functional Requirement:

Req 1 : Admins can add new doctors to the directory, specifying their specialties.

Req 2 : Admins can remove existing doctor profiles.

Req 3 : Users can get doctors based on specialty while checking diseases.

Req 4: Users can view detailed profiles of doctors, including contact information and specialties.

4.1.4 Global Analysis Page:

Data visualization tools allow users to explore information and trends related to mental health throughout the world.

Functional Requirement:

Req 1 : Users may obtain information and trends related to mental health worldwide.

Req 2 : Charts and graphs that are interactive are used to display data.

Req 3: Users shall have access to visualizations such as graphs and charts depicting mental health trends over time.

4.1.5 Feedback Form :

Users can provide feedback on the application's functionality and user experience.

Functional Requirement:

Req 1 : On the features, usability, and general experience of the programme, users can offer comments.

Req 2 : Administrators are able to see and reply to user comments.

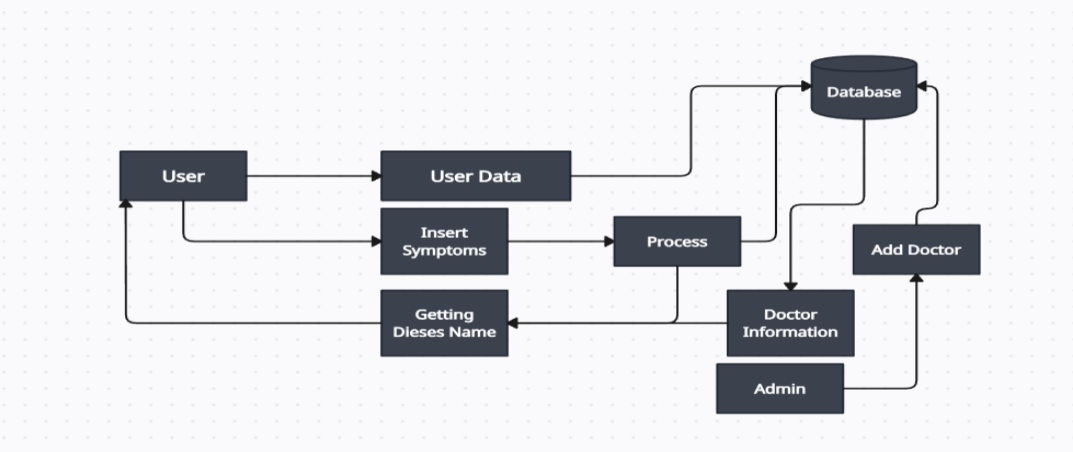
Req 3: Submissions of feedback are archived for review and potential future enhancements.

5. System Design Description (SDD)

5.1 System Overview

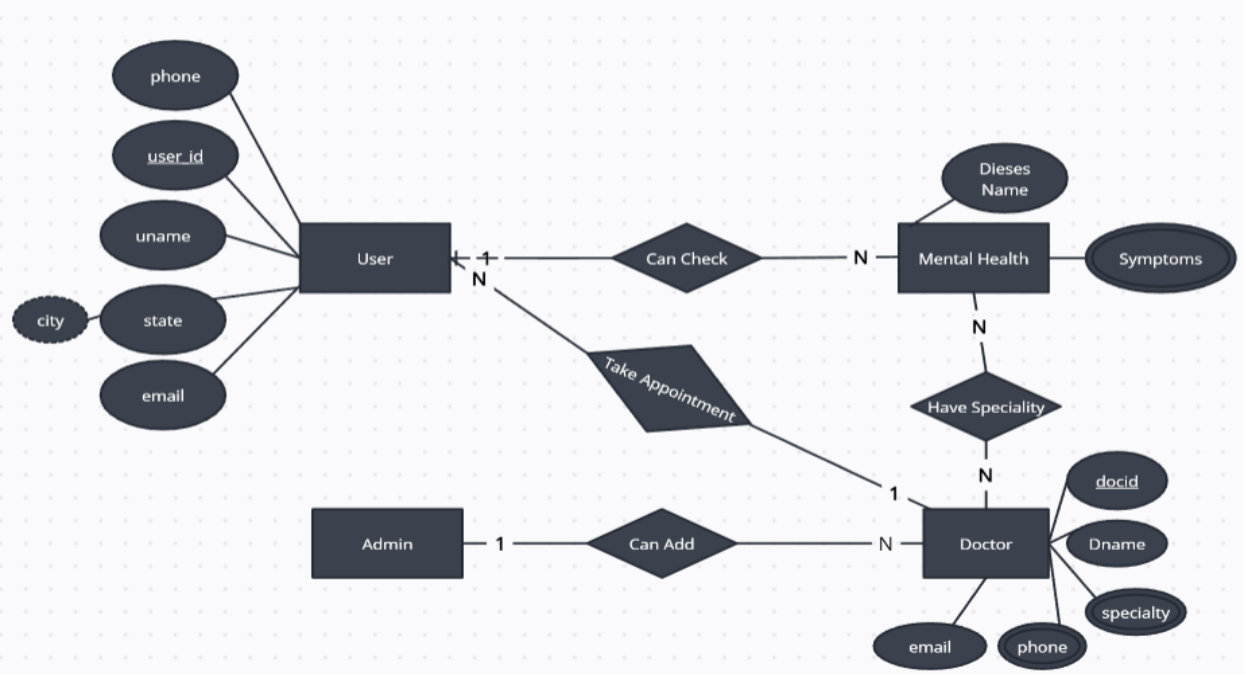
The Mental Health Care for Adult web application's system architecture is made to offer consumers a stable and expandable platform for receiving mental health services. The architecture includes a number of subsystems that include networks, data repositories, hardware infrastructure, and software components.

5.1.1 System Architecture



5.2 Database Design

5.2.1 ER Diagram



5.2.2 Table Structure

5.2.2.1 sign_in/user table:

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G
id	INT	☑	☑	☐	☐	☐	☐	☑	☐
name	VARCHAR(45)	☐	☐	☐	☐	☐	☐	☐	☐
email	VARCHAR(45)	☐	☐	☐	☐	☐	☐	☐	☐
password	VARCHAR(45)	☐	☐	☐	☐	☐	☐	☐	☐
address	VARCHAR(45)	☐	☐	☐	☐	☐	☐	☐	☐
state	VARCHAR(45)	☐	☐	☐	☐	☐	☐	☐	☐
city	VARCHAR(85)	☐	☐	☐	☐	☐	☐	☐	☐
pincode	VARCHAR(45)	☐	☐	☐	☐	☐	☐	☐	☐
phone	INT	☐	☐	☐	☐	☐	☐	☐	☐
age	INT	☐	☐	☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐	☐	☐

5.2.2.2 doctor table:

Column Name	Datatype
dname	VARCHAR(45)
speciality	VARCHAR(255)
state	VARCHAR(45)
city	VARCHAR(45)
email	VARCHAR(45)
phone	VARCHAR(45)

5.2.2.3 check table:

Column Name	Datatype
username	VARCHAR(42)
age	INT
gender	VARCHAR(45)
symptoms	VARCHAR(2000)
description	VARCHAR(45)

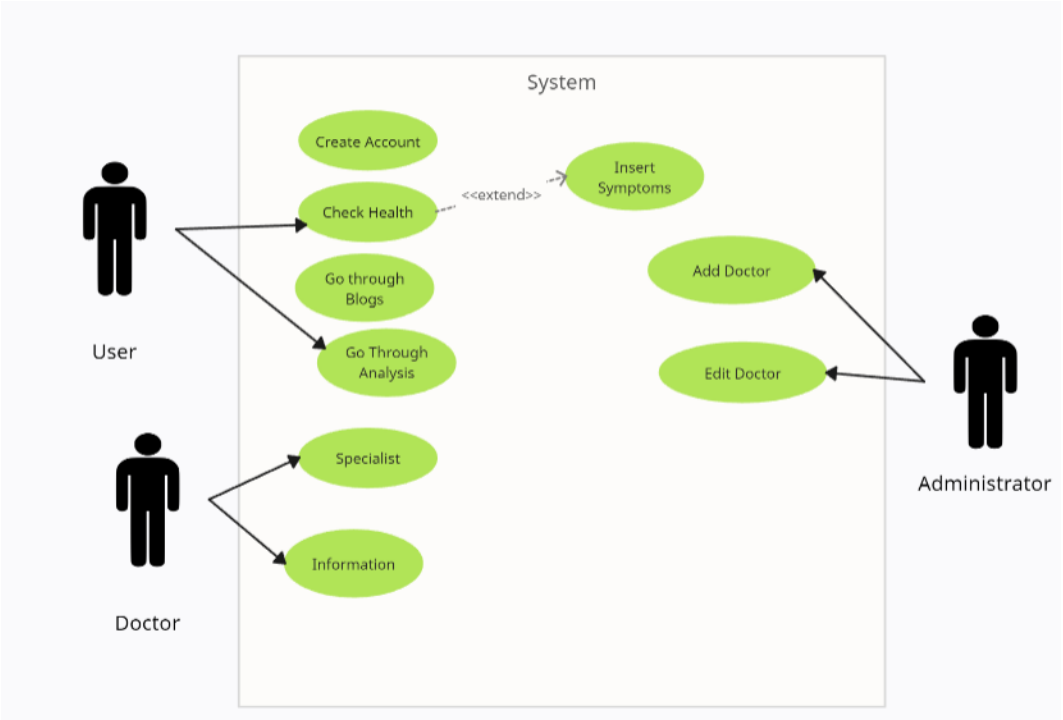
5.2.3 Database Used:

MySQL Workbench is the database management tool I'm utilizing to construct my Mental Health Care for Adult web application. Web development projects frequently utilize MySQL, an open-source relational database management system (RDBMS) that is well-liked for its dependability, scalability, and user-friendliness.

5.3 Functional Design

5.3.1 Describe the functionalities of the system:

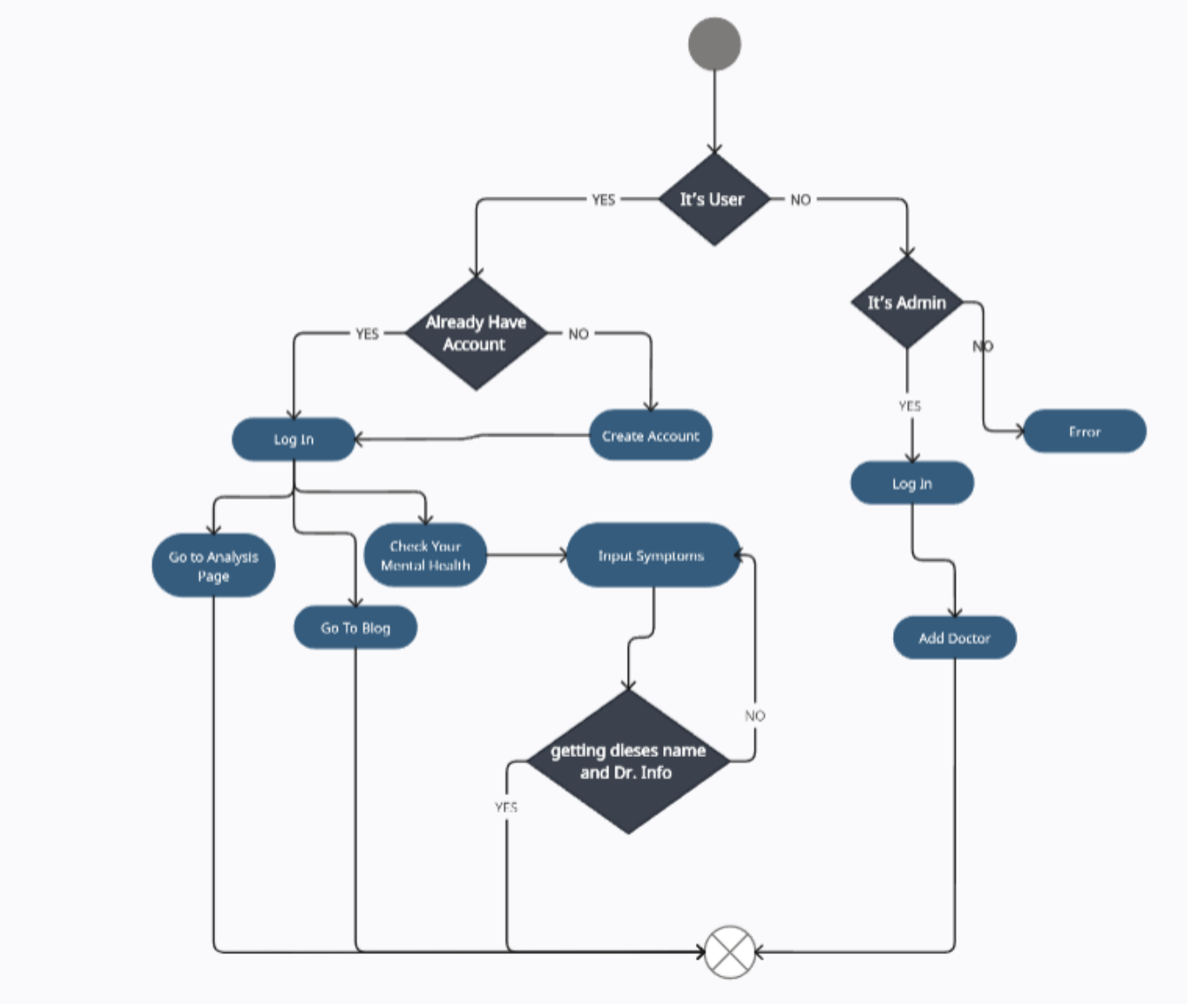
5.3.1.1 Use Case Diagram



The system provides a wide range of features designed to meet the various needs of administrators, physicians, and users. In addition to conducting safe registration, users may get personalized results, interact with appropriate healthcare specialists, and do health checks. Administrators have the power to control user reviews, monitor content, and manage doctor profiles in order to make sure the platform runs well. On the other side, physicians may quickly access patient health information, set up appointments, and update their profiles to keep up-to-date information. By means of these features, the system cultivates an environment that is easy to use and supportive of mental health awareness, cooperation, and support among stakeholders.

5.3.2 Behavioral design: :

5.3.2.1 **Activity Diagram**



6. Implementation

6.1 Checking diseases and also getting doctor name as per dieses

```
import React, { useState } from 'react';

import axios from 'axios';

import styles from '../styles/check.module.css';

import Usernav from '../component/usernav';

const CheckYourselfPage = () => {

  const [username, setUsername] = useState('');

  const [age, setAge] = useState('');

  const [gender, setGender] = useState('');

  const [selectedSymptoms, setSelectedSymptoms] = useState([]);

  const [description, setDescription] = useState('');

  const [result, setResult] = useState('');

  const [suggestedDoctors, setSuggestedDoctors] = useState([]);

  const diseases = [

    { name: 'Depression', symptoms: ['Sadness', 'Fatigue', 'Changes in sleep'] },

    { name: 'Anxiety', symptoms: ['Excessive worrying', 'Restlessness', 'Difficulty
concentrating'] },

    { name: 'Stress', symptoms: ['Headaches', 'Muscle tension', 'Irritability'] },

    { name: 'Bipolar disorder', symptoms: ['Extreme mood swings', 'Energy changes',
'Sleep disturbances'] },

    { name: 'Schizophrenia', symptoms: ['Delusions', 'Hallucinations', 'Disorganized
thinking'] },

    { name: 'Eating disorders', symptoms: ['Preoccupation with food, weight, and body
shape', 'Binge eating', 'Purging behaviors'] },

    { name: 'Obsessive-Compulsive Disorder (OCD)', symptoms: ['Obsessions',
'Compulsions', 'Fear of contamination'] },

    { name: 'Post-Traumatic Stress Disorder (PTSD)', symptoms: ['Flashbacks', 'Nightmares',
'Avoidance'] },
```

```
  { name: 'Multiple Personality Disorder (Dissociative Identity Disorder)', symptoms: ['Presence of two or more distinct identity states', 'Amnesia', 'Identity disturbance'] },
  { name: 'Histrionic Personality Disorder', symptoms: ['Attention-seeking behavior', 'Excessive emotions', 'Need for reassurance'] },
  { name: 'Agoraphobia', symptoms: ['Fear of places or situations that might cause panic', 'Avoidance of certain situations', 'Dependency on others'] },
 ];
 const handleCheckboxChange = (symptom) => {
  const updatedSymptoms = [...selectedSymptoms];
  if (updatedSymptoms.includes(symptom)) {
   updatedSymptoms.splice(updatedSymptoms.indexOf(symptom), 1);
  } else {
   updatedSymptoms.push(symptom);
  }
  setSelectedSymptoms(updatedSymptoms);
 };
 const handleSubmit = async () => {
  if (parseInt(age, 10) < 18 || parseInt(age, 10) > 40) {
   setResult('Invalid age. Please make sure you are between 18 and 40.');
   return;
  }
  const matchingDiseases = diseases.filter((disease) =>
   disease.symptoms.some((symptom) => selectedSymptoms.includes(symptom))
  );
  if (matchingDiseases.length > 0) {
   const resultString = `Based on your symptoms, you might have: ${matchingDiseases
    .map((disease) => disease.name)
    .join(', ')}`;
   setResult(resultString);
   try {
    const response = await axios.post('http://localhost:8001/suggest-doctors', {
```

```
      diseases: matchingDiseases.map((disease) => disease.name), });
      setSuggestedDoctors(response.data.suggestedDoctors);
    } catch (error) {
      console.error('Error suggesting doctors:', error.message);
      setResult('Error suggesting doctors. Please try again.');
    }
  } else {
    setResult('No Diseases found.');
  }
  try {
    await axios.post('http://localhost:8001/chk', {
      name: username,
      age,
      gender,
      symptoms: selectedSymptoms,
      description,
    });
    setUsername('');
    setAge('');
    setGender('');
    setSelectedSymptoms([]);
    setDescription('');
  } catch (error) {
    console.error('Error submitting data:', error.message);
    setResult('Error submitting data. Please try again.');
  }
};
return (
  <>
    <Usernav />
```

```
    <div className={styles['check-yourself-container']}>
      <h1>Check Yourself</h1>
      <table className={styles['form-table']}>
        <tbody>
          <tr>
            <td><label>Username:</label></td>
            <td><input type="text" value={username} onChange={(e) =>
setUsername(e.target.value)} /></td>
          </tr>
          <tr>
            <td><label>Age:</label></td>
            <td><input type="number" value={age} onChange={(e) => setAge(e.target.value)}
/></td>
          </tr>
          <tr>
            <td><label>Gender:</label></td>
            <td><input type="text" value={gender} onChange={(e) =>
setGender(e.target.value)} /></td>
          </tr>
          <tr>
            <td><label>Description:</label></td>
            <td><textarea value={description} onChange={(e) =>
setDescription(e.target.value)} /></td>
          </tr>
        </tbody>
      </table>
      <br />
      <h2 className={styles['chec']}>Choose The symptoms</h2>
      <label>
        <div className={styles['checkbox-container']}>
          {diseases.flatMap((disease, index) =>
```

```
    disease.symptoms.map((symptom, symptomIndex) => (
      <label key={`${index}-${symptomIndex}`} className={styles['checkbox']}>
        <input
          type="checkbox"
          checked={selectedSymptoms.includes(symptom)}
          onChange={() => handleCheckboxChange(symptom)}
        />
        {symptom}
      </label>
    ))
  )}
 </div>
</label>
<br />
<button className={styles['submit-button']} onClick={handleSubmit}>
 Submit
</button>
<br />
<div className={styles['result-container']}>
 <h3>Disease: {result}</h3>
</div>
<div className={styles['doc']}>
 <h3>Suggested Doctors:</h3>
 <ul className={styles['dct']}>
  {Array.isArray(suggestedDoctors) ? (
    suggestedDoctors.map((doctor, index) => (
      <li key={index}>
        <div>Name: {doctor.dname}</div>
        <div>Email: {doctor.email}</div>
        <div>Phone: {doctor.phone}</div>
```

```
              <div>Speciality: {doctor.speciality}</div>
            </li>
          ))
        ) : (
          <li>No suggested doctors found</li>
        )}
      </ul>
    </div>
  </div>
 </>
 );
};
export default CheckYourselfPage;
```

7. Testing

7.1 Description of Testing

Unit testing: Every file is examined independently. And confirm that every file's features are operating as intended.

Integration Testing: Checking that the front end, back end, databases, and external services of the Mental Health Care for Adult online application all work together seamlessly is part of the integration testing process. It makes sure that all modules integrate correctly, data flows appropriately, and error handling mechanisms work as intended by using extensive test cases that include positive, negative, and edge circumstances. This assures that the system as a whole is reliable and stable.

7.2 Test Cases

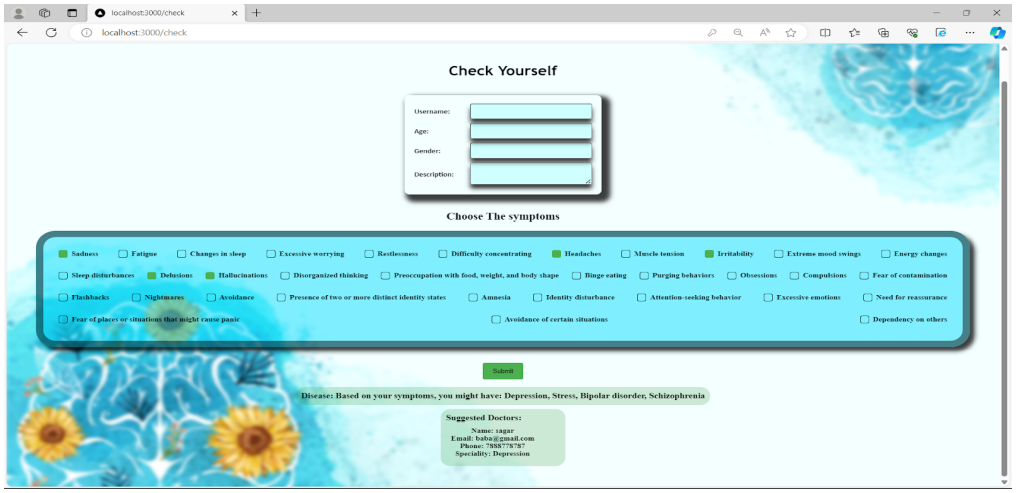
Test case #	Test case Name	Test case Description	Inputs	Expected Output	Actual Output	Status
1.	Accuracy test	Here we input or check all the symptoms .	10 Symptoms	3 to 4 specific disease name will be display	3 to 4 specific disease name will be display	Successful in detection
2.	Accuracy test	Here we didn't check any symptoms	0 Symptoms	Error Occur	Error occur Symptoms Must be Selected	Successful

8. Results and Discussion

8.1 Testing the Accuracy for getting Correct Disease

Check the Symptoms Which we want to find Disease

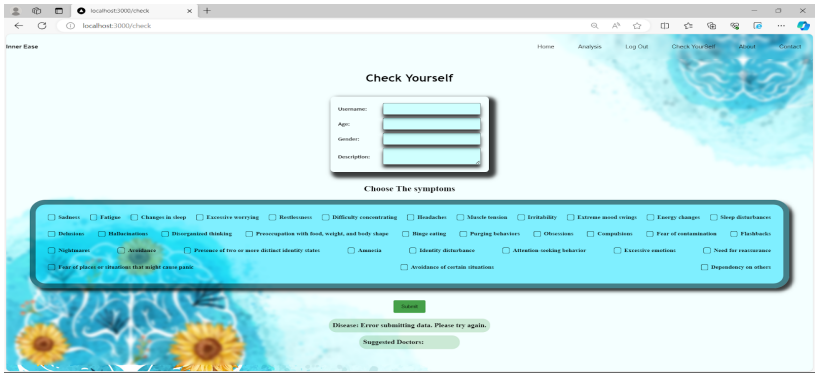
8.1.1 Getting Correct Output



Integration testing success signifies dependable system operation, ensuring accurate results from valid data input across frontend, backend, and data processing algorithms, thereby enhancing user satisfaction.

.**Output : Getting Correct Disease Name With The Specialist Doctor**

8.1.2 Getting Error (Correct) output



Submission failed due to omission of symptom information, which was required by the system, resulting in an error.

Error: Data submission failed due to lack of symptom verification.

9. Conclusion

In summary, the Mental Health Care for Adult online application is an essential resource for fostering mental health and offering consumers easily accessible help. Through the smooth integration of several elements, including user registration, health checks, physician directories, and instructional materials, the platform provides a holistic approach to tackling mental health issues. This application's capacity to produce correct results based on data and symptoms entered by the user is one of its standout features. This shows how reliable and successful it is at helping users comprehend their mental health condition.

It is also simpler for people to explore and use the platform's features because of its intuitive functionality and user-friendly interface, which augment accessibility. Additionally, including feedback methods guarantees that the platform will always be relevant and user-friendly while also being sensitive to user demands. All things considered, the Mental Health Care for Adult online application seems to be a useful tool for raising awareness of mental health issues, assisting with early intervention, and eventually advancing general well-being in the community.

10. Scope for Further Enhancement

In order to better support its users, there are several opportunities for the Mental Health Care for Adult web application to be expanded and improved. Future additions to the platform, such as a doctor module, might further enhance its use by enabling health professionals to provide precise evaluations and individualised guidance on mental health concerns. This feature will facilitate direct communication between users and physicians, which will increase users' trust in the platform's ability to offer trustworthy assistance and advice.

10.1 Doctor Consultation Module:

Introduce a doctor consultation module where users may ask medical specialists for individualized advice and views based on their symptoms and health tests. This update will improve the platform's usefulness by giving consumers personalized recommendations and professional advice.

10.2 Integrating with other technologies:

By providing rapid responses to inquiries about mental health care, making tailored recommendations, and guiding users to pertinent resources, a chatbot feature might improve user engagement and accessibility while also allaying worries and answering questions.

10.3 Community Support Forums:

Further improvements may incorporate more interactive tools and resources—like peer support forums, guided meditation sessions, and self-help exercises—that are designed to raise awareness of mental health issues. With these capabilities, the platform's services would be enhanced, giving consumers a more comprehensive approach to mental health treatment and increasing their ability to take proactive measures to improve their well-being.

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