MEDI-Reminder

*Thesis Submitted for Partial Fulfillment
of the Requirements for the Award of the Degree of*

**Bachelor of Technology
in
Computer Science and Engineering**

by

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Contents

Certificate of Approval

This is to certify that the thesis entitled **"MEDI-Reminder"** submitted by Prabhat Kumar Rajak to Indian Institute of Information Technology, Guwahati, is a record of bona fide research work under my supervision and I consider it worthy of consideration for the award of the degree of Bachelor of Technology in Electronics and Communication Engineering at Indian Institute of Information Technology Guwahati.

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Declaration

I declare that

1. The work contained in the thesis is original and has been done by myself under the general supervision of my supervisor.

2. The work has not been submitted to any other Institute for any degree or diploma.

3. I have followed the guidelines provided by the Institute in writing the thesis.

4. I have conformed to the norms and guidelines given in the Ethical Code of Conduct of the Institute.

5. Whenever I have used materials (data, theoretical analysis, and text) from other sources, I have given due credit to them by citing them in the text of the thesis and giving their details in the references.

6. Whenever I have quoted written materials from other sources, I have put them under quotation marks and given due credit to the sources by citing them and giving required details in the references.

Abstract

This medicine reminder web application is a digital tool designed to help individuals manage their medication schedules. This web application provides a user-friendly interface that allows users to input their medication details, including dosage and set reminders for when to take their medications. This web application sends message to the user about their medication to their respective registered mobile numbers. With its simple and customizable features, the medicine reminder web app is an effective solution for improving medication management and promoting better health outcomes.

Chapter 1

Introduction

About the system

The medicine reminder web app is a powerful tool that helps individuals manage their medication schedules and promote medication adherence. With features such as customized reminders and dosage, the app is designed to make it easy for users to stay on top of their medication regimen. One of the standout features of the app is its SMS notification system, which sends reminders to the registered user's mobile number before the scheduled time to take their medication. The app also sends another SMS notification at the scheduled time, with a verification link to confirm whether the user has taken their medicine or not. If the user clicks the link within 5 minutes, it confirms that they have taken their medication. However, if the user fails to click the link, a notification is sent to their guardian to ensure that the user is taking their medication as prescribed. Overall, the medicine reminder web app is a comprehensive solution for medication management and adherence, with features that are designed to make it easy for users to stay on track with their medication regimen.

Motivation

One of the main motivations behind the development of this medicine reminder web app is the high prevalence of medication non-adherence, particularly among elderly individuals. Studies have shown that forgetfulness is one of the primary reasons why people fail to take their medication as prescribed, leading to adverse health outcomes and increased healthcare costs. For older adults, medication non-adherence can be especially problematic, as they are more likely to have multiple chronic conditions and be taking multiple medications.

The medicine reminder web app aims to address this issue by providing a simple and effective way for individuals to manage their medication schedules and promote medication adherence. By sending customized reminders and tracking medication usage, the app makes it easy for users to stay on track with their medication regimen. The SMS notification system is particularly useful for older adults who may be more forgetful or have difficulty using digital tools. By sending notifications to the registered user's mobile number and their guardian's number, the app ensures that someone is always aware of the user's medication status and can take action if necessary.

Overall, the motivation behind the medicine reminder web app is to help individuals, particularly older adults, take control of their medication management and promote better health outcomes. By providing a convenient and reliable way to manage medication schedules, the app can improve medication adherence and reduce the risk of adverse health events.

Objective

1. To improve medication adherence by providing customized reminders for users to take their medication on time.
2. To provide a convenient and user-friendly way for individuals to manage their medication schedules.
3. To reduce healthcare costs associated with medication non-adherence.
4. To reduce healthcare costs associated with medication non-adherence.
5. To empower individuals to take control of their health and medication management.

Contribution

Here are the steps I took to create the medicine reminder web application:

1. Planning: I started by planning the features and functionalities of the app, including user authentication, set reminder screen, email verification, SMS notification, and more.
2. Choosing of tech Stack: As I decided to develop a web application, I chose the MERN (MongoDB, Express, React, Node.js) stack to create a powerful and scalable web application.
3. User authentication: To provide a secure and reliable way for users to register and log in to their accounts, I chose JWT (JSON Web Tokens) for user authentication.
4. Email verification process: To ensure that users are genuine and have access to their registered email address, I added an email verification process.
5. Set reminder screen: I created a set reminder screen that allows users to input their medication details and set customized reminders for taking their medication.
6. Twilio API: for sending SMS notifications to users and their guardians I used Twilio API.

Chapter 2

Functional Requirements

1. The Web app allows user to register/login securely.
2. The Web app allows users to set reminders for taking their medicine.
3. The Web app allows users to view and delete their reminders.
4. The Web app allows users to view their profile.
5. Users will be able to input information about their medications, including name, dosage, and time.
6. Users can go to the about section for information regarding the web application.
7. The Web app must send SMS notifications to the user before the scheduled time for taking their medication to remind them.
8. The Web app must include a verification system that sends an SMS with a link to confirm whether the user has taken their medication or not.
9. The Web app must send SMS notifications to the guardian of the user if the verification link is not clicked within 5 minutes by the user.

Non-Functional Requirements

1. The Web app has a simple and intuitive user interface that makes it easy for users to set and manage reminders.
2. The Web app is secure and protect users' personal information.
3. The Web app uses secure authentication and authorization mechanisms.

Chapter 3

DFD (Data Flow Diagram)

Level 0
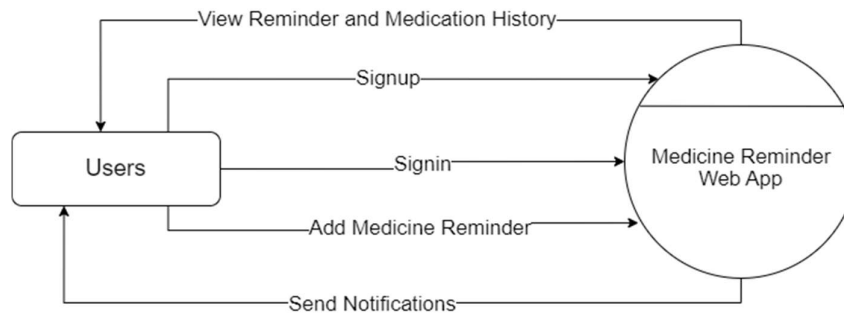
Level 1
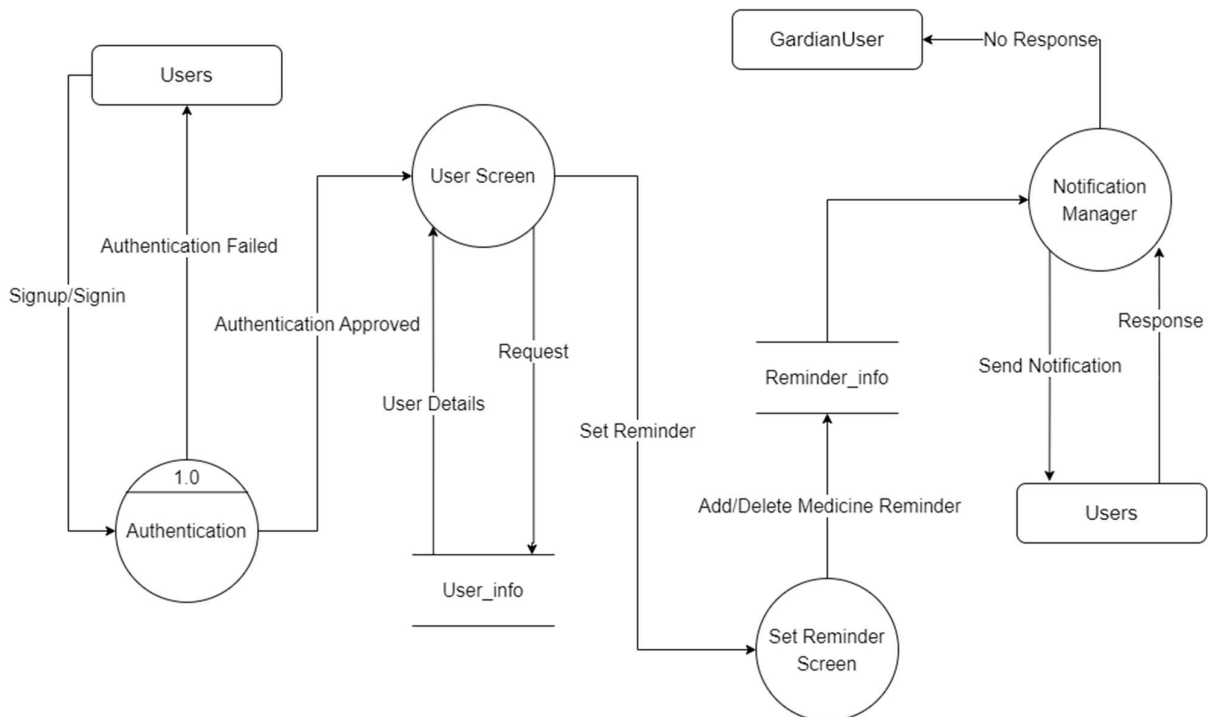
Chapter 4

Implementation

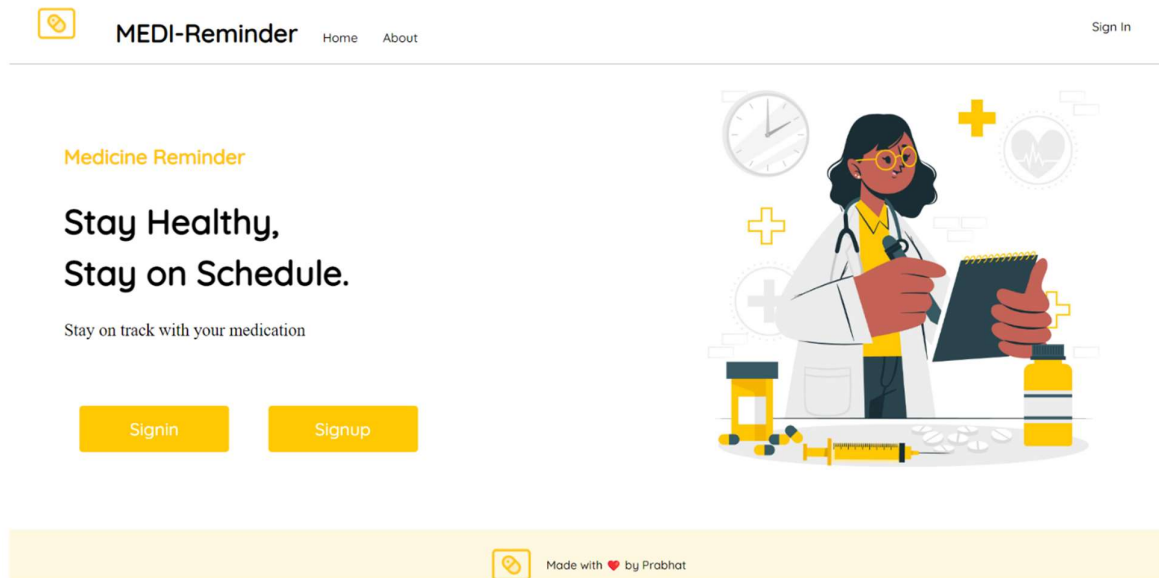Here are the steps for your implementation of the medicine reminder web app:

1   Planning: I started by planning the features and functionalities of the app, including user authentication, set reminder screen, email verification, SMS notification, login, register, profile, about, home screen, and more.

2   MERN stack setup: I set up the MERN (MongoDB, Express, React, Node.js) stack to create a powerful and scalable web application.

3   Landing page design: I created a landing page design that showcases the features and benefits of the app and encourages users to sign up.

4   User authentication with JWT: I implemented user authentication with JWT (JSON Web Tokens) to provide a secure and reliable way for users to register and log in to their accounts.

5   Email verification process: I added an email verification process to ensure that users are genuine and have access to their registered email address.

6   Login and register screens: I created login and register screens that allow users to create and log in to their accounts.

7   Profile screen: I added a profile screen where users can view and edit their personal information.

8   Home screen: I created a home screen that serves as the main hub of the app and provides access to all the features.

9   Set reminder screen: I created a set reminder screen using Material UI that allows users to input their medication details and set customized reminders for taking their medication.

10 Reminder deletion feature: I added a reminder deletion feature that allows users to adjust their medication schedule or stop taking a certain medication altogether.

11 Node mailer: I used Node mailer to implement a reliable and efficient way to send email verification messages to users.

12 Twilio API: You used the Twilio API to send SMS notifications to users and their guardians, creating a comprehensive notification system for medication reminders.

13 Redux: You used Redux to manage the state of the application and ensure that data is consistent across the app

Chapter 5

Demonstration

Landing Page

Sign Up Screen

After Clicking the Sign Up button an email is send for the verification

Sign In Screen

After Clicking on the link email is verified and Now the user can login.

Email verified successfully
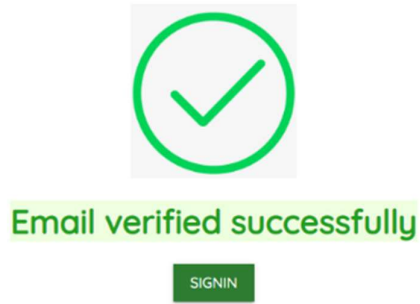
SIGNIN

Sign In

Email

Password

☑ Keep me logged in

SIGN IN

Forgot password ?

Do you have an account ?Sign Up

Home Screen

MEDI-Reminder Home About   Prabhat ▾

Welcome 😃 Prabhat

Set 🕐 reminders and stay on track with your 💊 medication

● ● ●

SET REMINDER

SetReminder Screen
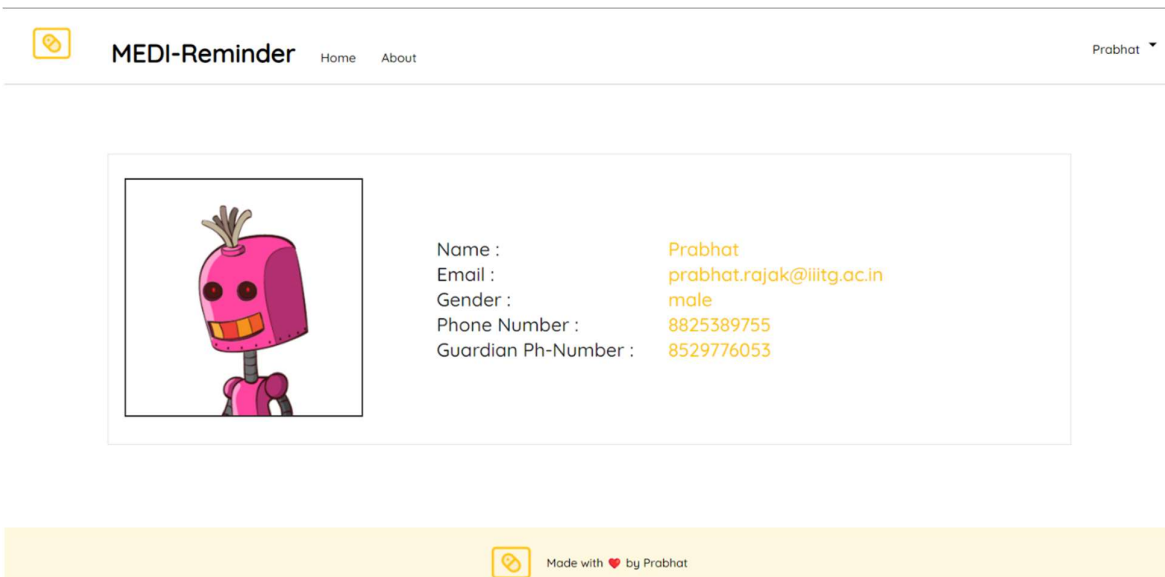

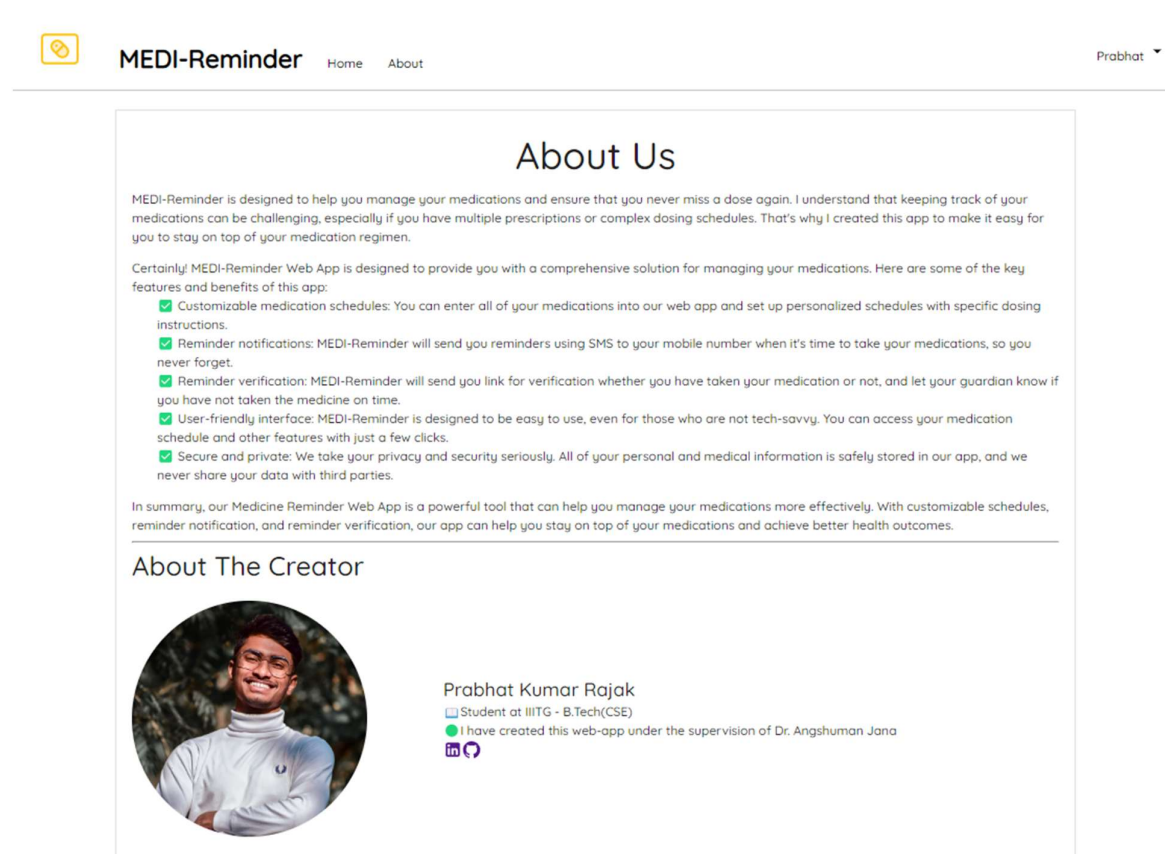After Adding Reminder and Verification
Link is sent using SMS Notification
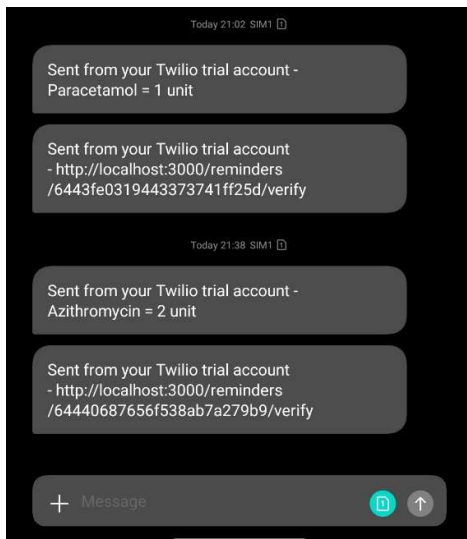
After Clicking on the link, it is verified that the user have
Have successfully taken the medicine.

Profile Screen

About Screen

Chapter 6

Conclusion

The medicine reminder web app that I have implemented can be a valuable resource for a wide range of individuals who have medication management needs. Specifically, it can be useful for:

1. Elderly individuals who may have difficulty remembering their medication schedules and managing their medications.
2. Individuals with chronic conditions who need to take multiple medications at specific times of the day.
3. Caregivers who manage medication schedules for their loved ones.
4. Individuals with busy schedules who may forget to take their medications at the appropriate times.
5. Individuals who travel frequently and may have difficulty adhering to their medication schedules while on the go.

Overall, this web app is already been deployed in github and anyone can take benefits who wants to manage their medications more effectively and improve their medication adherence. With its user-friendly interface and comprehensive features, it can help individuals stay on top of their medication schedules and maintain their health and well-being.

Anyone can access this web app using this link:
https://github.com/prabhatkrrajak/Medi-Reminder

Bibliography

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https://www.mongodb.com/docs/manual/

https://mui.com/material-ui/getting-started/learn/

https://expressjs.com/en/5x/api.html

https://nodejs.org/en/docs

https://react.dev/blog/2023/03/16/introducing-react-dev

https://nodemailer.com/about/

https://www.twilio.com/docs