B.P.H.E Society’s

Ahmednagar College, Station Road, Ahmednagar, 414001

A

Project Report

On

“Divine Chat (Web Based Chat Application)”

Submitted By

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Seat No: 30520

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Year: 2020-21

Under Guidance of:

Miss. Sonali Avhad

BPHE Society's

AHMEDNAGAR COLLEGE, AHMEDNAGAR

A Christian Minority Institution

(Affiliated to University of Pune. Id No. PU/AN/ASC/01/1947)

NAAC Accredited 'A' Grade College
"College with Potential for Excellence" Awarded by UGC
"Best College Award" by University of Pune

Dr. R.J. Barnabas
Principal

DEPARTMENT OF COMPUTER SCIENCE

Ref. No.

Date :

CERTIFICATE

Department of Computer Science

This to Certify that

Mr. Dev Agarwal

Has completed the project title as

"Divine Chats – Web Based Chat Application"

As laid down by the SAVITRIBAI PHULE PUNE UNIVERSITY

During academic year 2020-21

Project Guide

Head of Department

External Examiner

Divine Chats

(Web Based Chat Application)

Documentation

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1. Abstract

There has been an emerging trend of a vast number of chat applications which are present in the recent years to help people to connect with each other across different mediums, like Hike, WhatsApp, Telegram, etc. The proposed network-based chat application used for chatting purpose with remote clients or users connected to the internet. This paper proposes the mechanism of creating professional chat application that will allow users to chat in real time. The visual representation of the application will be modern and minimalistic. It will also give user an option to switch between Light and Dark theme mode for a better experience. The user is only allowed to access the application using the credentials of the user and all the credentials will be safely encrypted.

2. Introduction

Online chatting refers to the process of sending and receiving messages using the internet. There are various chatting applications available in the market. As of October 2019, the most used messaging apps worldwide are WhatsApp with 3.6 billion active users, Facebook messenger with 3.3 billion users, and WeChat with 3.1 billion. All these applications provide various features to ensure security, integrity, and consistency. All these apps let the user send any messages, and the messages can be lewd or inappropriate. The proposed network based android chat application used for chatting purpose with remote clients or users connected to the internet. The application is developed mainly in PHP and MySQL.

2.1 Motivation

The evolution of the internet technologies had benefit people to accessing to the web easily. More and more services provide by this internet All of this can be virtualize thank to the technologies. Traditionally, when people need to communicate with others they will have a face to face conversation to deliver the message. Now communication between people using the internet becomes part of their daily life. Now as there are many application with same feature and complex UI we wanted to create an application with a simple UI for user to use.

2.2 Problem Statement

This project is to create a chat application with a server and users to enable the users to chat with each others. To develop an instant messaging solution to enable users to seamlessly communicate with each other. The project should be very easy to use enabling even a novice person to use it.

2.3 Purpose/objective and goals

However, the purpose of this project is to develop a web based chat application. The objective of this process is as follows;

3. To develop an instant messaging solution to enable users to seamlessly communicate with each other.

3. The project should be very easy to use enabling even a novice person to use it.

2.4 Literature Survey:

Online chatting refers to the process of sending and receiving messages using the internet. There are various chatting applications available in the market. The evolution of the internet technologies had benefit people to accessing to the web easily. Now as there are many application with same feature and complex UI we wanted to create an application with a simple UI for user to use. This project is to create a chat application with a server and users to enable the users to chat with each other. To develop an instant messaging solution to enable users to seamlessly communicate with each other. The project should be very easy to use enabling even a novice person to use it. Chat application establishes a connection between 2 or more systems connected over an internet. This tool can be used for communication in an organization. In addition it converts the complex concept of sockets to a user friendly environment. We will present the implementation process of the most relevant features, which are part of the user stories we described. Each of the subsections goes over a particular characteristic, detailing the relevant parts of both the back end and front end development. We have sorted them in order. In future the application can be developed into more functional with new features and fixing the existing bugs. This can be used by many single user and an organisation. After adding feature like sending files and calling the user interest will increase and the number of user will increase. We can also add new UI for the user as an option or make a customisable UI for the user.

2.5 Project Scope and Limitations

1. Broadcasting Web based Chat Application is going to be a text communication application, it will be able to communicate between two computers using point to point communication

2. The limitation of Live Chat is it does not support sending file. To overcome this limitation we are concurrently working on developing better technologies

3. Companies would like to have a communication software wherein they can communicate instantly within their organization

4. The fact that the software uses an internal network setup within the organization makes it very secure from outside attacks.

3. System analysis

Communication over a network is one field where this tool finds wide ranging application. Chat application establishes a connection between 2 or more systems connected over an internet. This tool can be used for communication in an organization. In addition it converts the complex concept of sockets to a user friendly environment. This software can have further potentials, such as file transfer and voice chatting options that can be worked upon later.

3.1 Existing systems

Chat application are apps that enable instant messaging. Many such apps have developed into broad platforms enabling status updates, chatbots, payments and conversational commerce (e-commerce via chat). They are normally centralised networks run by the servers of the platform's operators.

Some examples of popular messaging apps include WhatsApp, Facebook Messenger, China's WeChat and QQ Messenger, Telegram, Viber, Line, and Snapchat. The popularity of certain apps greatly differ between different countries. Certain apps have emphasis on certain uses - for example Skype focuses on video calling, Slack focuses on messaging and file sharing for work teams, and Snapchat focuses on image messages. Some social networking services offer messaging services as a component of their overall platform, such as Facebook's Facebook Messenger, while others have a direct messaging function as an additional adjunct component of their social networking platforms, like Instagram, Reddit, Tumblr and Twitter, either directly or through chat rooms.

3.2 Scope and Limitations of Existing Systems

With the knowledge I have gained by developing this application, I am confident that in the future the application will be more effectively by adding this services.

- Extending this application by providing Authorisation service.
- Creating Database and maintaining users.
- Increasing the effectiveness of the application by providing Voice Chat.
- Extending it to Web Support.

3.3 Project Perspective & Features

In this section, we will present the implementation process of the most relevant features, which are part of the user stories we described. Each of the subsections goes over a particular characteristic, detailing the relevant parts of both the back end and front end development. We have sorted them in order:

- **Different Themes:** We have added a trending feature which can be find in every application this is known as “Dark Theme” or “Dark Mode”. This is useful when user uses the application in a dark atmosphere.
- **Real-Time Chat:** All users can chat in real time. The time taken for sending and receiving message is very less (it can vary on users internet connection)
- **Active Status:** User can see who is online and who’s not. This will help the user to see whether the person in front is logged in or not.

3.4 Stakeholders:

Stakeholder’s Name	Class	Role
Dev Agarwal	Sy BBA (CA)	Full Stack Developer
Vineeth Pillai	Sy BBA (CA)	Frontend Developer

3.5 Functional requirements:

This section will cover the functional requirements of the chat application.

- **Login Menu function**

  This functional requirement is for prompting the user with the option to register for the chat application, logging in, or exit the program. It will take the form of a GUI

- **Register function(Login Menu aspect)**

  This aspect of the login menu will ask the user for the name, username, and password of the client. It will check if the username has been taken and will close if the username is not taken and will go back to the main login menu.

- **Login function(Login Menu aspect)**

  This aspect will ask for the username and password. Errors will occur if a space is left blank, the username doesn't exist, or the password doesn't match with the username. If the username and password matches, you are online and able to message anyone else online.

- **Exit(Login Menu aspect)**

  This aspect will close the chat application

- **Who is online(Online Menu aspect)**

  This aspect will show who is online and will give the user the ability to click on a user and send a message to that user.

- **Send a message(Online Menu Aspect)**

  This aspect will give the user the ability to send a message to whoever they want who is online and selected by the user.

- **Logout(Online Menu aspect)**

  This aspect will give the option to logout of the chat application and will go back to the login menu.

3.6 Performance Requirements

The application is very lightweight, to run this application we need a PC or Mobile with a browser installed and an internet connection. It can run on all browser like Google Chrome, Mozilla Firefox, Opera, Brave, etc. The internet connection will affect the speed of sending and receiving of message so the better connection will give better speed.

3.7 Security Requirements:

TCP/IP, HTTP/HTTPS, SMPP, MD5, POP3, SMTP, FTP, TFTP, etc.

4. System Design:

4.1 Design Constraints:

Database name: id16918320_divinechats

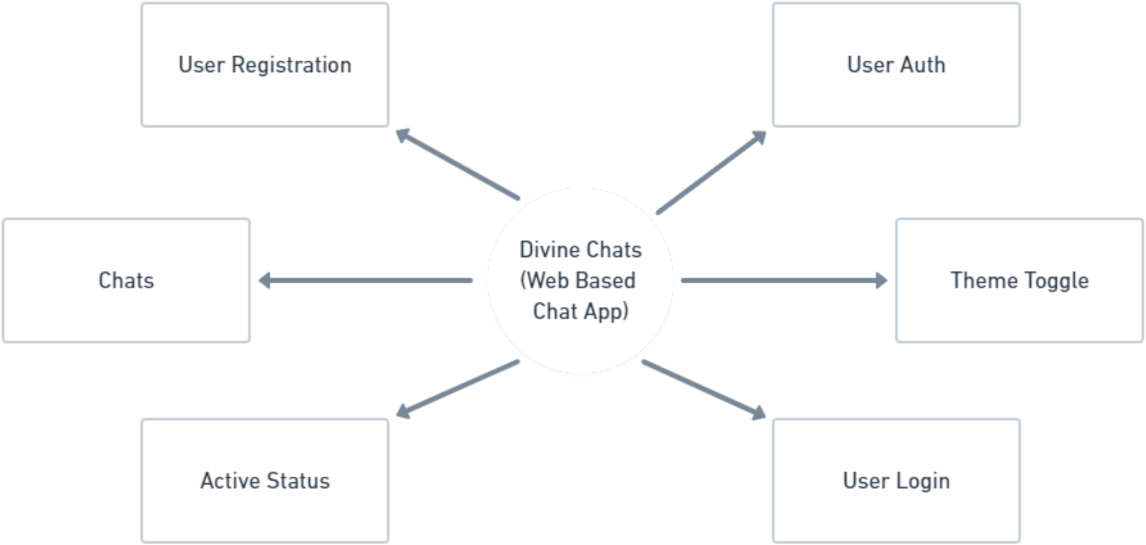
Table Name: messages

#	Name	Type	Null	Extra
1	msg_id(primary key)	int	No	Auto Increment
2	incoming_msg_id	int(225)	No	
3	outgoing_msg_id	int(225)	No	
4	msg	varchar(1000)	No	

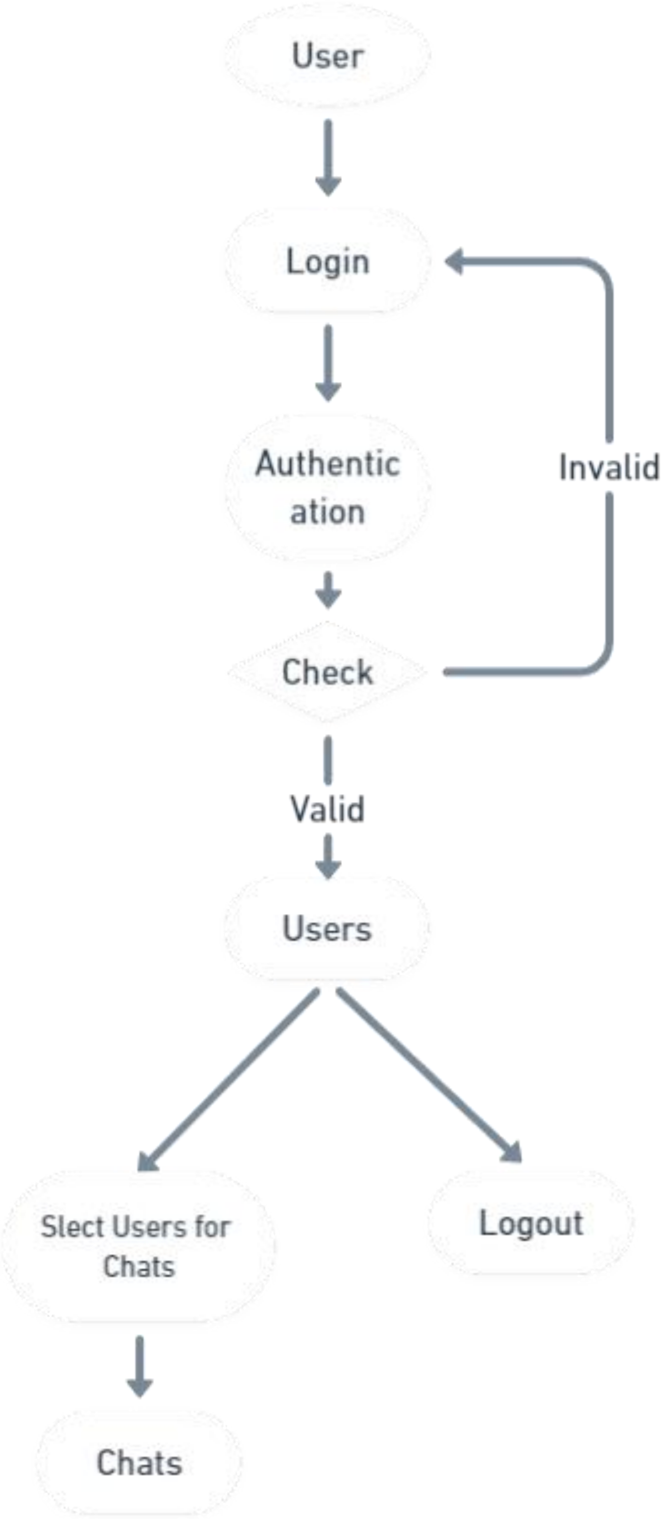
Table Name: users

#	Name	Type	Null	Extra
1	user_id (primary key)	int	No	Auto Increment
2	unique_id	int(200)	No	
3	fname	varchar(255)	No	
4	lname	varchar(255)	No	
5	email	varchar(255)	No	
6	password	varchar(25)	No	
7	img	varchar(400)	No	
8	status	varchar(255)	No	

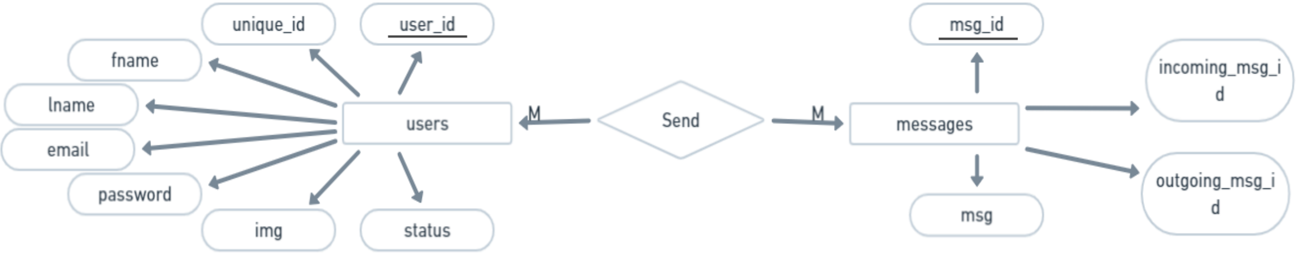
4.2 System Model DFD:



4.3 System Flow Diagram:

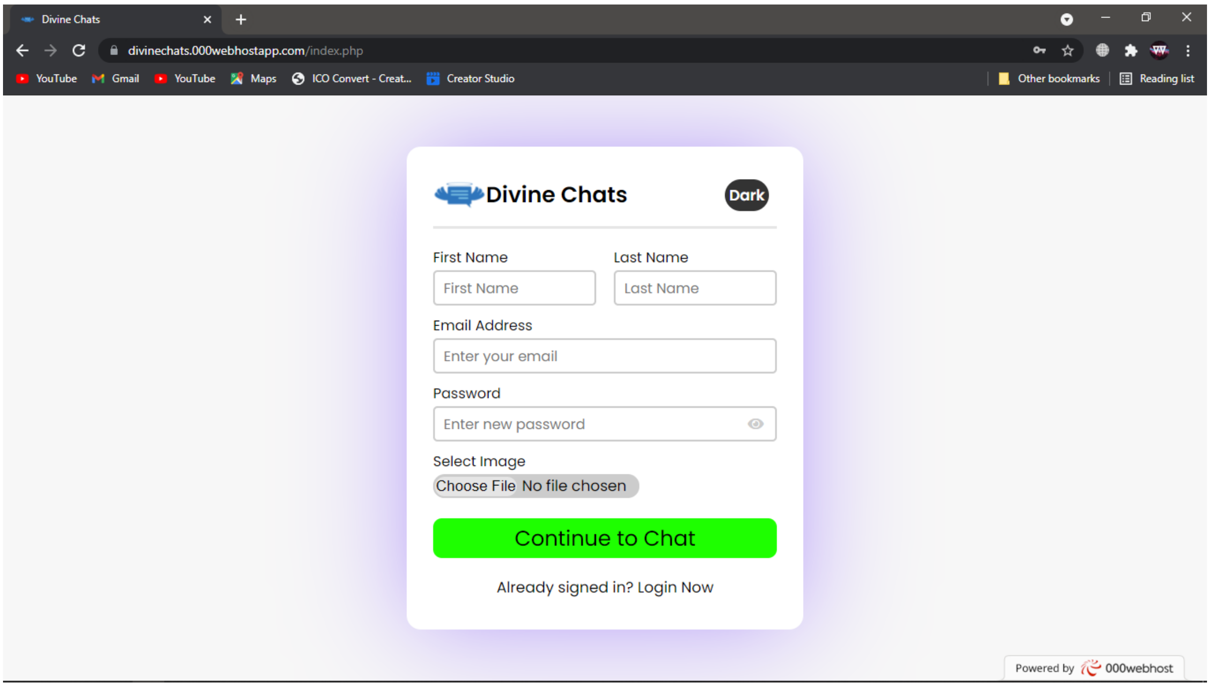


4.4 ER Diagram:



4.5 User Interface:

4.5.1 Signup Page:



Divine Chats Dark

First Name: First Name

Last Name: Last Name

Email Address: Enter your email

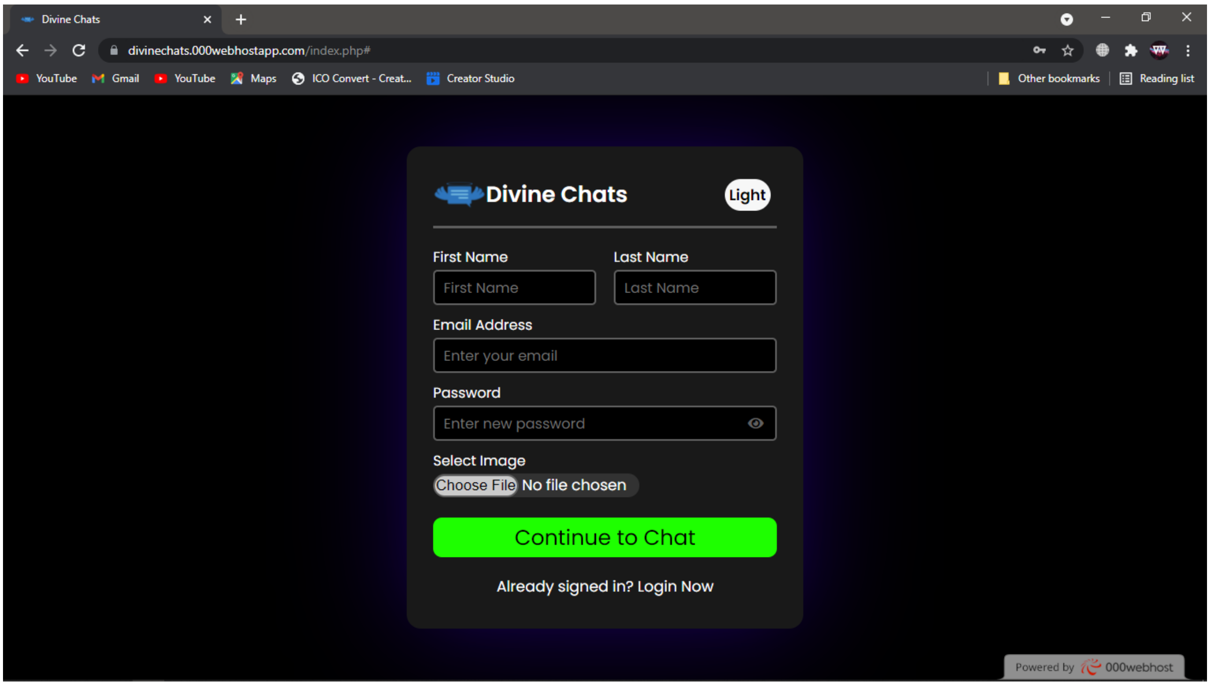
Password: Enter new password

Select Image: Choose File No file chosen

Continue to Chat

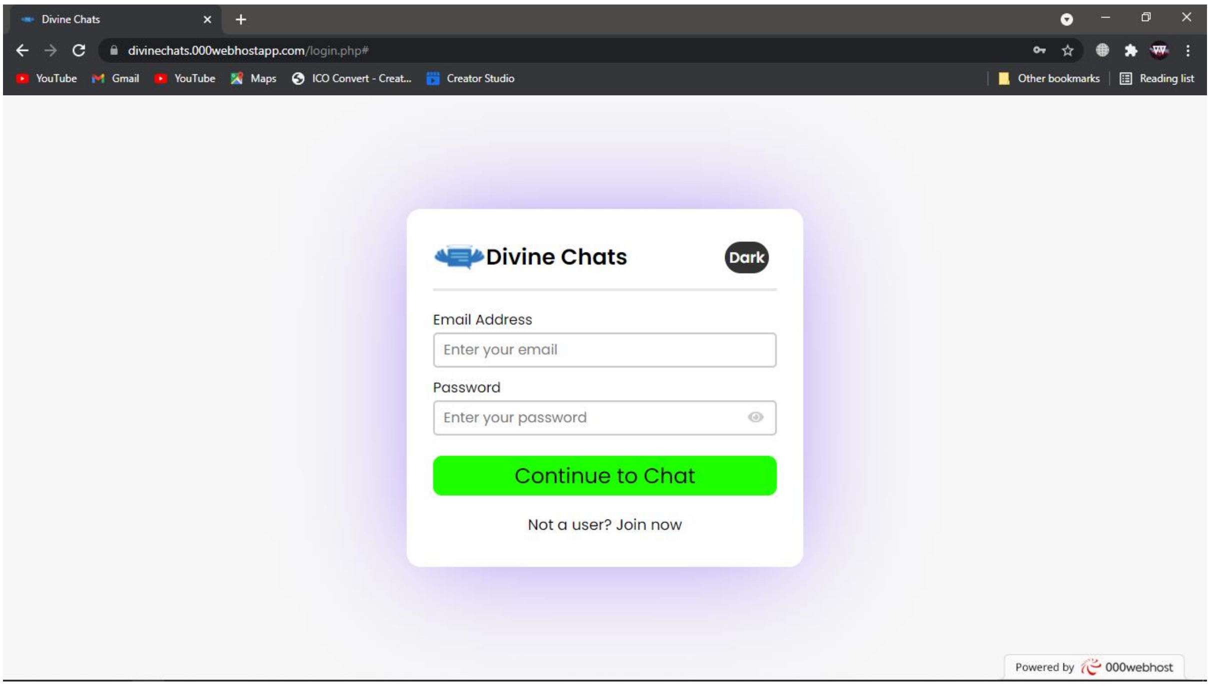
Already signed in? Login Now

Light Mode

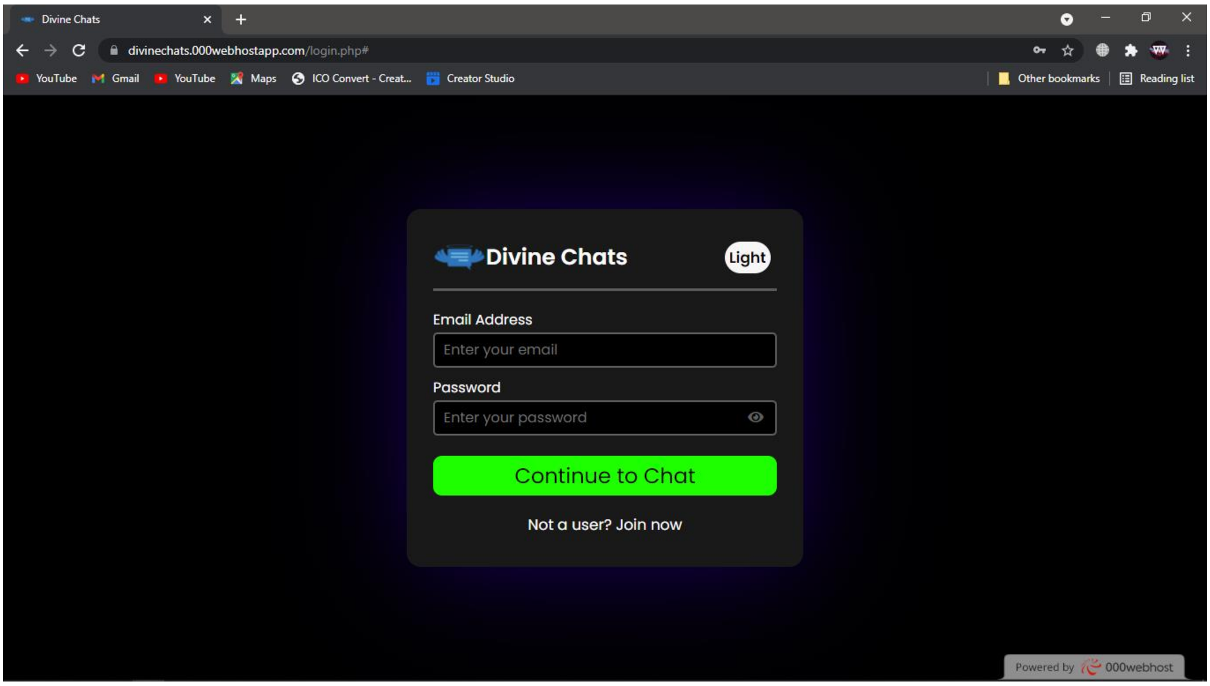


Dark Mode

4.5.2 Login Page

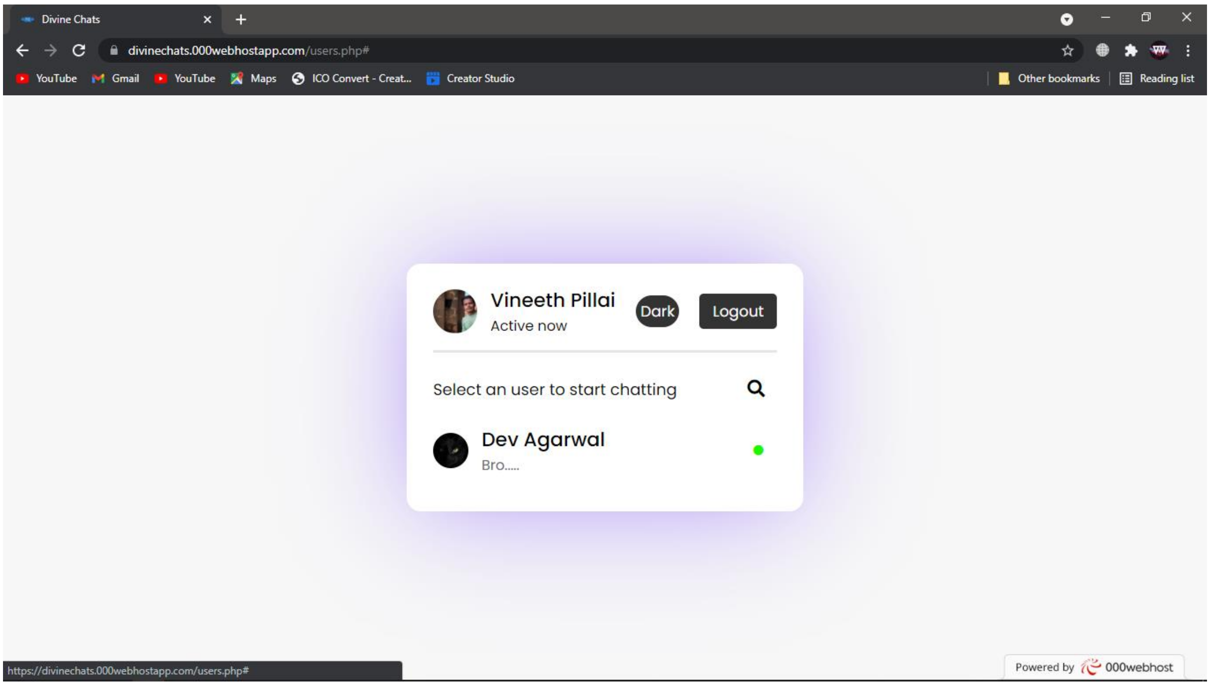


Light Mode

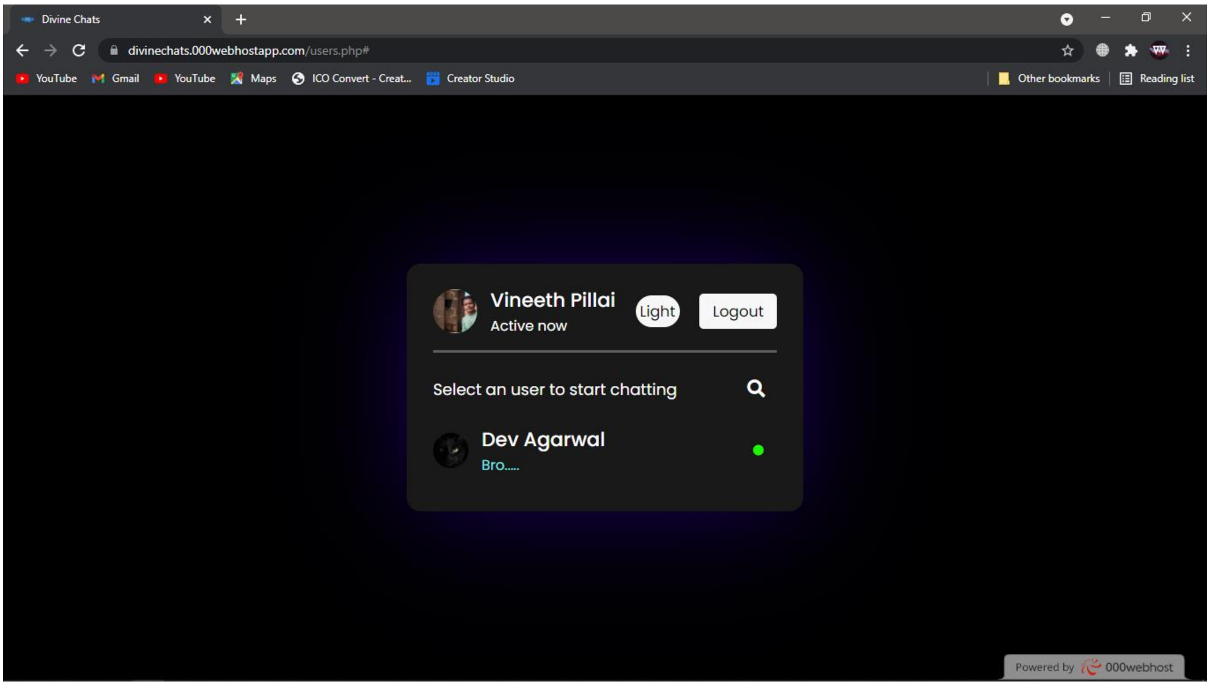


Dark Mode

4.5.3 User Dashboard



Light Mode



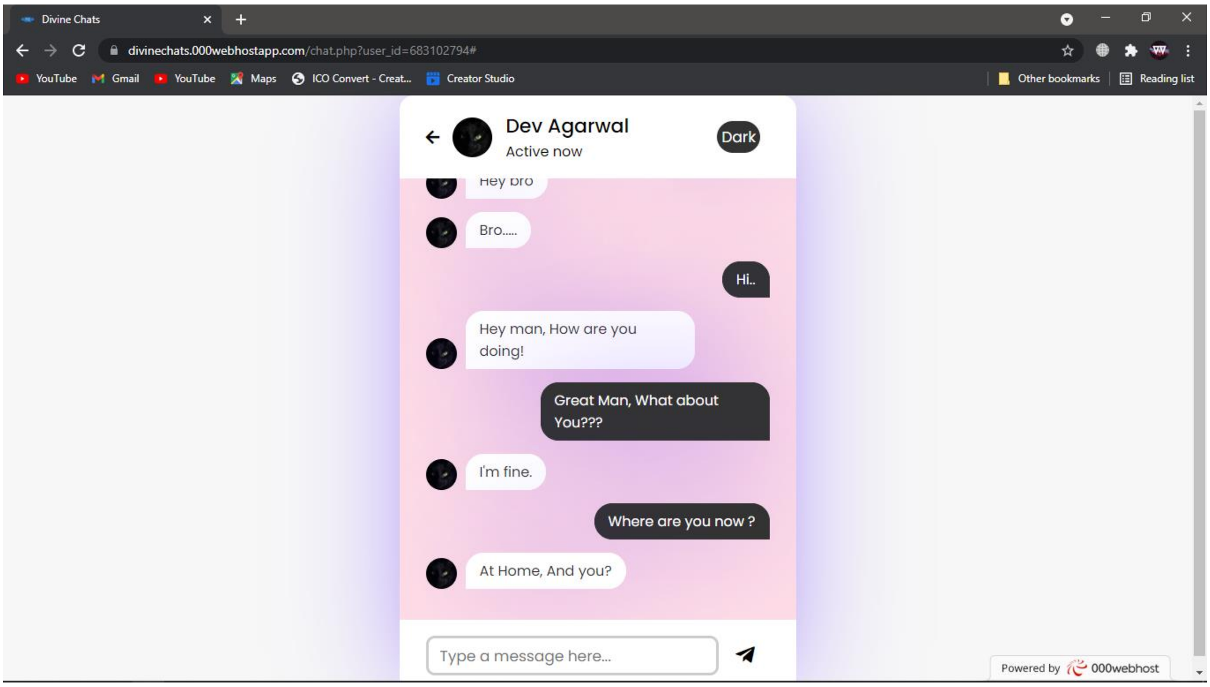
Vineeth Pillai
Active now

Select an user to start chatting

Dev Agarwal
Bro.....

Dark Mode

4.5.4 Chat Interface



Dev Agarwal
Active now

Hey bro

Bro.....

Hi..

Hey man, How are you doing!

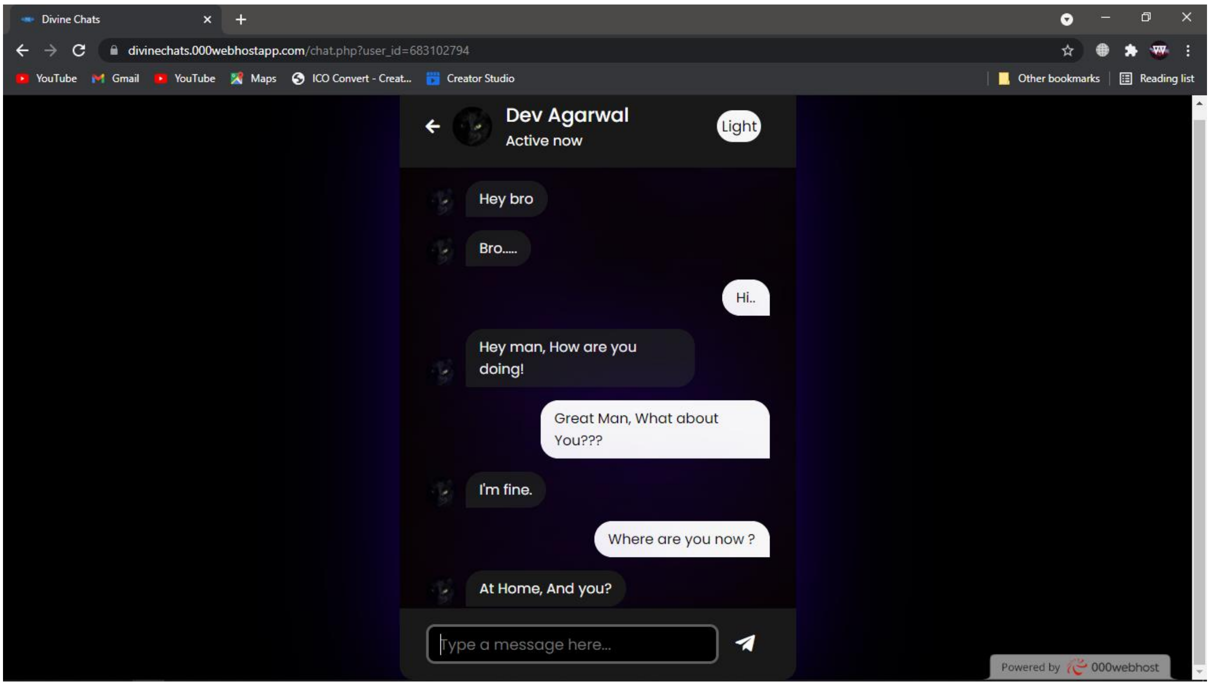
Great Man, What about You???

I'm fine.

Where are you now ?

At Home, And you?

Light Mode



Hey bro

Bro.....

Hi..

Hey man, How are you doing!

Great Man, What about You???

I'm fine.

Where are you now ?

At Home, And you?

Dark Mode

5. Implementation Details:

Software Used:

- XAMPP: Local Server
- 000WebHost: Online Server
- Visual Studio Code: Coding Environment
- Git
- GitHub

Operating System Used:

- Windows 10
- Ubuntu

Languages Used:

- HTML, CSS, Js, PHP : Used for Frontend
- XML, SQL: Used for Backend

Designing tools Used:

- Figma
- Adobe Illustrator CC2021
- Adobe Photoshop CC2021

6. Outputs and Reports Testing:

6.1 Test Plan:

6.1.1 Functional Testing of Application:

This feature is tested by providing a valid and invalid email ID and also by providing a valid and invalid combination of email ID. For instance, an invalid style with a valid name or vise Versa. We ensure that correct error messages are provided in all the negative scenarios of the registration feature. Some other negative scenario is to verify the correct error message is displayed when the user enters less than or more than the required digits in the mobile number field.

6.1.2 Usability Testing:

- We test if the registration flow is easy for the users to follow
- We test if the text font and colors are correctly matched to avoid any difficulties while reading the options
- We test if the registration screen follows common colors.

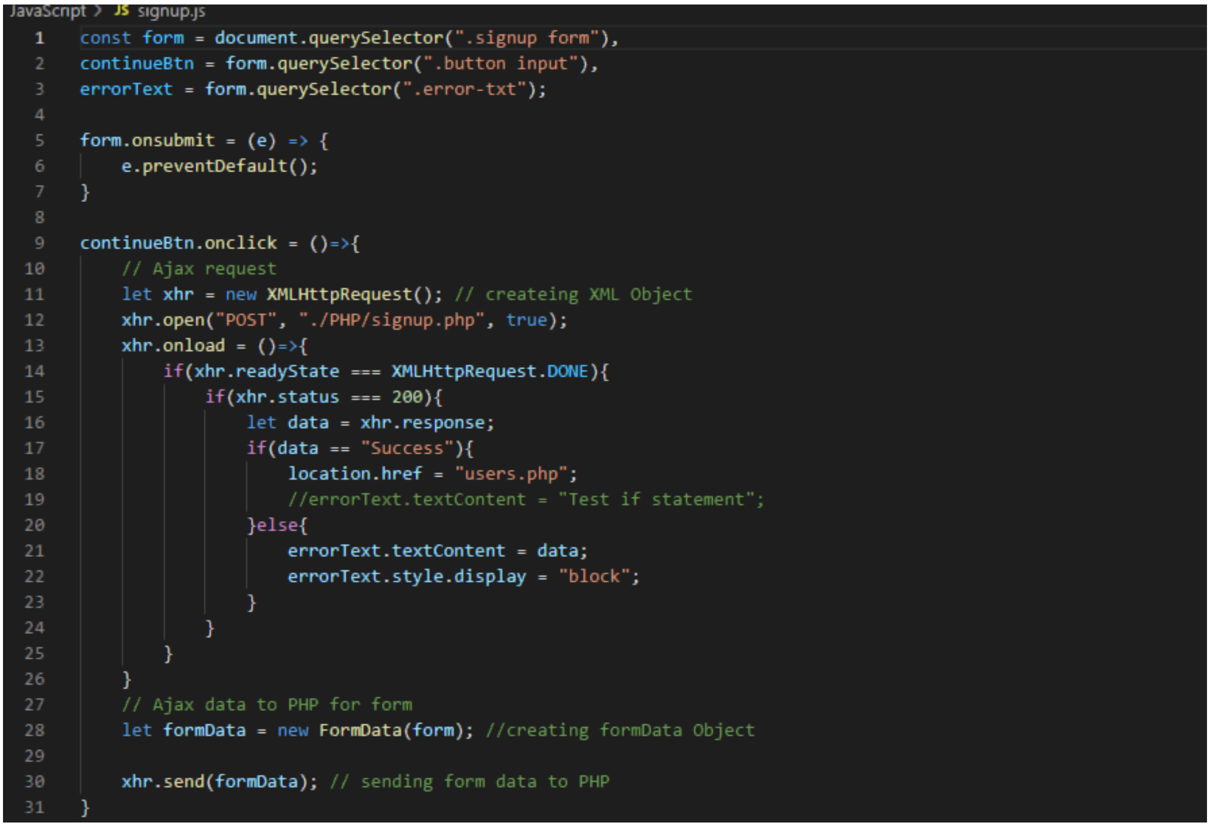
6.1.3 Contact synchronization:

We verify if the application detects all the user available and syncs the contact list if the user has an account in Application.

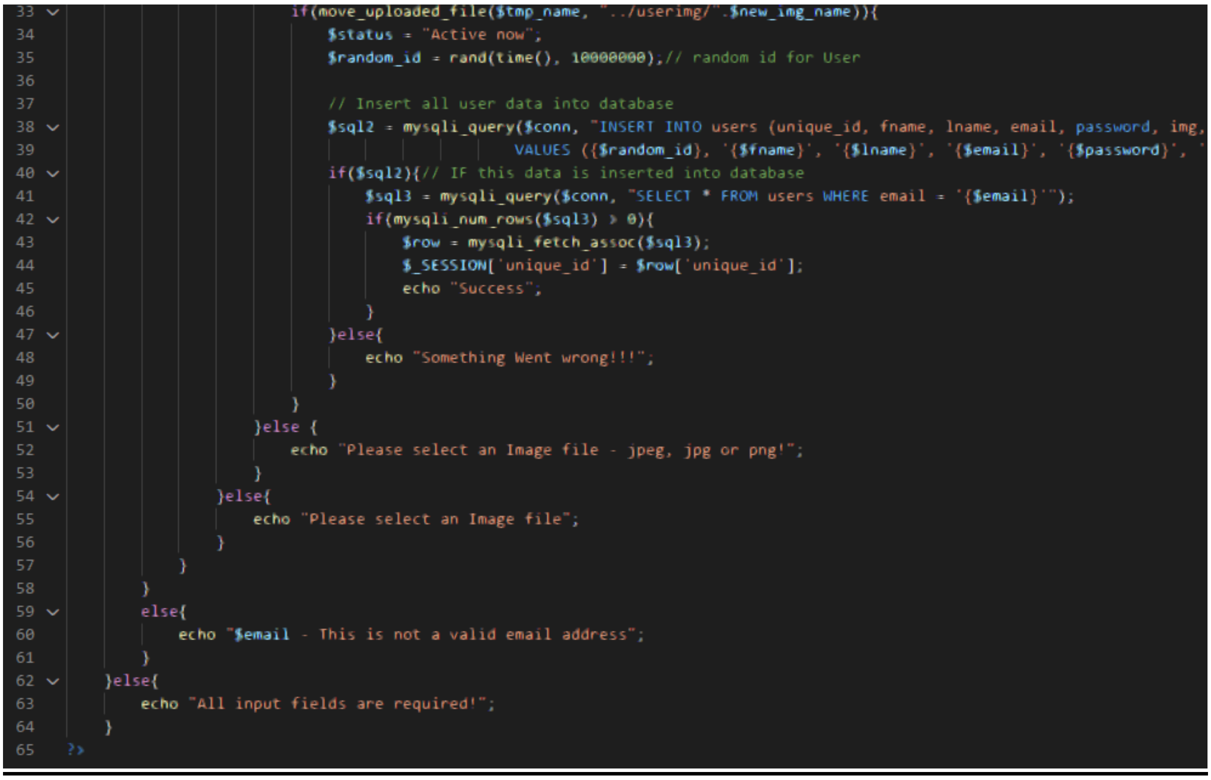
6.1.4 Text communication:

- Sending a text message from one user to another
- Sending multiple text message to the receiver
- Sending text messages of 500 characters and verifying if the message is delivered to the receiver
- Giving a green dot when the other user is active on the application
- Show a preview of a message in the home screen.

6.2 Data Validation Test Cases:

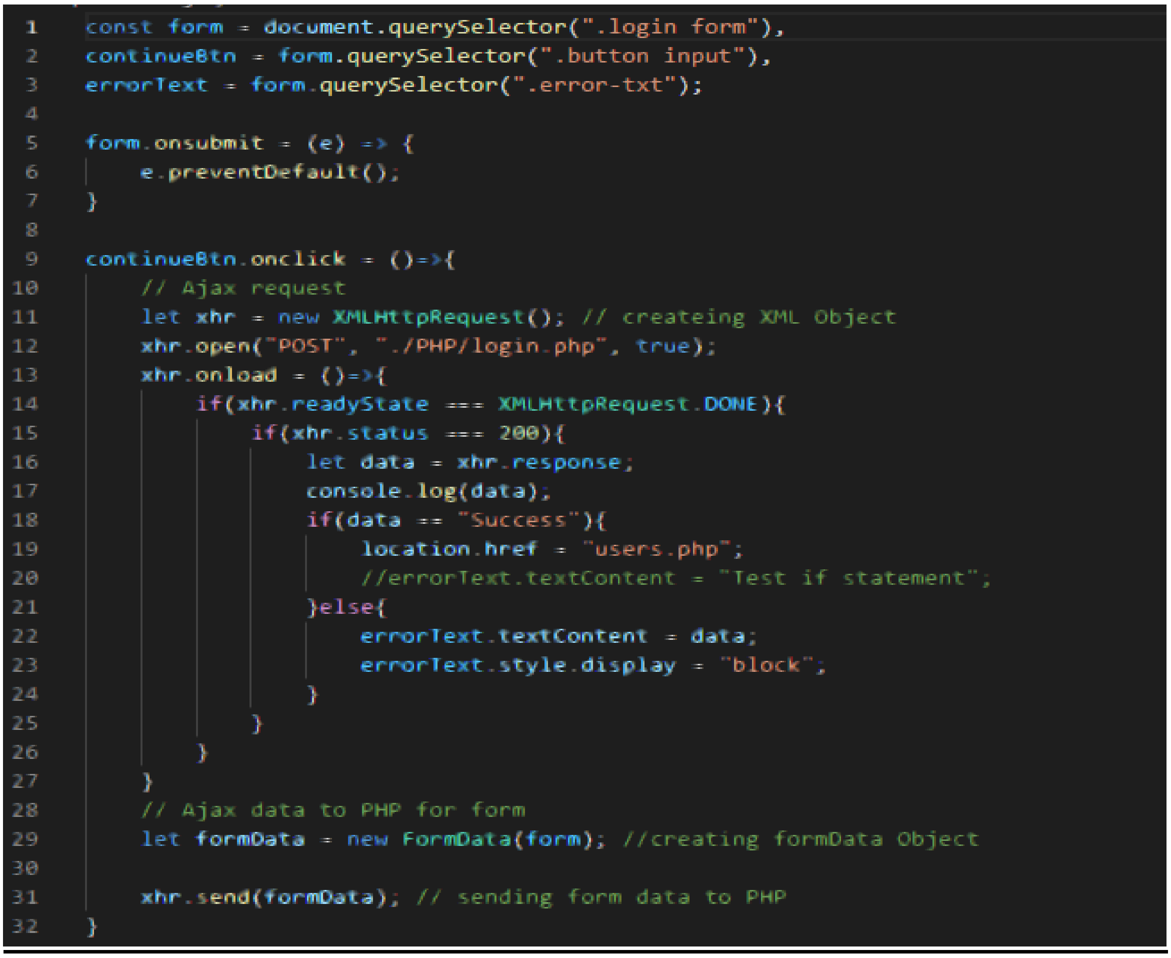


```javascript
const form = document.querySelector(".signup form"),
continueBtn = form.querySelector(".button input"),
errorText = form.querySelector(".error-txt");

form.onsubmit = (e) => {
    e.preventDefault();
}

continueBtn.onclick = ()=>{
    // Ajax request
    let xhr = new XMLHttpRequest(); // createing XML Object
    xhr.open("POST", "./PHP/signup.php", true);
    xhr.onload = ()=>{
        if(xhr.readyState === XMLHttpRequest.DONE){
            if(xhr.status === 200){
                let data = xhr.response;
                if(data == "Success"){
                    location.href = "users.php";
                    //errorText.textContent = "Test if statement";
                }else{
                    errorText.textContent = data;
                    errorText.style.display = "block";
                }
            }
        }
    }
    // Ajax data to PHP for form
    let formData = new FormData(form); //creating formData Object

    xhr.send(formData); // sending form data to PHP
}
```

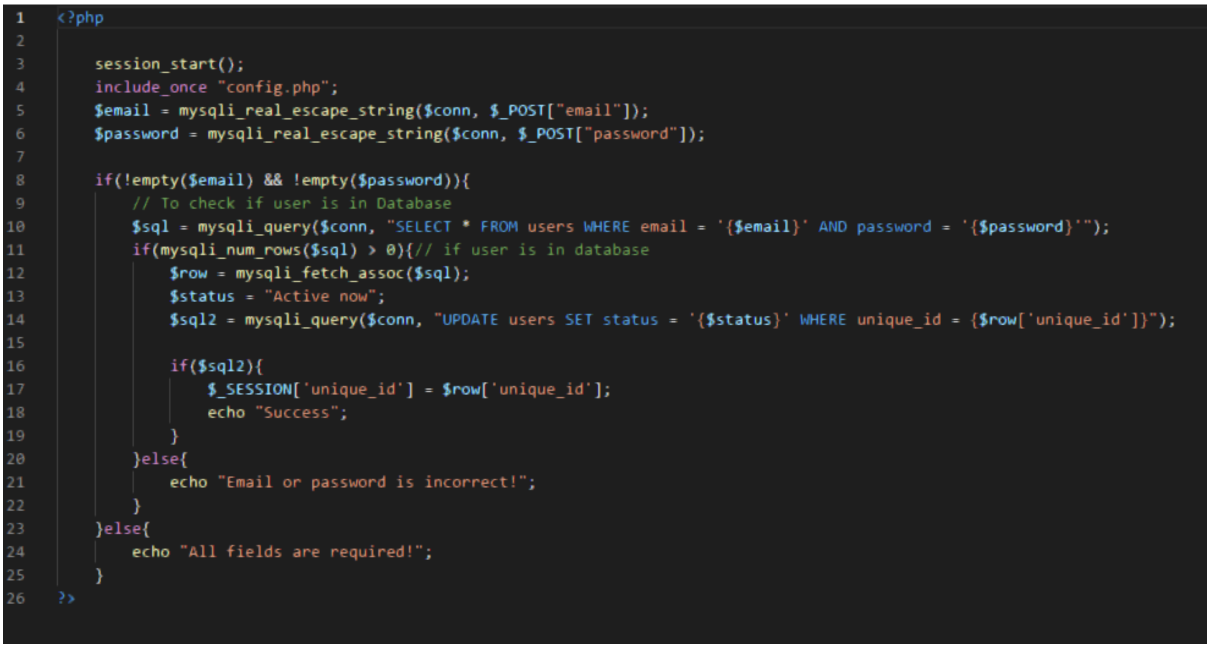


```
                        if(move_uploaded_file($tmp_name, "../userimg/".$new_img_name)){
                            $status = "Active now";
                            $random_id = rand(time(), 10000000);// random id for User

                            // Insert all user data into database
                            $sql2 = mysqli_query($conn, "INSERT INTO users (unique_id, fname, lname, email, password, img,
                                                VALUES ({$random_id}, '{$fname}', '{$lname}', '{$email}', '{$password}', '
                            if($sql2){// IF this data is inserted into database
                                $sql3 = mysqli_query($conn, "SELECT * FROM users WHERE email = '{$email}'");
                                if(mysqli_num_rows($sql3) > 0){
                                    $row = mysqli_fetch_assoc($sql3);
                                    $_SESSION['unique_id'] = $row['unique_id'];
                                    echo "Success";
                                }
                            }else{
                                echo "Something Went wrong!!!";
                            }
                        }
                    }else {
                        echo "Please select an Image file - jpeg, jpg or png!";
                    }
                }else{
                    echo "Please select an Image file";
                }
            }
        }
        else{
            echo "$email - This is not a valid email address";
        }
    }else{
        echo "All input fields are required!";
    }
?>
```

Signup form Testing



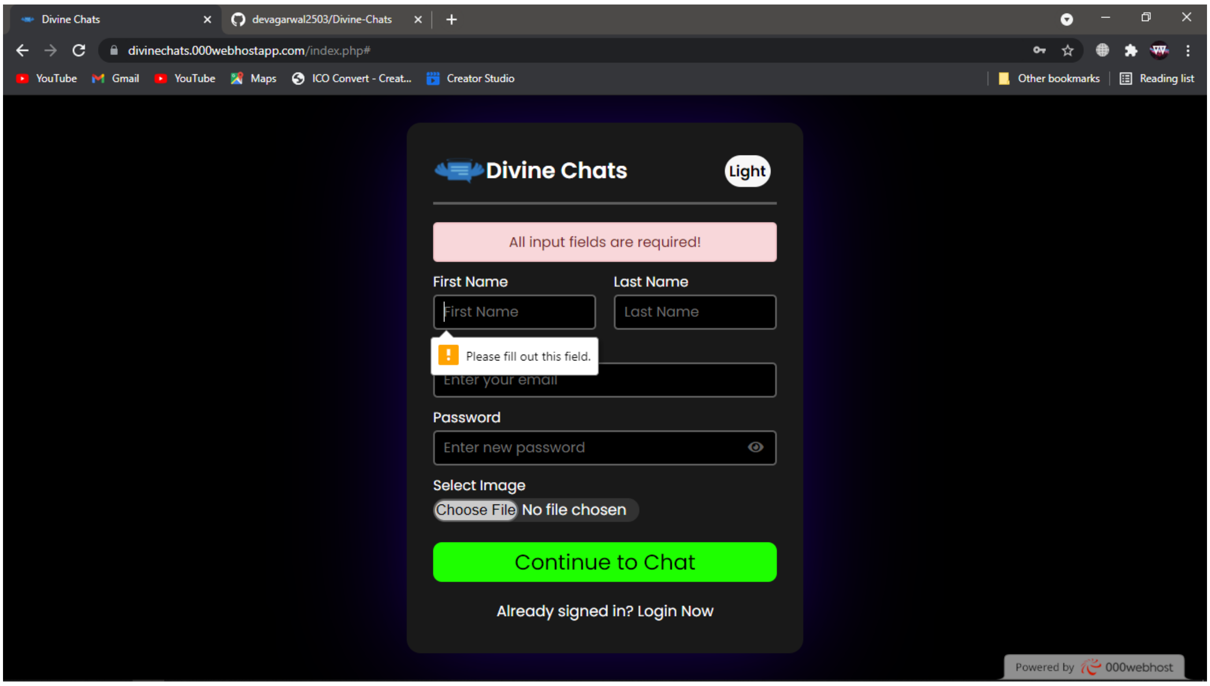
```
const form = document.querySelector(".login form"),
continueBtn = form.querySelector(".button input"),
errorText = form.querySelector(".error-txt");

form.onsubmit = (e) => {
    e.preventDefault();
}

continueBtn.onclick = ()=>{
    // Ajax request
    let xhr = new XMLHttpRequest(); // createing XML Object
    xhr.open("POST", "./PHP/login.php", true);
    xhr.onload = ()=>{
        if(xhr.readyState === XMLHttpRequest.DONE){
            if(xhr.status === 200){
                let data = xhr.response;
                console.log(data);
                if(data == "Success"){
                    location.href = "users.php";
                    //errorText.textContent = "Test if statement";
                }else{
                    errorText.textContent = data;
                    errorText.style.display = "block";
                }
            }
        }
    }
    // Ajax data to PHP for form
    let formData = new FormData(form); //creating formData Object

    xhr.send(formData); // sending form data to PHP
}
```



```php
<?php

    session_start();
    include_once "config.php";
    $email = mysqli_real_escape_string($conn, $_POST["email"]);
    $password = mysqli_real_escape_string($conn, $_POST["password"]);

    if(!empty($email) && !empty($password)){
        // To check if user is in Database
        $sql = mysqli_query($conn, "SELECT * FROM users WHERE email = '{$email}' AND password = '{$password}'");
        if(mysqli_num_rows($sql) > 0){// if user is in database
            $row = mysqli_fetch_assoc($sql);
            $status = "Active now";
            $sql2 = mysqli_query($conn, "UPDATE users SET status = '{$status}' WHERE unique_id = {$row['unique_id']}");

            if($sql2){
                $_SESSION['unique_id'] = $row['unique_id'];
                echo "Success";
            }
        }else{
            echo "Email or password is incorrect!";
        }
    }else{
        echo "All fields are required!";
    }
?>
```

Login Form Testing

6.3 Functional Validation Test:



Divine Chats Light

All input fields are required!

First Name: First Name

Last Name: Last Name

Please fill out this field.

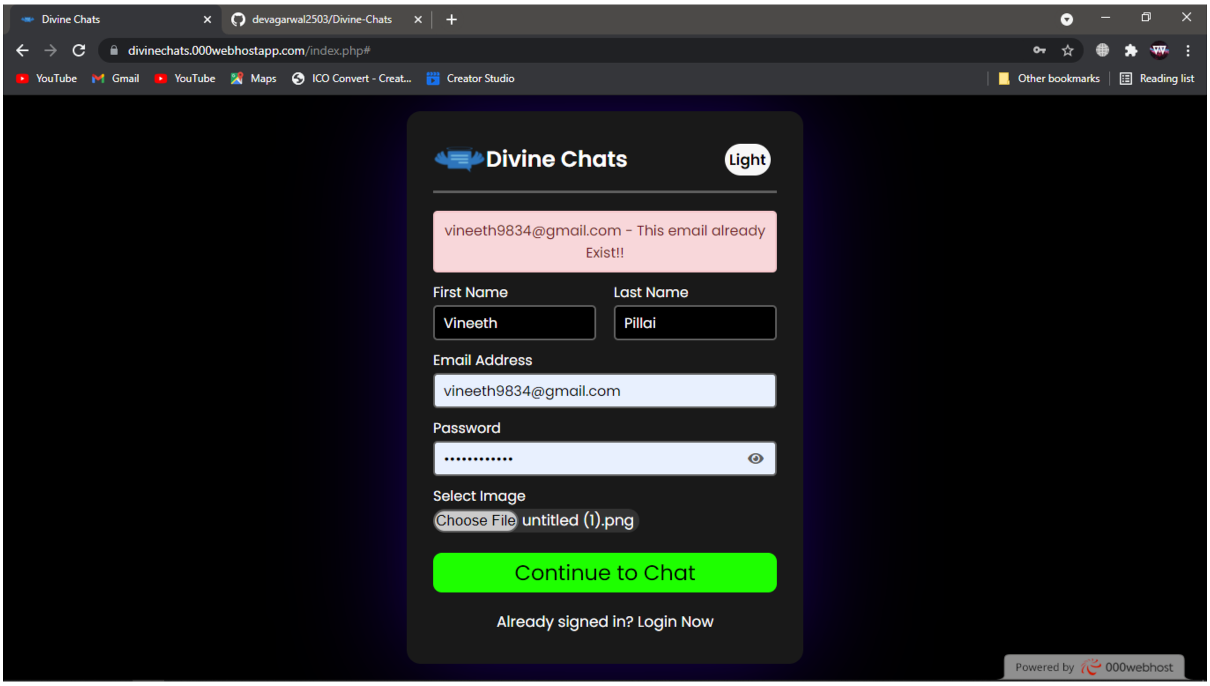
Enter your email

Password: Enter new password

Select Image: Choose File No file chosen

Continue to Chat

Already signed in? Login Now



vineeth9834@gmail.com - This email already Exist!!

First Name: Vineeth

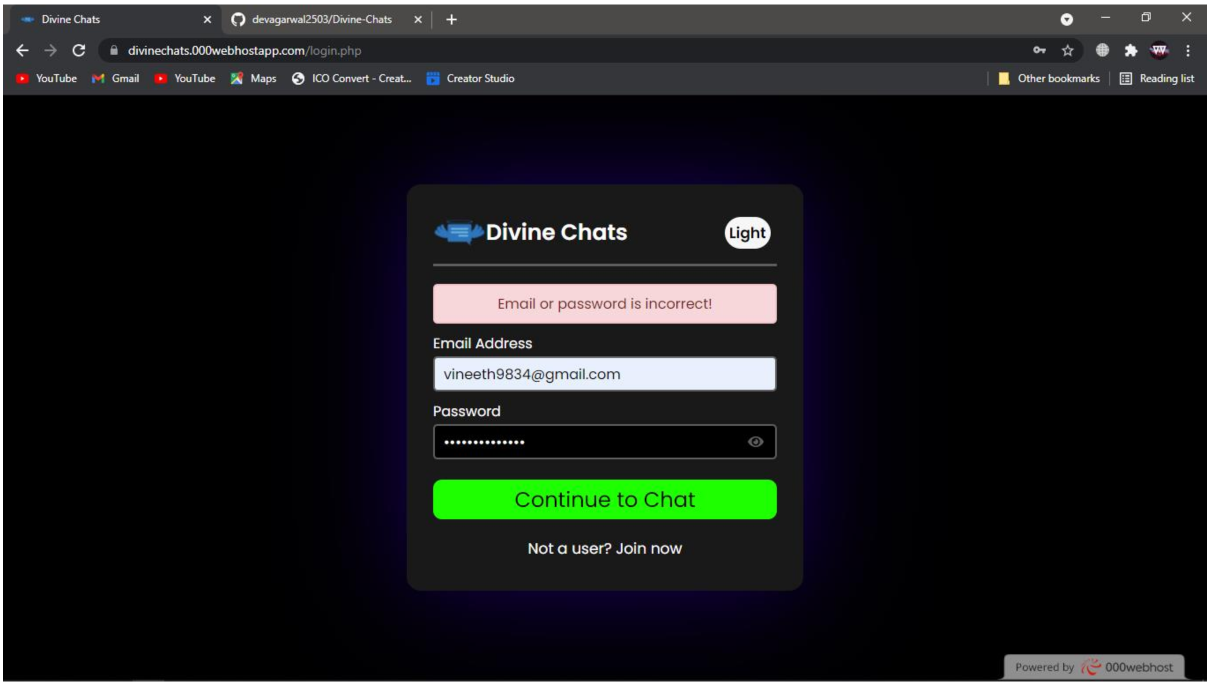
Last Name: Pillai

Email Address: vineeth9834@gmail.com

Password: ••••••••••••

Select Image: untitled (1).png

Signup Form Testing

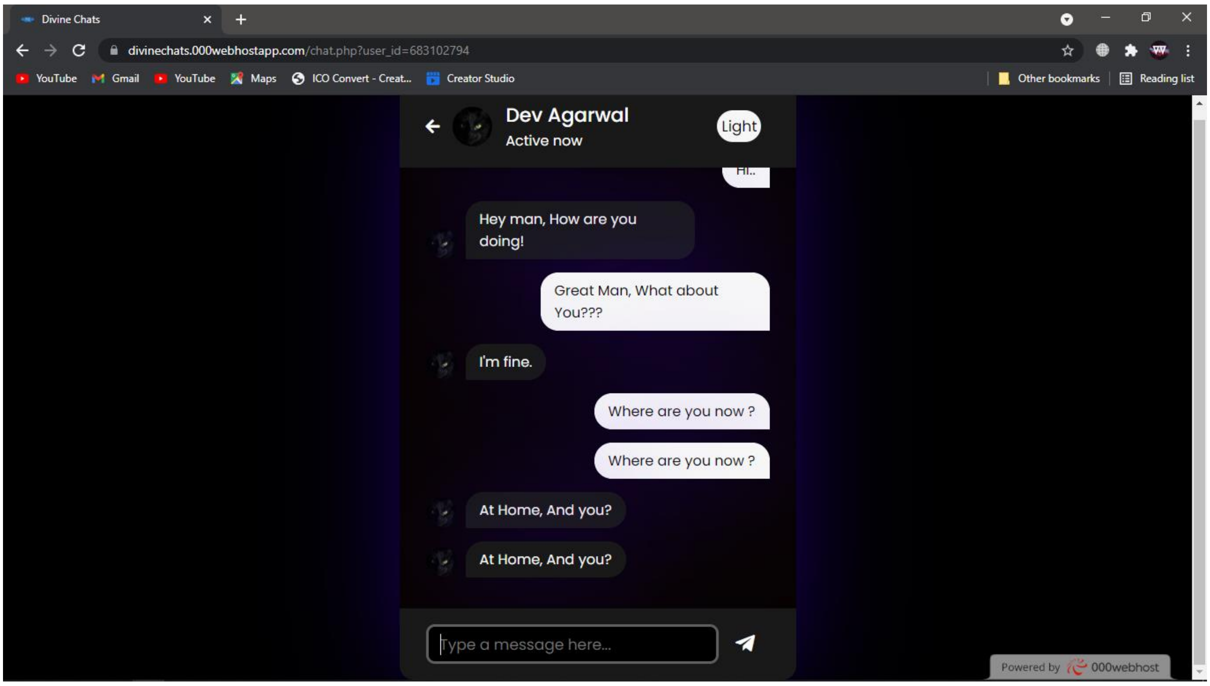


Email or password is incorrect!

Email Address: vineeth9834@gmail.com

Password: ••••••••••••••

Login Form Testing



Dev Agarwal
Active now

Hi..

Hey man, How are you doing!

Great Man, What about You???

I'm fine.

Where are you now ?

Where are you now ?

At Home, And you?

At Home, And you?

Chat Window Testing

7. Conclusion:

There is always a room for improvements in any apps. Right now we are just dealing with text communication. There are several android apps which serve similar purpose as this project, but these apps were rather difficult to use and provide confusing interfaces. A positive first impression is essential in human relationship as well as in human computer interaction. This project hopes to develop a chat service application with high quality user interface.

In future we may be extended to include features such as:

1. File Transfer

2. Voice Message

3. Video Message

8. Future Scope:

In future the application can be developed into more functional with new features and fixing the existing bugs. This can be used by many single user and an organisation. After adding feature like sending files and calling the user interest will increase and the number of user will increase. We can also add new UI for the user as an option or make a customisable UI for the user.

9. References:

The following websites helped us to build our application.

- www.google.com
- www.stackoverflow.com
- www.youtube.com
- www.reddit.com
- www.fontawesome.com
- www.freecodecamp.org
- www.udemy.com
- www.wikipedia.org