

**A Thesis/Project/Dissertation Report**  
on  
**WEB BASED REALTIME CHAT APP USING DJANGO**

*Submitted in partial fulfillment of the  
requirement for the award of the degree of*

**B-TECH CSE**



(Established under Galgotias University Uttar Pradesh Act No. 14 of 2011)

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INDIA  
November, 2022**



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I/We hereby certify that the work which is being presented in the thesis/project/dissertation, entitled "CAPS...." in partial fulfillment of the requirements for the award of the B-Tech submitted in the School of Computing Science and Engineering of Galgotias University, Greater Noida, is an original work carried out during the period of month, Year to Month and Year, under the supervision of Name... Designation, Department of Computer Science and Engineering/Computer Application and Information and Science, of School of Computing Science and Engineering , Galgotias University, Greater Noida

The matter presented in the thesis/project/dissertation has not been submitted by me/us for the award of any other degree of this or any other places.

Satish Singh (19SCSE1010878)  
Satyam (19SCSE1010470)

This is to certify that the above statement made by the candidates is correct to the best of my knowledge.

Mr. Suresh Kumar N  
Professor

**CERTIFICATE**

The Final Thesis/Project/ Dissertation Viva-Voce examination of Satish Singh and Satyam has been held on 20/12/2022 and his/her work is recommended for the award of B.Tech CSE.

**Signature of Examiner(s)**

**Signature of Supervisor(s)**

**Signature of Project Coordinator**

**Signature of Dean**

Date: November, 2022  
Place: Greater Noida

## **Abstract**

*Abstract*— The most recent Internet advancement has put the entire globe in our control. From information sharing to product purchases, everything is done online. The internet makes the world a small circle. This project is also Internet-based. The purpose of this project is to construct a web application that will allow users to instantaneously and at the moment connect. Considering this, a chat application is a feature or a program that allows online or concurrent internet users to connect directly with one another. Focusing on the most error-free data flow possible on the web is crucial while developing chat applications. Users of chat software can communicate even when they are far apart. To be used by many people, this chat program must be real-time and cross-platform. The user interface of this Django chat application resembles that of a messenger program, where all persons who have registered are listed and you can communicate with them. This App is built fully in Django Framework in the back end and HTML, and CSS in the front end.

**KEYWORD:** Django, HTML, CSS

## Contents

<b>Title</b>	<b>Page No.</b>
<b>Candidates Declaration</b>	<b>1</b>
<b>Acknowledgement</b>	<b>2</b>
<b>Abstract</b>	<b>3</b>
<b>Contents</b>	<b>4</b>
<b>List of Figures</b>	<b>5</b>
<b>Acronyms</b>	<b>5</b>
<b>Chapter 1 Introduction</b>	<b>6</b>
1.1 Introduction	<b>6</b>
1.2 Formulation of Problem	
1.2.1 Tool and Technology Used	
<b>Chapter 2 Literature Survey/Project Design</b>	<b>12</b>
<b>Chapter 3 Functionality/Working of Project</b>	<b>17</b>
<b>Chapter 5 Conclusion and Future Scope</b>	<b>42</b>
5.1 Conclusion	<b>42</b>
5.2 Future Scope	<b>42</b>
<b>Reference</b>	<b>43</b>

## List of Figures

<b>S.No.</b>	<b>Title</b>	<b>Page No.</b>
<b>2.1</b>	<b>Flow Chart of the Methodology</b>	<b>16</b>
<b>3.1</b>	<b>Flow Chart</b>	<b>18</b>
<b>3.2</b>	<b>Front End</b>	<b>19</b>
<b>3.3</b>	<b>Login Page</b>	<b>19</b>
<b>3.4</b>	<b>User's Home Page</b>	<b>20</b>

## Acronyms

B.Tech.	Bachelor of Technology
M.Tech.	Master of Technology
BCA	Bachelor of Computer Applications
MCA	Master of Computer Applications
B.Sc. (CS)	Bachelor of Science in Computer Science
M.Sc. (CS)	Master of Science in Computer Science
SCSE	School of Computing Science and Engineering

## CHAPTER-1

### Introduction

In today's world where technology is replacing everything. The mode of communication is also getting developed. Messaging has become a part of our daily life due to its simple-to-use functionality and convenience for real-time communication. There are many such types of tools available nowadays like, an iOS or text message on an iPhone or android device from a friend, a team chat in a Slack or Microsoft Team workspace or even instant messaging through social media.

Chatting is a method of using technology to bring people and their ideas 'together' despite of the geographical barriers. These technologies have been available for years but the acceptance it was quite recent. The best way that makes it easy to communicate with people anywhere in the world by sending and receiving message in real time is a **chat application**. With a real-time chat app, users will be able to receive the same engaging and lively interaction through custom messaging features, which make them feel like just they as they would in person. The important and popularity of chat application in a software development environment have been increasing day by day. Because of this remunerative solution which enables seamless interaction among programmers concurrently. The real-time interaction will allow each member of the group to communicate and solve problems together anywhere at any time. Chat application are mostly integrated with the development environment. The 'Chat Application' has developed to overcome the existing in the practicing manual system. This application is supposed to eliminate and, in some case, reduce the hardships faced by this existing system. This application also keeps users conversing on your platform instead of looking elsewhere for a messaging solution. Chat application can either be private chat, group chat, or large-scale chat, adding personalized chat features to your app can help ensure that your users have a memorable experience. The project designed by us is an example of a chat servers. Basically, it is made of 2 applications the client application, which runs on the user's Pc and server application, which runs on any Pc on the network. To start chatting client should get connected to server where they can practice two kind of chatting, public one {message is broadcasted to all connected users} and private one {between any 2 users only} and during the last one security measures were taken.

## **Problem Statement**

- This project is to create a chat application with a server and users to enable the users to chat with each other's.
- 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.
- This project can play an important role in organizational field where employees can through LAN.
- The main purpose of this project is to provide multi chatting functionality through network.

## **Technologies Used**

In this chatting app various front-end and back-end technologies are available in this era of digitalization. The technologies used in this project are discussed briefly in the following:

- 1) Front End Technologies
  - a) HTML

HTML stands for Hypertext Markup Language, and it is the most widely used language to write Web Pages. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript. Web browser receives HTML document from a web server or from local storage and render the document into multimedia web page. HTML is used to describe the structure of a web page semantically and it originally includes cues for the appearance of the document.

Hypertext in HTML refers to the way in which Web pages (HTML document) are linked together. Thus, the link available on a web page is called Hypertext. As its name suggested, HTML is a Markup Language so it can be used to “markup-up” a text document by using tags that tell a Web browser how to structure it to display (Musciano & Kennedy, 1996)

#### b) CSS

CSS (Cascading Style Sheets) is the language used to style an HTML document. CSS is used to describe how HTML elements should be displayed—for example to alter the font, color, size, and spacing of your content, split it into multiple columns, or add animation and other decorative features. CSS saves a lot of work. It can control the layout of multiple web pages all at once.

#### c) JavaScript

JavaScript (JS) is high level, interpreted, or just-in-time compiled programming language with first-class function. While it is most well-known as the scripting language for Web pages. JavaScript has curly-bracket syntax, dynamic typing, prototype-based object-oriented, and first-class functions.

Alongside HTML and CSS, JavaScript is one of the core technologies of the World Wide Web (Flanagan, 2006). JavaScript enables interactive web pages and is an essential part of web application. The vast majority of website use it, and major web browser have a dedicated JavaScript engine to execute it.

### 2) Back End Technologies

#### a) Python

Python is a general-purpose, interactive, interpreted, Object-oriented, and high-level programming language which is created by Guido van Rossum and was first released in 1991 (Kuhlman, 2011), Python’s design philosophy emphasizes code readability with its notable use of significant whitespace. Python is also a dynamically-typed and garbage-collected programming language.



In this chatting app, python is used as backend language to code database part and all functionalities that the websites can perform. In this the latest version of python 3.6 is used.

b) Django

Django (Holovaty & Kalpan-Moss, 2008) is a high-level Python Web Framework that encourage pragmatic design, rapid development and clean. Django is built by experienced developers, it is used to take care of much of the hassle of web development, so you can focus on writing app without needing to reinvent the wheel. The primary goal of Django is to ease the creation of complex, database-driven websites. Django framework focuses on reusability and “pluggability” of component, less code; low coupling, rapid development, and the principal of don’t repeat yourself. Python is used throughout, even for settings files and data models. It also provides an optional administrative create, read, update and delete interface that is generated dynamically through introspection and configured via admin models.

c) MySQL

MySQL is an open-source relational database management system (RDBMS) based on the Structured Query Language, which is popular language for managing and accessing the record in the database. It is considered as one of the best RDBMS being used for developing web-based software applications.

3) Hardware and Software Requirements

The project which has been developed satisfied all the functions and non-functional requirements enlisted. The hardware and software that are required for the project to run on any device are listed below.

a) System Specifications

Processor: Intel® Core™ ie-5005U @2.00GHz

RAM: 2 GB

System Type: 32-bits/64-bits operating system, x32 or x64 based  
Processor.

Operating System: Windows 7/8/10/11.

**b) Software Interface**

Front End: HTML, CSS, JavaScript

Back End: Django

Local Access Link: localhost: 8000

## **CHAPTER-2**

### **Literature Survey**

Nowadays, the public has become significantly familiar with internet communication. People now communicate with one another using advanced technology rather than the telephone, cars, or mail. In actuality, chat is a form of internet technology that facilitates human-to-human conversation. Web chat, for instance, is one of the latest chats. With the development of technology over the past few years, there has been an increase in the trend of using chat for communication. Users of the chat software can communicate, send and receive messages, and play games in real-time with other users. Studies on the effects of chat apps on society have become more popular due to their increased use.

Because of work stresses, there is a positive impact of the chat. According to Hauben (1997), the user is now free to interact without having any form of fear, limitation, or apprehension through the chat because the impact or influence of the first impression has been erased. This statement identifies the primary reason for the exclusive growth in the use of chat. There are the advantage of using chat as well, which is why there are such a large number of users. Accordingly, licklider (1997) asserted that individuals can interact online with one another if they share similar objectives, passions, and viewpoints. As a result, their lives will be happier, and their interaction will be more fruitful and pleasurable. Although licklider is actually the prophet of the net, it seems that the chat really has these benefits.

Instead of focusing on the chat's advantage, some researchers have adopted a different strategy by emphasizing its issue rather than its benefits. According to Randall (1997), for instance, some issues have actually existed. Undoubtedly, most people will not communicate using their real identities, as is common knowledge. Either they will develop a brand-new cyber identity that is entirely distinct from their true identities. Randall asks that it be difficult for people to flip between these two identities as a result of these circumstances.

As a result, while chat has a positive influence on society, there are also issues present. However, these issues don't appear to be too pressing. Therefore, chat

technology will continue to grow essential to our lives as long as these issues persist.

### **Electronic Mails**

Every day, the citizens of the Internet send each other billions of e-mail messages. If you're online a lot, you yourself may send a dozen or more e-mails each day without even thinking about it. Obviously, e-mail has become an extremely popular communication tool. The real e-mail system consists of two different servers running on a server machine. One is called the SMTP server, where SMTP stands for Simple Mail Transfer Protocol. The SMTP server handles outgoing mail. The other is either a POP3 server or an IMAP server, both of which handle incoming mail. POP stands for Post Office Protocol, and IMAP stands for Internet Mail Access Protocol. Whenever you send a piece of e-mail, your e-mail client interacts with the SMTP server to handle the sending. The SMTP server on your host may have conversations with other SMTP servers to deliver the e-mail. The chatting applications added with mailing service allow the live chat. The transfer of messages takes place within seconds. Here the numbers of people communicating are two. So, the scalability issue does not come into picture.

### **Instant Messaging**

IM is the private network communication between two users, whereas a chat session is the network communication between two or more users. Chat sessions can either be private, where each user is invited to join the session, or public, where anyone can join the session. There are on the order of 100 million Internet IM users, where a user is defined as a unique name on one of the major public IM networks. A fundamental issue faced by IM service providers, and thus designers of the protocols, is how the systems will scale with large numbers of users. Ideally, each provider desires to have millions of customers logged on to their systems at each time. This in turn requires that organizations have a system architecture that can scale with the number of users. Two approaches are available here: symmetric and asymmetric. In a symmetric architecture, each server performs identical functions, such that a client need not distinguish which server it contacts to engage in an activity with. In an asymmetric approach, each server is dedicated to a particular activity such as logging in, discovering other users on the network, maintaining a chat room, or forwarding instant message. The client-server

architecture allows IM service providers to keep some degree of control over their users. On the positive side, it helps overcome some of the technical issues associated with traversing the firewalls that the clients are often behind. On the negative side, since both control and data paths go through the central servers, scaling the service to millions of users is difficult.

## **Social Networking Sites**

The chats on social network are mainly peer-to-peer, they may happen in groups. As the chats take place in peer-to-peer they do not need to apply any queue to chat application. They use the algorithm for showing up the latest news in window and the friends available online. The friends to which we have chatted frequently are shown in the list. The newly updated news is at top on the page. The scalability of the chat is checked so that multiple chats can be carried out simultaneously. Here too the scalability issue comes in picture.

As the numbers of chats are carried out simultaneously the delay time to reply the chats is not fixed. If the reply time is fixed then delay study of the scalability with time constraint is a problem faced.

## **Methodology**

To develop this project, we have gone through multiple steps. The major steps are enlisted here:

1. Installing Python and adding it to the windows path.
2. Creating Virtual Environment (To create virtual environment following command are written in Command Prompt)
  - `pip install virtualenvwrapper-win`
  - `mkvirtualenvironmentname` (any name can be given)
  - `workonenvironmentname`
3. Installing Django
  - `pip install Django`
4. Go to Destination Place where you want the project to be kept, using `cd` command.
5. Create Project as follows

- `django-admin startproject someprojectname`
  - `cd someprojectname`
6. Create App of the project as
    - `django-admin startapp appname`
    - `python manage.py makemigrations`
    - `python manage.py migrate`
  7. Copy the Template Folder (if Front End Template is downloaded) to the project folder created.
  8. Run Server (localhost:8000)
    - `python manage.py runserver`

The Flow Chart below illustrates the steps that are required to install the project and steps involved in the development of project. Command written in bracket are to be run on Command Prompt. They are the steps that are required to install virtual environment and to run local server on the system project is to be developed on. The code of backend and frontend can be coded in any editor (PyCharm community version was used in this project).

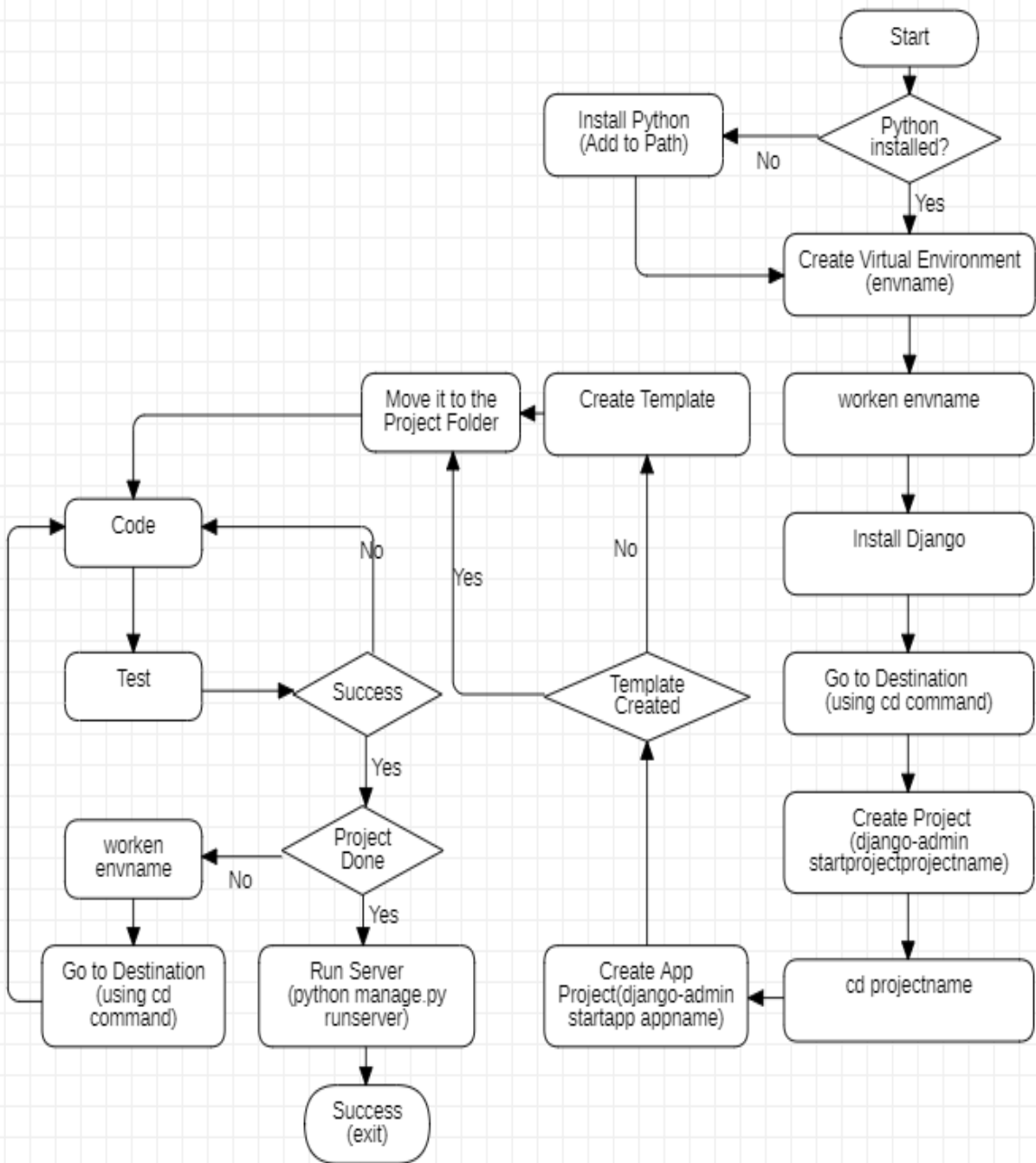


Fig: 2.1 Flow Chart of the Methodology

## CHAPTER 3

This project's concept is about a web-based real-time chat application that offers users a platform to chat in real time. Basically, this project consists of a login page and a chat room. Two modules for this project are listed below:

Server Modules: -

A server is a specially configured computer connected to the internet that enables the user to have real-time written message conversations with one another.

Client Modules: -

A client is a piece of software program that enables the user to connect to a chat server and engage in user-to-user communication in a chat room.

Chat Room: -

A chat room is where a user can start a real-time online conversation with other users.



## Flow chart

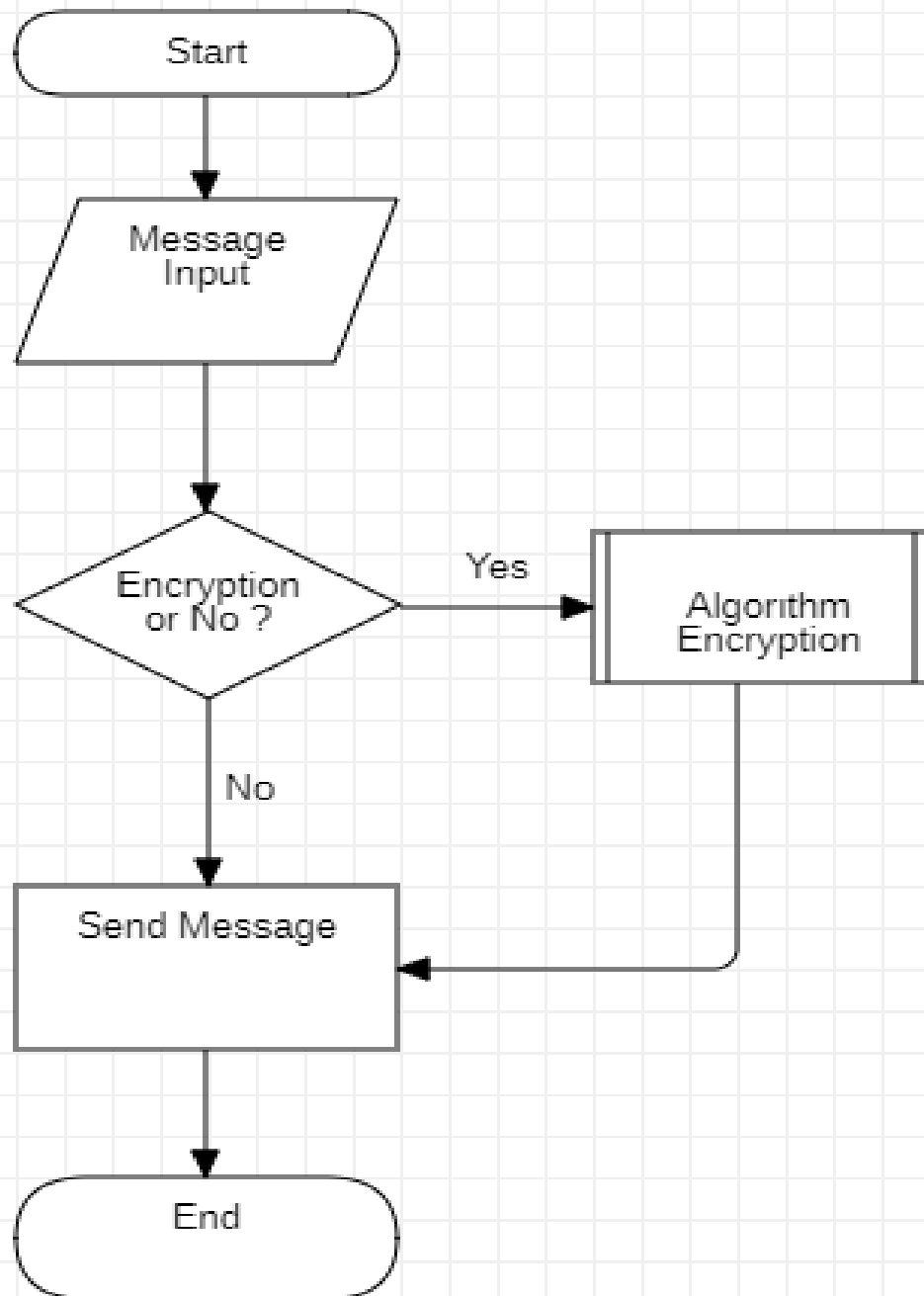
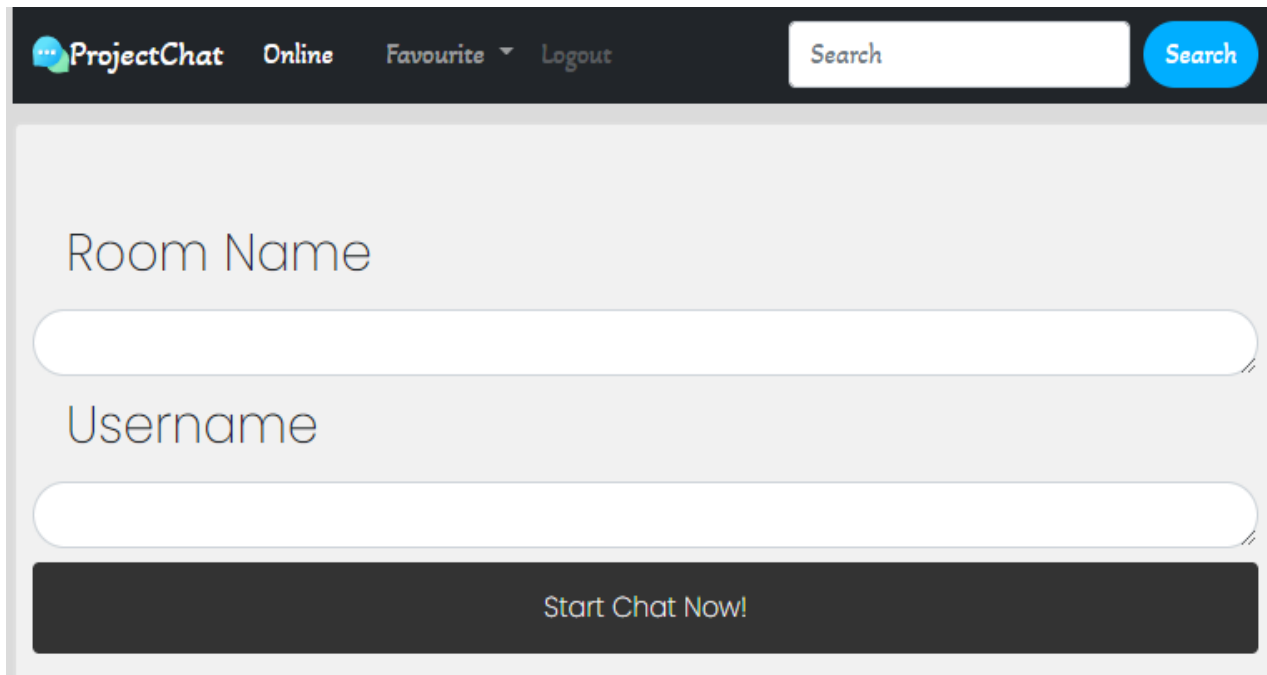


Fig: 3.1

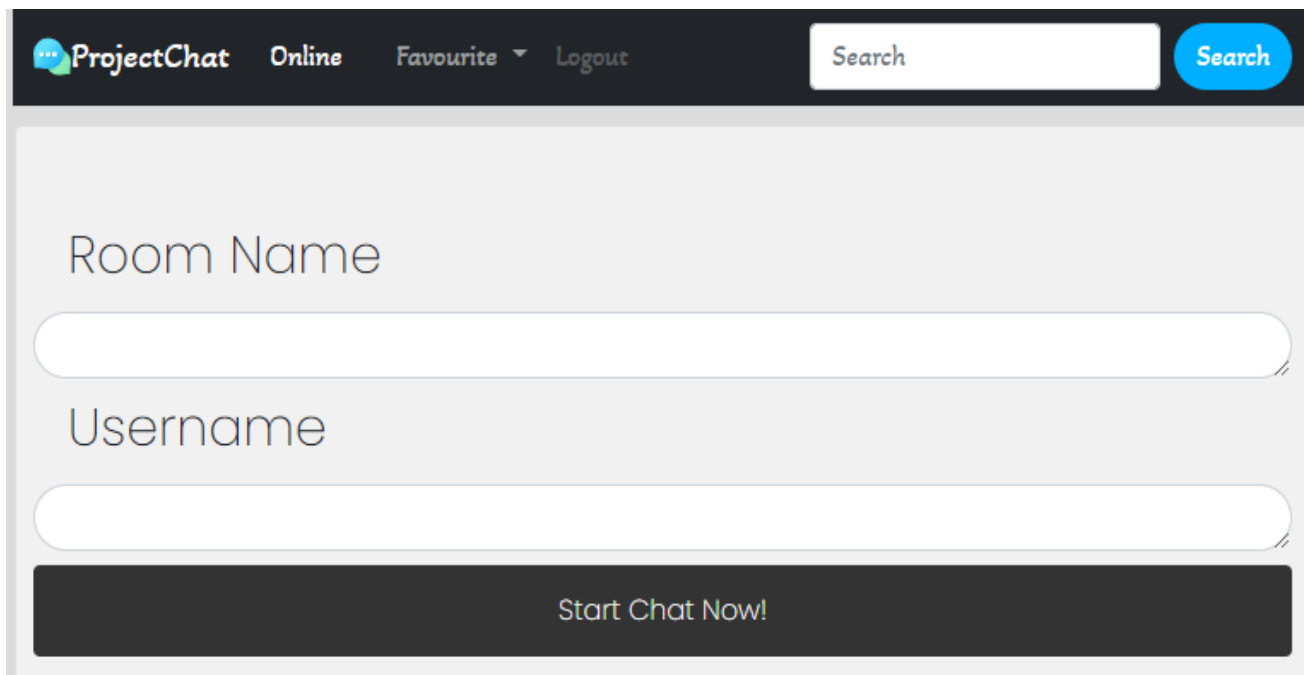
## Front End



The screenshot shows the front end of the ProjectChat application. At the top, there is a dark navigation bar with the ProjectChat logo, the text "Online", a "Favourite" dropdown menu, and a "Logout" link. To the right of the navigation bar is a search bar with the text "Search" and a blue "Search" button. Below the navigation bar, the main content area is light gray. It features two input fields: "Room Name" and "Username". Below these fields is a dark button with the text "Start Chat Now!".

Fig: 3.2

## Login Page



The screenshot shows the login page of the ProjectChat application. It has the same dark navigation bar as Fig 3.2, with the ProjectChat logo, "Online", "Favourite" dropdown, "Logout", and a search bar with a blue "Search" button. The main content area is light gray and contains two input fields: "Room Name" and "Username". Below these fields is a dark button with the text "Start Chat Now!".

Fig: 3.3

## User's Home Page

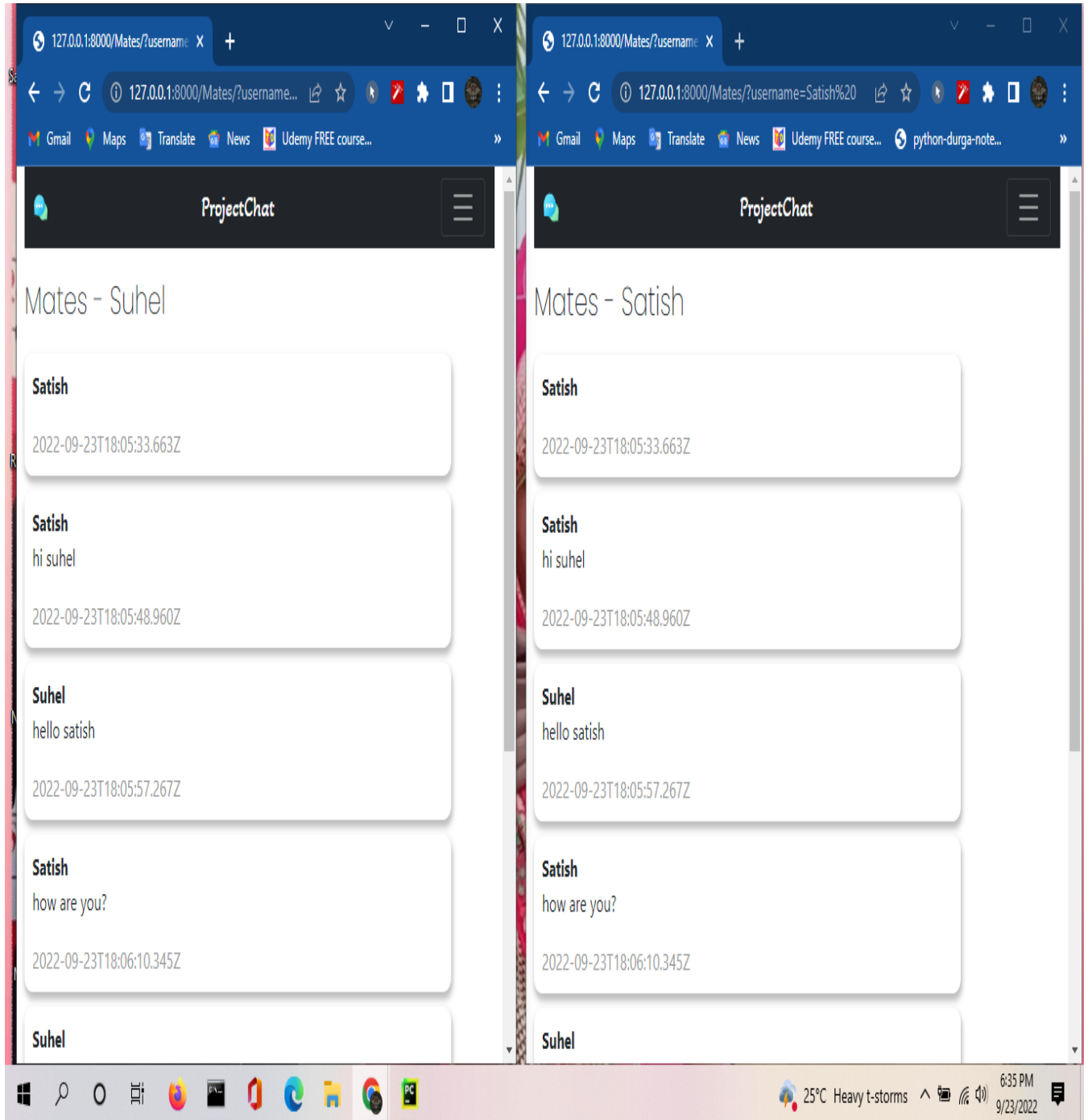


Fig: 3.4

## CODE

### VIEW

```
from django.shortcuts import render,redirect
from .models import Room,Message
from django.http import HttpResponse, JsonResponse

def home(request):
    return render(request, 'home.html')

def room(request, room):
    username = request.GET.get('username') # henry
    room_details = Room.objects.get(name=room)
    return render(request, 'room.html',{

        'username': username,
        'room': room,
        'room_details': room_details,
    })

def checkview(request):
    room = request.POST['room_name']
    username = request.POST['username']

    if Room.objects.filter(name=room).exists(): #if the room name that was inputed
exists
        return redirect('/'+room+'/?username='+username) # we wanna redirect to the
room
    else:
        new_room = Room.objects.create(name=room)
        new_room.save()
        return redirect('/'+room+'/?username='+username)

def send(request):
    message = request.POST['message']
    username = request.POST['username']
    room_id = request.POST['room_id']
```

```

    new_message = Message.objects.create(value=message, user=username,
room=room_id)
    new_message.save()
    # return HttpResponse("Hi, Message Sent Successfully!!")

def getMessages(request, room):
    room_details = Room.objects.get(name=room)
    messages = Message.objects.filter(room=room_details.id)
    return JsonResponse({"messages": list(messages.values())})
Home
<!doctype html>
<html lang="en">
<head>
    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">

    <!-- Bootstrap CSS -->

    <link
href="https://fonts.googleapis.com/css2?family=Akaya+Kanadaka&family=Poppi
ns:wght@200&display=swap" rel="stylesheet"> <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css"
rel="stylesheet" integrity="sha384-
EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOM
LASjC" crossorigin="anonymous">
    <link rel="preconnect" href="https://fonts.googleapis.com">
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
    <link href="https://fonts.googleapis.com/css2?family=Benne&display=swap"
rel="stylesheet">
    <link rel="stylesheet" href="main.css">
    <title>Hello, world!</title>
    <style>
    body{
    background-color: #dbdbdb;
    }
    svg{
    width: 3%;
    }

```

```

form{

}
#input1{
  border-radius: 25px;
}
#input2{
  border-radius: 25px;
}

input[type=text], select {
  width: 100%;
  border-radius: 25px;
  padding: 12px 20px;
  margin: 8px 0;
  display: inline-block;
  border: 1px solid #ccc;
  border-radius: 4px;
  box-sizing: border-box;
}

input[type=submit] {
  width: 100%;
  background-color: #333333;
  color: white;
  padding: 14px 20px;
  margin: 8px 0;
  border: none;
  border-radius: 4px;
  cursor: pointer;
}

input[type=submit]:hover {
  background-color: #120061;
}
#room_name_top{
  margin-top: 40px;
  font-size: 30px;
  padding-left: 20px;
}

```

```
#username_top{
  margin-top: 5px;
  font-size: 30px;
  padding-left: 20px;
}
body {
  margin: 0 auto;
  max-width: 800px;
  padding: 0 20px;
}

.container {
  border: 2px solid #dedede;
  background-color: #f1f1f1;
  border-radius: 5px;
  padding: 10px;
  margin: 10px 0;
}

.darker {
  border-color: #ccc;
  background-color: #ddd;
}

.container::after {
  content: "";
  clear: both;
  display: table;
}

.container img {
  float: left;
  max-width: 60px;
  width: 100%;
  margin-right: 20px;
  border-radius: 50%;
}

.container img.right {
```

```

float: right;
margin-left: 20px;
margin-right:0;
}

.time-right {
float: right;
color: #aaa;
}

.time-left {
float: left;
color: #999;
}
h5{
text-align: center;
font-size: 12px;
}
h6{
text-align: center;
font-size: 10px;

}
nav{
font-family: 'Akaya Kanadaka', cursive;
}
#post-form{
font-family: 'Poppins', sans-serif;
}
#input1{
font-family: 'Poppins', sans-serif;
height: 20px;
}
#input2{
font-family: 'Poppins', sans-serif;
height: 20px;
}
h5{
text-align: center;

```



```

font-size: 12px;
font-family: 'Poppins', sans-serif;
}
h6{
text-align: center;
font-size: 10px;
font-family: 'Poppins', sans-serif;
}
.btn{
background: rgb(0, 174, 255);
color: white;
border-radius: 35px;
}
.btn:hover{
background-color: rgb(0, 140, 255);
color: white;
border-radius: 2px;
}
</style>
</head>
<body>
<nav class="navbar navbar-expand-lg navbar-dark bg-dark">
<div class="container-fluid">
<svg version="1.1" id="Capa_1" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink" x="0px" y="0px"
viewBox="0 0 512.001 512.001" style="enable-background:new 0 0 512.001
512.001;" xml:space="preserve">
<linearGradient id="SVGID_1_" gradientUnits="userSpaceOnUse"
x1="307.4912" y1="216.7054" x2="554.6512" y2="-30.4546"
gradientTransform="matrix(1.0039 0 0 -1.0039 0.1922 516.5609)">
<stop offset="0" style="stop-color:#A7F3CE"/>
<stop offset="1" style="stop-color:#61DB99"/>
</linearGradient>
<path style="fill:url(#SVGID_1_);" d="M340.366,164.133c93.488-
1.428,169.792,72.153,171.602,165.634
c0.266,13.725-1.106,27.084-3.932,39.898c-4.786,21.697-7.631,43.776-
7.631,65.995v42.948c0,6.58-5.334,11.914-11.914,11.914
h-42.948c-22.219,0-44.298,2.845-65.995,7.631c-12.813,2.826-26.172,4.198-
39.897,3.932
c-93.48-1.809-167.061-78.111-165.635-

```

```

171.597C175.407,239.238,249.117,165.527,340.366,164.133z"/>
<linearGradient id="SVGID_2_" gradientUnits="userSpaceOnUse"
x1="388.3985" y1="135.8026" x2="283.4185" y2="240.7726"
gradientTransform="matrix(1.0039 0 0 -1.0039 0.1922 516.5609)">
  <stop offset="0" style="stop-color:#61DB99;stop-opacity:0"/>
  <stop offset="1" style="stop-color:#009E74"/>
</linearGradient>
<path style="fill:url(#SVGID_2_);" d="M340.366,164.133c93.488-
1.428,169.792,72.153,171.602,165.634
  c0.266,13.725-1.106,27.084-3.932,39.898c-4.786,21.697-7.631,43.776-
7.631,65.995v42.948c0,6.58-5.334,11.914-11.914,11.914
  h-42.948c-22.219,0-44.298,2.845-65.995,7.631c-12.813,2.826-26.172,4.198-
39.897,3.932
  c-93.48-1.809-167.061-78.111-165.635-
171.597C175.407,239.238,249.117,165.527,340.366,164.133z"/>
<linearGradient id="SVGID_3_" gradientUnits="userSpaceOnUse" x1="129.97"
y1="332.7742" x2="390.92" y2="71.8242" gradientTransform="matrix(1.0039 0 0
-1.0039 0.1922 516.5609)">
  <stop offset="0" style="stop-color:#62E1FB"/>
  <stop offset="1" style="stop-color:#00A2F3"/>
</linearGradient>
<path style="fill:url(#SVGID_3_);"
d="M209.098,9.909C95.204,8.169,2.245,97.81,0.039,211.696
  c-
0.323,16.719,1.348,32.996,4.792,48.606c5.83,26.432,9.296,53.331,9.296,80.4v52.
322c0,8.016,6.498,14.515,14.515,14.515h52.322
  c27.068,0,53.967,3.466,80.4,9.296c15.61,3.443,31.886,5.115,48.605,4.791c113.88
4-2.205,203.525-95.161,201.789-209.053
  C410.062,101.406,320.264,11.606,209.098,9.909z"/>
<linearGradient id="SVGID_4_" gradientUnits="userSpaceOnUse"
x1="179.0384" y1="218.1926" x2="41.6444" y2="355.5826"
gradientTransform="matrix(1.0039 0 0 -1.0039 0.1922 516.5609)">
  <stop offset="0" style="stop-color:#00A2F3;stop-opacity:0"/>
  <stop offset="1" style="stop-color:#0075CD"/>
</linearGradient>
<path style="fill:url(#SVGID_4_);" d="M132.193,204.739c-5.816-6.18-14.048-
10.061-23.206-10.061
  c-17.613,0-31.891,14.278-
31.891,31.891c0,9.157,3.88,17.389,10.061,23.206l68.794,68.794c5.817,6.18,14.04

```

```

9,10.061,23.206,10.061
  c17.613,0,31.891-14.278,31.891-31.891c0-9.157-3.881-17.389-10.061-
23.206L132.193,204.739z"/>
<circle style="fill:#FFFFFF;" cx="108.986" cy="226.565" r="31.891"/>
<linearGradient id="SVGID_5_" gradientUnits="userSpaceOnUse"
x1="268.8719" y1="218.196" x2="131.4819" y2="355.586"
gradientTransform="matrix(1.0039 0 0 -1.0039 0.1922 516.5609)">
  <stop offset="0" style="stop-color:#00A2F3;stop-opacity:0"/>
  <stop offset="1" style="stop-color:#0075CD"/>
</linearGradient>
<path style="fill:url(#SVGID_5_);" d="M222.383,204.739c-5.816-6.18-14.048-
10.061-23.206-10.061
  c-17.613,0-31.891,14.278-
31.891,31.891c0,9.157,3.881,17.389,10.061,23.206l68.794,68.794c5.817,6.18,14.04
9,10.061,23.206,10.061
  c17.613,0,31.891-14.278,31.891-31.891c0-9.157-3.881-17.389-10.061-
23.206L222.383,204.739z"/>
<circle style="fill:#FFFFFF;" cx="199.178" cy="226.565" r="31.891"/>
<linearGradient id="SVGID_6_" gradientUnits="userSpaceOnUse"
x1="358.7104" y1="218.1945" x2="221.3204" y2="355.5845"
gradientTransform="matrix(1.0039 0 0 -1.0039 0.1922 516.5609)">
  <stop offset="0" style="stop-color:#00A2F3;stop-opacity:0"/>
  <stop offset="1" style="stop-color:#0075CD"/>
</linearGradient>
<path style="fill:url(#SVGID_6_);" d="M312.572,204.739c-5.816-6.18-14.048-
10.061-23.206-10.061
  c-17.613,0-31.891,14.278-
31.891,31.891c0,9.157,3.881,17.389,10.061,23.206l68.794,68.794c5.817,6.18,14.0
49,10.061,23.206,10.061
  c17.613,0,31.891-14.278,31.891-31.891c0-9.157-3.881-17.389-10.061-
23.206L312.572,204.739z"/>
<circle style="fill:#FFFFFF;" cx="289.371" cy="226.565" r="31.891"/>
<g>
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</svg>
```

```
  <a class="navbar-brand" href="#">ProjectChat</a>
  <button class="navbar-toggler" type="button" data-bs-toggle="collapse"
data-bs-target="#navbarSupportedContent" aria-
controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle
navigation">
  <span class="navbar-toggler-icon"></span>
</button>
<div class="collapse navbar-collapse" id="navbarSupportedContent">
  <ul class="navbar-nav me-auto mb-2 mb-lg-0">
    <li class="nav-item">
      <a class="nav-link active" aria-current="page" href="#">Online</a>
    </li>
    <li class="nav-item">
      <a class="nav-link" href="#"></a>
    </li>
    <li class="nav-item dropdown">
      <a class="nav-link dropdown-toggle" href="#" id="navbarDropdown"
```

```

role="button" data-bs-toggle="dropdown" aria-expanded="false">
  Favourite
</a>
<ul class="dropdown-menu" aria-labelledby="navbarDropdown">
  <li><a class="dropdown-item" href="#">Action</a></li>
  <li><a class="dropdown-item" href="#">Another action</a></li>
  <li><hr class="dropdown-divider"></li>
  <li><a class="dropdown-item" href="#">Something else here</a></li>
</ul>
</li>
<li class="nav-item">
  <a class="nav-link disabled" href="#" tabindex="-1" aria-
disabled="true">Logout</a>
  </li>
</ul>
<form class="d-flex">
  <input class="form-control me-2" type="search" placeholder="Search"
aria-label="Search">
  <button class="btn " type="submit">Search</button>
</form>
</div>
</div>
</nav>
<div class="container">

  <form id="post-form" method="POST" action="checkview">
    { % csrf_token % }
    <label id="room_name_top">Room Name</label>
    <textarea id="input1" class="form-control" aria-label="With textarea"
type="text" name="room_name" id="room_name" style="margin-top:
10px;"></textarea>
    <label id="username_top">Username</label>
    <textarea id="input2" class="form-control" aria-label="With textarea"
type="text" name="username" id="username" style="margin-top:
10px;"></textarea>
    <input type="submit" value="Start Chat Now!">
  </form>
</div>
<h5 >&copy; Copyright Reserved ProjectChat - 2022</h5>
<h6>Made by Satish Singh &hearts; </h6>

```

```
<!-- Optional JavaScript; choose one of the two! -->
```

```
<!-- Option 1: Bootstrap Bundle with Popper -->
```

```
<script  
src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"  
integrity="sha384-  
MrcW6ZMFY1zcLA8Nl+NtUVF0sA7MsXsP1UyJoMp4YLEuNSfAP+JcXn/tWtI  
axVXM" crossorigin="anonymous"></script>
```

```
<!-- Option 2: Separate Popper and Bootstrap JS -->
```

```
<!--  
<script  
src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.9.2/dist/umd/popper.min.js"  
integrity="sha384-  
IQsoLX15PILFhosVNubq5LC7Qb9DXgDA9i+tQ8Zj3iwWAwPtgFTxbJ8NT4GN  
1R8p" crossorigin="anonymous"></script>  
<script  
src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.min.js"  
integrity="sha384-  
cVKIPhGWnC2Al4u+LWgxfKTRlcfu0JTxR+EQDz/bgldoEyl4H0zUF0QKbrJ0Ec  
QF" crossorigin="anonymous"></script>  
-->  
</body>  
</html>
```

Room

```
<!DOCTYPE html>  
<html>  
<head>  
<meta name="viewport" content="width=device-width, initial-scale=1">  
<link  
href="https://fonts.googleapis.com/css2?family=Akaya+Kanadaka&family=Poppi  
ns:wght@200&display=swap" rel="stylesheet"> <link  
href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css"
```

```
rel="stylesheet" integrity="sha384-
EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOM
LASjC" crossorigin="anonymous">
```

```
<link
href="https://fonts.googleapis.com/css2?family=Poppins:wght@200&display=swa
p" rel="stylesheet">
```

```
<link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css"
rel="stylesheet" integrity="sha384-
EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOM
LASjC" crossorigin="anonymous">
```

```
<style>
```

```
body {
  margin: 0 auto;
  max-width: 800px;
  padding: 0 10px;
```

```
}
```

```
h2{
  font-family: 'Poppins', sans-serif;
```

```
}
```

```
svg{
  width: 3%;
```

```
}
```

```
.container {
  background-color: #f1f1f1;
  border-radius: 10px;
  padding: 10px;
  margin: 10px 0;
}
```

```
.darker {
  border-color: rgba(0, 0, 0, 0);
  box-shadow: 1px 4px 5px 1px rgba(0, 0, 0, 0.253);
  background-color: rgb(255, 255, 255);
}
```

```
.container::after {
  content: "";
```

```

clear: both;
display: table;
}

.container img {
float: left;
max-width: 60px;
width: 100%;
margin-right: 20px;
border-radius: 50%;
}

.container img.right {
float: right;
margin-left: 20px;
margin-right:0;
}

.time-right {
float: right;
color: #aaa;
}

.time-left {
float: left;
color: #999;
}
nav{
font-family: 'Akaya Kanadaka', cursive;
}
</style>
<script src="https://code.jquery.com/jquery-3.1.1.min.js" integrity="sha256-
hVVnYaiADRTO2PzUGmuLJr8BLUSjGIZsDYGmIJLv2b8="
crossorigin="anonymous"></script>
</head>

<nav class="navbar navbar-expand-lg navbar-dark bg-dark">
<div class="container-fluid">

```



```

<svg version="1.1" id="Capa_1 svg" xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink" x="0px" y="0px"
viewBox="0 0 512.001 512.001" style="enable-background:new 0 0 512.001
512.001;" xml:space="preserve">
<linearGradient id="SVGID_1_" gradientUnits="userSpaceOnUse"
x1="307.4912" y1="216.7054" x2="554.6512" y2="-30.4546"
gradientTransform="matrix(1.0039 0 0 -1.0039 0.1922 516.5609)">
<stop offset="0" style="stop-color:#A7F3CE"/>
<stop offset="1" style="stop-color:#61DB99"/>
</linearGradient>
<path style="fill:url(#SVGID_1_);" d="M340.366,164.133c93.488-
1.428,169.792,72.153,171.602,165.634
c0.266,13.725-1.106,27.084-3.932,39.898c-4.786,21.697-7.631,43.776-
7.631,65.995v42.948c0,6.58-5.334,11.914-11.914,11.914
h-42.948c-22.219,0-44.298,2.845-65.995,7.631c-12.813,2.826-26.172,4.198-
39.897,3.932
c-93.48-1.809-167.061-78.111-165.635-
171.597C175.407,239.238,249.117,165.527,340.366,164.133z"/>
<linearGradient id="SVGID_2_" gradientUnits="userSpaceOnUse"
x1="388.3985" y1="135.8026" x2="283.4185" y2="240.7726"
gradientTransform="matrix(1.0039 0 0 -1.0039 0.1922 516.5609)">
<stop offset="0" style="stop-color:#61DB99;stop-opacity:0"/>
<stop offset="1" style="stop-color:#009E74"/>
</linearGradient>
<path style="fill:url(#SVGID_2_);" d="M340.366,164.133c93.488-
1.428,169.792,72.153,171.602,165.634
c0.266,13.725-1.106,27.084-3.932,39.898c-4.786,21.697-7.631,43.776-
7.631,65.995v42.948c0,6.58-5.334,11.914-11.914,11.914
h-42.948c-22.219,0-44.298,2.845-65.995,7.631c-12.813,2.826-26.172,4.198-
39.897,3.932
c-93.48-1.809-167.061-78.111-165.635-
171.597C175.407,239.238,249.117,165.527,340.366,164.133z"/>
<linearGradient id="SVGID_3_" gradientUnits="userSpaceOnUse" x1="129.97"
y1="332.7742" x2="390.92" y2="71.8242" gradientTransform="matrix(1.0039 0 0
-1.0039 0.1922 516.5609)">
<stop offset="0" style="stop-color:#62E1FB"/>
<stop offset="1" style="stop-color:#00A2F3"/>
</linearGradient>
<path style="fill:url(#SVGID_3_);"
d="M209.098,9.909C95.204,8.169,2.245,97.81,0.039,211.696

```

```

c-
0.323,16.719,1.348,32.996,4.792,48.606c5.83,26.432,9.296,53.331,9.296,80.4v52.
322c0,8.016,6.498,14.515,14.515,14.515h52.322
c27.068,0,53.967,3.466,80.4,9.296c15.61,3.443,31.886,5.115,48.605,4.791c113.88
4-2.205,203.525-95.161,201.789-209.053
C410.062,101.406,320.264,11.606,209.098,9.909z"/>
<linearGradient id="SVGID_4_" gradientUnits="userSpaceOnUse"
x1="179.0384" y1="218.1926" x2="41.6444" y2="355.5826"
gradientTransform="matrix(1.0039 0 0 -1.0039 0.1922 516.5609)">
<stop offset="0" style="stop-color:#00A2F3;stop-opacity:0"/>
<stop offset="1" style="stop-color:#0075CD"/>
</linearGradient>
<path style="fill:url(#SVGID_4_);" d="M132.193,204.739c-5.816-6.18-14.048-
10.061-23.206-10.061
c-17.613,0-31.891,14.278-
31.891,31.891c0,9.157,3.88,17.389,10.061,23.206l68.794,68.794c5.817,6.18,14.04
9,10.061,23.206,10.061
c17.613,0,31.891-14.278,31.891-31.891c0-9.157-3.881-17.389-10.061-
23.206L132.193,204.739z"/>
<circle style="fill:#FFFFFF;" cx="108.986" cy="226.565" r="31.891"/>
<linearGradient id="SVGID_5_" gradientUnits="userSpaceOnUse"
x1="268.8719" y1="218.196" x2="131.4819" y2="355.586"
gradientTransform="matrix(1.0039 0 0 -1.0039 0.1922 516.5609)">
<stop offset="0" style="stop-color:#00A2F3;stop-opacity:0"/>
<stop offset="1" style="stop-color:#0075CD"/>
</linearGradient>
<path style="fill:url(#SVGID_5_);" d="M222.383,204.739c-5.816-6.18-14.048-
10.061-23.206-10.061
c-17.613,0-31.891,14.278-
31.891,31.891c0,9.157,3.88,17.389,10.061,23.206l68.794,68.794c5.817,6.18,14.04
9,10.061,23.206,10.061
c17.613,0,31.891-14.278,31.891-31.891c0-9.157-3.881-17.389-10.061-
23.206L222.383,204.739z"/>
<circle style="fill:#FFFFFF;" cx="199.178" cy="226.565" r="31.891"/>
<linearGradient id="SVGID_6_" gradientUnits="userSpaceOnUse"
x1="358.7104" y1="218.1945" x2="221.3204" y2="355.5845"
gradientTransform="matrix(1.0039 0 0 -1.0039 0.1922 516.5609)">
<stop offset="0" style="stop-color:#00A2F3;stop-opacity:0"/>
<stop offset="1" style="stop-color:#0075CD"/>
</linearGradient>

```

```
<path style="fill:url(#SVGID_6_);" d="M312.572,204.739c-5.816-6.18-14.048-10.061-23.206-10.061c-17.613,0-31.891,14.278-31.891,31.891c0,9.157,3.881,17.389,10.061,23.206l68.794,68.794c5.817,6.18,14.049,10.061,23.206,10.061c17.613,0,31.891-14.278,31.891-31.891c0-9.157-3.881-17.389-10.061-23.206L312.572,204.739z"/>
```

```
<circle style="fill:#FFFFFF;" cx="289.371" cy="226.565" r="31.891"/>
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</svg>
```

```
<a class="navbar-brand" href="#">ProjectChat</a>
```

```

<button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-
bs-target="#navbarSupportedContent" aria-controls="navbarSupportedContent"
aria-expanded="false" aria-label="Toggle navigation">
  <span class="navbar-toggler-icon"></span>
</button>
<div class="collapse navbar-collapse" id="navbarSupportedContent">
  <ul class="navbar-nav me-auto mb-2 mb-lg-0">
    <li class="nav-item">
      <a class="nav-link active" aria-current="page" href="#">Online</a>
    </li>
    <li class="nav-item">
      <a class="nav-link" href="#"></a>
    </li>
    <li class="nav-item dropdown">
      <a class="nav-link dropdown-toggle" href="#" id="navbarDropdown"
role="button" data-bs-toggle="dropdown" aria-expanded="false">
        Favourite
      </a>
      <ul class="dropdown-menu" aria-labelledby="navbarDropdown">
        <li><a class="dropdown-item" href="#">Action</a></li>
        <li><a class="dropdown-item" href="#">Another action</a></li>
        <li><hr class="dropdown-divider"></li>
        <li><a class="dropdown-item" href="#">Something else here</a></li>
      </ul>
    </li>
    <li class="nav-item">
      <a class="nav-link disabled" href="#" tabindex="-1" aria-
disabled="true">Logout</a>
    </li>
  </ul>
  <form class="d-flex">
    <input class="form-control me-2" type="search" placeholder="Search" aria-
label="Search">
    <button class="btn " type="submit">Search</button>
  </form>
</div>
</div>
</nav>

```

```

<body>

<h2 style="padding-top: 20px; padding-bottom: 10px;">{{ room }} -
{{ username }}</h2>

<div id="display">

  <div class="container darker">
    <!-- <b>Destiny</b><p>Hello Everyone, How Are You Guys Doing?</p>-->
    <!-- <span class="time-left">20th, April 2021</span>-->
  </div>

</div>

<script>
$(document).ready(function(){

setInterval(function(){
  $.ajax({
    type: 'GET',
    url : "/getMessages/{{ room }}/",
    success: function(response){
      console.log(response);
      $("#display").empty();
      for (var key in response.messages)
      {
        var temp="<div class='container
darker'><b>"+response.messages[key].user+"</b><p>"+response.messages[key].v
alue+"</p><span class='time-
left'>"+response.messages[key].date+"</span></div>";
        $("#display").append(temp);
      }
    },
    error: function(response){
      // alert('An error occurred')
    }
  }
}
}

```

```
});  
,1000);  
})  
</script>
```

```
<div class="container">  
  <style>  
    .btn{  
      border: 2px rgb(0, 140, 255) solid;  
      color: white;  
      border-radius: 35px;  
    }  
    .btn:hover{  
      background-color: rgb(0, 140, 255);  
      color: white;  
      border-radius: 2px;  
    }  
    input[type=text], select {  
      width: 100%;  
      padding: 12px 20px;  
      margin: 8px 0;  
      display: inline-block;  
      border: 1px solid #ccc;  
      border-radius: 4px;  
      box-sizing: border-box;  
    }  
  
    input[type=submit] {  
      width: 100%;  
      background-color: #0066ff;  
      color: white;  
      padding: 14px 20px;  
      margin: 8px 0;  
      border: none;  
      border-radius: 4px;  
      cursor: pointer;  
    }  
  
    input[type=submit]:hover {
```

```

background-color: #4c00ff;
}
#input1{
border-radius: 35px;
height: 10px;
}
h5{
text-align: center;
font-size: 12px;
font-family: 'Poppins', sans-serif;
}
h6{
text-align: center;
font-size: 10px;
font-family: 'Poppins', sans-serif;

}

</style>
<br>
<div id="form-div">
  <form id="post-form">
    {% csrf_token %}
    <input type="hidden" name="username" id="username"
value="{{ {username} }}" />
    <input type="hidden" name="room_id" id="room_id"
value="{{ {room_details.id} }}" />
    <textarea class="form-control" aria-label="With textarea" type="text"
name="message" id="message" style="margin-top: 10px;"></textarea>
    <input type="submit" value="Send">
  </form>
</div>
</div>
<h5 >&copy; Copyright Reserved ProjectChat - 2022</h5>
<h6>Made by Satish Singh &hearts; </h6>

<script
src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.9.2/dist/umd/popper.min.js"

```

```
integrity="sha384-
IQsoLXl5PILFhosVNubq5LC7Qb9DXgDA9i+tQ8Zj3iwWAwPtgFTxbJ8NT4GN
1R8p" crossorigin="anonymous"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.min.js"
integrity="sha384-
cVKIPhGWic2A14u+LWgxfKTRlcfu0JTxR+EQDz/bgldoEyl4H0zUF0QKbrJ0Ec
QF" crossorigin="anonymous"></script>
```

```
</body>
```

```
<script type="text/javascript">
  $(document).on('submit','#post-form',function(e){
    e.preventDefault();

    $.ajax({
      type:'POST',
      url:'/send',
      data:{
        username:$('#username').val(),
        room_id:$('#room_id').val(),
        message:$('#message').val(),
        csrfmiddlewaretoken:$('input[name=csrfmiddlewaretoken]').val(),
      },
      success: function(data){
        // alert(data)
      }
    });
    document.getElementById('message').value = "
  });
</script>
```

```
</html>
```



## **CHAPTER 4**

### **Conclusion and Further Scope**

No matter how well and efficiently anything is done, there is always space for improvement. However, the main crucial component ought to be adaptable enough to welcome subsequent alteration. We only use text at this moment. Chat platforms first gained popularity by providing a free, web-based alternative to SMS, but over time they transformed into multimedia hubs that provide text communication. Customers can be sure that nobody can read their communication as it is real-time and was not stored data. Further, we can extend this software to include features that will make it more comfortable to use. The feature which can be added are:

**File Sharing:** Through this software program, the user will be capable enough to transfer the file in various formats to the other user.

**Voice chat:** Voice chat will take this application to the advanced level which makes the user enable for voice calling, just like on a telephone, for communication

## REFERENCE

- [1] B. Obadjere and E. Nyerhovwo To, “Design and Implementation of a Real-Time Chat Application.”
- [2] A. Shyam and N. Mukesh, “A Django Based Educational Resource Sharing Website: Shreic,” *Journal of scientific research*, vol. 64, no. 01, pp. 138–152, 2020, doi: 10.37398/jsr.2020.640134.
- [3] A. Kumar and A. Singh, “Research paper on Group chatting Application,” 2022. [Online]. Available: <https://www.researchgate.net/publication/360483603>
- [4] S. Zhu, “CHAT APPLICATION WITH DISTRIBUTED SYSTEM.” [Online]. Available: [https://digitalcommons.harrisburgu.edu/csms\\_student-coursework](https://digitalcommons.harrisburgu.edu/csms_student-coursework)
- [5] S. Zhu, “CHAT APPLICATION WITH DISTRIBUTED SYSTEM.” [Online]. Available: [https://digitalcommons.harrisburgu.edu/csms\\_student-coursework](https://digitalcommons.harrisburgu.edu/csms_student-coursework)
- [6] “django-private-chat Documentation Release 0.3.0 delneg,” 2020.
- [7] B. Obadjere and E. Nyerhovwo To, “Design and Implementation of a Real Time Chat Application.”
- [8] J. Mittal and S. Sharma, “Online Chatting Application,” 2020. [Online]. Available: <http://indusedu.org>
- [9] N. Sabah, J. Mohamad, J. M. Kadhim, and B. N. Dhannoon, “Developing an End-to-End Secure Chat Application image processing and Artificial intelligence View project NEURAL NETWORK WITH NEW RELIEF FEATURE SELECTION FOR PREDICTING BREAST CANCER BASED ON TP53 MUTATION View project Developing an End-to-End Secure Chat Application,” 2017. [Online]. Available: <https://www.researchgate.net/publication/322509087>
- [10] G. Rovira Sánchez, “Implementation of a chat application for developers,” 2017.
- [11] M. A. Mohamed, A. Muhammed, and M. Man, “A secure chat application based on pure peer-to-peer architecture,” *Journal of Computer Science*, vol. 11, no. 5, pp. 723–729, 2015, doi: 10.3844/jcssp.2015.723.729.
- [12] S. Hegde and S. Shah, “A SURVEY ON THE LATEST WEB TECHNOLOGIES.” [Online]. Available: [www.ijtra.com](http://www.ijtra.com)
- [13] B. Obadjere and E. Nyerhovwo To, “Design and Implementation of a Real Time Chat Application.”
- [14] D. Kuhlman, “A Python Book: Beginning Python, Advanced Python, and Python Exercises,” 2009. [Online]. Available: <http://www.davekuhlman.org>
- [15] R. Bello, M. Ogunrinde, and B. Bello, “Model Implementation Of Text And Video Chats With Python Ide Software,” *Journal of Computer Science and Its Application*, vol. 27, no. 1, Aug. 2020, doi: 10.4314/jcsia.v27i1.7.

- [16] F. Armash Aslam, H. Nabeel Mohammed Jummal Musab Mohd Munir Murade Aaraf Gulamgaus, and P. S. Lokhande Assistant Professor, "Efficient Way Of Web Development Using Python And Flask." [Online]. Available: [www.ijarcs.info](http://www.ijarcs.info)
- [17] Adrian. Holovaty, Jacob. Kaplan-Moss, and Jason. Gilmore, *The definitive guide to Django : Web development done right*. Apress, 2008.
- [18] T. Powell, "HTML & CSS: The Complete Reference, Fifth Edition (Complete Reference Series)." [Online]. Available: [www.jamespence.com](http://www.jamespence.com).