# A

**PROJECT REPORT**

**ON**

QuickConnect

***IN PARTIAL FULFILMENT OF***

***MASTER’S DEGREE IN COMPUTER APPLICATIONS (M.C.A.)***

**



**GOVERNMENT MCA COLLEGE**

**MANINAGAR, AHMEDABAD**

***(Affiliated to the Gujarat Technological University)***

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**GOVERNMENT MCA COLLEGE**

**MANINAGAR, AHMEDABAD**

***(Affiliated to the Gujarat Technological University)***

# CERTIFICATE

This is to certify that System Development Project of “**QuickConnect”** developed and submitted to Gujarat Technological University by **Viraj Sanghani (215690694057)** for partial fulfilmentof the requirement of MCA **Software Project-2 (639404)** in **SEM-3** in the year 2022-2023.

This is the original work and carried out under guidance and supervision. We further certify that to the best of our knowledge and belief the matter presented in this project report is Bonafide certificate.

Date of Submission:

**Prof. Nirali R Sheth Prof B.B. Prajapati Dr. Chetan B. Bhatt**

Assistant Professor Head of Department Principal

Government MCA Government MCAGovernment MCA College, Maninagar College, Maninagar College ,Maninagar

****



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# CERTIFICATE

This is to certify that System Development Project of “**QuickConnect”** developed and submitted to Gujarat Technological University by **Rahul Panchal (215690694028)** for partial fulfilmentof the requirement of MCA **Software Project-2 (639404)** in **SEM-3** in the year 2022-2023.

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# CERTIFICATE

This is to certify that System Development Project of “**QuickConnect”** developed and submitted to Gujarat Technological University by **Masira Mansuri (215690694008)** for partial fulfilmentof the requirement of MCA **Software Project-2 (639404)** in **SEM-3** in the year 2022-2023.

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Assistant Professor Head of Department Principal

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**Acknowledgement**

I would like to take this opportunity to thank “Government MCA College” and University “Gujarat Technological University” for giving us this opportunity to work for this project.

Any project is never an individual effort in isolation rather it is a collective effort in a cooperative environment which is supported by direct and indirect contribution from people, so I would like to thank everyone who has helped me in the accomplishment of our project and I will be grateful to them for providing such a wonderful assistance and guidance towards our project.

I express my gratitude to all those who gave me the opportunity to complete this project. No volume of words is enough to express my gratitude towards my guidance or external guide.

We are grateful to “Government MCA College” under whose direction we were able to complete our project successfully, we take an opportunity to show our appreciation to the faculty members who invested their precious time and inspirational guiding us whenever needed.

I am highly indebted to Prof. Nirali R Sheth for her guidance and supervision as well as for providing necessary information regarding the project.

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Panchal Rahul (215690694028)

Viraj Sanghani (215690694057)

Masira Mansuri (215690694008)

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4. **Introduction**

**1.1 Existing System**

Chatbot visual builder empowers you to create perfect chatbots quickly and with less coding. Upload conversational elements, and test them in real time to design engaging chatbot stories.

Adding chatbot assistants reduces overhead costs, uses support staff time better and enables organizations to provide customer service during hours when live agents aren't available.

Our support team will help you with chatbot implementation and customization all along the line.

A chatbot is often described as one of the most advanced and promising expressions of interaction between humans and machines. These digital assistants streamline interactions between people and services, enhancing customer experience. At the same time, they offer companies new opportunities to streamline the customer’s engagement process for efficiency that can reduce traditional support costs.

Instead of waiting on hold, customers can get answers to their questions in real time. Less service friction can improve the brand experience for customers.

Customers still value the ability to interact with live agents, particularly for more complex queries. Thus, keeping a human in the loop remains essential to the overall chatbot equation

**1.2 Need for the New System**

Organizations looking to increase sales or service productivity may adopt chatbots for time savings and efficiency, as chatbots can converse with users and answer recurring questions.

As consumers move away from traditional forms of communication, many experts expect chat-based communication methods to rise. Organizations increasingly use chatbot-based virtual assistants to handle simple tasks, allowing human agents to focus on other responsibilities.

**1.3 Objective of the New System**

* Reduce customer wait times and provide immediate answers;
* Offer customers 24/7 support;
* Remove the [potential for unpleasant human-to-human interactions](https://www.techtarget.com/searchcustomerexperience/feature/5-examples-of-bad-customer-service-and-how-to-avoid-them) that moods and emotions of both the service or sales representative and the customer dictate;
* Reduce wait times and streamline conversations to [minimize the potential for customers' stress and annoyance](https://www.techtarget.com/searchcustomerexperience/feature/10-customer-service-best-practices-to-follow);
* Improve the redirection of customer queries;
* Add customized elements to the chatbot to advance brand personality.

**1.4 Problem Definition**

* Difficult workflows and less productivity
* Customer problems solution difficult and slower
* Too much overhead to grow business
* No facilities available for generate and qualify leads automatically
* Less customer experience
* Low conversion rates
* Not understandable questions for customers
* Difficult to connect chatbot with your favourite sites

**1.5 Core Components**

## **MERN Stack**

MERN Stack is a compilation of four different technologies that work together to develop dynamic web apps and websites.

It is a contraction for four different technologies as mentioned below:

* M - [MongoDB](https://www.simplilearn.com/tutorials/mongodb-tutorial/what-is-mongodb)
* E - ExpressJS
* R - [ReactJS](https://www.simplilearn.com/tutorials/reactjs-tutorial)
* N - [NodeJS](https://www.simplilearn.com/tutorials/nodejs-tutorial/what-is-nodejs)

## **MERN Stack Components**

There are four components of the MERN stack. Let’s discuss each of them one by one.

* The first component is MongoDB, which is a [NoSQL](https://www.simplilearn.com/rise-of-nosql-and-why-it-should-matter-to-you-article) database management system.
* The second MERN stack component is ExpressJS. It is a backend web application framework for NodeJS.
* The third component is ReactJS, a JavaScript library for developing UIs based on UI components.
* The final component of the MERN stack is NodeJS. It is a JS runtime environment, i.e., it enables running JavaScript code outside the browser.

Let’s learn more about these MERN Stack components:

### **MongoDB**

MongoDB is a NoSQL [DBMS](https://www.simplilearn.com/dbms-interview-questions-and-answers-article) where data is stored in the form of documents having key-value pairs similar to JSON objects. MongoDB enables users to create databases, schemas, and tables. It offers the Mongo shell that provides a JS interface for deleting, querying, and updating the records.

### **ExpressJS**

ExpressJS is a NodeJS framework that simplifies writing the backend code. It saves you from creating multiple Node modules. For keeping the code precise, ExpressJS offers a range of middleware.

### **ReactJS**

ReactJS is a JS library that allows the development of user interfaces for mobile apps and SPAs. It allows you to code JavaScript and develop UI components. The JS library uses virtual DOM for doing everything.

### **NodeJS**

NodeJS is an open-source JavaScript runtime environment that allows users to run code on the server. It comes with the node package manager or npm, enabling users to select from a wide selection of node modules or packages. Being developed on the Chrome JavaScript Engine enables Node to execute code faster.

**1.6 Project Profile**

An all-in-one platform to build and launch conversational chatbots with less coding.

A chatbot is software that simulates human-like conversations with users via text messages on chat. Its key task is to help users by providing answers to their questions.

No matter whether you’re a growing company or a market leader, chatbot helps you communicate better with customers and push your business forward.

Users in both business-to-consumer (B2C) and business-to-business (B2B) environments can increasingly use chatbot virtual assistants to handle simple tasks.

Adding chatbot assistants reduces overhead costs, uses support staff time better and enables organizations to provide customer service during hours when live agents aren't available.

It will benefit to;

* POWER UP YOUR MARKETING

Personalize your customer experience.

* SUPERCHARGE YOUR SALES

Scale your efforts without increasing employee headcount.

* OPTIMIZE YOUR SUPPORT

Keep your customer support going after hours.

Chatbot will also provide you live chat feature that will be directly connect user to the agent and will be helpful in doubt solving.

**1.7 Assumptions and Constraints**

### **1. Chatbots Can Enhance Sales**

It is seen that the customer experience gets even better when they have an assisting agent with them. Your chatbot can assist the clients in shopping while resolving their queries on the go.

Also, any purchase chances are higher when the customer is getting better services throughout the shopping journey

**2. Chatbots Can Manage Accounts**

Managing accounts requires one to be precise about the data and the information. And you can use a chatbot to manage accounts and retrieve details whenever needed.

These [artificially intelligent bots](http://www.smatbot.com/) are more precise than humans, and there is a small scope of mistakes when you have the right chatbots deployed.

### **3. Chatbots are Customer Executives**

Most of the websites render online chat options due to their ease and convenience. Chatbots are perfect for deploying as [customer executives](https://www.smatbot.com/chatbot-templates/E-Commerce-Support-chatbot) because they are available around the clock and seamlessly resolve customer issues.

Chatbots have more efficiency in dealing with clients when compared to human agents.

The advantages of chatbots are never-ending. They are replacing humans in many fields and are proving them as a better option.

Now you can place food orders, complain about the quality of food, and claim a refund without any human intervention as a chatbot will resolve all the queries with its smart sense.

## **Some Undeniable Limitations of Chatbots**

Chatbots are directly linked with businesses, so understanding their weaknesses is a crucial part. There are a plethora of limitations users and business owners have complained about them. Also, these [limitations of chatbots](https://chatbotsmagazine.com/what-are-the-limitations-to-chatbots-ad709d75c98f)have stopped various organizations from deploying chatbots on their applications and websites.

### **1. Chatbots Don’t Understand Human Context.**

It is one of the significant limitations of chatbots. These chatbots are programmed in a way that they only know what they are taught. They cannot understand humans’ context, and this is a massive gap that can even lead to an angry customer.

The AI-powered smart-bots can understand the general context, but 40 out of 100 cases are not related to the broad context.

### **2. They Don’t Do Customer Retention.**

Retaining a customer is a vital part of every organization. It holds more importance than getting new customers. A chatbot is significantly less capable of [retaining the customers](https://www.houseofbots.com/news-detail/2205-1-chatbots-role-in-customer-retention) as it only tries up to a level for which it is programmed.

It is seen that human executives are better at customer retention because they can relate to the customers’ feelings, which is not the case with chatbots.

### **3. They Can’t Make Decisions.**

Another limitation of chatbots is that they lack decision-making. They don’t have the right know-how to differentiate between the good and the bad.

*On March 23, 2016, the tech biggie Microsoft attracted many controversies due to its*[*chatbot Tay*](https://www.theverge.com/2016/3/24/11297050/tay-microsoft-chatbot-racist)*. The chatbot posted offensive Tweets and landed Microsoft in huge troubles. So they have to shut down the chatbot temporarily.*

Similarly, chatbots have done a lot of damage to multiple brands due to their poor decision-making capability.

### **4. Exorbitant Installation**

Yes, chatbots save you a lot of money in the long run, but their installation cost can break the bank. You need to hire professionals who have rightly programmed chatbots to match the integrity of your business.

And installing a chatbot service means your business should be ready for substantial investment into Artificial Intelligence and Machine Learning.

### **5. Chatbots Have the Same Answer For a Query**

Most customers don’t proceed with the chat when they know they are chatting with a chatbot. Chatbots are easily identifiable because they have the same answer for multiple queries. Suppose you are asking something to a bot that is not available in the data server so that you will get an apology.

The same is the case with other queries; no matter how many different questions you ask, it will deliver you with the same apology, which is quite irritating.

**1.8 Advantages and Limitations of the System**

**1. They help you get to know your customers**

Conversational chatbots can help you get to know your customers even better. They allow you to find out what their most common questions and needs are, as well as the products or services that interest them. They help you make strategic decisions to improve the experience and offer a more personalized service with each interaction.

**2. They are a sales machine**

Your chatbot can offer immediate assistance to your potential customers and help speed up the buying decision process.

**3. Customer service around the clock**

One of the biggest advantages is that chatbots are available 24 hours a day to help customers. In addition, they respond quickly to all the questions they receive. This guarantees two very important things for almost all companies:

* Satisfied customers with immediate responses and resolutions
* Human agents focused on more important tasks and without work overload due to excessive consultations during non-working hours

**4. They help to optimize costs**

Implementing a Chatbot with conversational AI is a great way to automate customer service and improve the service provided by agents, which also leads to cost optimization in the medium term.

**5. They offer a personalized experience**

All people are very different and their way of communicating too. Therefore, the important thing is to offer an adequate and empathetic response to each query.

**Some things you should remember:**

Chatbot is not a human agent.

A conversational Chatbot is not the same as a human agent, so it does not always understand a query. Its selection of answers may be limited, depending on the information it has uploaded. There may be times when your interactions seem "robotic".

Need maintenance time to time.

The chatbot needs to be fed new and meaningful data (i.e. content) that can answer customer questions and queries.

Deploying, configuring, and learning of the chatbot can take a while.

**2. Requirement Determination & Analysis**

**2.1 Requirement Determination**

* Requirement Analysis is the first and important step in the Software development activity for building robust and user-friendly applications.
* I have started working on determining the functionalities that the application should provide.
* It is important to select highly able and new emerging technology for building any applications
* I have done a good amount of research on existing systems and the disadvantages of those. Once the functional requirements are finalized, I did research on the current technologies that are widely used in the industry and decided to use MongoDB, ExpressJS, ReactJS, NodeJS and Socket.io
* Because of we are selected socket.io to create our live chat, it is important to select those programming language which are compatible with socket.io library and easy to implementing.

**2.2 Targeted Users**

Our targeted users are ecommerce companies, portfolio site owner, product based companies who create new product and want to reach more customers.

It is essential that you invest enough time in the preparations before the actual creation of your own chatbot and think about the desired target group of your chatbot.

Once the chatbot is live and you realize that it does not meet the requirements and expectations of the desired users, it is too late will cost the company dearly.

In a first step, you must always determine the use case, i.e. the function that the chatbot should fulfil. This can also be several.

Secondly, think about the target group that the chatbot should address with the selected use cases. The best way is to define so-called «personas». The term persona is already well known in the field of customer care and comes from Customer Experience Management (CEM).

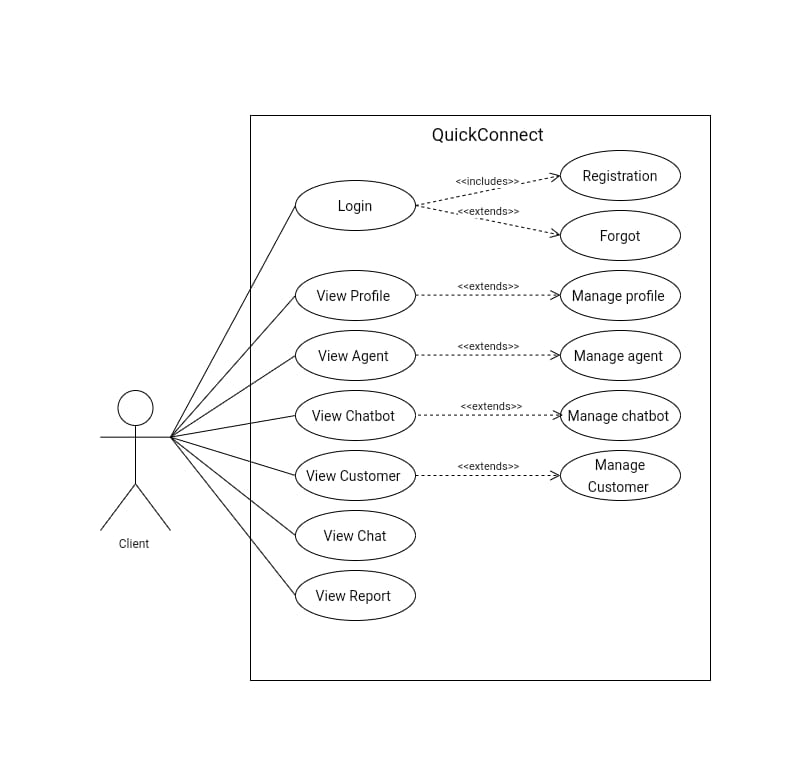
A persona characterizes the people of a certain target group and shows their characteristics. A detailed description with name, appearance, function, career and private life (hobbies), behaviours, preferences and expectations of the users allows you to better put yourself in the shoes of your potential users and develop the chatbot from the corresponding user perspective.

Instead of personas, companies often only determine the customer segments and thus remain very much on the surface. This is often not enough to align the chatbot with the expectations of the desired user group. If you want to go more in depth, it is almost impossible to do without the development of personas.

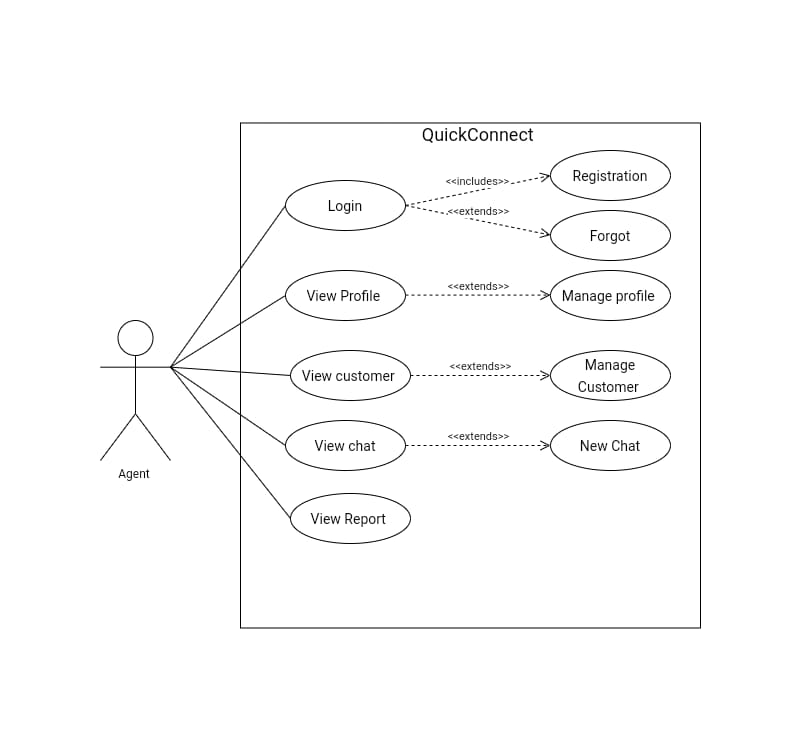
**3.System Design**

**3.1 Usecase Diagrams**

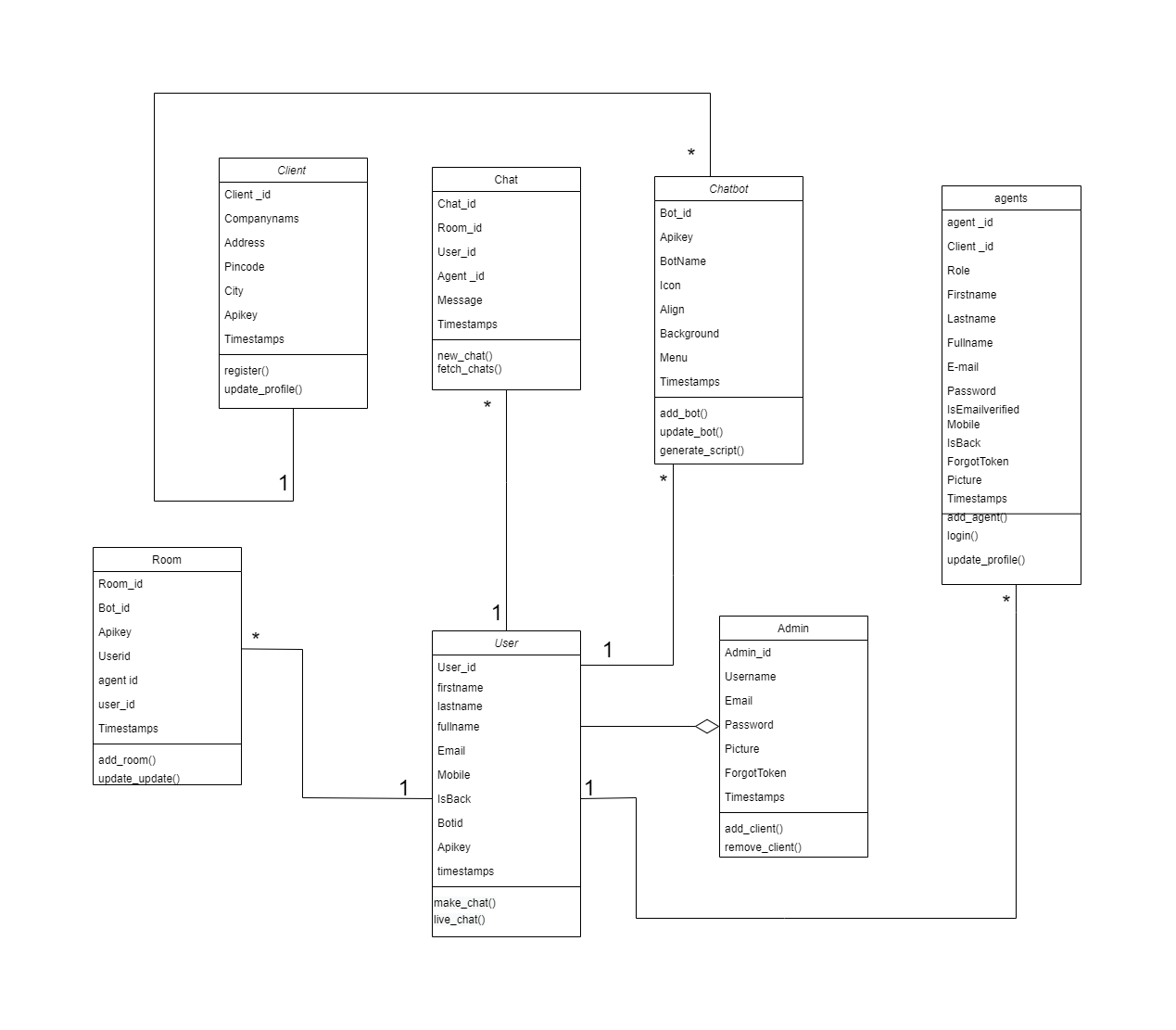
* **Usecase diagram for Client :**



* **Usecase diagram for Agent :**

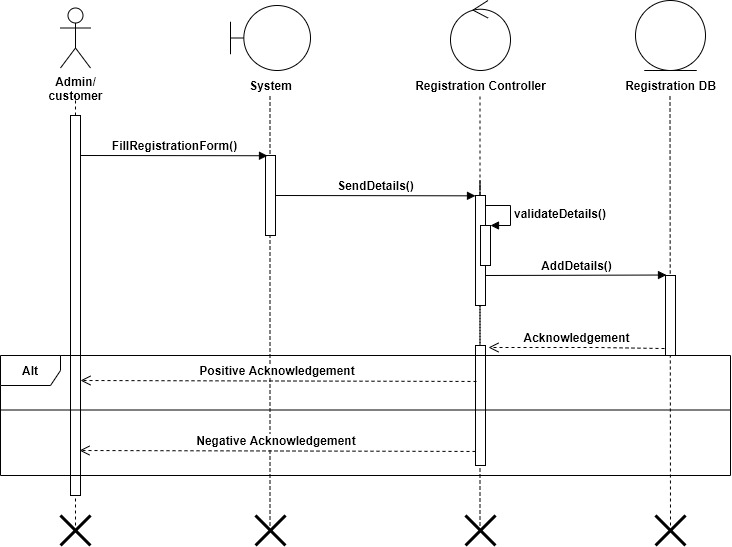


**3.2 Class Diagram**



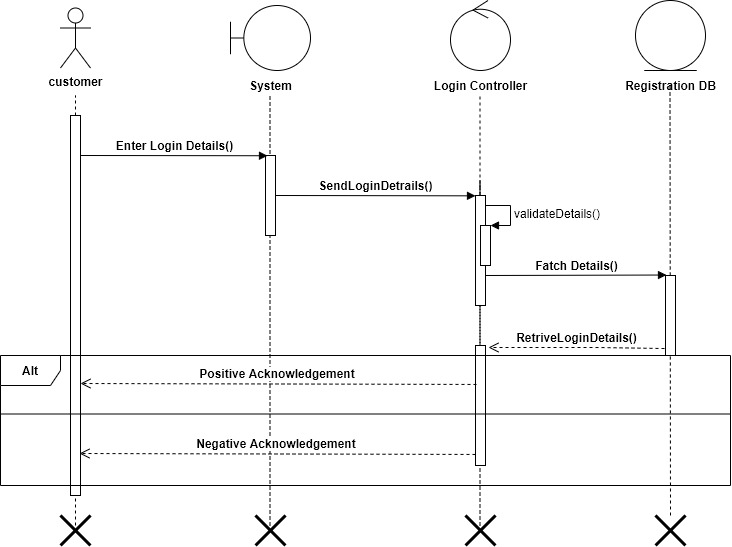
**3.3 Interaction Diagram**

* **Sequence Diagrams for Registration :**



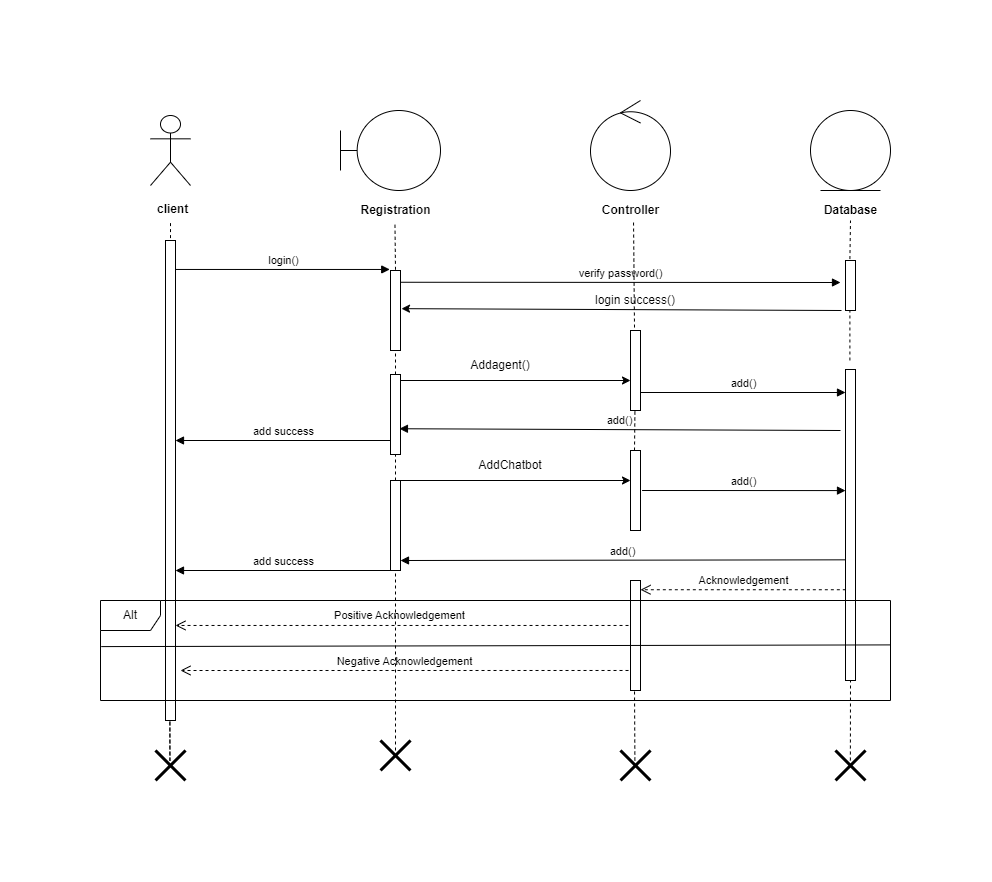
Admin/Customer can fill Registration form then it will system validation and send details Registration Controller then it store Database then it will send acknowledgement Registration Details then Registration successfully

* **Sequence Diagrams for Login:-**



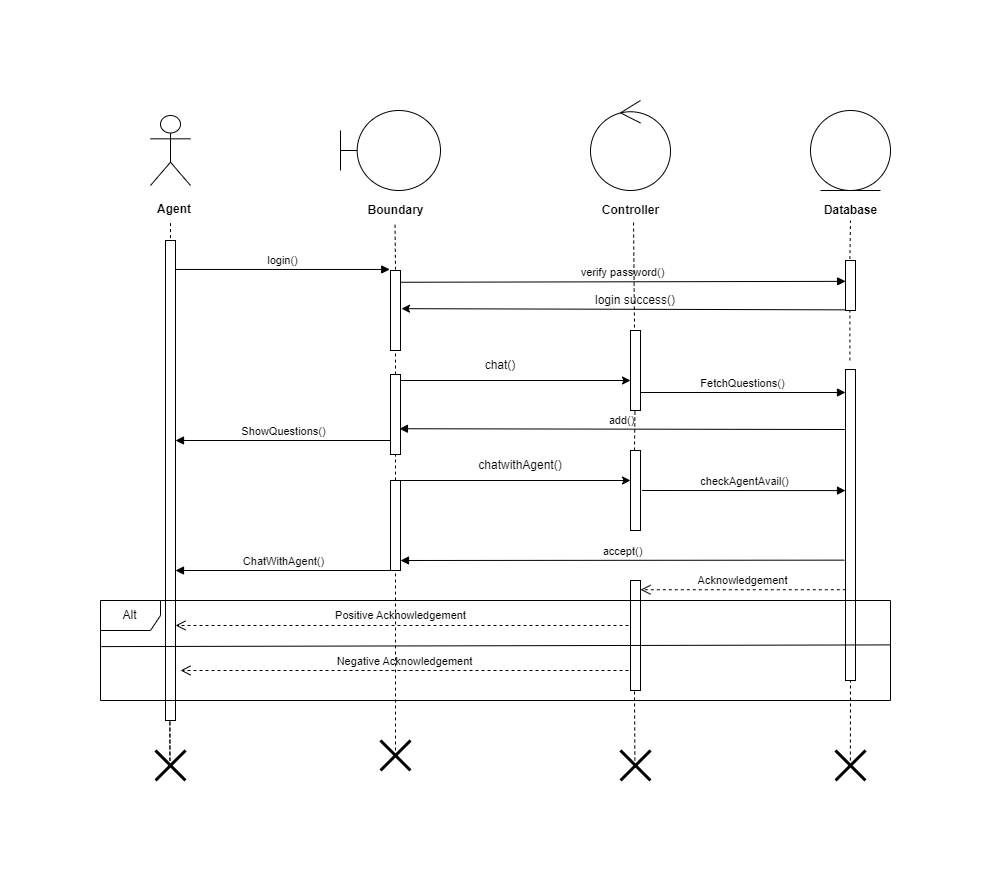
Customer can Login details like username and password then it will system validation and send details Login Controller its validate then it fetch Database then it will send acknowledgement then Login successfully

* **Sequence Diagrams for Client:-**



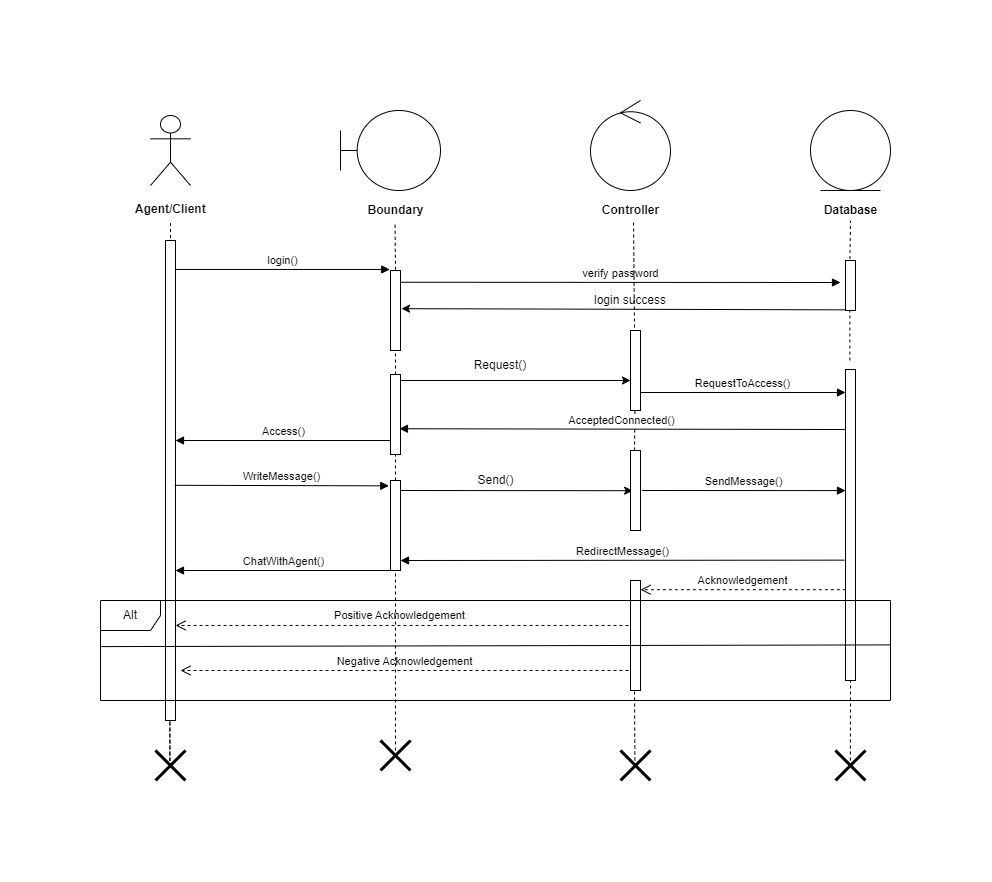
Client can Login details like username and password then it will system validation and send details Login Controller its validate then it fetch Database then it will send acknowledgement then Login successfully. Then Client can Add agent then it will store the database then it will send message to client add successfully. Client also do that add chatbot details like color,position of chatbot ,name agent then it will store the database then it will send message to client add successfully.

* **Sequence Diagrams for Agent :-**



Agent can Login details like username and password then it will system validation and send details Login Controller its validate then it fetch Database then it will send acknowledgement then Login successfully. Then Agent can Add chat then it will fetch the database then it will show question to agent. Client also do that chat with agent if agent is avail then it will chat then it will store the database.

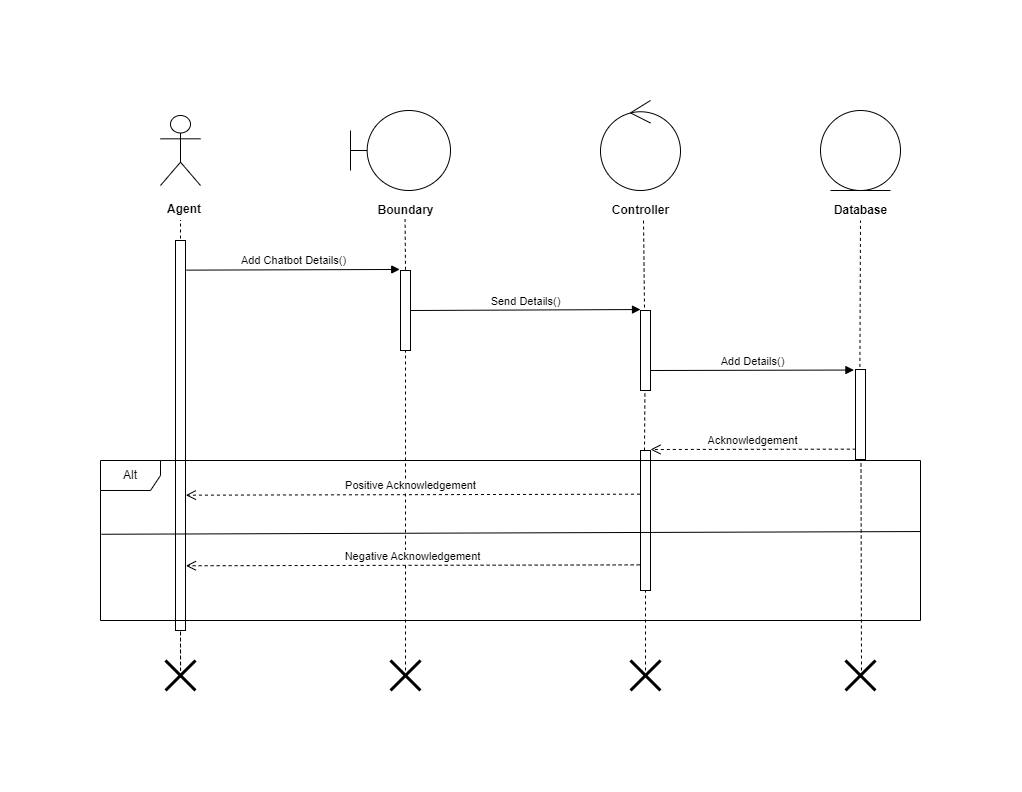
* **Sequence Diagrams for Chat :-**



Client/agent can Login details like username and password then it will system validation and send details Login Controller its validate then it fetch Database then it will send acknowledgement then Login successfully. It send request to controller then it will Request to access through database

If they are avail then it will accept otherwise not. Then it will write message then send message

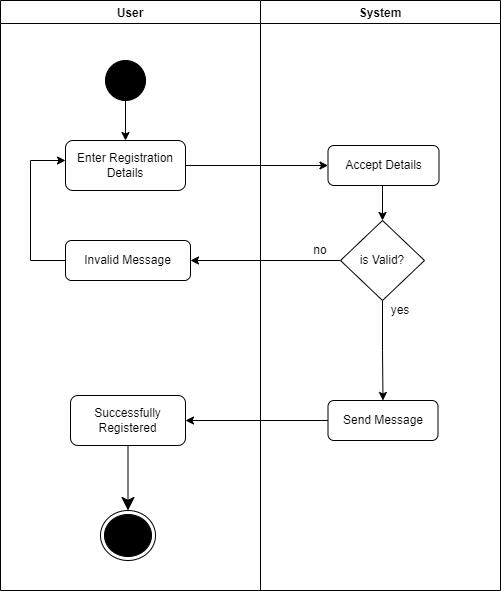
* **Sequence Diagrams for Chatbot :-**



Agent can add chatbot details then send details to controller it will check the details after it will store the database then it will send acknowledge chatbot added successfully

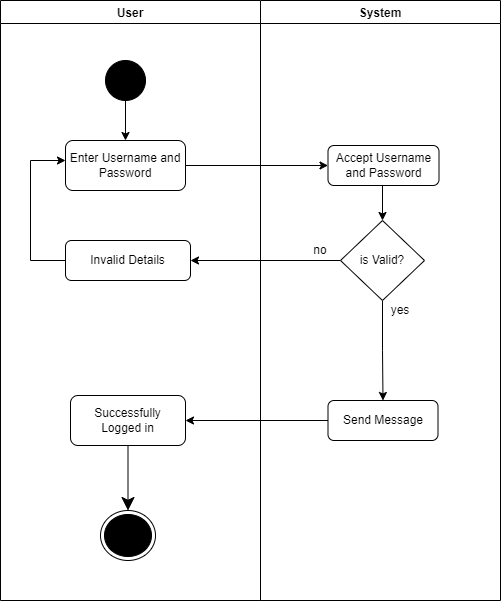
**3.4 Activity Diagram**

* **Activity Diagrams for Registration:-**



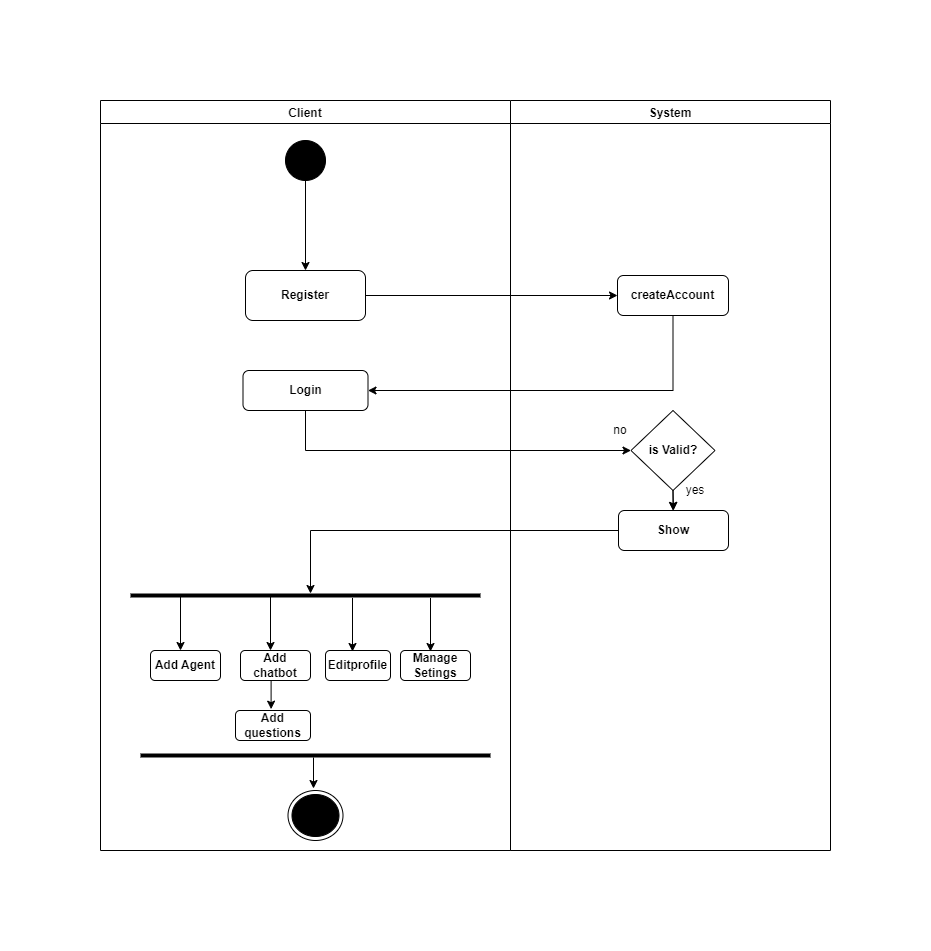
User can enter the registration then System can validating the details then if invalid so show invalid message and if Valid send message Successfully Registered.

* **Activity Diagrams for Login:-**



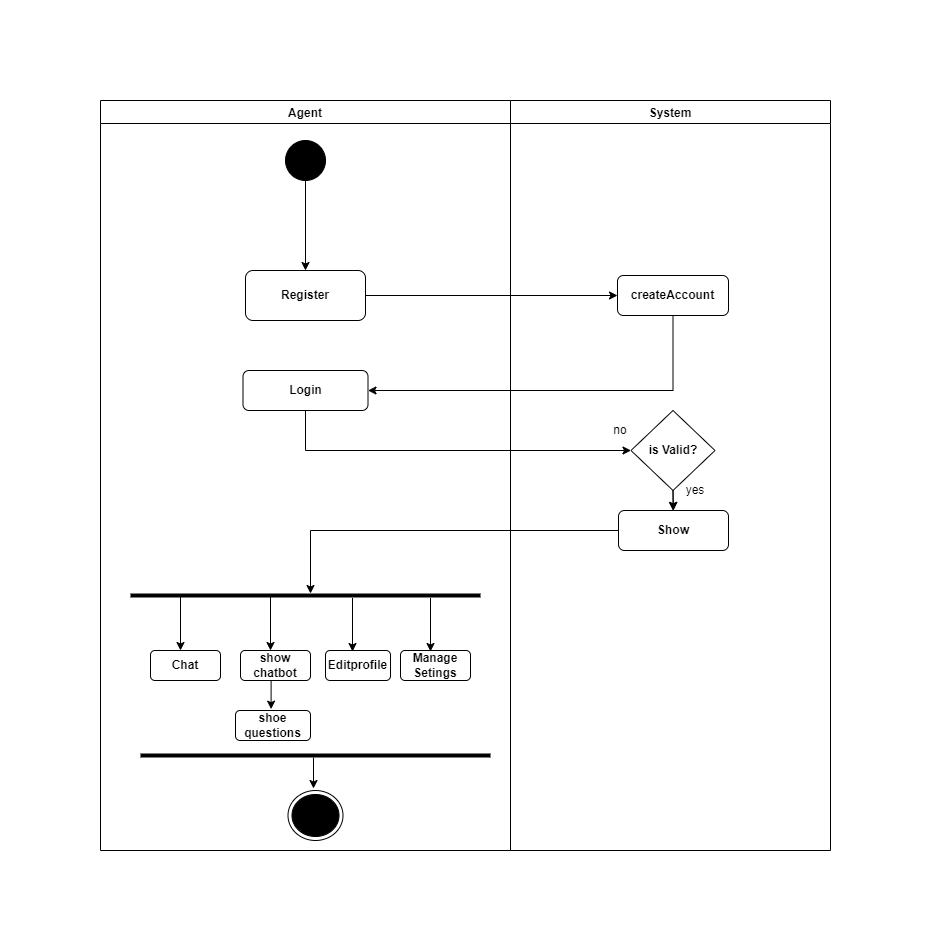
User can Enter Username and Password then System can veriftying the username and password if valid then send Message Logged Successfully and if Invalid so it will send invalid message

* **Activity Diagrams for Client:-**



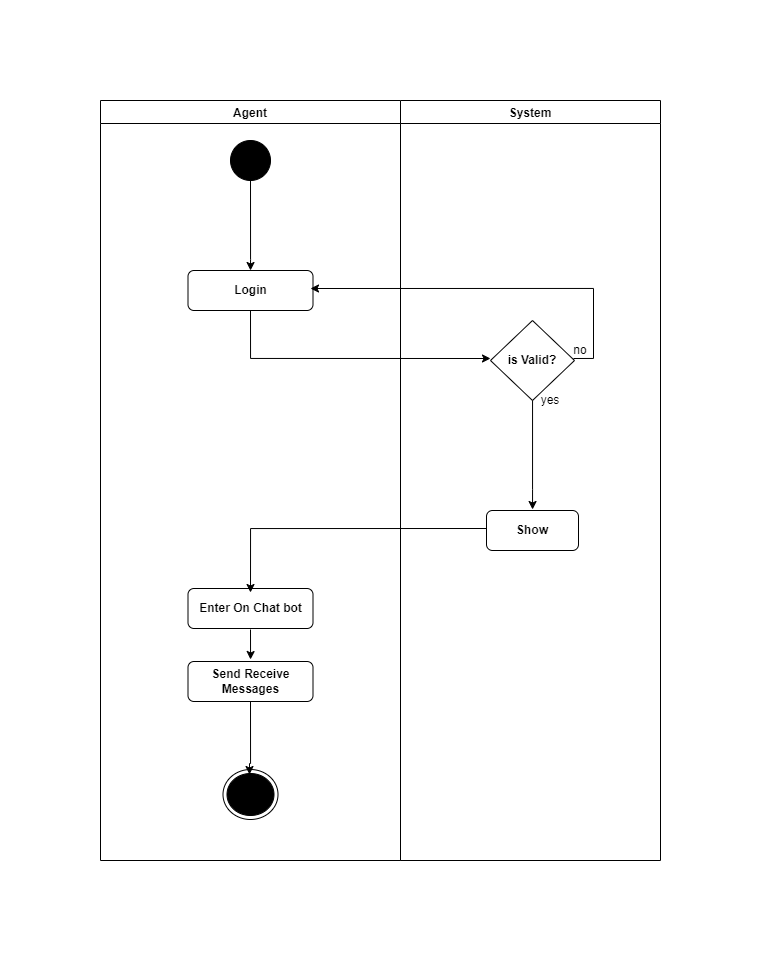
Client can Register and it will check registration details the if registration successfully then go to the Login it will check Username and password if correct so then go to the home page and it will show and perform Add Agent and Add chatbot and Edit profile and Mange settings and add Question if all the process done then logout Client

* **Activity Diagrams for Agent :-**



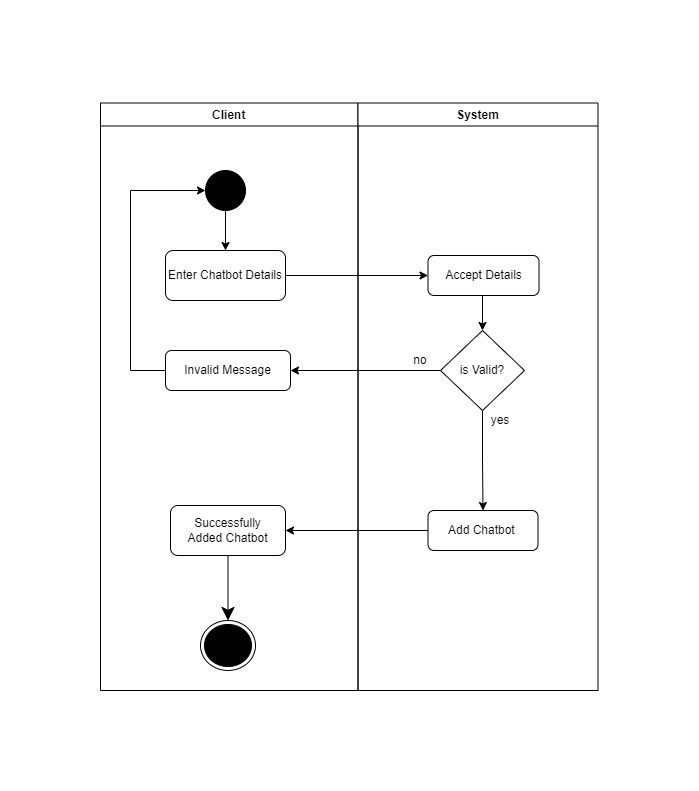
Agent can Register and it will check registration details the if registration successfully then go to the Login it will check Username and password if correct so then go to the home page and it will show and perform chat and show chatbot and Edit profile and Mange settings and show Question if all the process done then logout Age

* **Activity Diagrams for Chat:-**



Agent can login then System will check Username and password if valid then Enter On chatbot, Send and receive message then Agent can logout

* **Activity Diagrams for Chatbot :-**



Client can Enter chatbot details like image and name, choose colour and position of chatbot, System can accept details and add chatbot to database.

**3.5 Data Dictionary**

* **Data Dictionary for Admin:-**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Datatype (Size)** | **Description** |
| **Admin\_Id** | Number (10) | Auto Generated by the Database admin |
| **user\_name** | Varchar (20) | Name of user |
| **Email\_id** | Varchar (48) | It indicates the email Address of admin |
| **Password** | Varchar (10) | It indicates admin password |
| **Picture** | Varchar(10) | It indicates picture of admin |
| **ForgotToken** | Varchar(30) | It indicates forgot token |
| **Timestamps** | Enum("T","F") | It indicate time stamp |

* **Data Dictionary for Client:-**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Datatype (Size)** | **Description** |
| **Client\_id** | Number(10) | Auto Generated by the Database user. |
| **Company\_name** | Varchar (30) | Company Name of client |
| **Address** | Text | It indicates the address of client |
| **Pincode** | Number (10) | It indicates pincode of client |
| **City** | Varchar(30) | It indicates city of client |
| **Api\_key** | Number(10) | It generate api key |

* **Data Dictionary for Agent:-**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Datatype (Size)** | **Description** |
| **Agent\_id** | Number(10) | Auto Generated by the Database User. |
| **Client\_id** | Number (10) | It indicates client id |
| **Role** | Varchar (20) | It indicates role of agent |
| **First\_name** | Varchar(10) | It indicates first name of agent |
| **Last\_name** | Varchar(10) | It indicates last name |
| **Email\_id** | Varchar(30) | It indicates emailid |
| **Password** | Varchar(30) | It indicates user Password |
| **IsEmailverified** | Enum("T","F") | Verify email |
| **mobile** | Number(10) | It indicates mobile number |
| **isBlock** | Enum(“T”,”F”) | It indicates isBlock or not |
| **forgotToken** | Varchar(30) | It indicates forgot token |
| **picture** | Varchar(30) | It indicates picture of agent |

* **Data Dictionary for Chatbot :-**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Datatype (Size)** | **Description** |
| **Bot\_id** | Number (10) | Auto Generated by the Database. |
| **Api\_key** | Varchar (40) | It generates api key |
| **Icon** | Varchar (40) | It indicates icon of chatbot |
| **align** | Varchar(30) | It indicates the align of chatbot |
| **Background** | Varchar(30) | It indicates background of chatbot |
| **Menu** | Number(10) | Fetch data from chatbot |
| **Timestamps** | Enum("T","F") | It indicates time |

* **Data Dictionary for Chat:-**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Datatype (Size)** | **Description** |
| **Chat\_id** | Number (10) | Auto Generated by the Database  user. |
| **Room\_id** | Number (10) | Auto |
| **User\_id** | Number (10) | Fetch data from user table |
| **Agent\_id** | Number(10) | Fetch data from agent table |
| **Message** | Text | It indicates message of chat |
| **Timestamps** | Enum("T","F") | It indicates the time of chat |

* **Data Dictionary for Room:-**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Datatype (Size)** | **Description** |
| **Room\_id** | Number (10) | Auto Generated by the Database user. |
| **Bot\_id** | Number(10) | Fetch data from chatbot table |
| **Api\_key** | Varchar (40) | It generate api key |
| **User\_id** | Number(10) | Fetch data from user table |
| **Agent\_id** | Number (10) | Fetch data from agent table |

* **Data Dictionary for User:-**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Datatype (Size)** | **Description** |
| **User\_id** | Number (10) | Fetch databfrom user table |
| **First\_name** | Varchar (20) | It indicates first\_name of user |
| **Last\_name** | Varchar (20) | It indicates the last name of user |
| **Full\_name** | Varchar (20) | It indicates the full name of user |
| **Email\_id** | Varchar (10) | It indicates email of user |
| **Mobile** | Number(10) | It indicates mobile number of user |
| **IsBlock** | Enum("T","F") | It check IsBlock or not |
| **Bot\_id** | Number (10) | Fetch data from the chatbot table |

**4.Development**

**4.1 Coding Standards**

## **React best practices:**

1. Follow the coding style of React keeping component codes under 500 lines of code and functions under 80 lines of code.

2. React folder structure

* a. Maintaining a clean and precise folder structure of an React application is regarded as one of the most important factors for judging the quality of an React app. Proper folder structure, when maintained, can help not only in better code readability but can also help to scale the application whenever needed. Below is the way one can understand the folder structure of an React app.
* b. Core module – contains providers for the independent or individual services that are loaded when an application starts.
* c. Shared module – It usually contains the components, directives, and pipes that are used at several places in the app. It should also have the declarations which could be exported to be used in different modules. But we should remember to not put any services at the root level.
* d. Home Module – Here you can create and define components of a page or separate pages depending on the size of the application. You can set up routing in this module’s routing module.
* e. Config module – this would simply contain the configuration services and configuration APIs for the app.

## **Node.js best practices:**

1. Use HTTP methods and API routes

2. While creating RESTful APIs for basic CRUD operations, you should use the predefined routes PUT, POST, PATCH, DELETE, GET. Also, the name of the routes should use nouns and must be according to the use case. For eg. A route to delete a student from a college app the route must be DELETE /student/:id

3. Use Stateless Authentications: Your REST APIs and your authentication component should be both stateless. Stateless authentication could be achieved with the help of JWT (JSON Web Token)

4. Properly use status codes: While error handling is an important part of any function, HTTP services must also follow the same. To indicate the status of a request, proper status codes should be used.

## **MongoDB best practices:**

* Understand Schema Differences Between Relational and Document-based Databases.
* Embed Your Data Instead of Relying on Joins.
* Use Indexes For Frequent Operations.
* Properly Size Your Servers.
* Use Replication or Sharding.

**4.2 Sample Code**

* **Registration:**

const register = async function (req, res) {

  const email = await agents.findOne({ email: req.body.email });

  if (email)

    return res

      .status(400)

      .json({ success: false, message: messages.emailExists });

  const phone = await agents.findOne({ mobile: req.body.mobile });

  if (phone)

    return res

      .status(400)

      .json({ success: false, message: messages.phoneExists });

  let hashVal = await hash(req.body.password, parseInt(process.env.JWT\_SALT));

  req.body.password = hashVal;

  req.body["fullName"] = `${req.body.firstName} ${req.body.lastName}`;

  req.body["apiKey"] = (Math.random() + 1).toString(36).substring(2);

  const addClient = new clients(req.body);

  addClient.save().then(async (result) => {

    const addAgent = new agents(req.body);

    addAgent.clientId = result.clientId;

    addAgent.role = "Admin";

    addAgent.picture = "default-avatar.png";

    let agentRes;

    try {

      agentRes = await addAgent.save();

    } catch (err) {

      return res

        .status(400)

        .json({ success: false, message: messages.serverError });

    }

    let subject = "Verify email address";

    let text = "Verify email address";

    let tokenDetails = await generateToken({ userId: agentRes.\_id });

    fs.readFile("html/verifyemail.html", "utf-8", async function (err, data) {

      let html = data.replace("tokenDetails", `${tokenDetails}`);

      html = html.replace("SERVER\_URL", process.env.SERVER\_URL);

      html = html.replace(/Users/g, req.body.fullName);

      sendMail({ to: req.body.email, subject, text, html });

      return res

        .status(200)

        .json({ success: true, message: messages.userRegister });

    });

  });

};

* **Login:**

const login = async function (req, res) {

  let Agent = await agents.findOne({ email: req.body.email });

  if (Agent) {

    if (Agent.isBlock)

      return res

        .status(401)

        .json({ success: false, message: messages.userBlock });

    if (Agent.isEmailverified == false)

      return res

        .status(400)

        .json({ success: false, message: messages.emailNotverify });

    let checkPassword = await compare(req.body.password, Agent.password);

    if (checkPassword) {

      let token = jwt.sign(

        {id: Agent.agentId,

          clientId: Agent.clientId},

        process.env.JWT\_SECRET,

        {expiresIn: "7d"}

      );

      let client = await clients

        .findOne({ clientId: Agent.clientId }).select("apiKey");

      return res.status(200).json({

        success: true,

        message: messages.login,

        token,

        data: {

          id: Agent.agentId,

          clientId: Agent.clientId,

          apiKey: client.apiKey,

          role: Agent.role,

          firstName: Agent.firstName,

          lastName: Agent.lastName,

          fullName: Agent.fullName,

          picture: Agent.picture,

          gender: Agent.gender,

        },

      });

    } else {

      return res

        .status(401)

        .json({ success: false, message: messages.wrongPassword });

    }

  } else {

    res.status(401).json({ success: false, message: messages.wrongEmail });

  }

};

* **Bot Integration:**

<script type="text/javascript">

      (function () {

        var s1 = document.createElement("script"),

          s0 = document.getElementsByTagName("script")[0];

        s1.async = true;

        s1.src = "http://localhost:5000/bot/auth/5ukl8zm95vf";

        s1.id = "quickConnect";

        s1.charset = "UTF-8";

        s1.setAttribute("crossorigin", "\*");

        s1.setAttribute("apiKey", "5ukl8zm95vf");

        s0.parentNode.insertBefore(s1, s0);

      })();

    </script>

* **Socket init admin:**

useEffect(() => {

    const ioCon = io(process.env.REACT\_APP\_API);

    dispatch(socketUpdate(ioCon));

    getData();

    return () => dispatch(socketUpdate(null));

  }, []);

  useEffect(() => {

    if (!socket) return;

    socket.on("connect", () => {

      socket.emit("join", { userId, apiKey, isAgent: true });

    });

    socket.on("disconnect", () => {});

    socket.on("initLiveChat", (data) => {

      dispatch(newCustomer(data));

    });

  }, [socket]);

* **Socket init chatbot:**

socket = io("http://localhost:5000");

    socket.on("connect", () => {

      socket.emit("join", { botId, userId, isAgent: false });

    });

    socket.on("receiveMes", function (data) {

      console.log(data);

      createChat(data?.mes, "l");

    });

    socket.on("agentAllocated", function (data) {

      roomId = data?.roomId;

      agentId = data?.agentId;

      agentName.innerHTML = data?.fullName;

      data?.picture &&

        (AGENT\_IMG = API\_URL + "api/agent/picture/50/" + data?.picture);

      createChat(data?.fullName + " is connected", "l");

    });

* **Socket init server:**

io = require("socket.io")(server, {

      cors: {

        origin: "\*", *// ["http://localhost:3000", "http://localhost:5500"],*

        methods: ["GET", "POST"],

      },

    });

io.on("connection", (socket) => {

      socket.on("join", function (data) {

        socket.userId = data.userId;

        socket.isAgent = data.isAgent;

        if (data.isAgent) {

          socket.apiKey = data.apiKey;

          if (!agents[data.apiKey]) {

            agents[data.apiKey] = {};

          }

          if (!agents[data.apiKey][data.userId]) {

            agents[data.apiKey][data.userId] = [];

          }

          agents[data.apiKey][data.userId].push(socket.id);

        } else {

          socket.botId = data.botId;

          if (!users[data.botId]) {

            users[data.botId] = {};

          }

          if (!users[data.botId][data.userId]) {

            newUser({

              botId: data?.botId,

              userId: data?.userId,

            });

            users[data.botId][data.userId] = [];

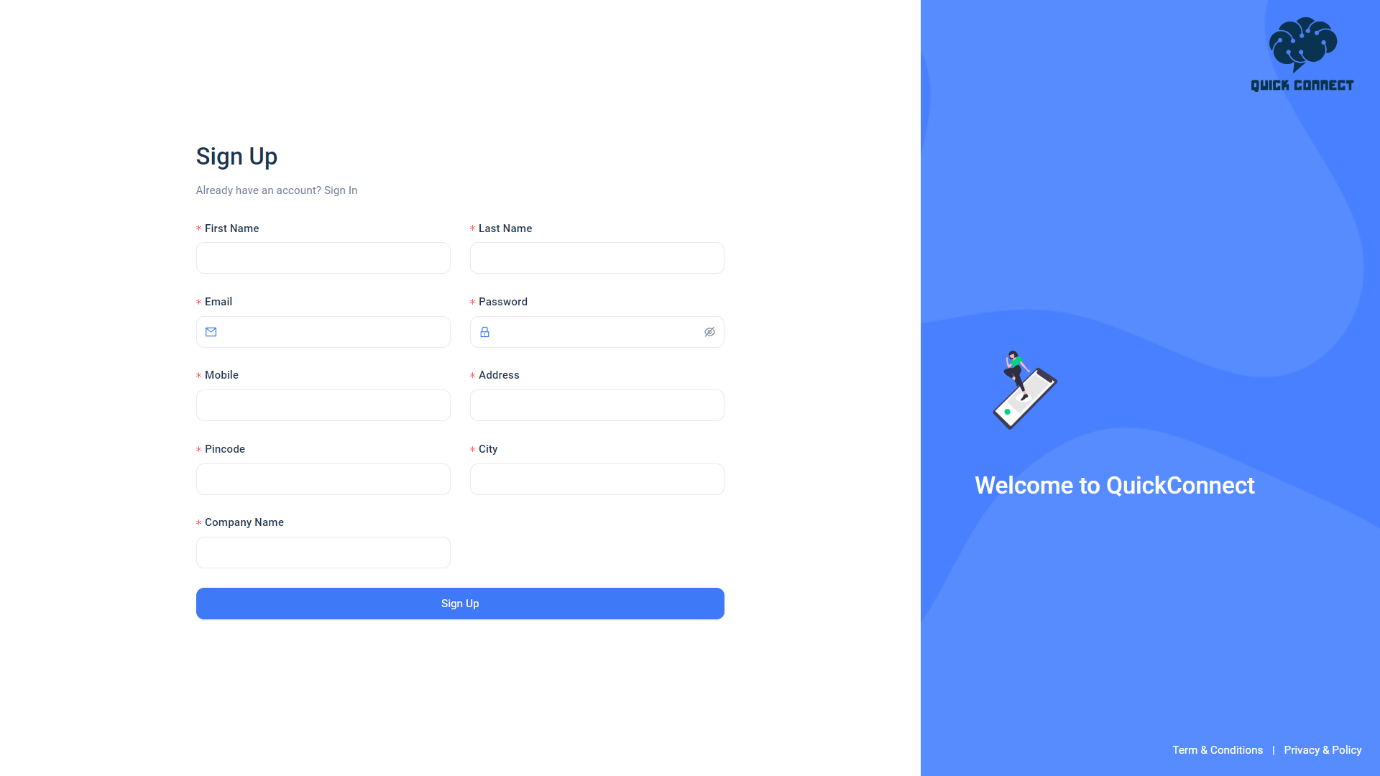
          }

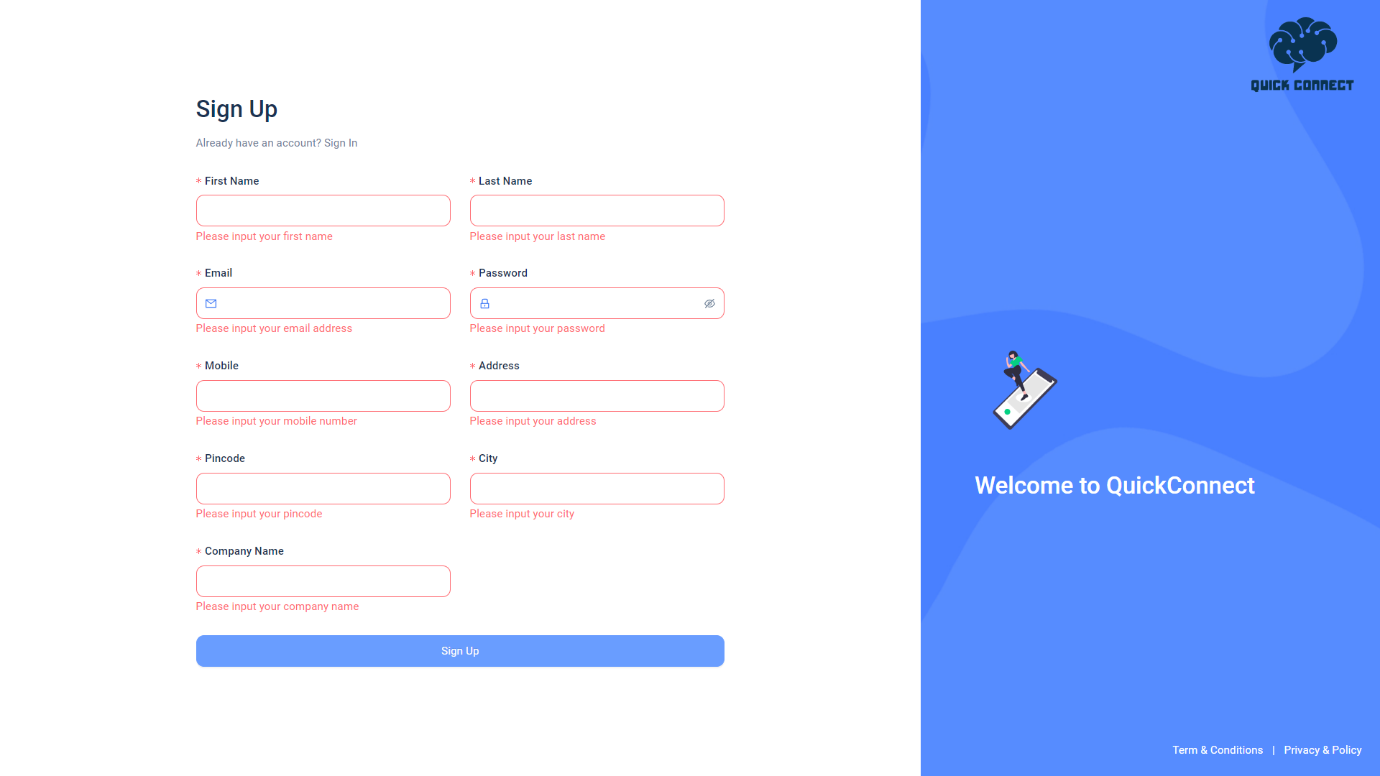
          users[data.botId][data.userId].push(socket.id);

        } });

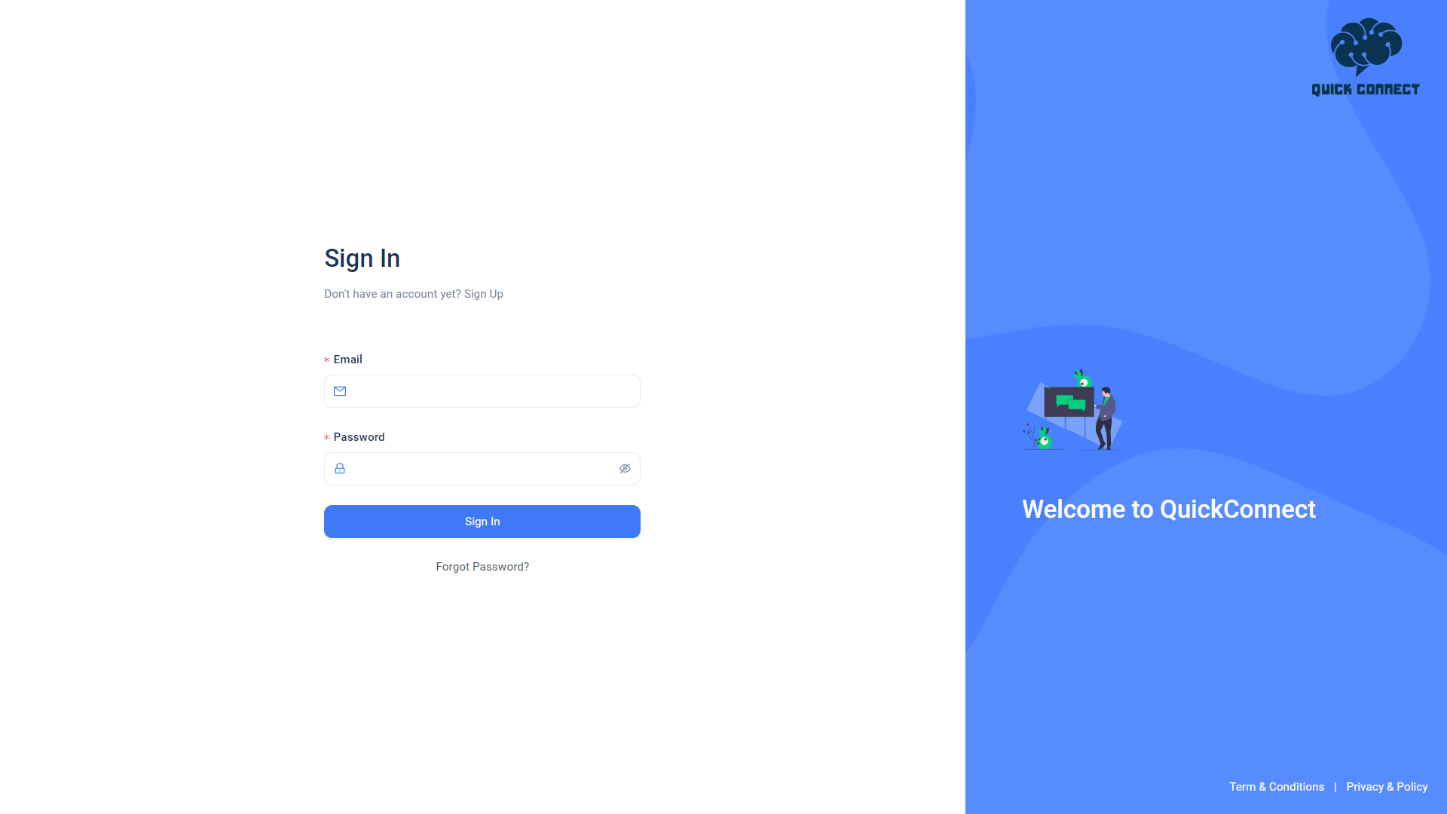
**4.3.Working project screenshot**

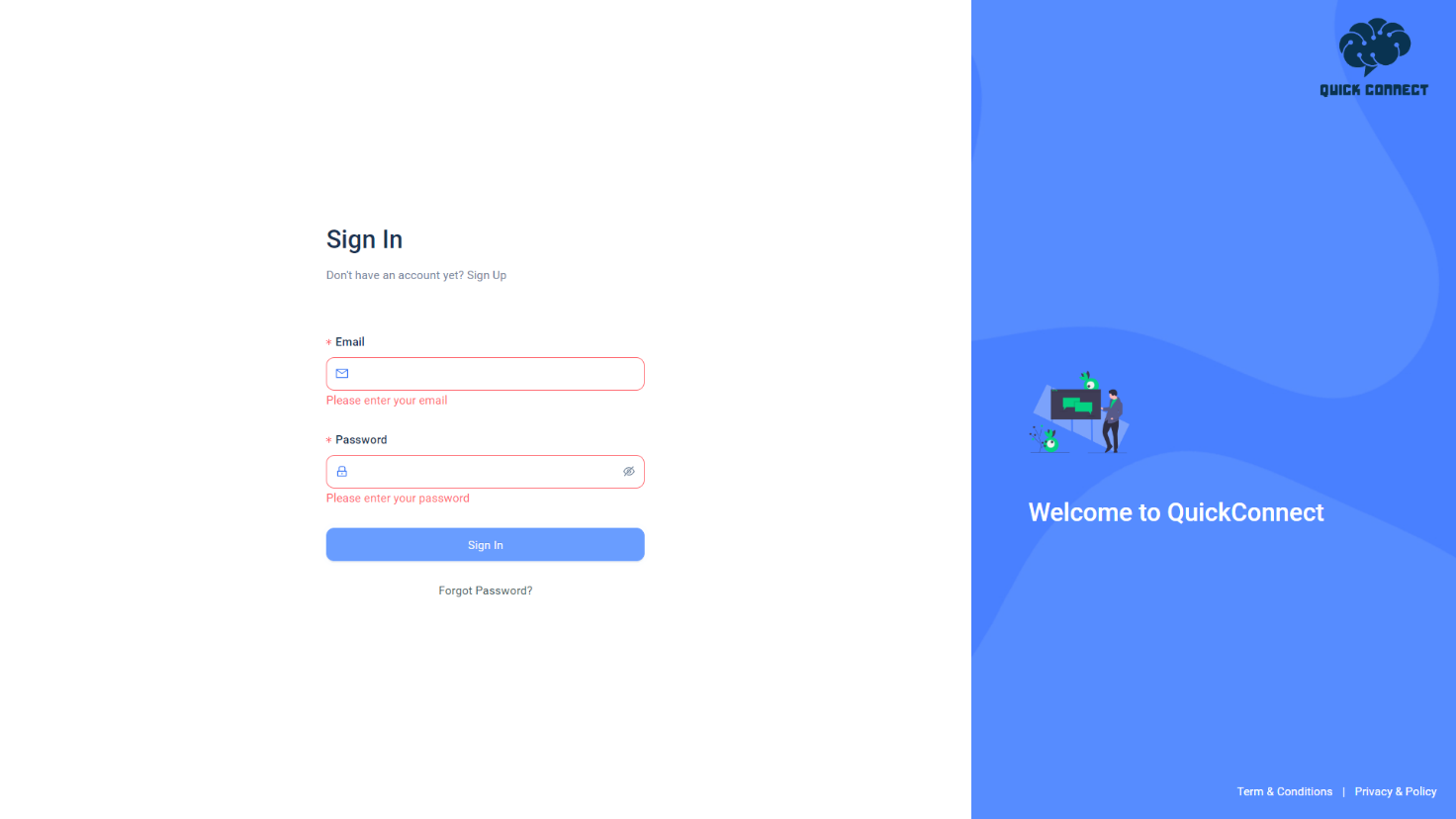
**SignUp:-**



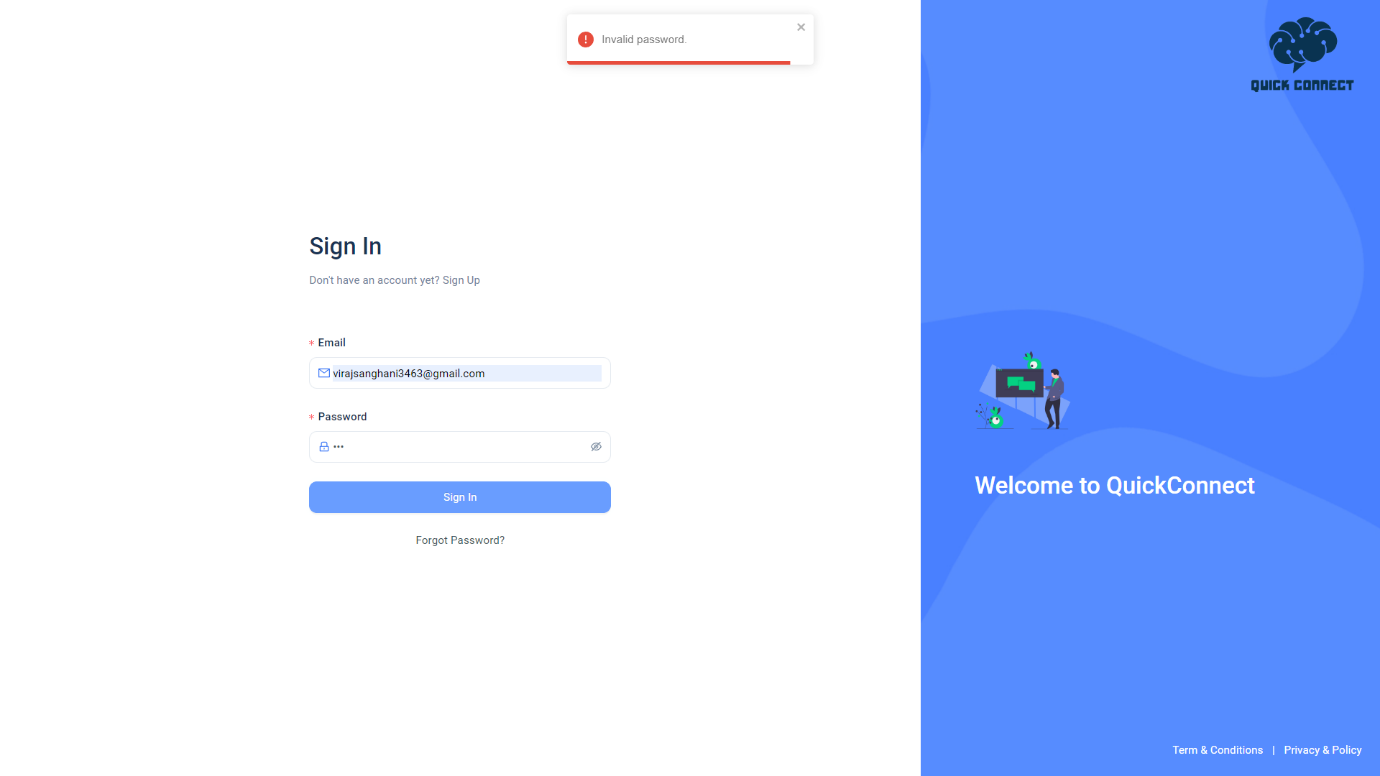


**Sign In:-**

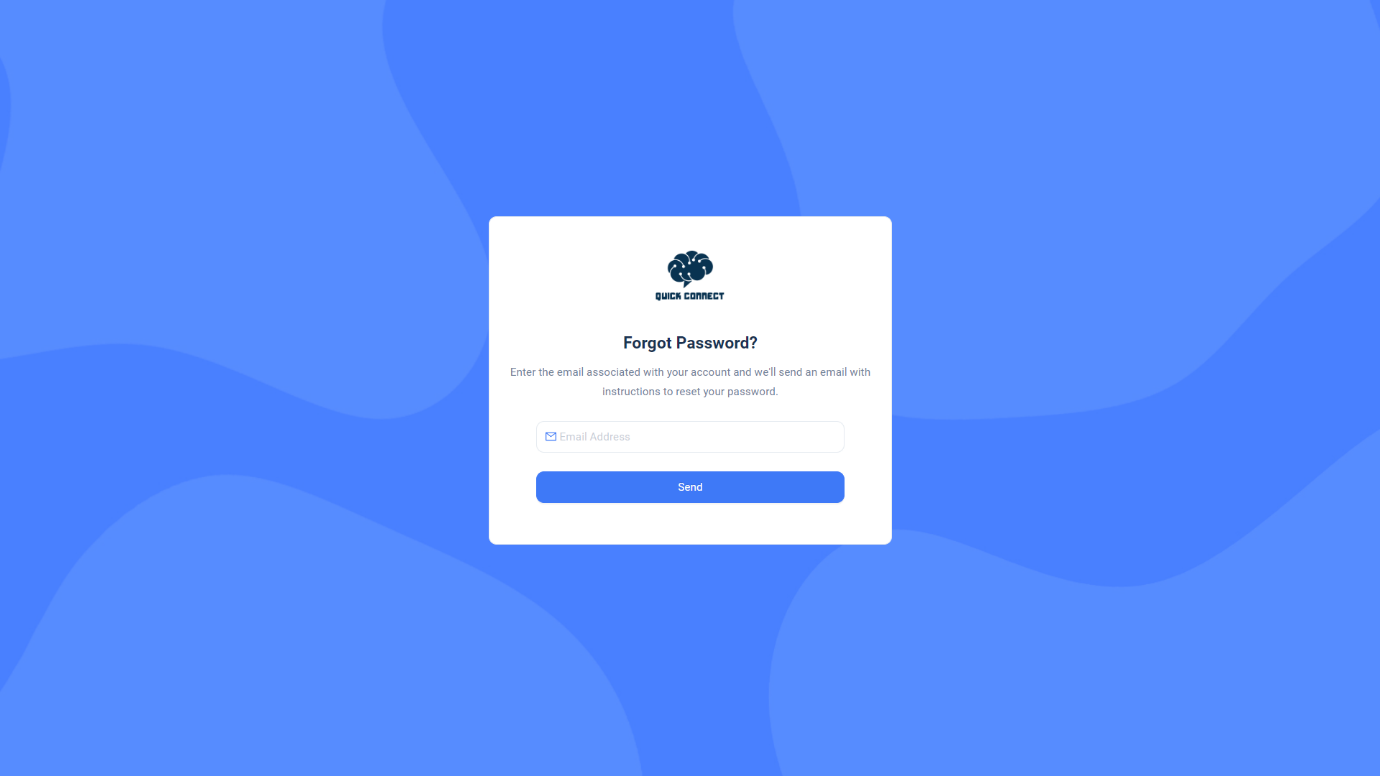




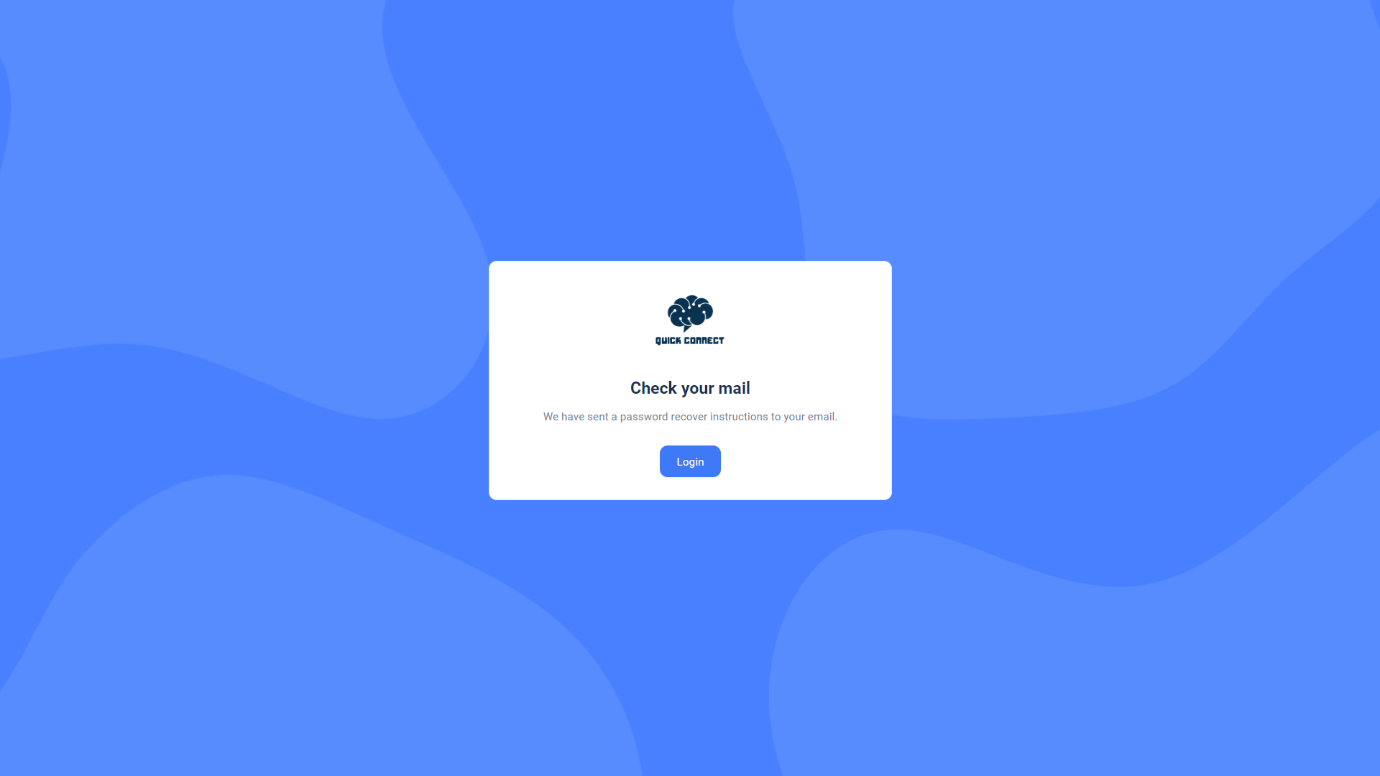
**Sign In:-**



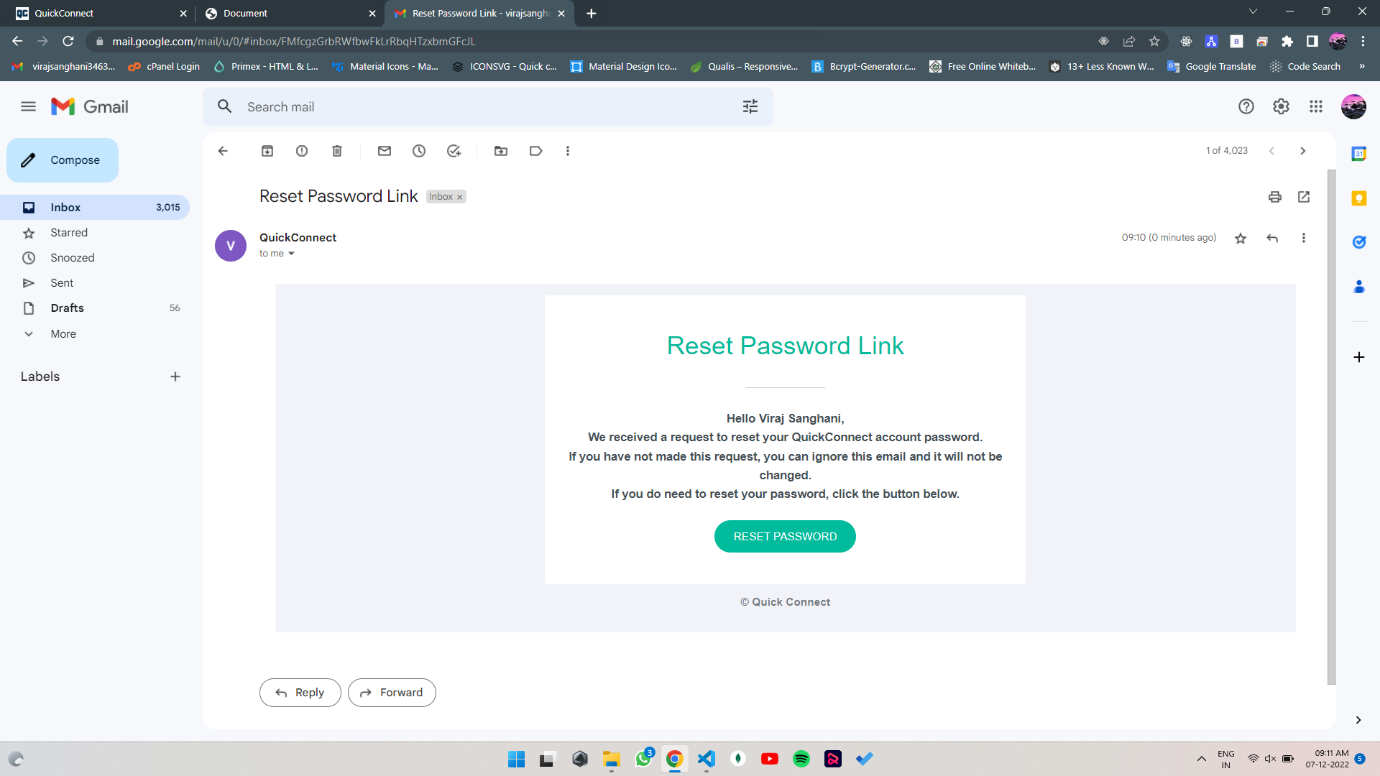
**Forgot Password:-**



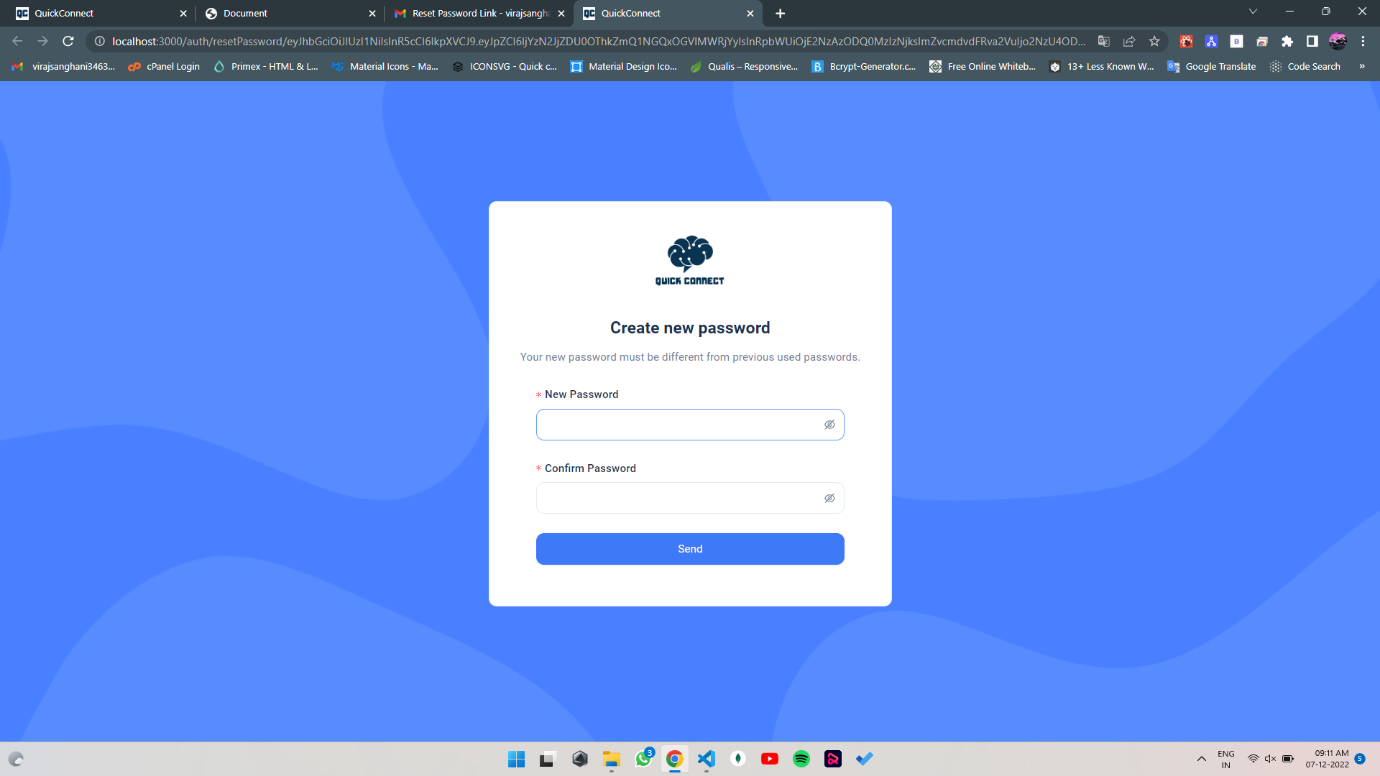
**Forgot Password:-**

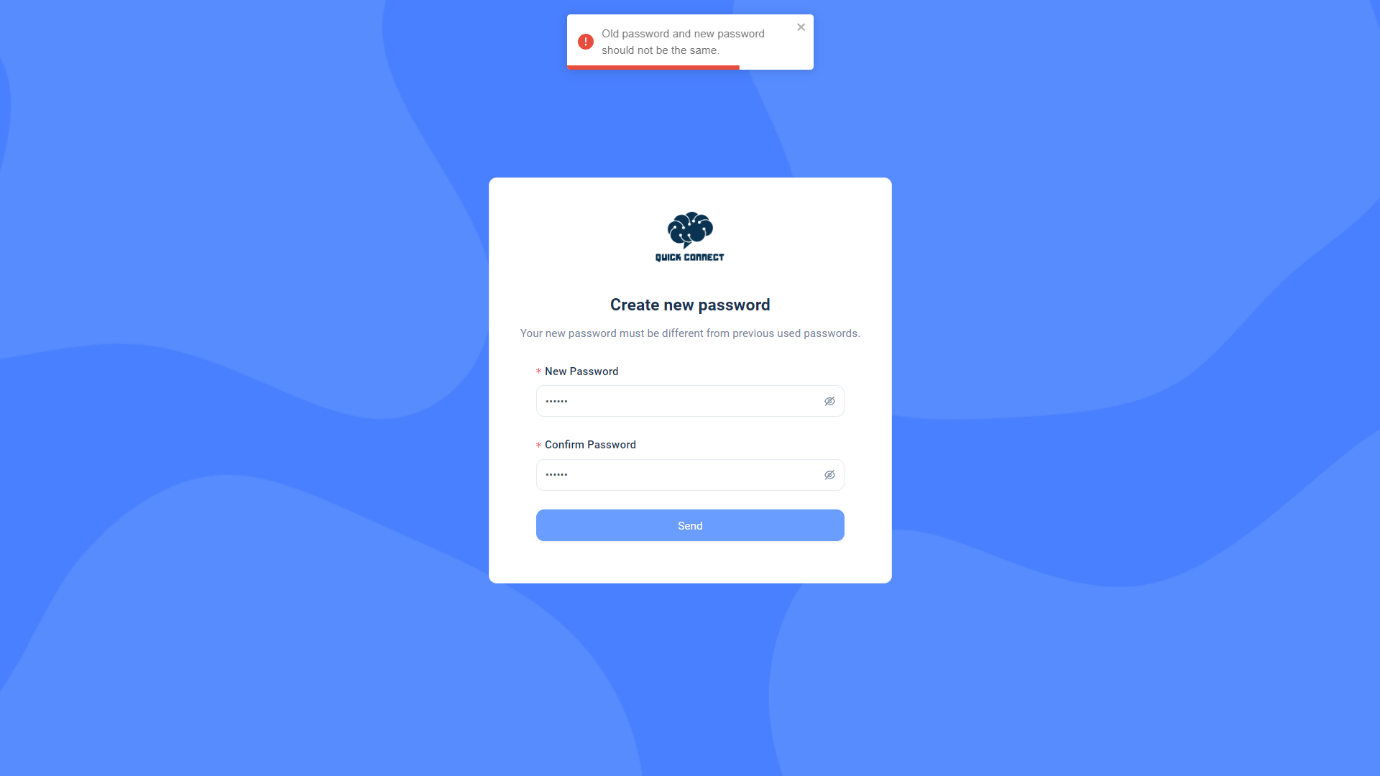


**Reset Password Link:-**

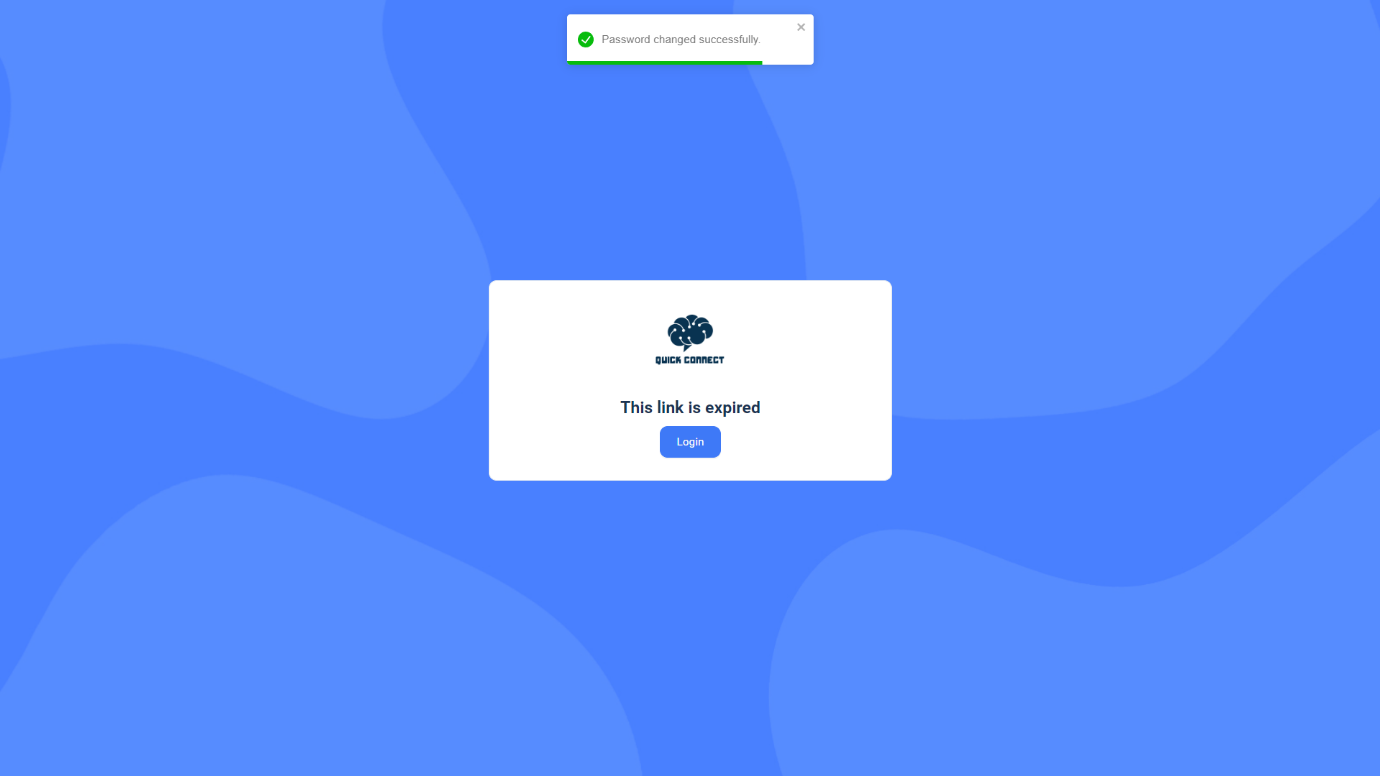


**Create new Password:-**

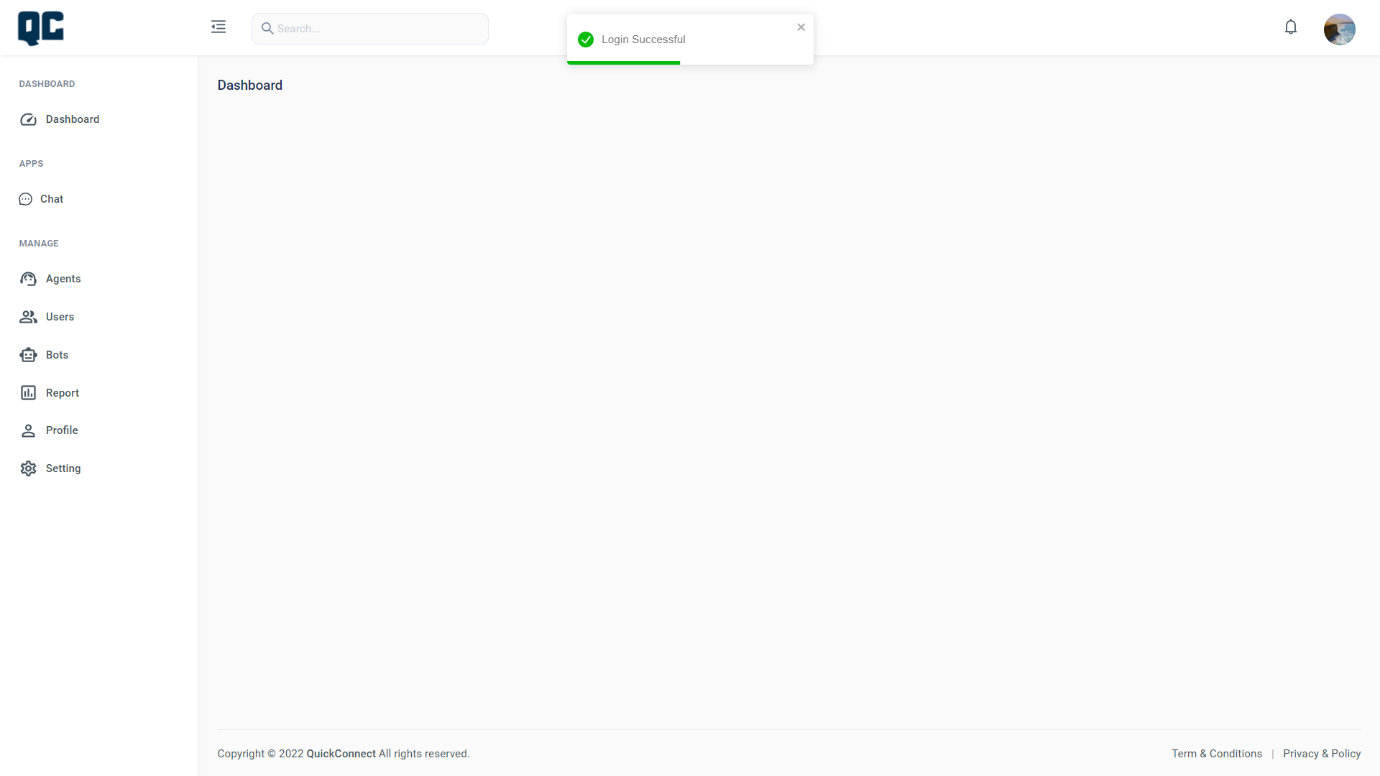




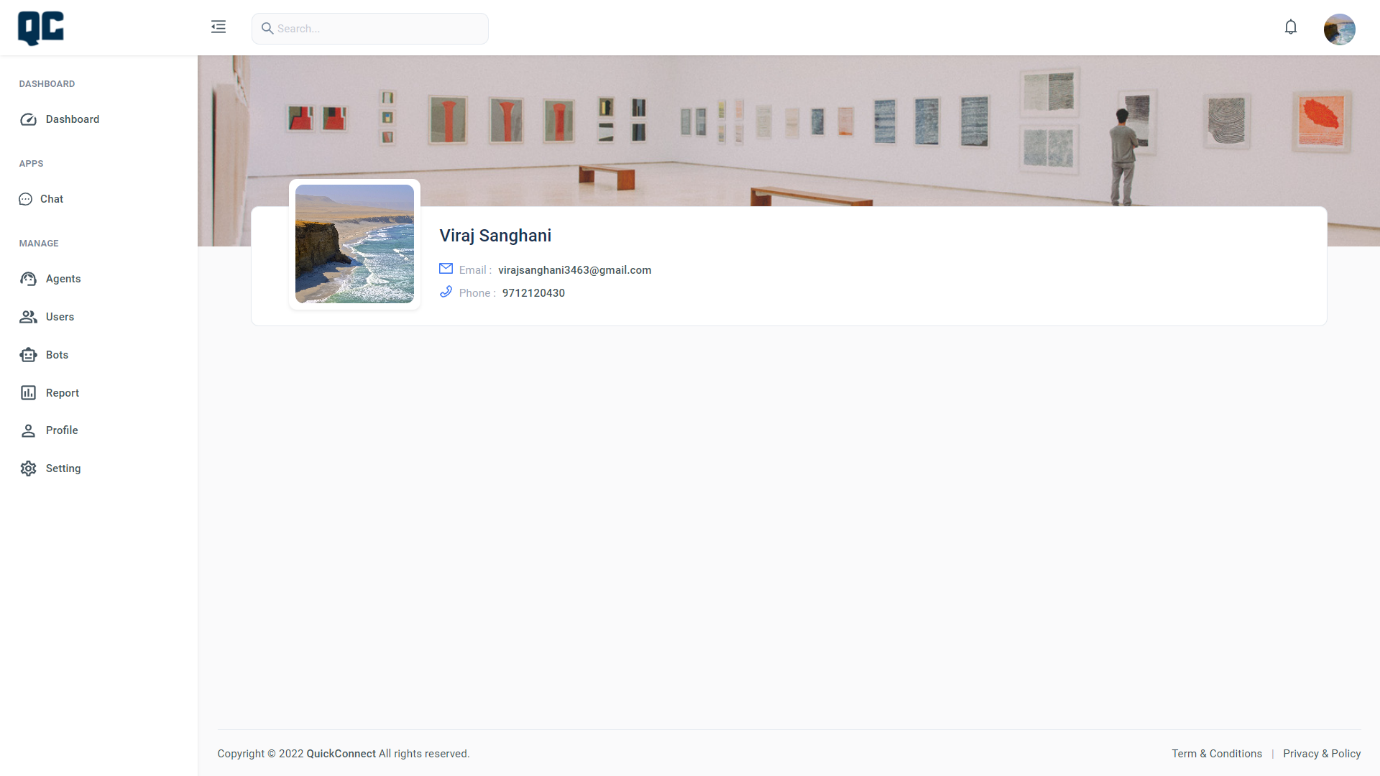
**Password change Success:-**



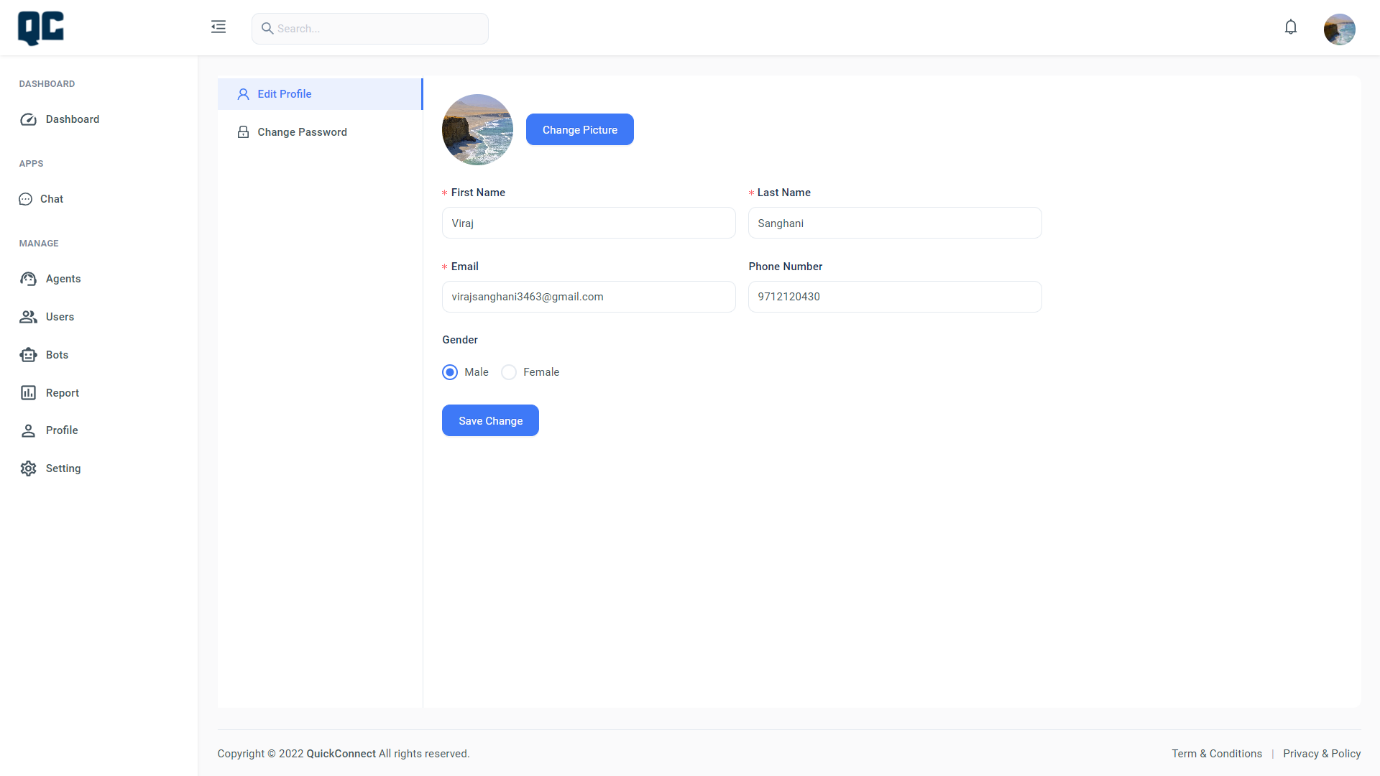
**Admin:-**



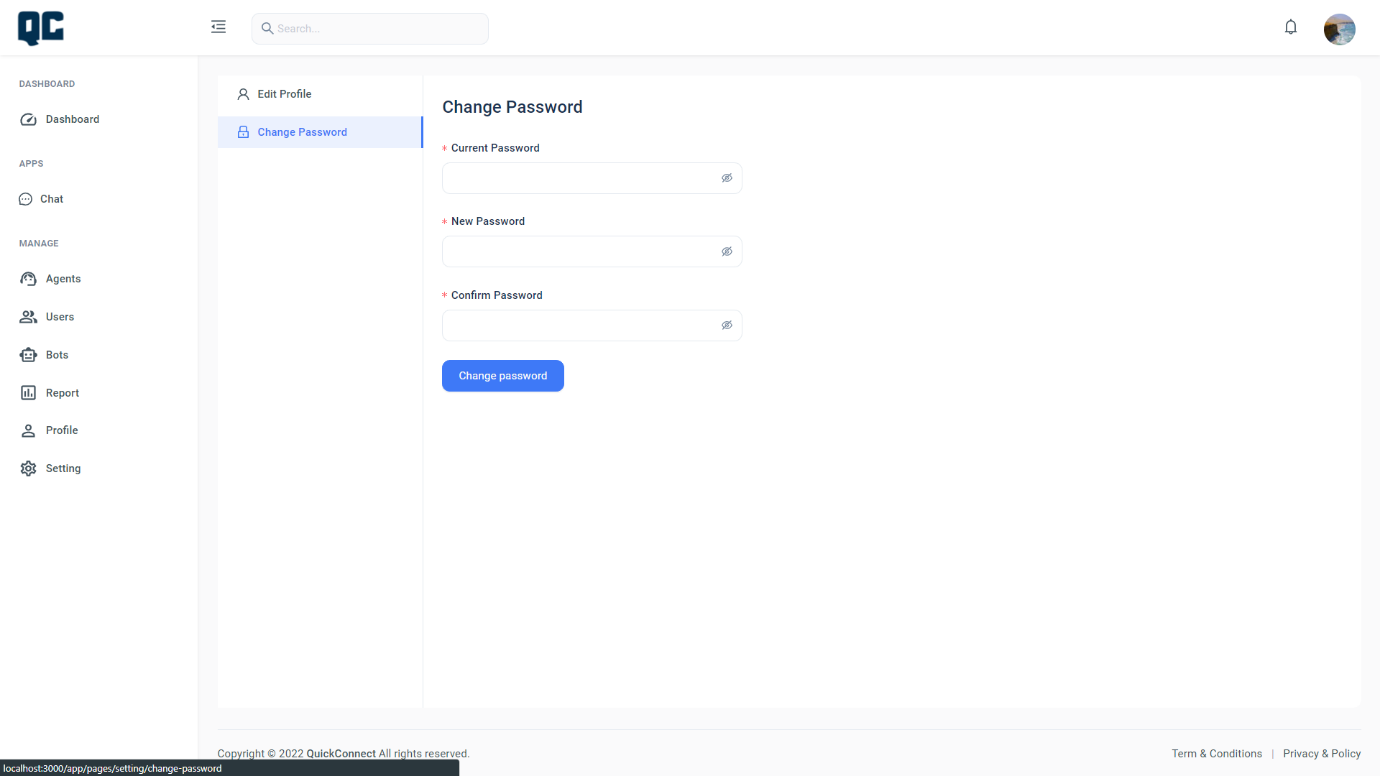
**Admin Profile:-**



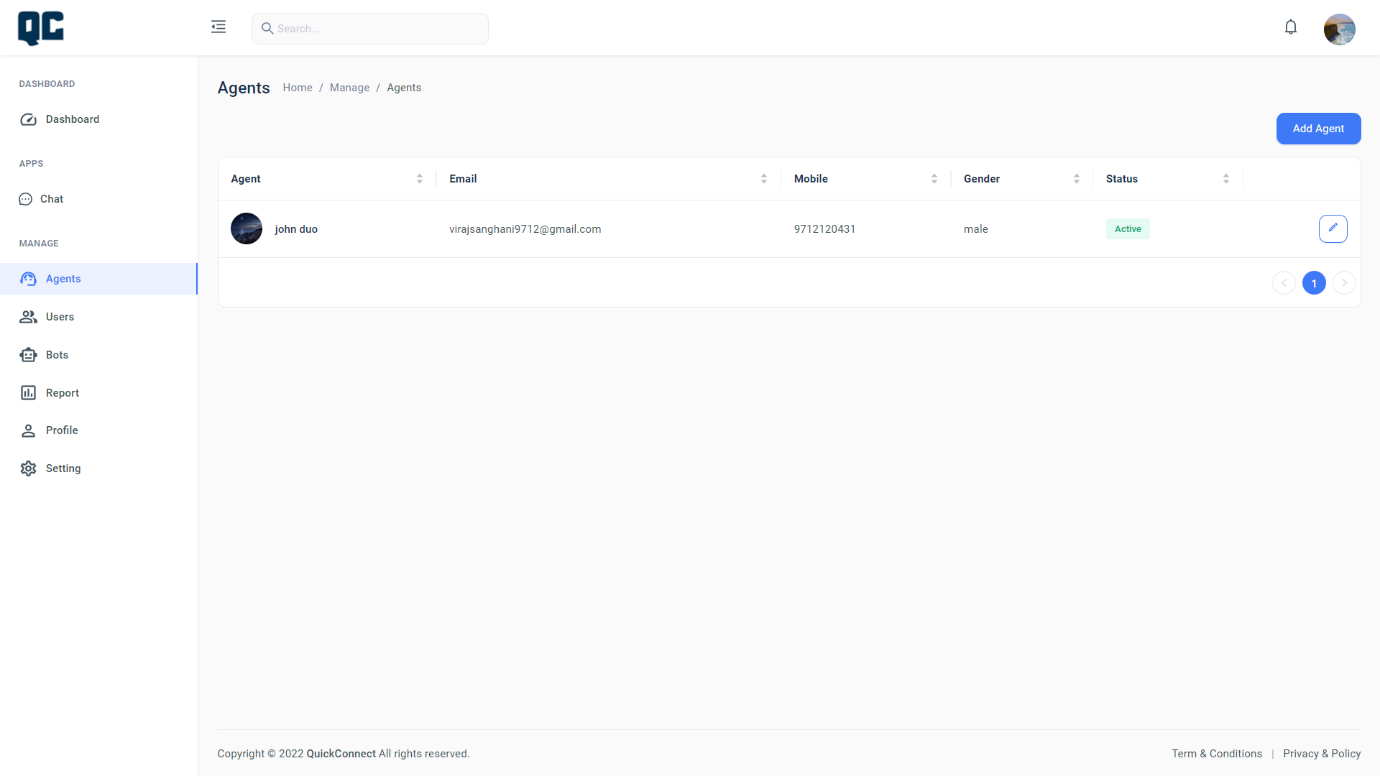
**Edit Profile:-**



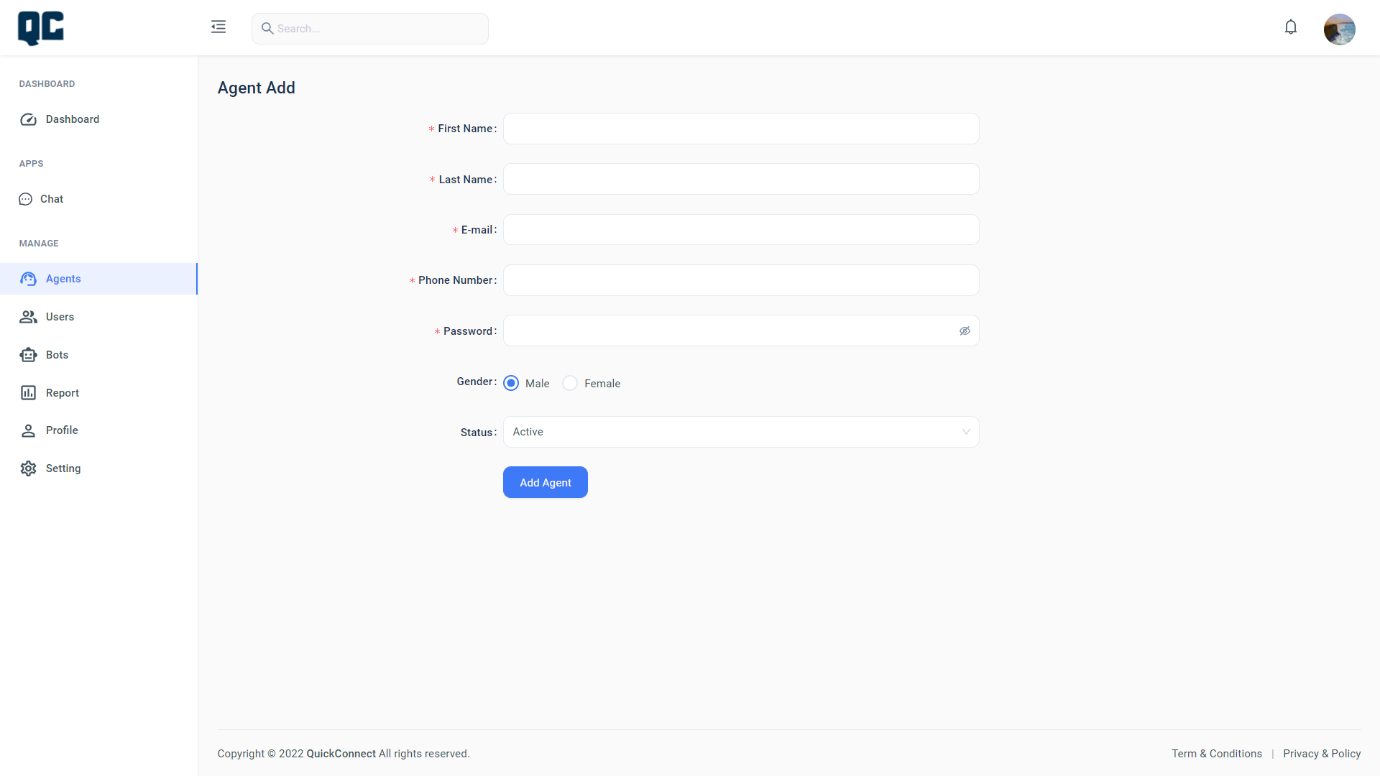
**Change Password:-**



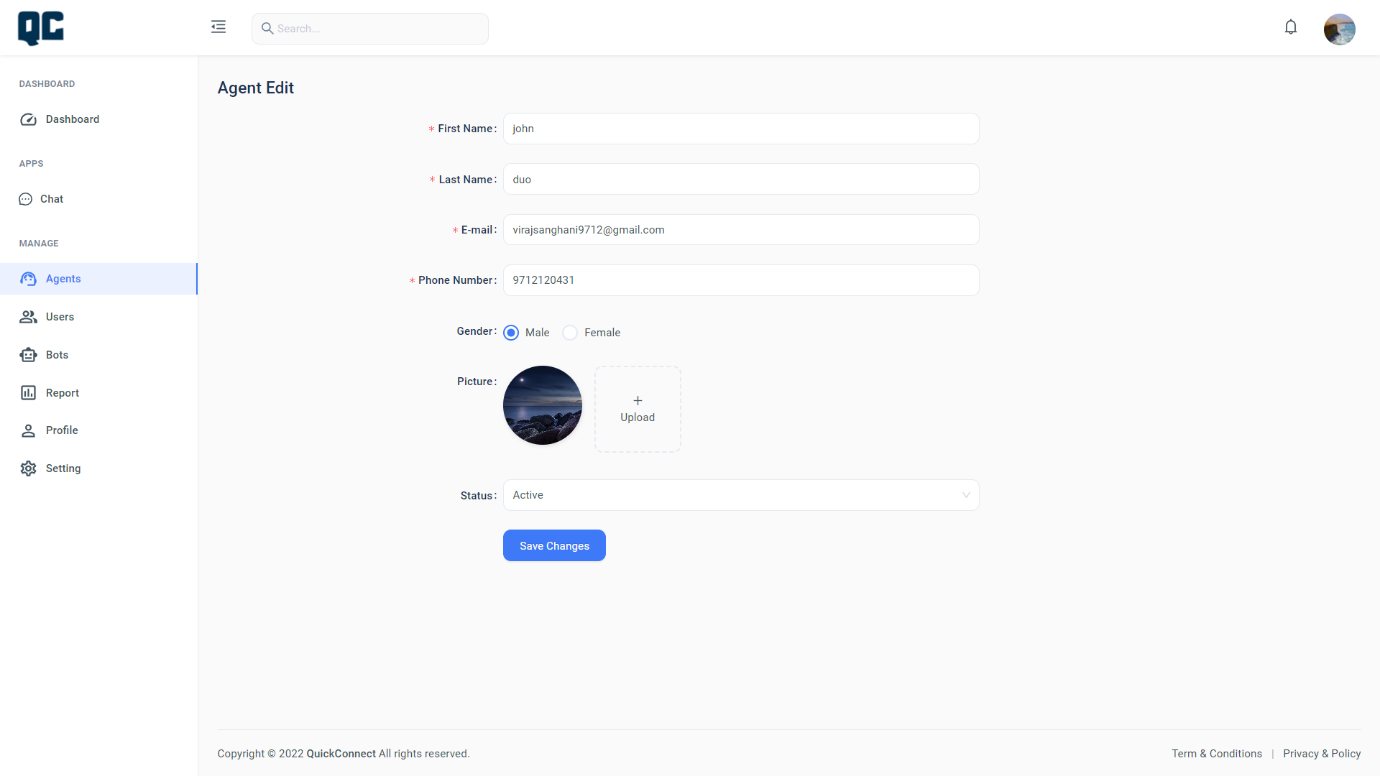
**Agent-**



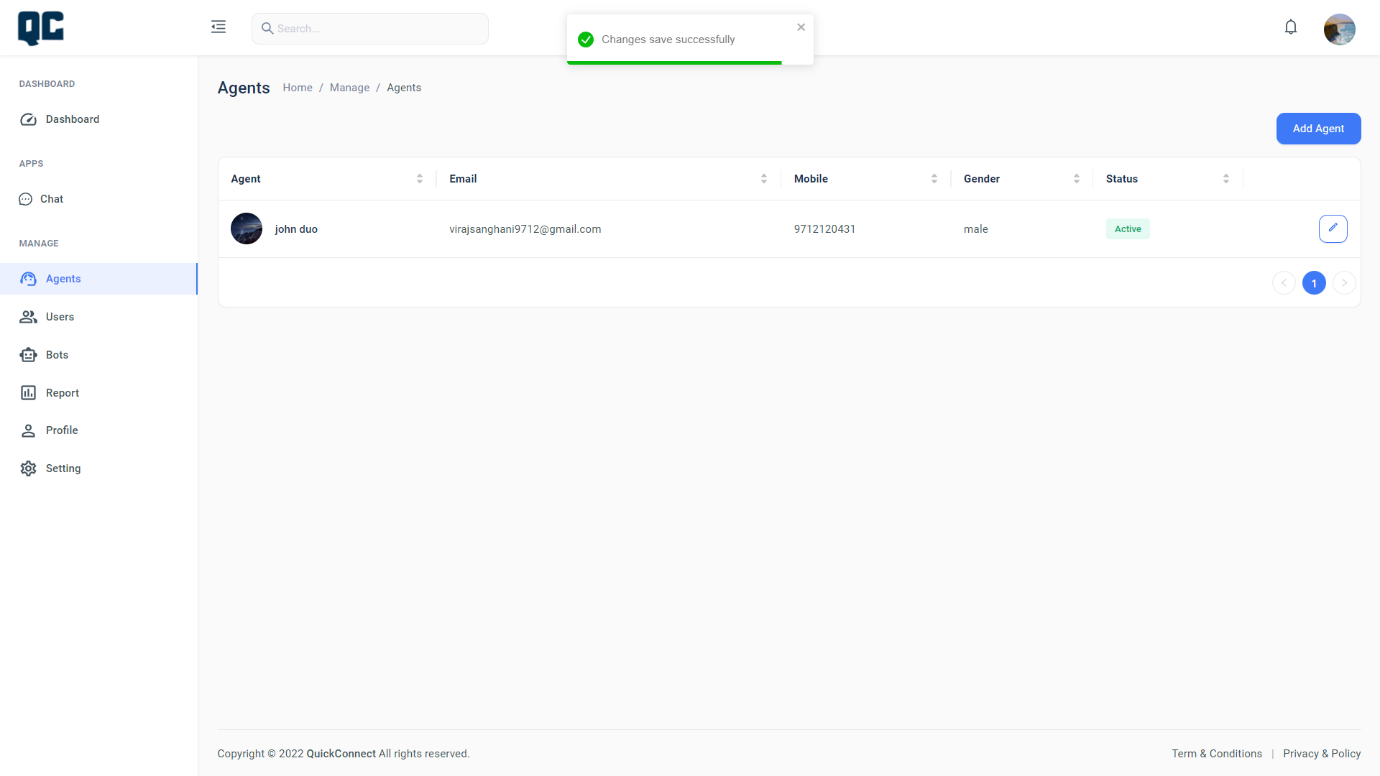
**Agent Add:-**



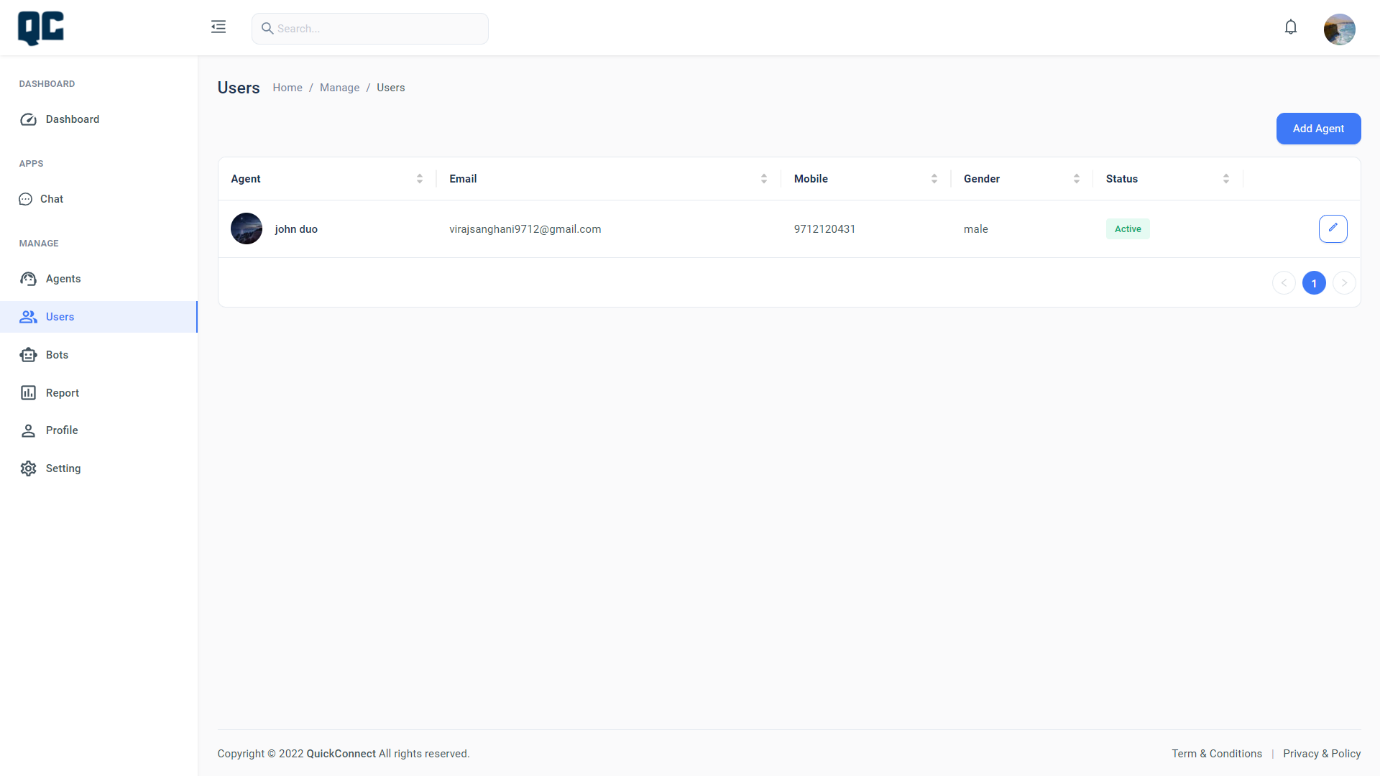
**Agent Edit Profile:-**



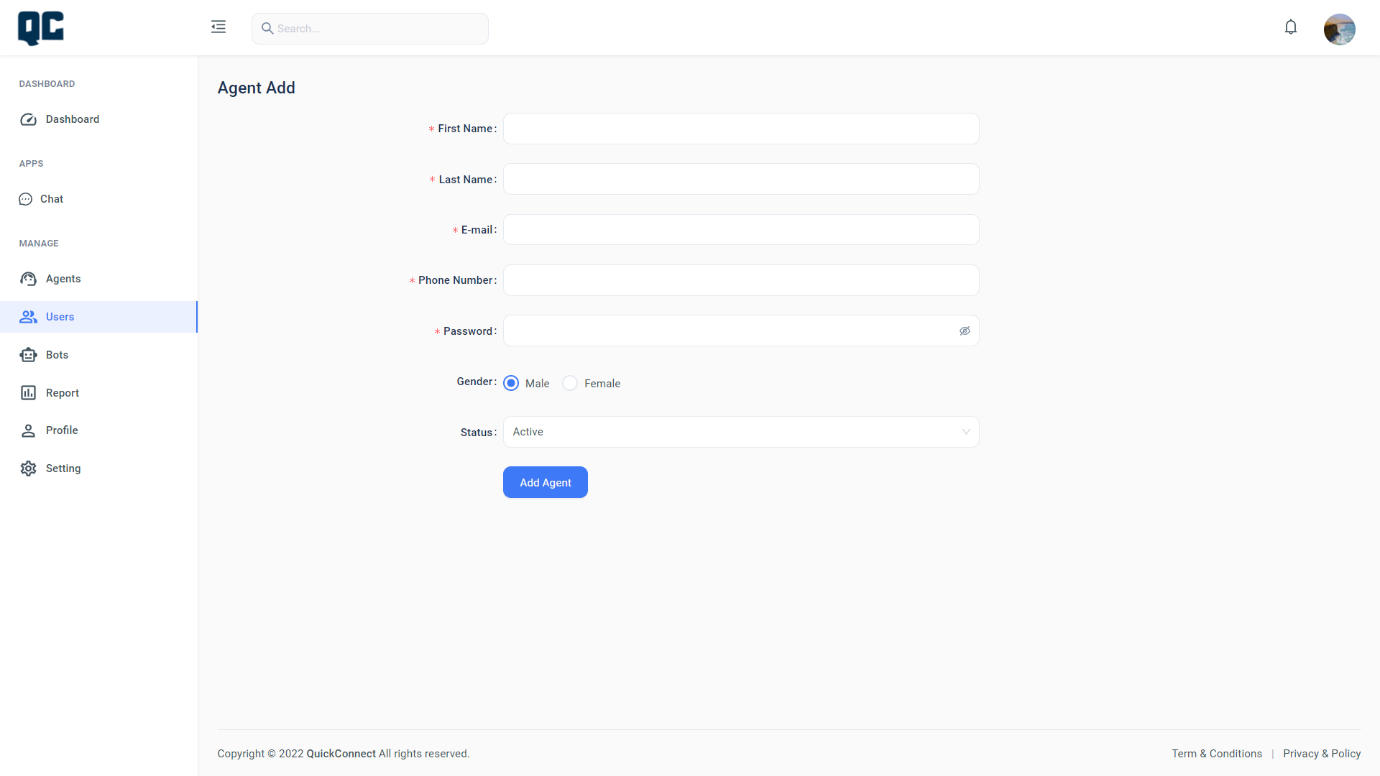
**Agent Save Profile:-**



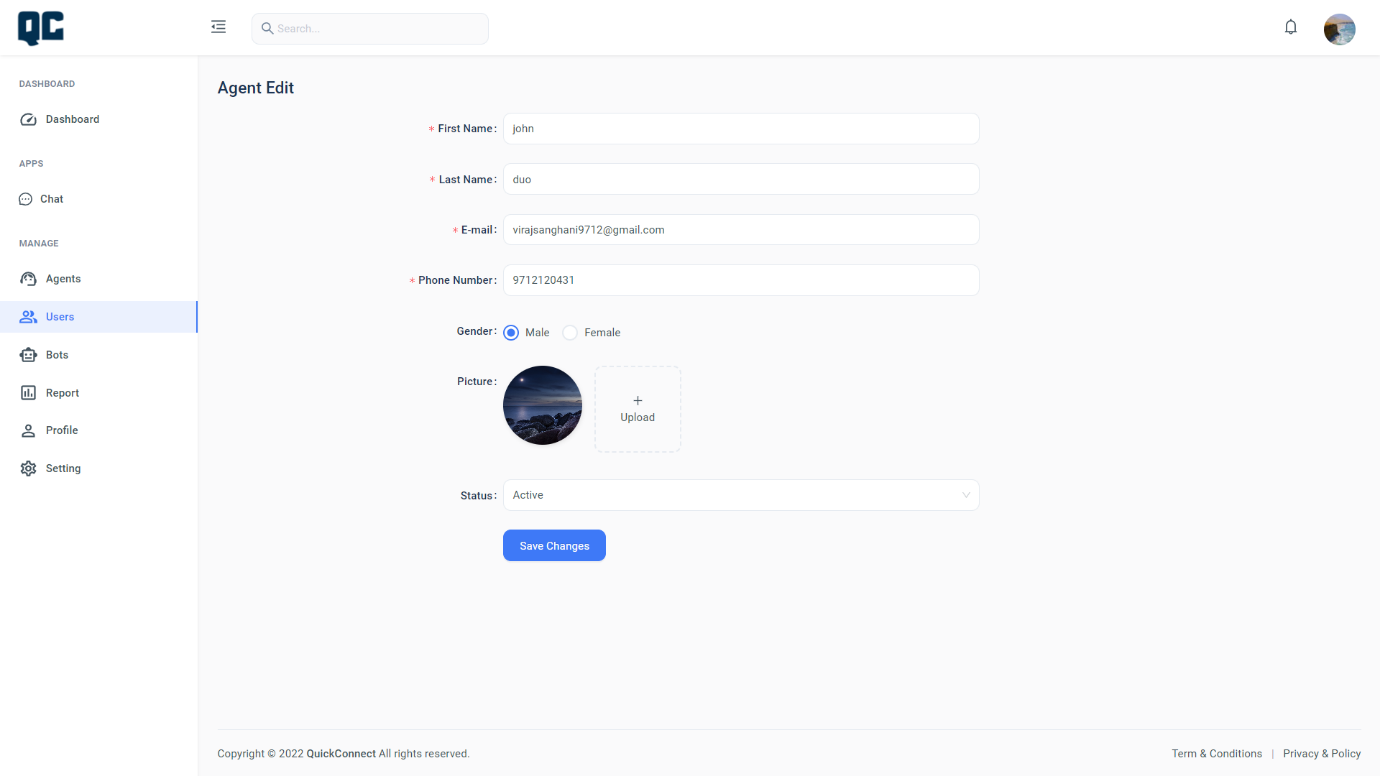
**Users:-**



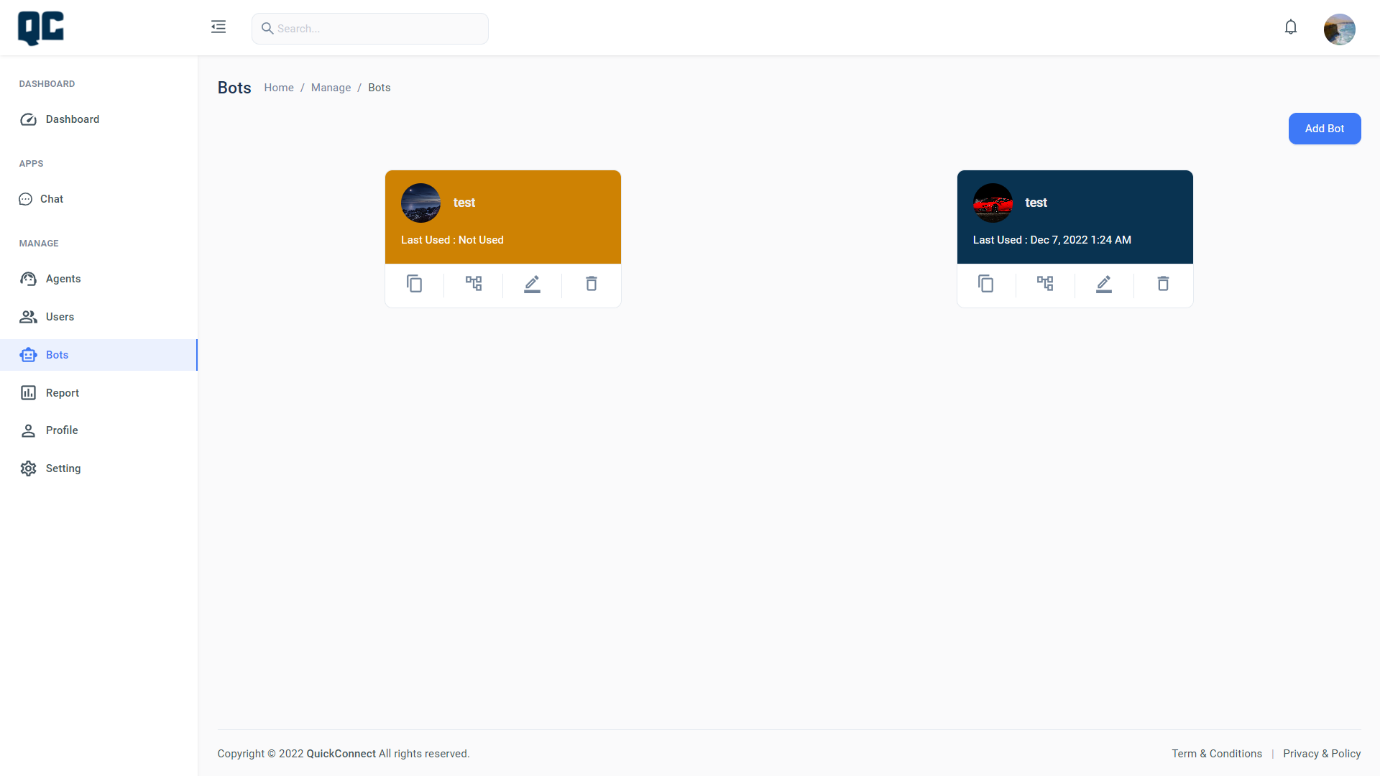
**Add Agent :-**



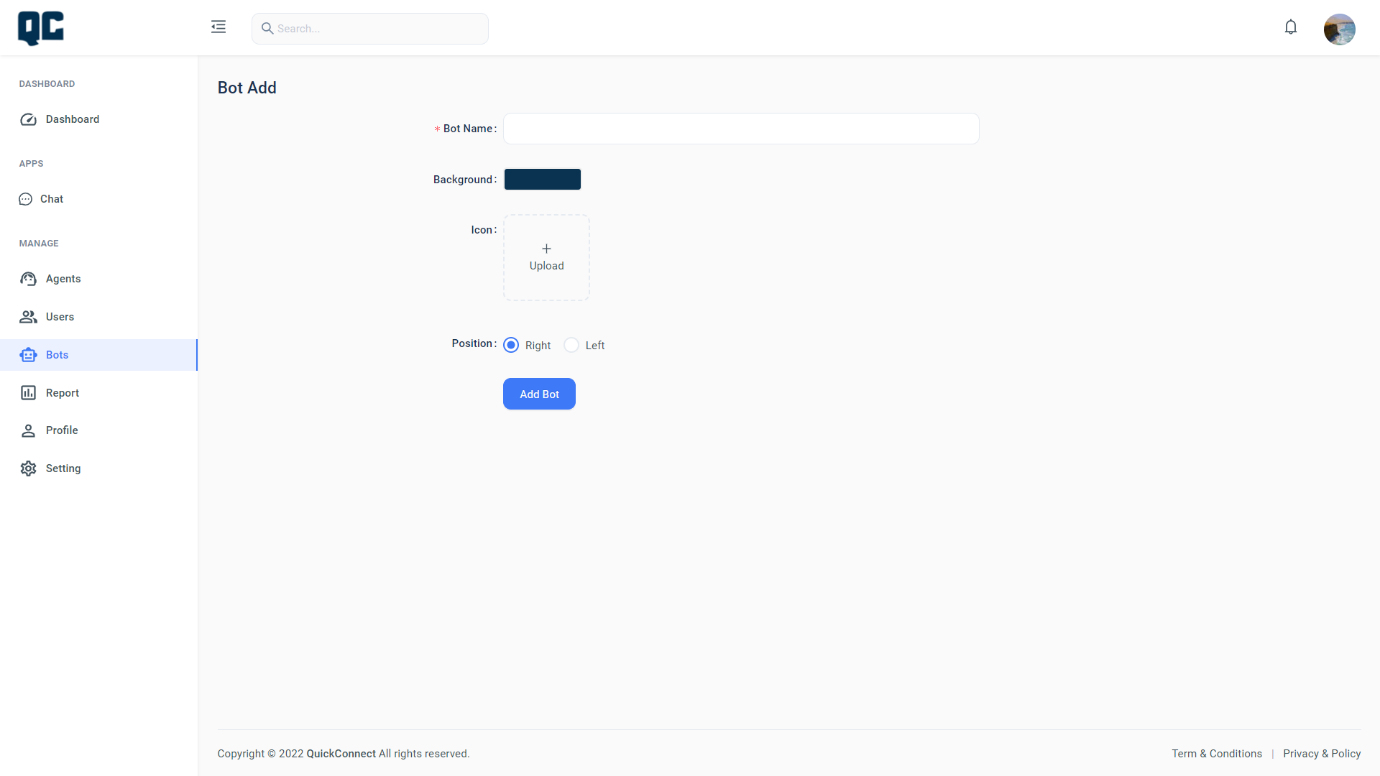
**Agent Edit :-**



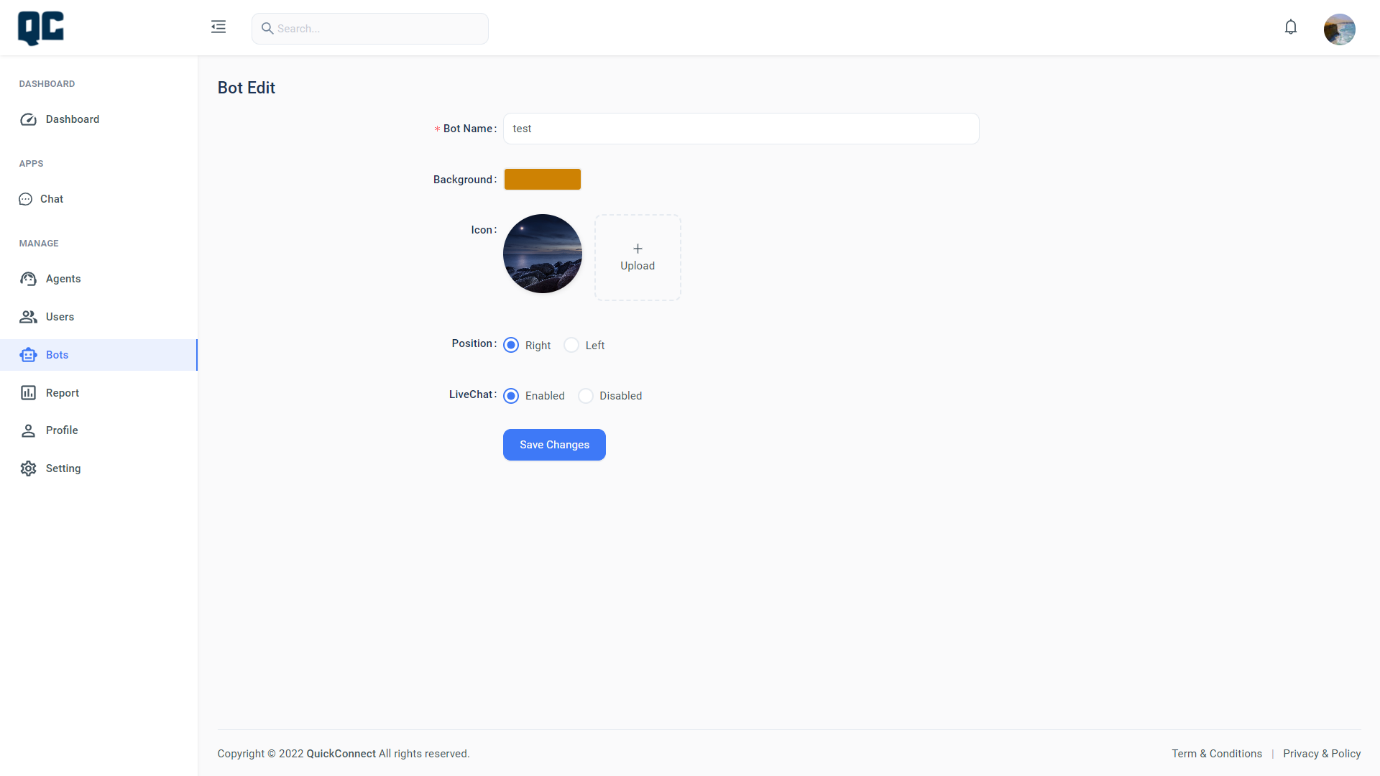
**Bot List :-**



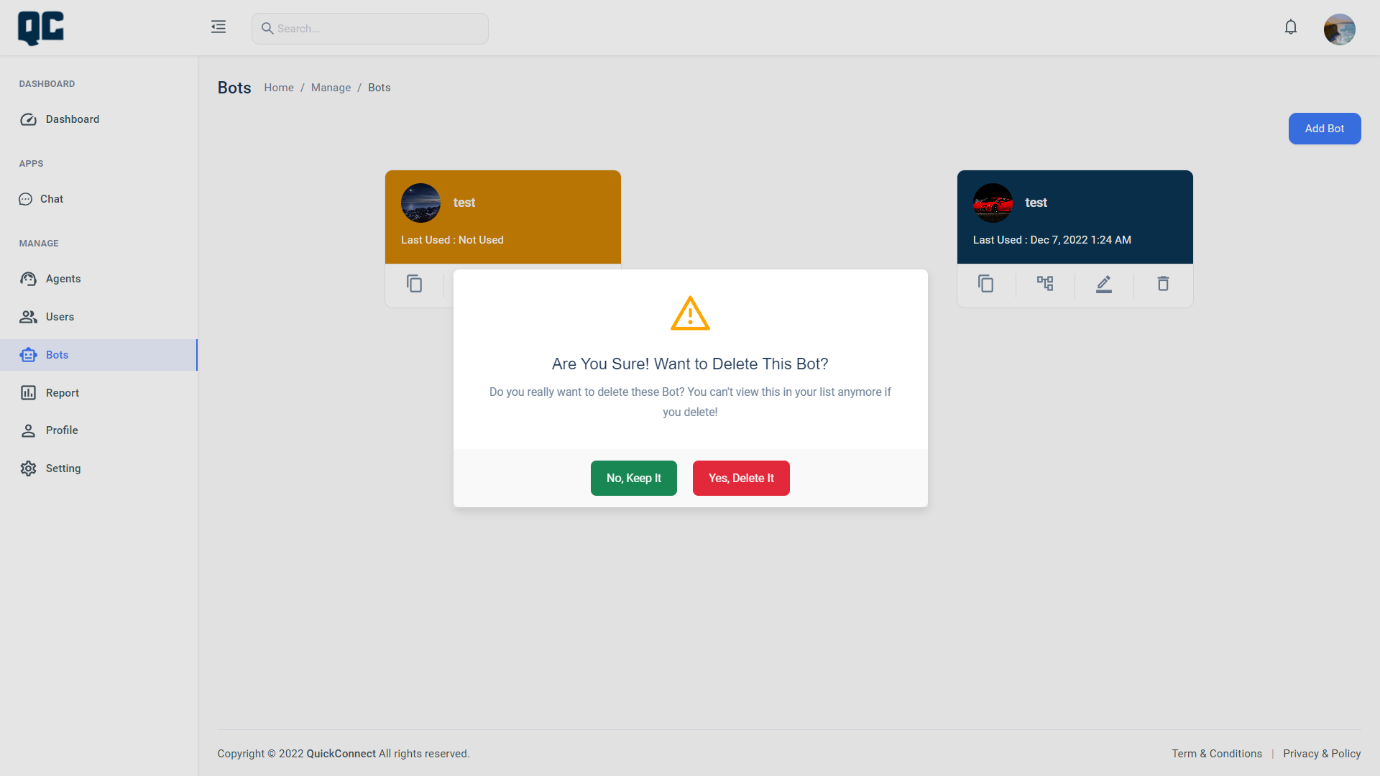
**Add Bot :-**



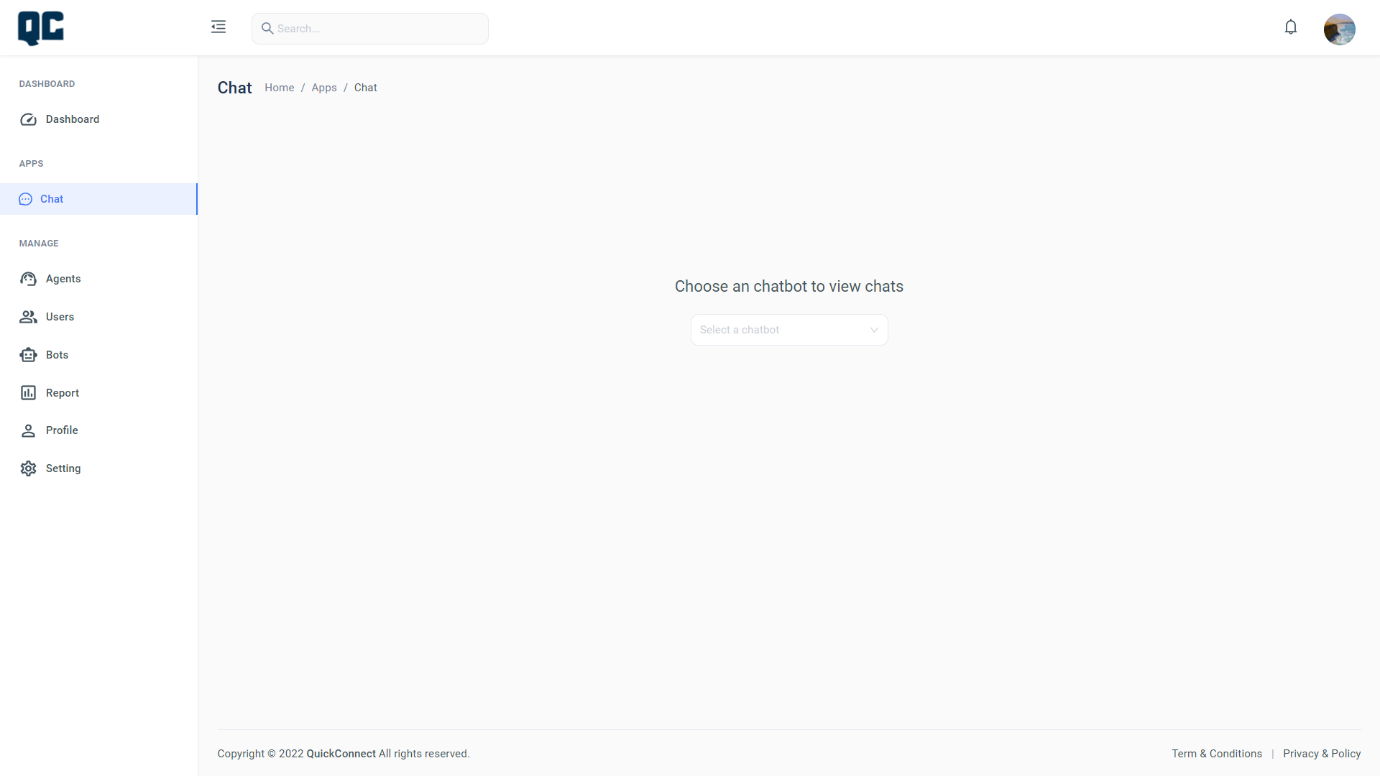
**Edit Bot :-**



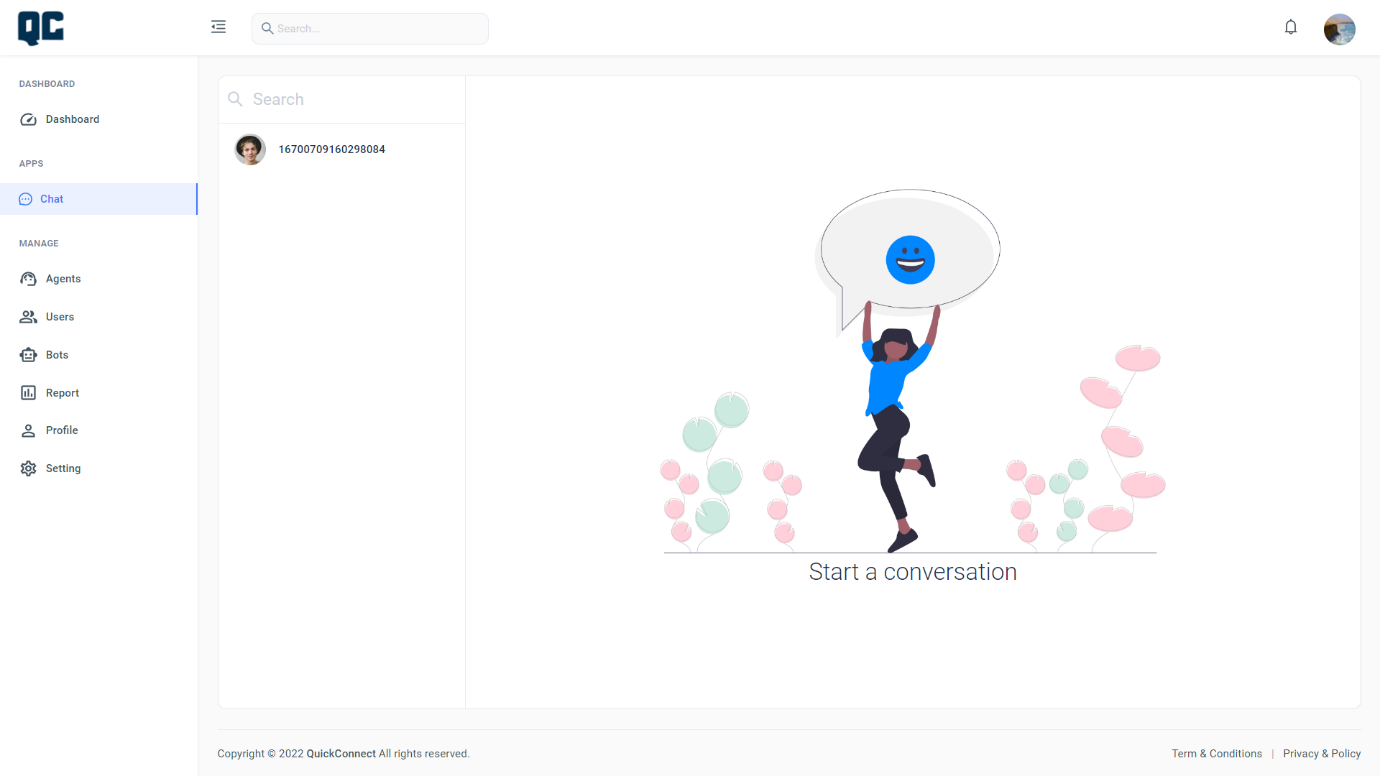
**Delete Bot :-**



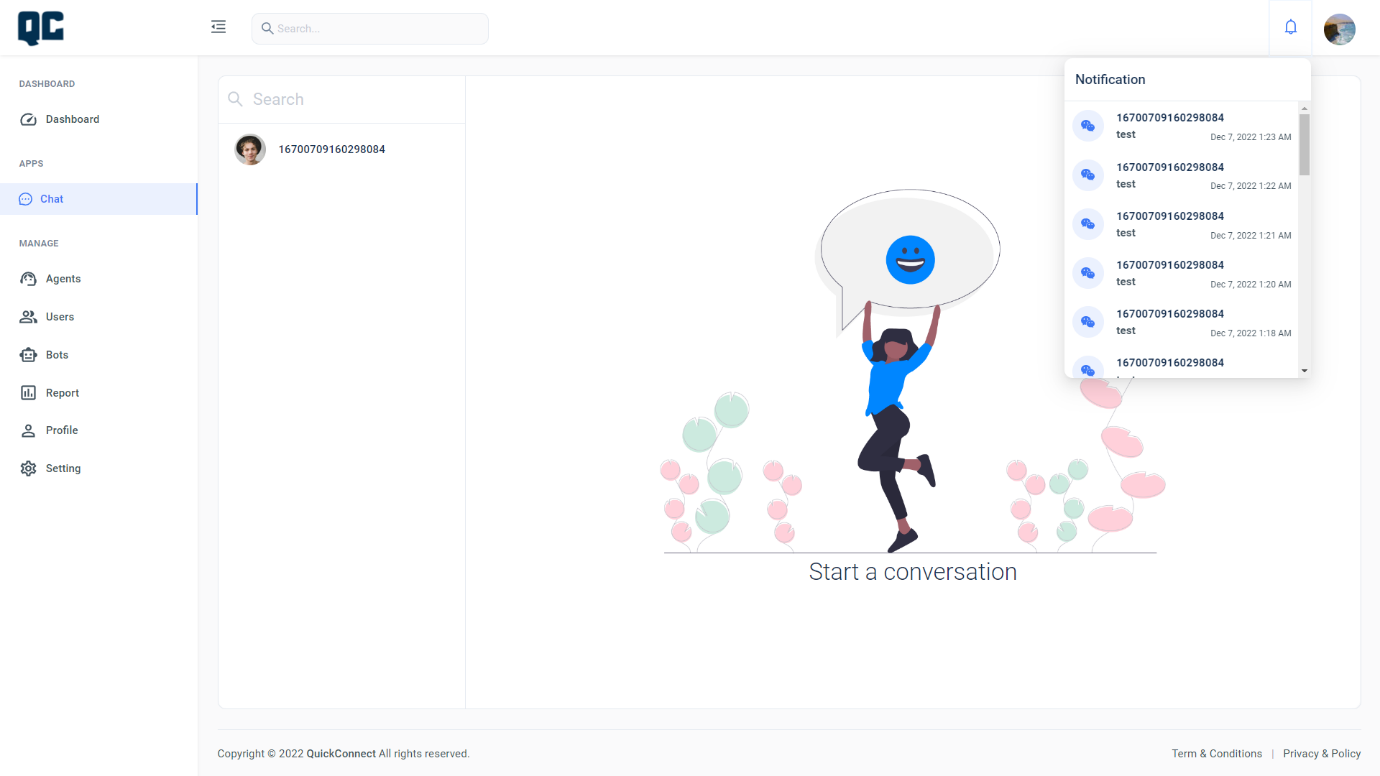
**Choose Chatbot:-**



**Show Chat:-**



**ChatBot Notification :-**



**ChatBot Logo:-**



**Live Agent Connected:-**



**Live Agent Connected:-**



**Chat With Agent:-**



**5. Agile Documentation**

**5.1 Agile Project Charter**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Project Charter   |  |  |  |  | | --- | --- | --- | --- | | Project Title: | QuickConnect | Project Guide: | Prof. Nirali R Sheth | | Project Start Date: | 22-Aug-2022 | Project End Date: | 06-Dec-2022 | | |
| Business Need   |  | | --- | | Chatbot visual builder empowers you to create perfect chatbots quickly and with less coding. Upload conversational elements, and test them in real time to design engaging chatbot stories. |  |  |  | | --- | --- | | Project Scope | Deliverables | | An all-in-one platform to build and launch conversational chatbots with less coding. A chatbot is software that simulates human-like conversations with users via text messages on chat. Its key task is to help users by providing answers to their questions. | It will benefit to;   * POWER UP YOUR MARKETING   Personalize your customer experience.   * SUPERCHARGE YOUR SALES   Scale your efforts without increasing employee headcount.   * OPTIMIZE YOUR SUPPORT   Keep your customer support going after hours. | | Risks and Issues | Assumptions/Dependencies | | A conversational Chatbot is not the same as a human agent, so it does not always understand a query. Its selection of answers may be limited, depending on the information it has uploaded. There may be times when your interactions seem "robotic." | Our support team will help you with ChatBot implementation and customization all along the line. | | |
| Milestone Schedule   |  |  |  | | --- | --- | --- | | Milestone | Target Completion Date | Actual Date | | Project Starting Date | 22-Aug-2022 | 22-Aug-2022 | | Design Approval | 05-Sep-2022 | 05-Sep-2022 | | Improve | 10-Oct-2022 | 10-Oct-2022 | | Project Ending Date | 06-Dec-2022 | 06-Dec-2022 | | |
| Project Team | Approval/Review Committee |
| |  |  | | --- | --- | | Project Guide: | Prof. Nirali R Sheth | | Team Members: | Viraj Sanghani,  Rahul Panchal,  Masira Mansuri | | NA |

**5.2.Agile Roadmap / Schedule**

|  |  |  |  |
| --- | --- | --- | --- |
| **Quarter 1** | **Quarter 2** | **Quarter 3** | **Quarter 4** |
| Completed to our application  designing | Completed API | Completed admin panel | Finally completed  our application |
| 50% | 70% | 85% | 100% |

**5.3.Agile Project Plan**

|  |  |  |  |
| --- | --- | --- | --- |
| **Task** | **Start** | **End** | **Status** |
| Analysis of Project Requirements | 22/08 | 31/08 | Complete |
| Designing chatbot | 01/09 | 10/09 | Complete |
| Designing Admin Auth | 11/09 | 20/09 | Complete |
| Registration and login API | 21/09 | 30/09 | Complete |
| Admin pages designing | 01/10 | 20/10 | Complete |
| Pending API | 01/11 | 15/11 | Complete |
| Testing and Implementation | 16/11 | 20/11 | Complete |
| Documentation | 01/12 | 05/12 | Complete |

**5.4.Agile User Story**

|  |  |  |  |
| --- | --- | --- | --- |
| **User Story ID** | **As a** | **I want to** | **So that I can** |
| 1 | User | Make UI simple and clean | So, that anyone can access easily |
| 2 | User | Live chat support required | So, that i can ask my own question |
| 3 | Admin | Manage All Agents, Users | For better management |
| 4 | Admin | Create and integrate multiple chatbot in different websites | So, that I can use it in multiple sites |
| 5 | Admin | customize color, position, etc. | So, I can modify according to site theme |
| 6 | Admin | Live chat notification | For Easy conversation |

**5.5.Agile Release Plan**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sprint** | **Task** | **Start** | **End** | **Duration** | **Status** | **Release Dt.** |
| 1 | Analysis | 22/08 | 31/08 | 10 | Released | 31/08 |
| 2 | Designing chatbot | 01/09 | 10/09 | 10 | Released | 10/09 |
| 3 | Designing Admin Auth | 11/09 | 20/09 | 10 | Released | 20/09 |
| 4 | Registration and login API | 21/09 | 30/09 | 10 | Released | 30/09 |
| 5 | Admin pages designing | 01/10 | 20/10 | 20 | Released | 20/10 |

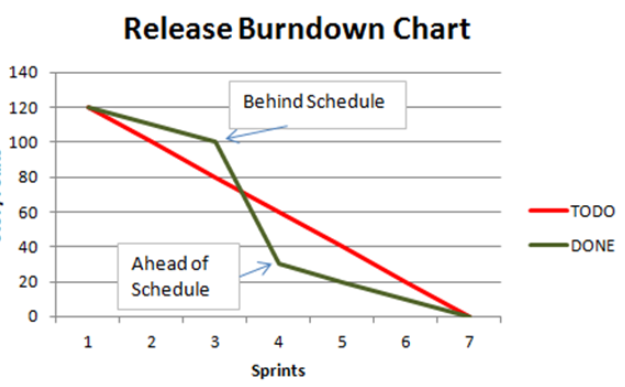
**5.6.Agile Sprint Backlog**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task ID** | **Task** | **Estimated Effort(hrs)** | **Planned Effort(hrs)** | **Status** |
| 1 | High Level Solution Design | 50 | 50 | Complete |
| 2 | Low Level Solution Design | 50 | 50 | Complete |
| 3 | Development | 150 | 150 | Complete |
| 4 | Live Chat | 30 | 30 | Complete |
| 5 | Testing | 20 | 20 | Complete |
| 6 | Bug Solved | 60 | 60 | Complete |
| 7 | Project Complete | 20 | 20 | Complete |

**5.7.Agile Test Plan**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test** | **Action** | **Expected Result** | **Actual Result** | **Pass?** |
| 1 | User Register | Should get login page after register | Admin get login page after register | ✓ |
| 2 | User Login | Should get dashboard page after login | Admin get dashboard page after login | ✓ |
| 3 | Forgot Password | Should able to create new password | Admin able to create new password | ✓ |
| 4 | Manage Multiple Chatbots | Should able to manage chatbot | Admin able to manage chatbot | ✓ |
| 5 | Manage Agents | Should able to manage agents | Admin able to manage agents | ✓ |
| 6 | Manage Users | Should able to manage users | Admin able to manage users | ✓ |
| 7 | Admin/Agent can logout | Should logout from the system | Can logout from the system | ✓ |
| 8 | Integrate Chatbot | Admin should integrate chatbot | Admin can integrate chatbot | ✓ |
| 9 | Request For Live Chat | Customer should request for live chat | Customer can request for live chat | ✓ |
| 10 | Live Chat | Agents able to connect in live chat | Can able to connect in live chat | ✓ |
| 11 | Reports | Admin should able check analytics of any chatbot | Admin can able check analytics of any chatbot | ✓ |

**5.8 Agile Burn Charts**



**6. Proposed Enhancements**

Since this Project was started with very little knowledge about the selected technology, we came to know about the enhancement capability during the process of building it. Some of the knowledge we had increased during this project is listed below.

• How to make views in ReactJS

• Write backend code in NodeJS

• Implement Html & CSS for designing

• Implementing JavaScript in entire project

• Generating design using ReactJS

• Making Models and Implementation of MongoDB for storing Data

• Time Management

• Understanding of Team Work

• Understanding of Error Solving

**7. Conclusion**

It was wonderful and learning experience for us while working on this project. This project took us through the various phases of project development and gave us real time insight into the world of software development. The joy of working an thrill involved while tackling the various problems and challenges gave us a feel of developer industry.

While developing this project we have learned a lot about chat application, we have also learn how to make it user friendly (easy to use and handle) by hiding the complicated parts of it from the users.

During the development process we studied carefully and understood the criteria for making software more demanding, we also realized the importance of maintaining a minimal margin for error.

It was due to this project we came to know how professional software are designed.

We enjoyed each and every bit of work we had put into this project. This project is future extendable.

We would also like to give our gratitude to our project guide and friends who helped us and supported us to complete our project successfully.

**8. Bibliography**

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