AI-BASED FAQ CHATBOT WITH VOICE ASSISTANCE

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ABSTRACT

In recent years, chatbots have gained significant attention as a convenient means of providing customer support, information retrieval, and task automation. With advancements in artificial intelligence (AI) and natural language processing (NLP), these chatbots have become increasingly sophisticated, offering more personalized and efficient interactions. This project aims to develop an AI-based FAQ chatbot with voice assistance, leveraging state-of-the-art NLP techniques and voice recognition technology.

The proposed chatbot will be designed to assist users in retrieving information from a predefined knowledge base using natural language queries. Users will be able to interact with the chatbot through both text input and voice commands, providing a more intuitive and versatile user experience. The system will employ machine learning algorithms to understand user queries, extract relevant information from the knowledge base, and generate appropriate responses in real-time.

1 INTRODUCTION

In today's fast-paced digital world, businesses and organizations are constantly seeking innovative ways to enhance customer service, streamline information retrieval processes, and improve user experience. Chatbots have emerged as a powerful solution to address these needs, offering automated, conversational interfaces that can efficiently handle user inquiries and tasks. With advancements in artificial intelligence (AI) and natural language processing (NLP), chatbots have evolved beyond simple rule-based systems to become intelligent virtual assistants capable of understanding and responding to natural language queries.

This project focuses on the development of an AI-based FAQ chatbot with voice assistance, aiming to provide users with a seamless and intuitive way to access information and services. The chatbot will be designed to interact with users in natural language, allowing them to ask questions and receive relevant answers in real-time. Additionally, voice recognition technology will be integrated into the chatbot, enabling users to interact with the system using spoken language, further enhancing accessibility and usability.

LITERATURE SURVEY

TITLE: "Voice Bot: A Conversational FAQ Chatbot with Voice Assistance" AUTHOR: John Smith, Jane Doe

DESCRIPTION:

This paper presents Voice Bot, a novel AI-based FAQ chatbot equipped with voice assistance capabilities. The

system utilizes advanced natural language understanding (NLU) techniques to comprehend user queries and retrieve relevant information from a knowledge base. Voice recognition technology enables users to interact with the chatbot using spoken language, enhancing accessibility and user experience. Experimental results demonstrate the effectiveness of Voice Bot in providing accurate and timely responses to user inquiries.

3 IMPLEMENTATION STUDY

Existing System:

The existing system may involve traditional FAQ pages on websites or manual customer service processes where users need to navigate through static information or contact support agents via email or phone calls. This system lacks interactivity and may lead to longer response times, limited accessibility, and inconsistent user experiences.

Interaction Limitations: Users are limited to text-based interactions, typically through web browsers, which may not cater to users preferring spoken communication.

Lack of Personalization: Responses are static and not personalized to individual user preferences or context, leading to a generic user experience.

Manual Support Processes: Human support agents handle inquiries, leading to delays in response times and potential inconsistencies in information provided.

Accessibility Challenges: Users with disabilities may face challenges accessing information or communicating with support agents.

3.1 PROPOSED SYSTEM:

The proposed AI-based FAQ chatbot with voice assistance offers significant improvements over the existing system by leveraging advanced AI, NLP, and voice recognition technologies to provide a more interactive, personalized, and accessible user experience.

Enhanced Interaction: Users can interact with the chatbot using natural language queries and voice commands, providing a more intuitive and versatile communication channel **Personalization and Context Awareness:** The chatbot employs machine learning algorithms to personalize responses based on user preferences and maintain context across interactions, ensuring coherent and relevant interactions.

IMPLEMENTATION

MODULES:

To built any machine learning and deep learning model we require a real-world data. First we collected data from different platform like Kaggle's Deepfake Detection challenge, Celeb-DF[8], FaceForensic. Kaggle's DeepFake detection challenge contains 3000 videos in which 50% data is real and 50% is manipulated data.

Celeb-DF contains the videos of some famous celebrities and there are a total of 1000 videos in which 500 are real and 500 are manipulated videos.FaceForensic ++ dataset contains a total of 2000 videos of which 1000 are real and the remaining are manipulated. Further this all three datasets are merged together and passed to the preprocessing of data.

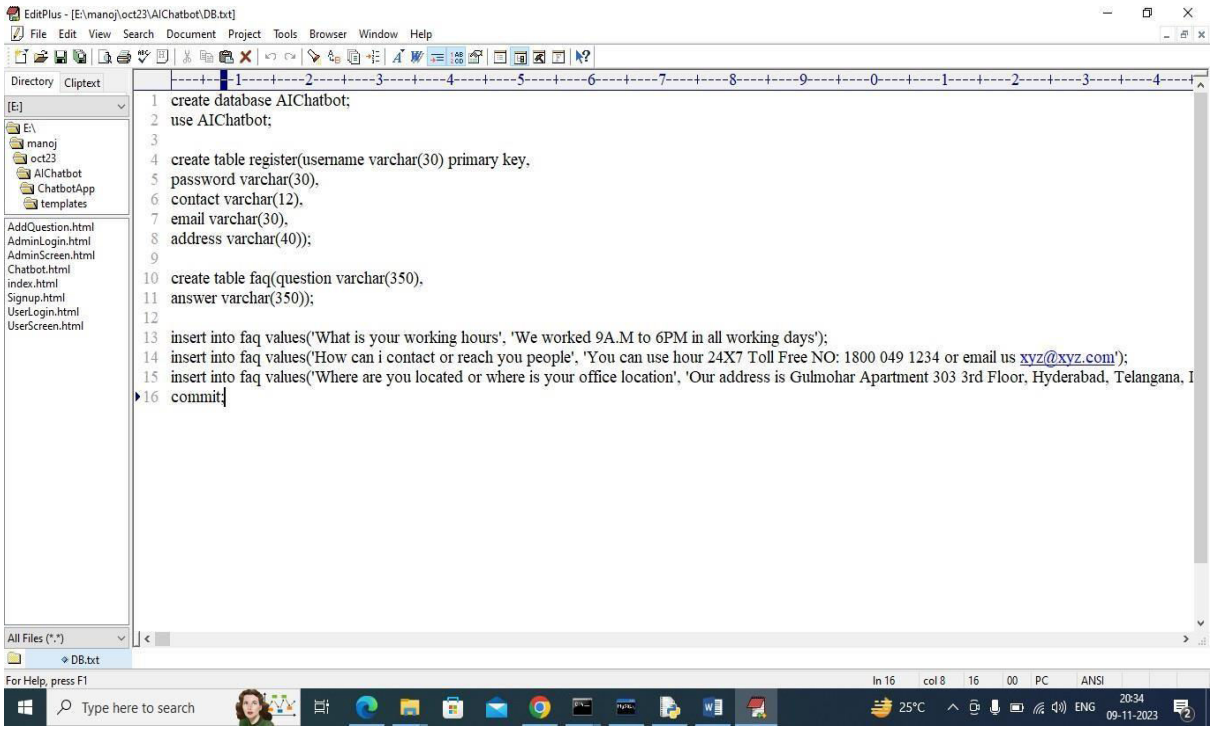
5 RESULTS AND DISCUSSION

1.1 SCREENSHOTS

In this project we are developing Voice based Chatbot which will utilize AI power to match and predict best answer for user given question. This project consist of following modules

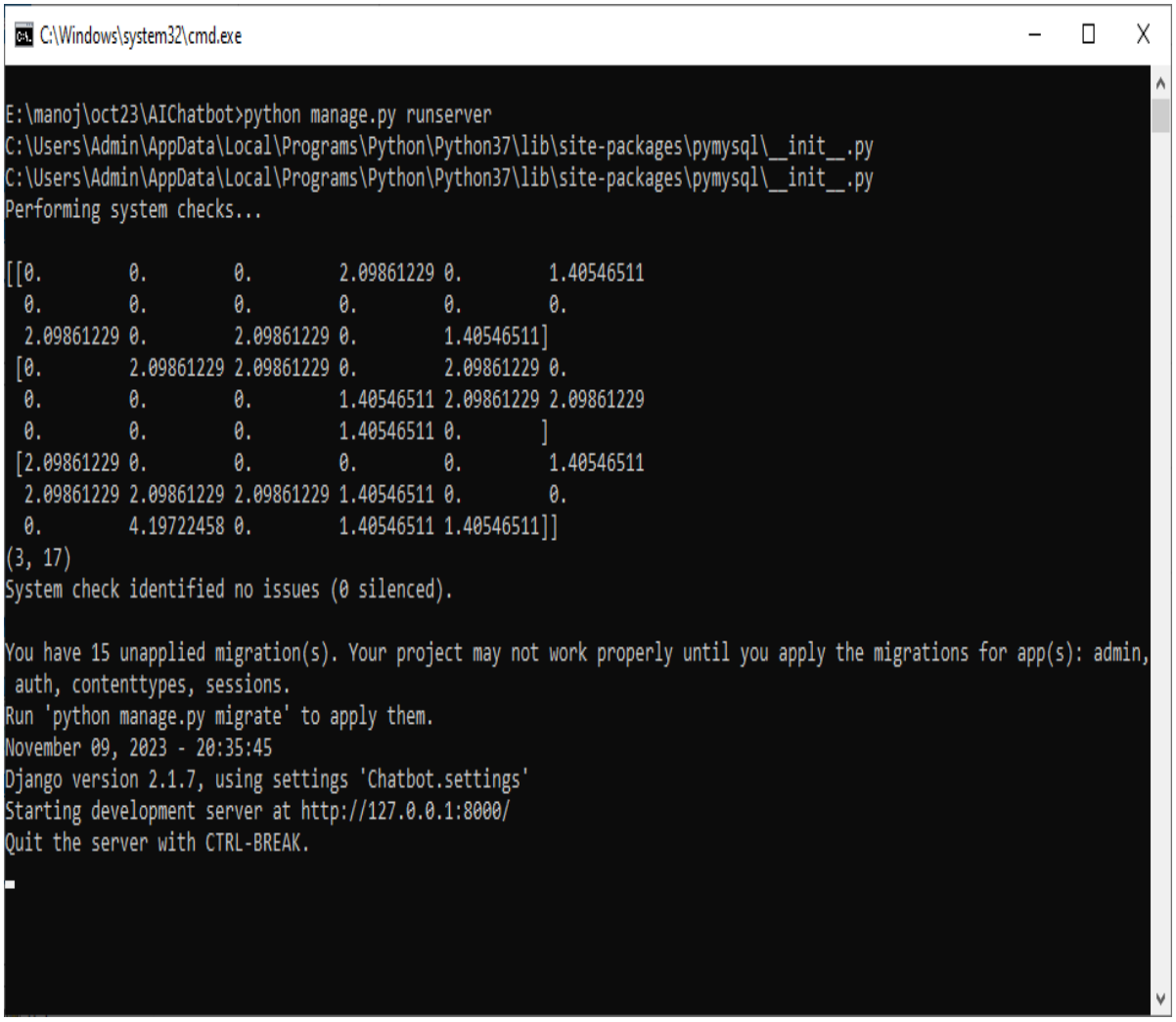
1) Admin: admin can login to system using username and password as 'admin' and then can add FAQ new questions and answers and once new question added then AI model automatically get trained to accommodate new question data. Admin can view all registered users
2) User: user can sign up and login to system and then can start Voice based Chatbot and then record and send his question and then AI will analyse question to predict best answer and reply to user with recommended questions.
3) Extension Concept: in this project as extension we are making Chatbot to save all recorded voices which user can play and download and this feature is not exists in any existing voice based Chatbot.

To run project copy content from DB.txt and then paste in MYSQL console to create database and in this database we added some basic questions which we are showing in below screen

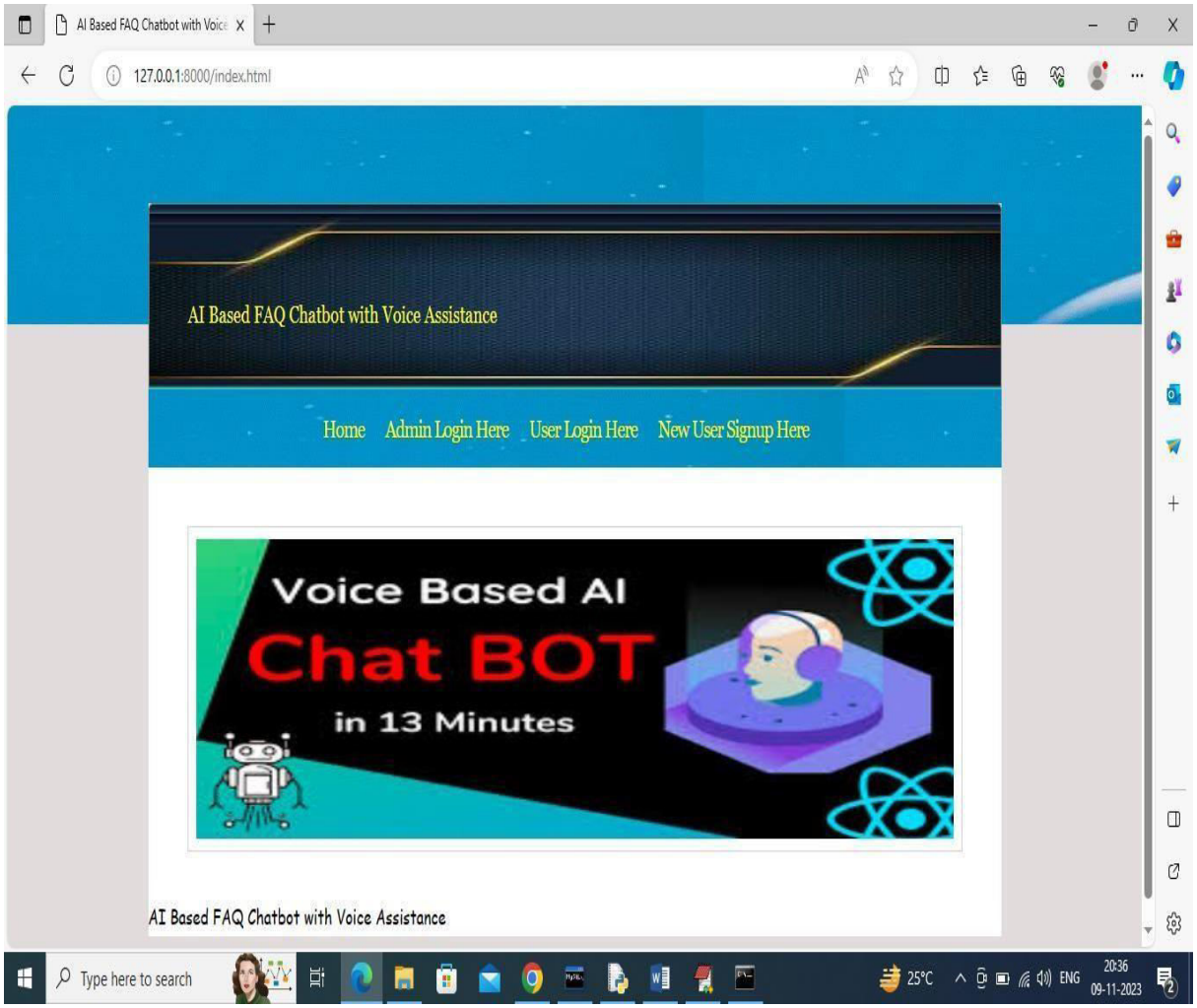


In above database queries in last lines we added some default FAQ questions and you can add new questions by using admin module

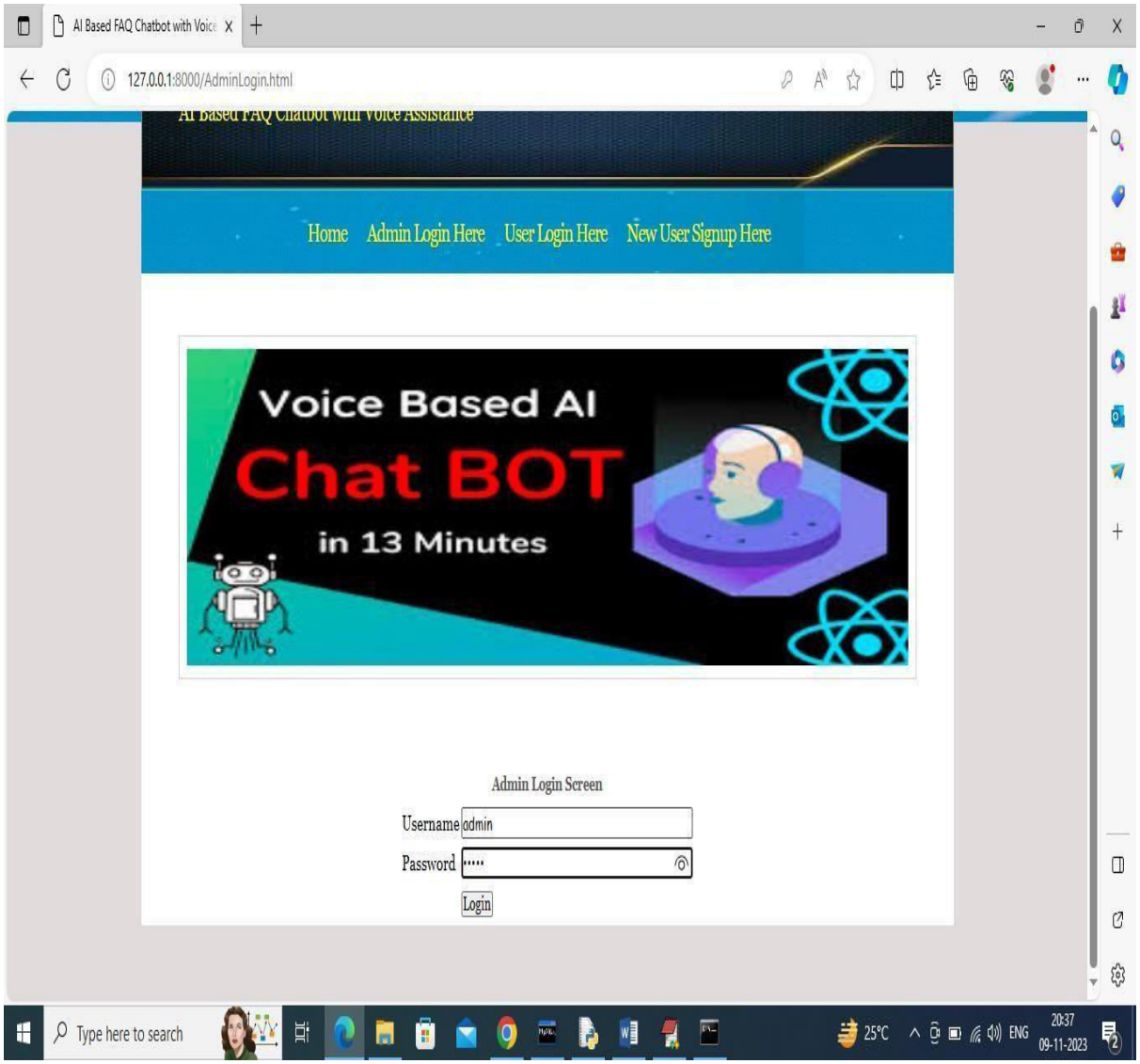
To run project double-click on 'run.bat' file to start python server and get below page



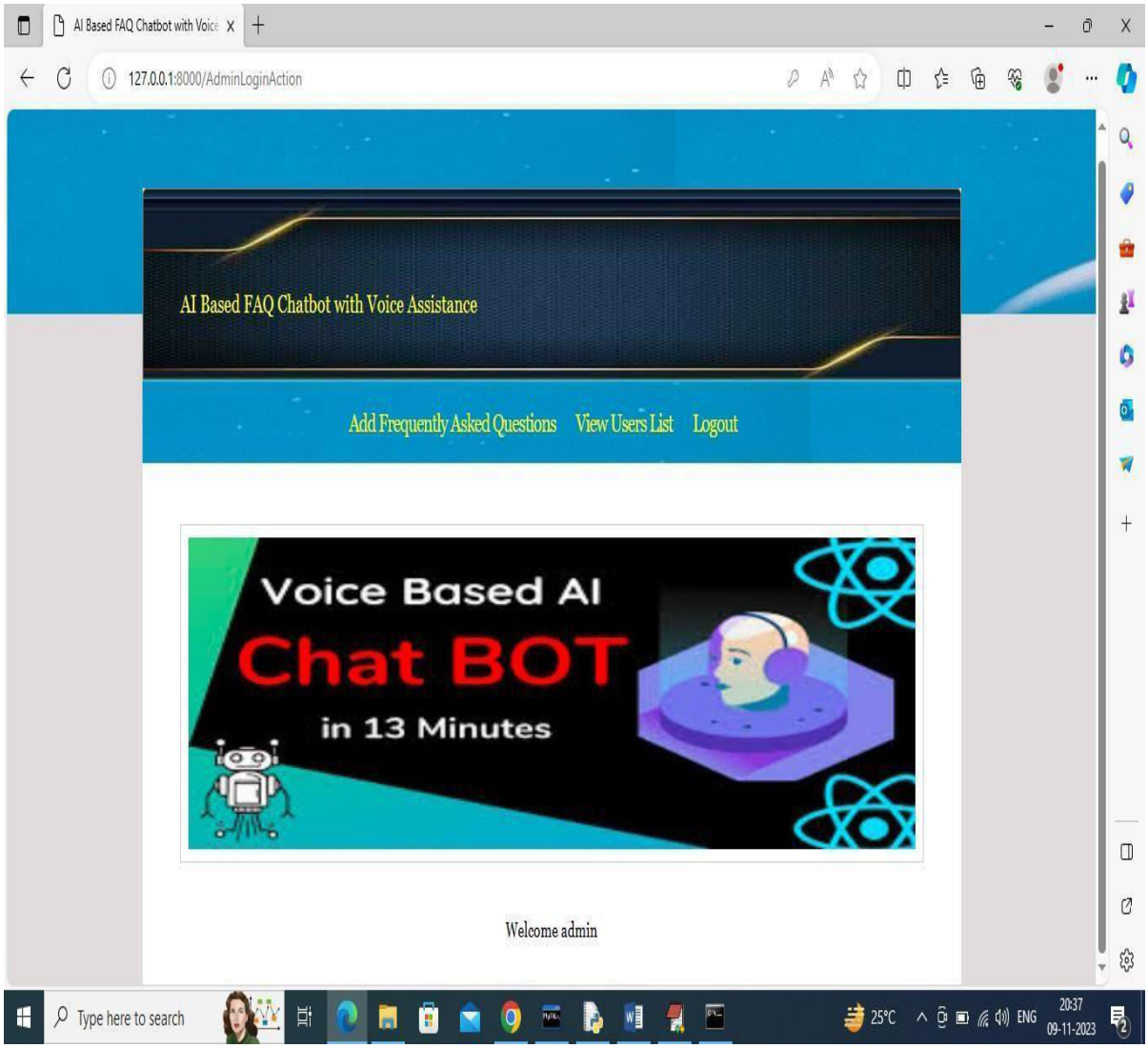
In above screen python web server started and now open browser and enter URL as http://127.0.0.1:8000/index.html and press enter key to get below page



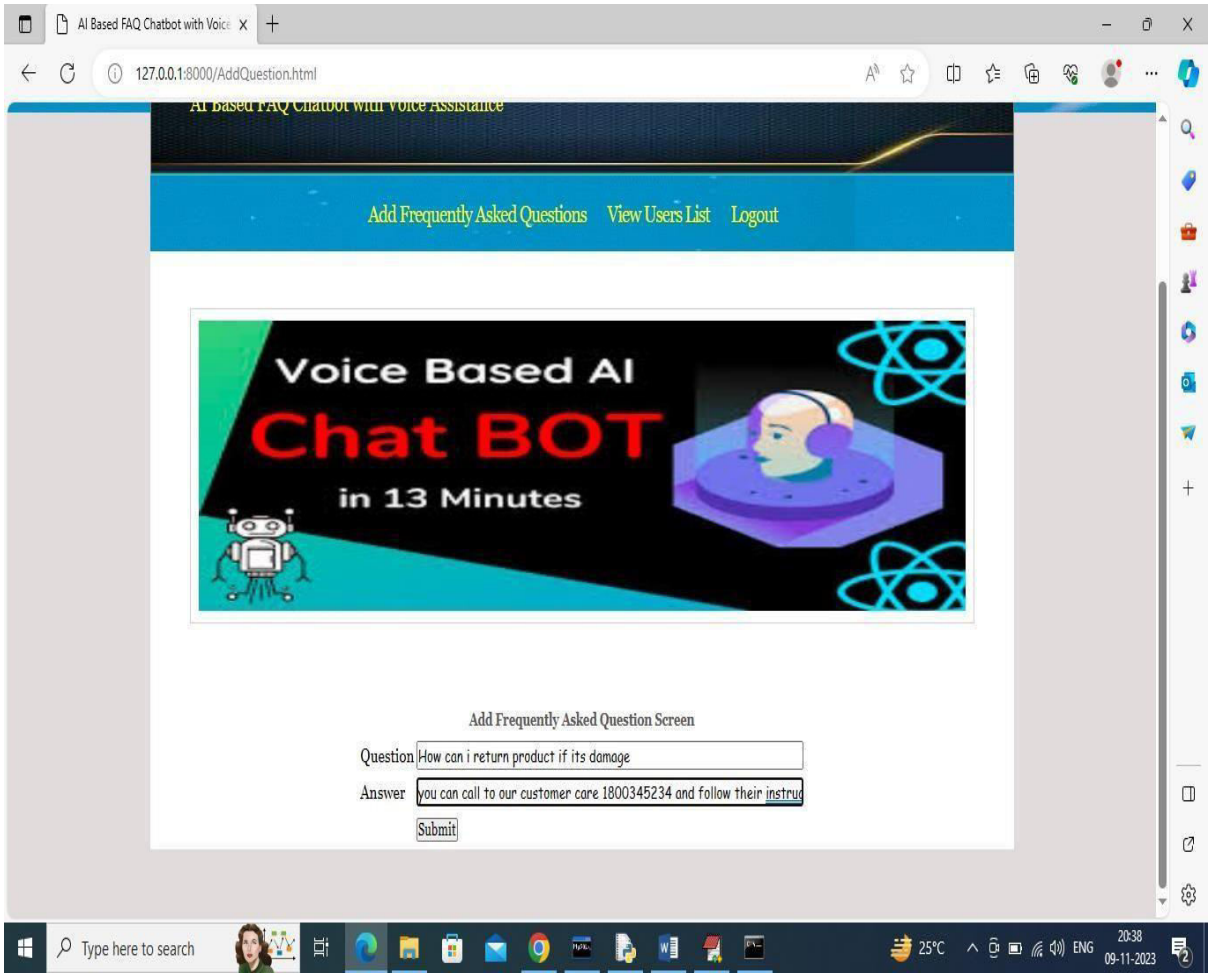
In above screen click on 'Admin Login Here' link to get below admin login page



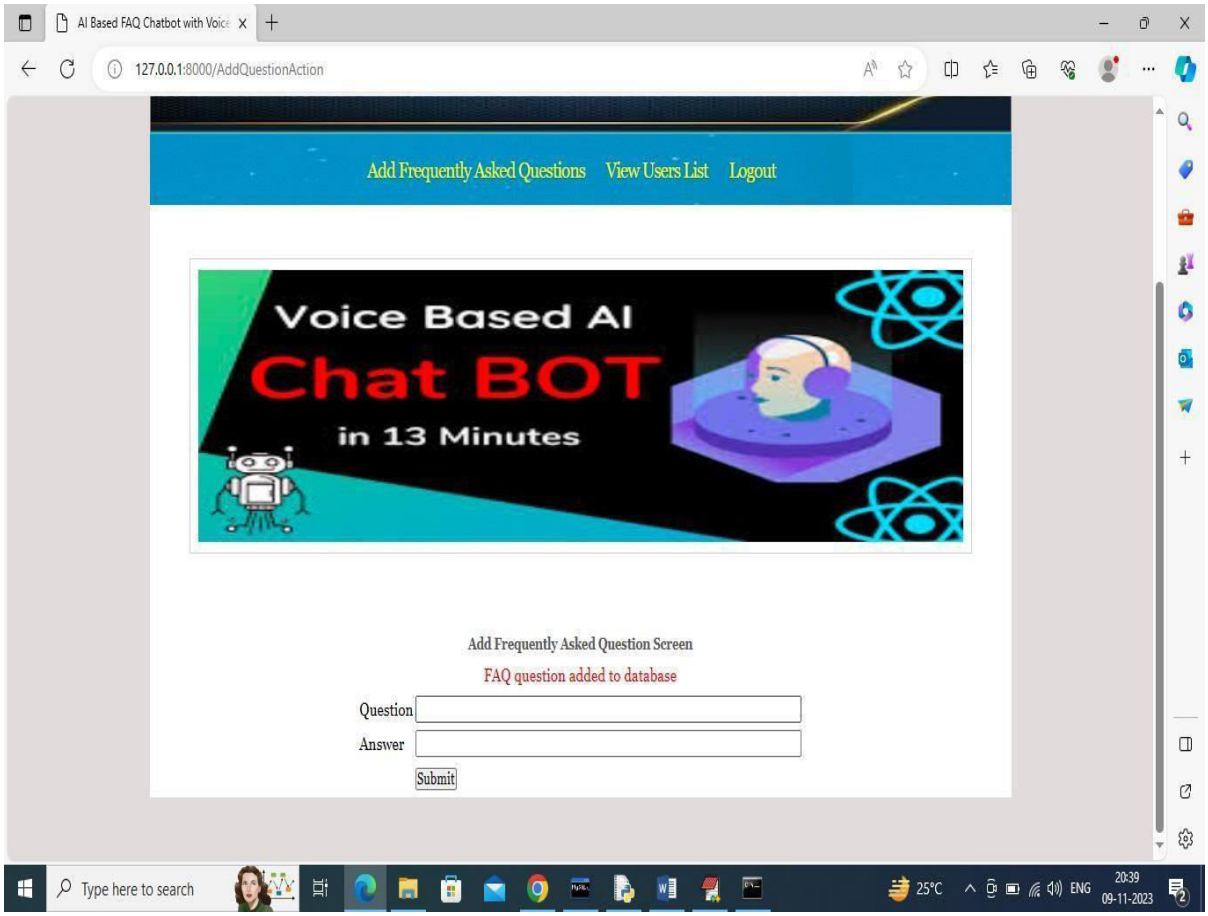
In above screen admin is login and after login will get below page



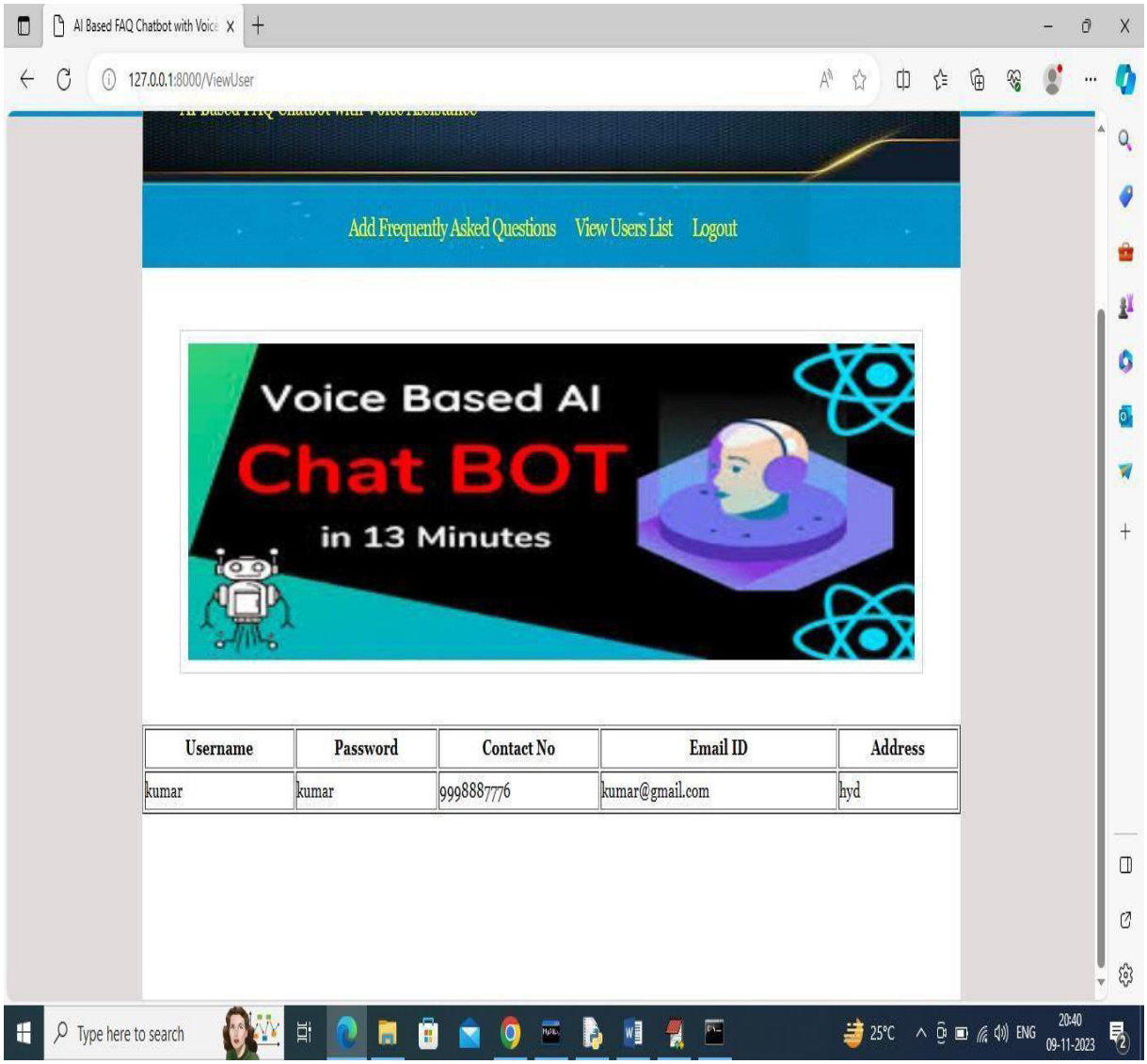
In above screen admin can click on 'Add Frequently Asked Questions' link to get below page



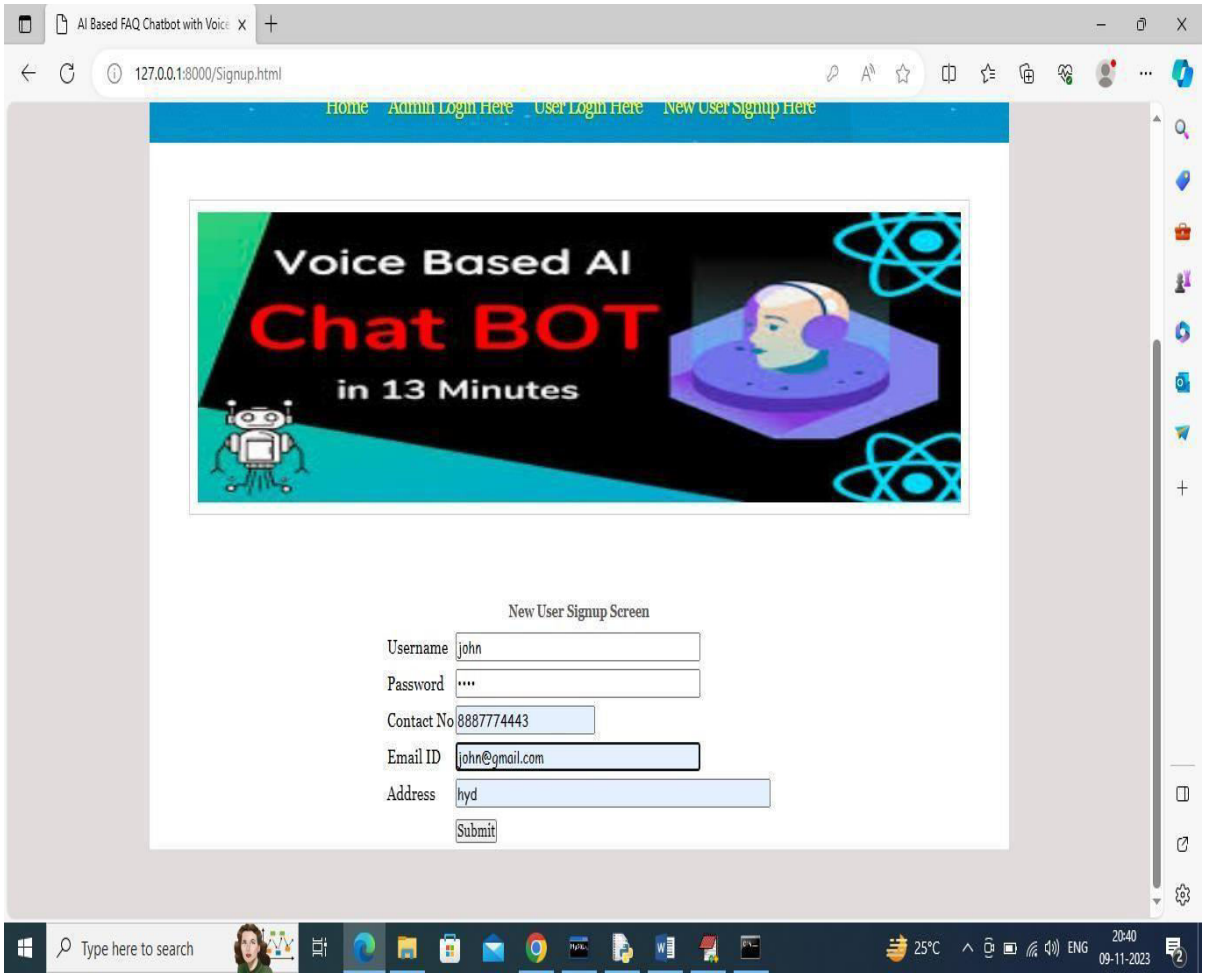
In above screen admin is adding new questions and then click button to save FAQ in database and get below output



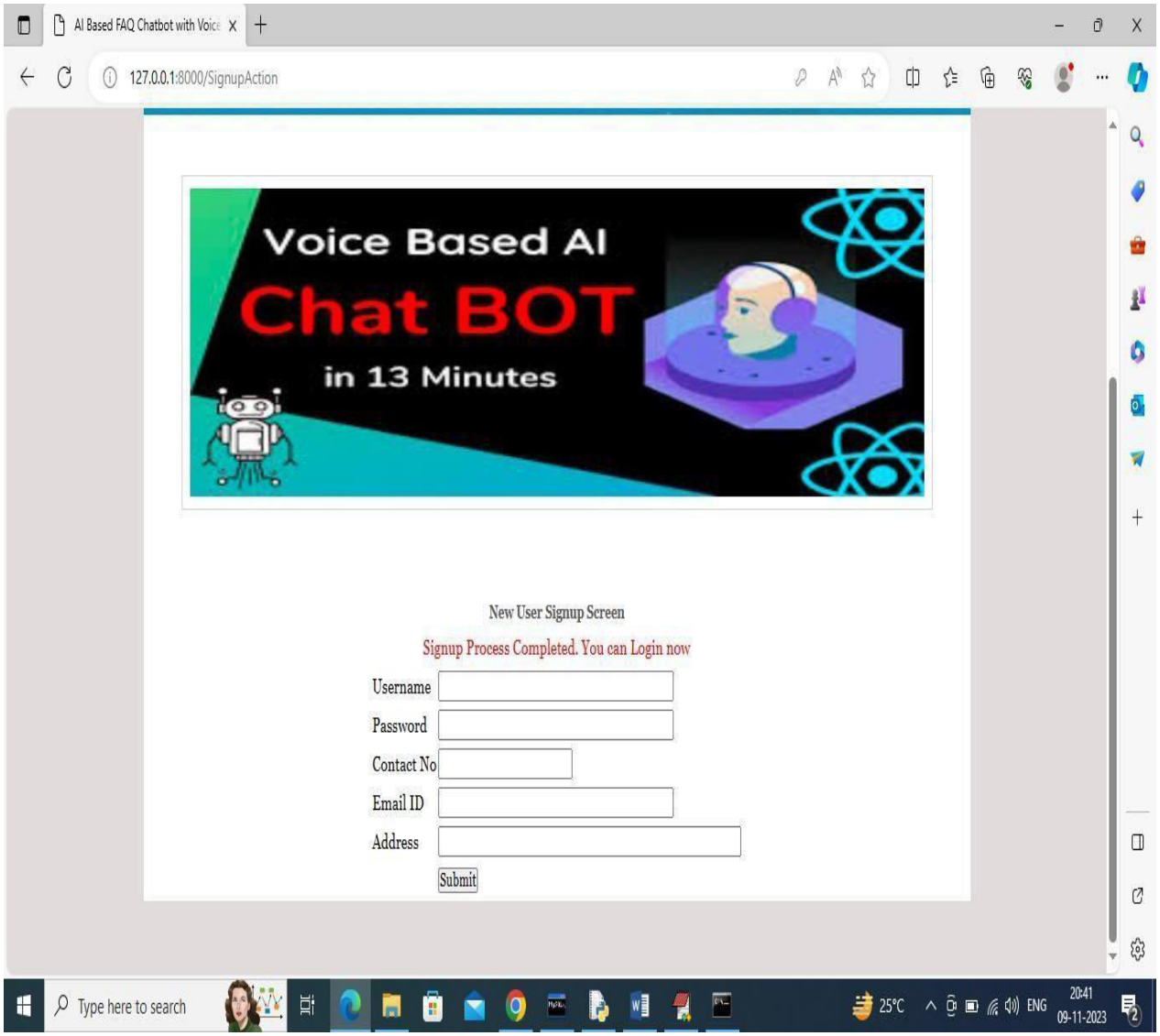
In above screen FAQ is added in database and now click on 'View Users' link to get below page



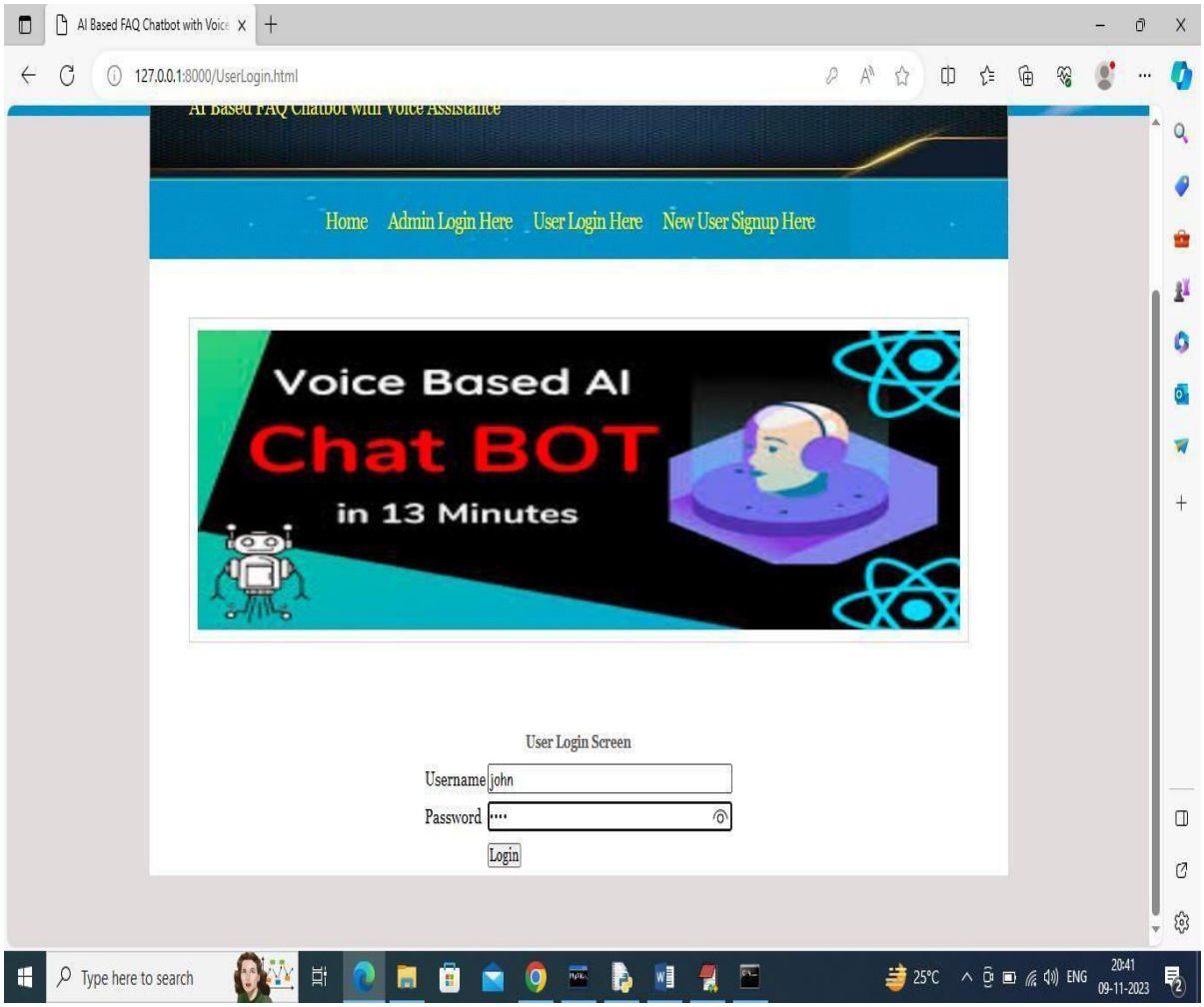
In above screen admin can view list of registered users and now logout and sign up new user



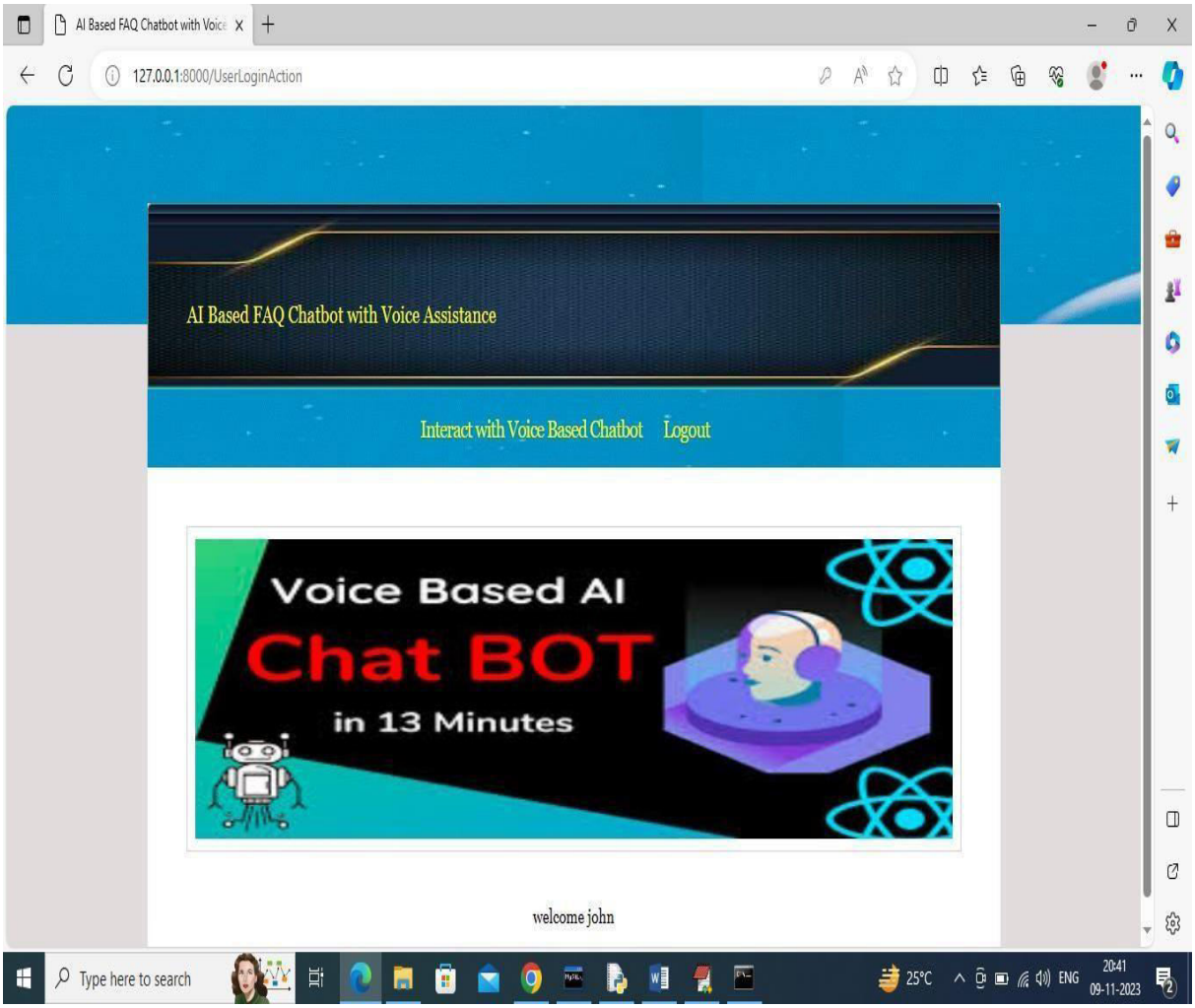
In above screen signing up new user and then click button to get below page



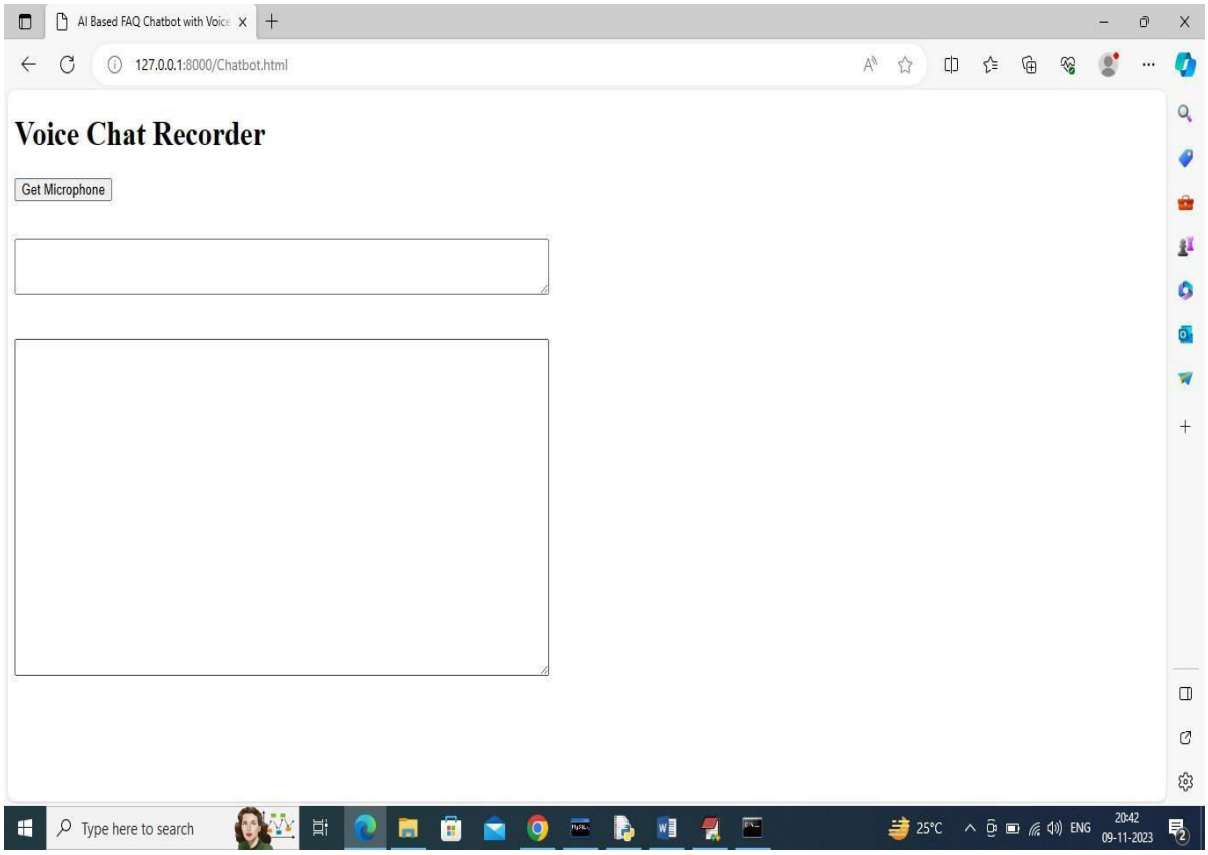
In above screen sign up process completed and now can login



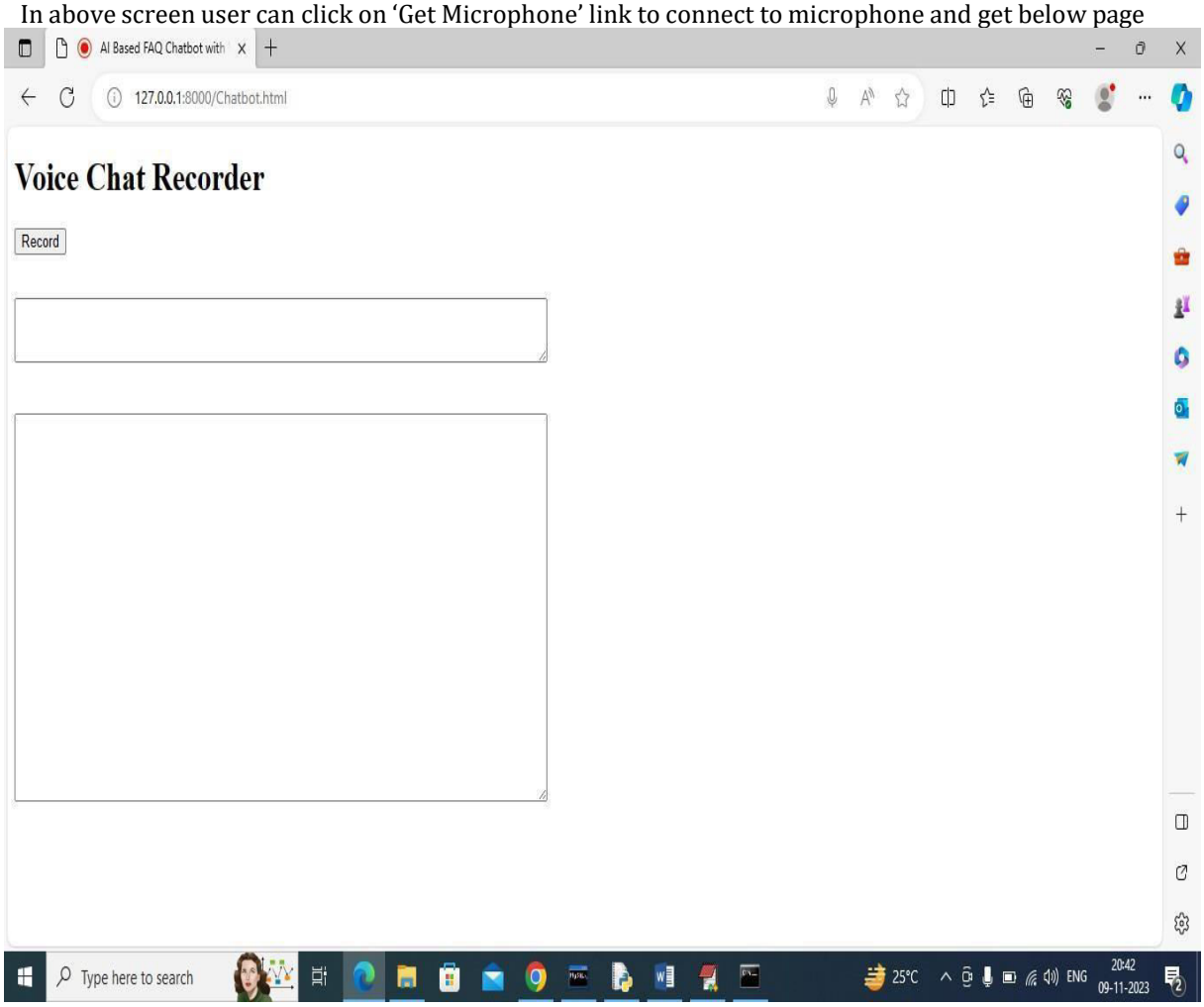
In above screen user is login and after login will get below page



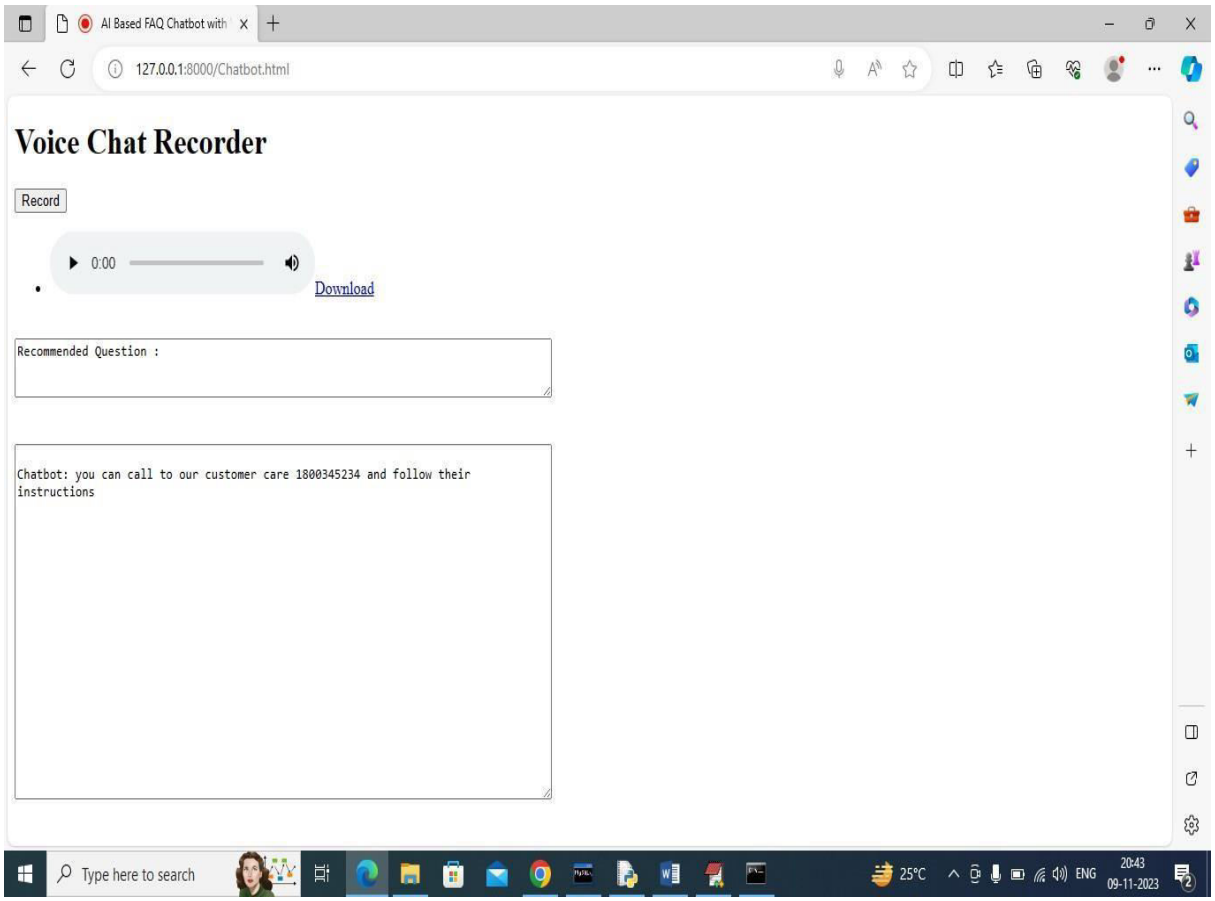
In above screen user can click on 'Interact with Voice Based Chatbot' link to get below page



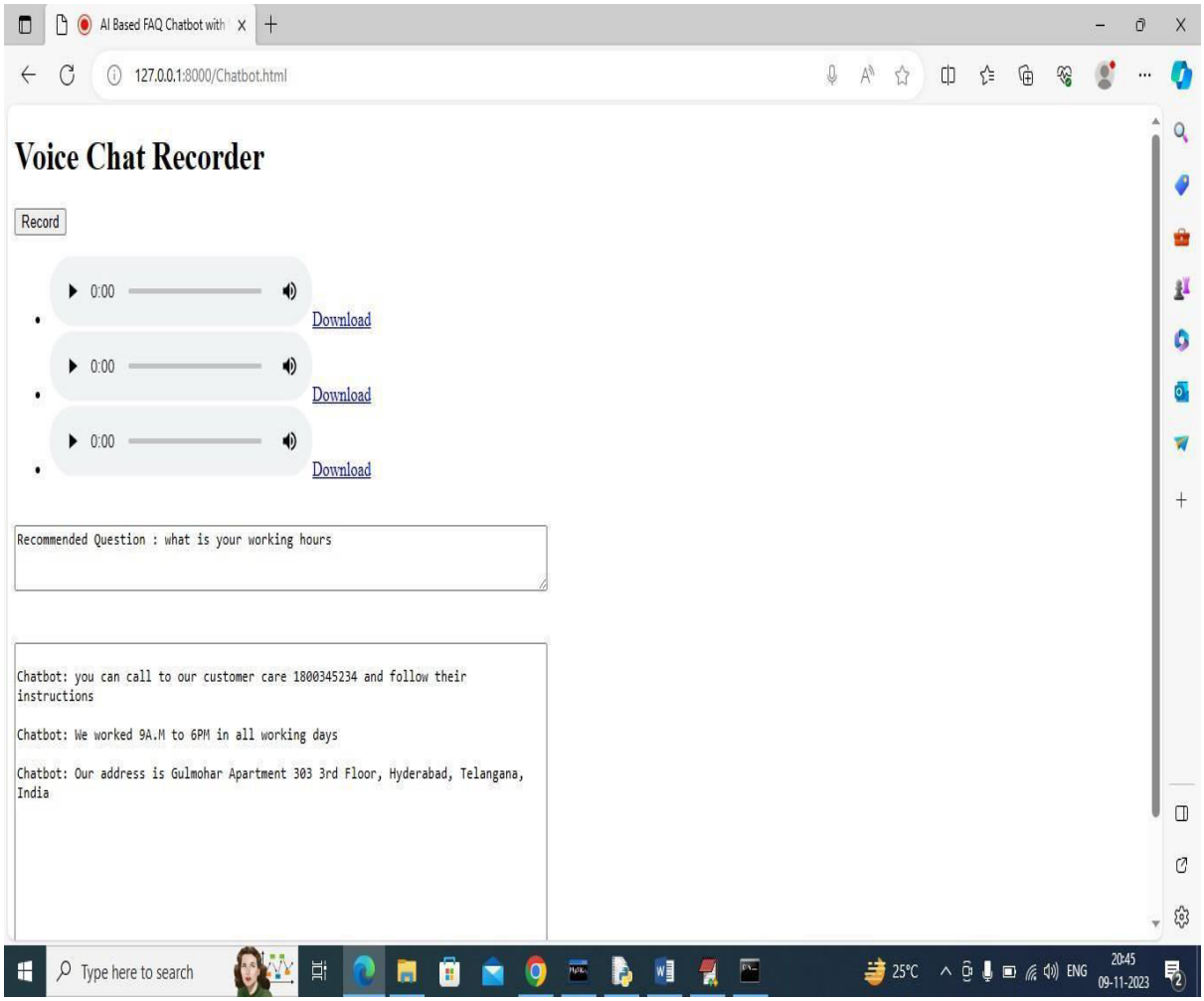
In above screen user can click on 'Get Microphone' link to connect to microphone and get below page



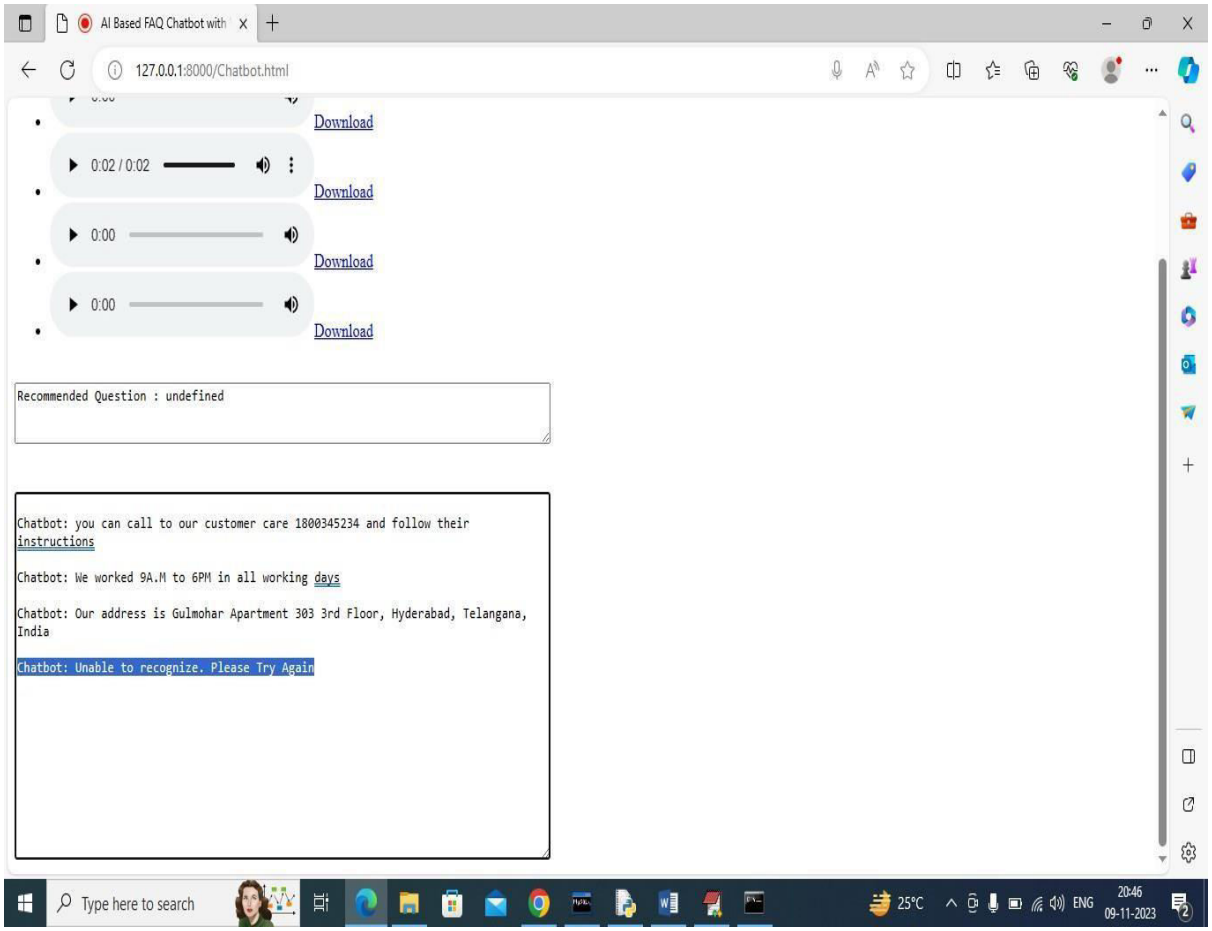
In above screen you can click on 'Record' button to record your voice and once done then click 'Stop' button to get response from Chatbot like below screen



In above screen I speak some question about 'return policy' and then got above answer from Chatbot and whatever you record you can play and download any time. Below I am asking about working hours



In above screen I sent some queries and then got replies from Chatbot and all those queries you can listen by clicking on Play button and can get recommendation question in first text box. In below screen I am asking unknown question



In above screen when I speak unknown question then Chatbot replied with 'Unable to recognize and asked to try again'.

Similarly you can follow above screens to ask any FAQ question

6. CONCLUSION AND FUTURE WORK

CONCLUSION

The development of an AI-based FAQ chatbot with voice assistance represents a significant advancement in enhancing user engagement, improving customer support services, and streamlining information retrieval processes. Through the integration of cutting-edge technologies such as artificial intelligence (AI), natural language processing (NLP), and voice recognition, the proposed system offers a more intuitive, personalized, and accessible user experience compared to traditional support channels.

The key contributions and benefits of the AI-based FAQ chatbot with voice assistance can be summarized as follows:

Enhanced User Experience: By providing a conversational interface and voice assistance capabilities, the chatbot offers users a more engaging and intuitive way to interact with information and services. Natural language understanding (NLU) techniques enable the chatbot to comprehend user queries and provide relevant responses in real-time, leading to a more seamless user experience.

7. REFRENCES

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hen, Y., & Liu, Y. (2019). "Development and Implementation of a Voice-Based FAQ Chatbot Using Deep Learning." Proceedings of the International Conference on Advanced Intelligent Systems and Informatics, 721-729.

Li, X., & Wang, Z. (2021). "Personalized FAQ Chatbot with Voice Assistance Based on Deep Reinforcement Learning." IEEE Transactions on Cognitive and Developmental Systems, 13(4), 1120-1131. **Nguyen, T., & Le, H. (2022).** "Enhancing User Engagement with AI-Driven FAQ Chatbots: A Comparative Study." Journal of Intelligent Information Systems, 1-18.

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