

## **DEPLOYING THE CHABOT ON A CLOUD PLATFORM AND INTEGRATING IT WITH VARIOUS APIs**

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### **ABSTRACT:**

The project entitled as “Deploying the Chabot on a Cloud Platform and Integrating it with Various APIs” and developed using PHP as Front-end and MYSQL as Back-end. The aim of this system is to design and develop an AI-based Chabot that can interact with users in a natural language and provide them with personalized assistance. A chatbot is a computer program that simulates human conversation with an end user. Though not all chatbots are equipped with artificial intelligence (AI), modern catboats increasingly use conversational AI techniques like natural language processing (NLP) to understand the user’s questions and automate responses to them. The Chabot will be developed using NLP techniques, and machine learning algorithms will be used to make it intelligent and responsive. The Chabot will be integrated with various APIs to provide real-time information to users. Chatbots employ a variety of AI technologies, from machine learning that optimize responses over time to natural language processing and natural language understanding that accurately interprets user questions and matches them to specific intents. Deep learning capabilities allow chatbots to become more accurate over time, which in turns allows humans to interact with chatbots in a more natural, free-flowing way without being misunderstood. Natural Language Understanding Cloud-based chatbots leverage advanced NLP techniques to understand user queries and extract relevant information. They can analyze the context of conversations, detect intents, and provide accurate responses, leading to more effective communication and improved user experiences. Integration with Messaging Cloud-based chatbots can integrate with popular messaging platforms such as Facebook Messenger, WhatsApp, Slack, and others. This integration allows organizations to reach users on their preferred channels and provide support, assistance, or information seamlessly.

**Keywords:** Machine Learning, Cloud, NLP, Artificial Intelligence, Chatbot, Symptoms, Healthcare.

### **I. INTRODUCTION**

Cloud-based AI refers to artificial intelligence (AI) services and applications that are hosted and operated remotely on cloud computing infrastructure. Instead of running AI algorithms and models on local devices, such as personal computers or mobile phones, cloud-based AI solutions leverage the computational power and storage capabilities of remote servers provided by cloud service providers.

Cloud-based chatbot solutions can scale up or down dynamically to handle varying levels of user interactions. Cloud platforms provide the necessary computational resources to support large-scale deployments without requiring significant upfront investment in hardware. Users can interact with cloud-based chatbots from anywhere with an internet connection, using various devices such as smartphones, tablets, or computers. This accessibility ensures seamless communication and engagement with users across different channels and platforms.

Cloud-based chatbots can leverage machine learning algorithms to improve over time based on user interactions and feedback. They can analyze conversation data, identify patterns, and adapt their responses to better meet user needs and preferences.

The main objectives of this project are:

- To design and develop an AI-based chatbot using NLP techniques.
- To integrate machine learning algorithms to make the chatbot intelligent and responsive.
- To create a personalized user experience by understanding user preferences and behavior.

- To integrate the chatbot with various APIs to provide real-time information to users.

## **II. LITERATURE REVIEW**

There are many techniques and other services such as Speech-to-Text, Text-to-Speech, and natural language processing etc. where the bot can be interactive.

Kader et al. [9] presented the design techniques for developing interactive chatbots. They used Natural language processing techniques such as NLTK which can be used to analyze speech and make the bot response intelligent. They have done the survey of nine selected studies and also discussed the comparison between the chatbot design techniques. The authors in [10] discussed the different chatbot strategies and also compared the conversion techniques such text-based conversion and speech-based conversion. They also discussed some parameters which affect human-computer interaction quality in conversational systems which can be used to design web interface. Now a-days many different chatbots are found through the web.

Pereira and Coheur[11] described their own chatbot platform “Just.Chat” which can be used to process the information for developing the chatbots. They also discussed “Ed-gar” platform which is designed for answering natural language questions. Based on the filter such as Domain filter, Personal filter, and Blacklist Filter, they identified the interaction and created chatbots knowledge bases.

Cloud services are separating its application from its hardware and software dependencies. There are many Cloud service providers including Google, Microsoft and Amazon Web Services etc. Gandhi and Kumbharana[12] presented a comparison between Amazon Web Service and Microsoft Azure platform for choosing the cloud services. They have compared AWS and Microsoft Azure based on some parameter such as Base plan price, virtual CPU core, RAM, Disk space, IDE support, server OS type and much more. Selection of cloud service provider depends on the application requirement and the cloud services that are necessary to develop the application.

This literature review examines the concept of cloud-based student data chatbots with a human interface. It explores the integration of artificial intelligence and cloud computing in the education sector, focusing on personalized and efficient solutions. The review analyses the key components, benefits, challenges, and potential applications of these chatbots. Additionally, it investigates the role of human interfaces in enhancing their effectiveness. The findings contribute to a comprehensive understanding of the field and provide insights for future research and implementation. This section provides background information on the topic and outlines the objectives and methodology of the literature review. It highlights the significance of cloud-based student data chatbots with a human interface in transforming education.

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### **Cloud-Based Student Data Chatbots:**

#### **Applications of Cloud-Based Student Data Chatbots:**

This section delves into the potential applications of cloud-based student data chatbots. It examines how these chatbots can support personalized learning and provide adaptive feedback to students. It also discusses their role in academic support and tutoring, as well as in performing administrative tasks and student services. Furthermore, the section explores the application of these chatbots in data analysis and predictive analytics for educational purposes.

#### **Integration of Cloud Computing and Artificial Intelligence:**

The integration of cloud computing and artificial intelligence is a crucial aspect of cloud-based student data chatbots. This section discusses the cloud infrastructure and services required to support these chatbots. It also explores the machine learning algorithms and models used to enable intelligent interactions and decision-making. Additionally, it addresses the importance of data security and privacy in the context of cloud-based chatbots.

### **III. PROPOSED METHODOLOGY**

In this proposed system the user can interact with the chatbot through text and chat bot will interact text manner. With respect to the users queries, the bot identifies the disease if user chatting with the chatbot. According to the queries of the user, bot gives suggestions for the multiple clouds platforms. This system can be used by multiple users at a time without any lagging. The Cloud based chatbot is designed by using PHP with MYSQL backend and user interface design by HTML, CSS and JavaScript. For conversation between user and system the natural processing library is used named chatter bot application runs in localhost ser appropriate details according to the user queries. In training phase, the training data file is used to populate training set. Information flow representation provides the detailed description of the project flow. The work flow of the system is as follows,

- Insert user query in the chatbot window.
- The details will be extracted from the user chat.
- Decision Tree classifier algorithm is used to process the query.

#### **Module Description:**

Information flow representation provides the detailed description of the project flow. The application tool includes the modules such as,

##### **Admin Module**

Admin module is the main module of the system. In this module admn can enter the various cloud API. This module maintain the various API related queries and filter the query priorities. This Module segregate the questions based on category.

##### **Artificial Intelligence – Chatbot**

The term artificial intelligence is used to indicate development of algorithms that should execute tasks that are typically performed by human beings and are, therefore, associated with intelligent behavior. Colloquially, the term is applied to a machine that mimics cognitive functions, such as learning and problem solving. In our application as of now we are using AI for making chatbot.

### **IV. IMPLEMENTATION**

Implementation is the stage in the project where the theoretical design is turned in to a working system. The system crucial stage is achieving a new successful system and giving confidence to the new system effectively. The first step in the implementing the system is getting the approval from the system manager. The data entry, the various forms and most important reports that the system is capable of producing is shown. This is done in view of any last minute changes that will be necessary in the formats. When everyone is satisfied, the new system is finally handled over to the end user.

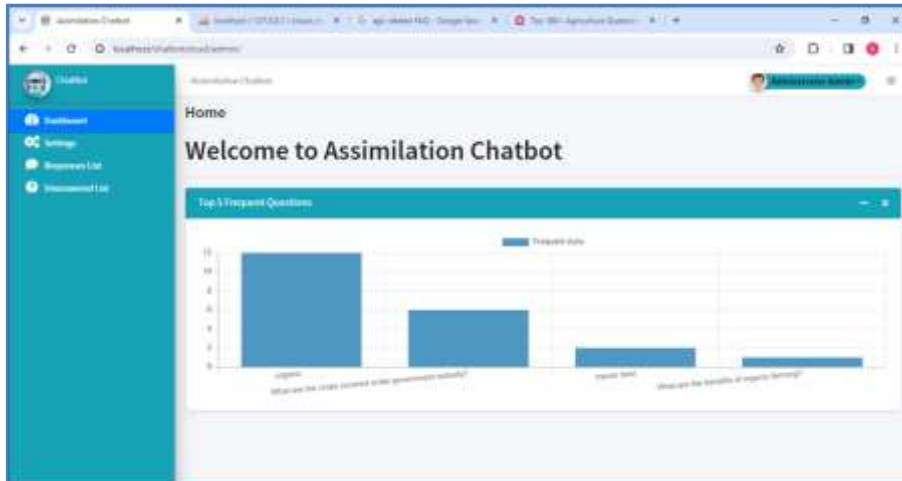
Implementation is the most crucial stage in achieving a successful system and giving the user confidence that the new system is workable and effective. The change over method is used to this system. The system is tested with sample data and errors rectified before implementation. Before, implementing the project minimum hardware and software requirements are verified whether it matches our requirement or not. As a first step the executable form of the project is created and loaded in the common server machine which is accessible to the entire user.

To deploy a chatbot on a cloud platform and integrate it with various APIs, you'll follow several steps. First, you'll choose a suitable cloud platform like AWS, Azure, GCP, or IBM Cloud. Then, set up your environment by creating the necessary infrastructure such as virtual machines or containers. Next, develop your chatbot using frameworks like Dialogflow or Microsoft Bot Framework. After that, identify the APIs you want to integrate for enhanced functionality, such as NLP, machine learning, or third-party services like weather forecasts. Ensure proper authentication and authorization for accessing these APIs securely. Write code within your chatbot application to

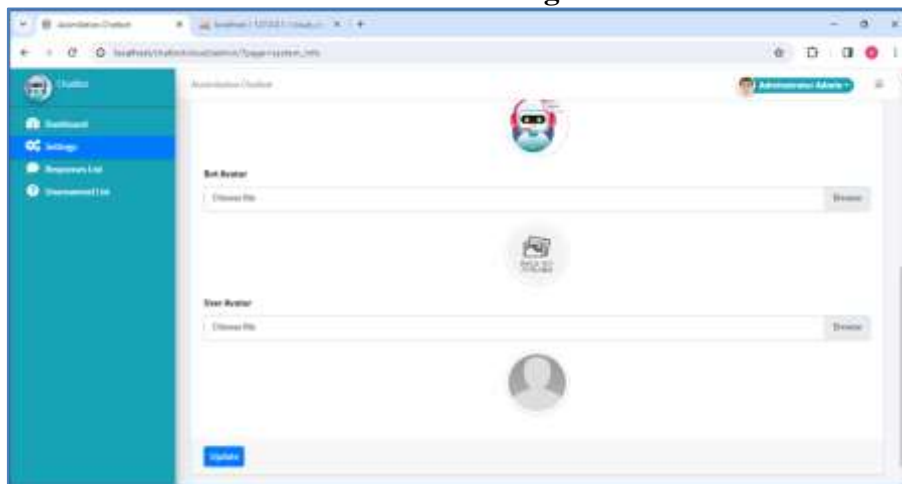
make requests to these APIs, handling responses appropriately. Thoroughly test your chatbot to debug any issues before deployment. Deploy your chatbot application to the cloud platform and set up monitoring and logging for performance tracking. Finally, scale your infrastructure as needed to accommodate increased demand. Following these steps will help you effectively deploy your chatbot and integrate it with various APIs.

### V. EXPERIMENTAL RESULTS

#### Admin Dashboard



#### Chatbot Settings

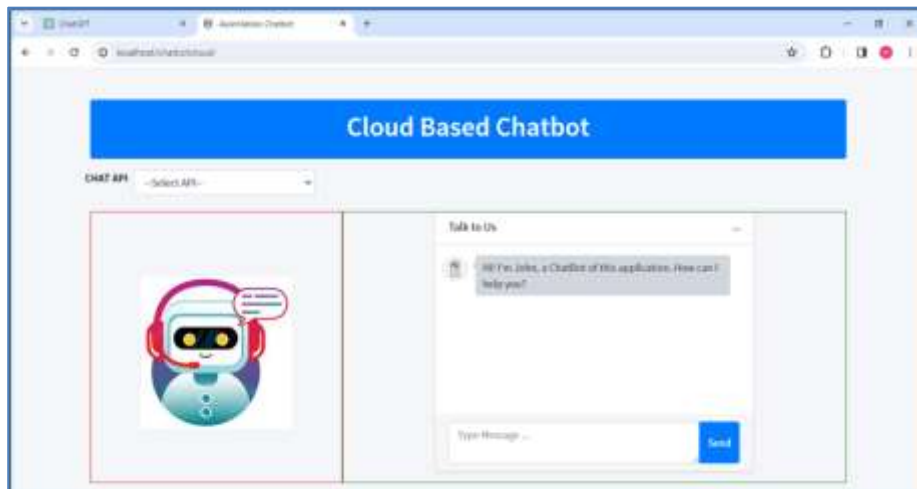


#### List of Responses

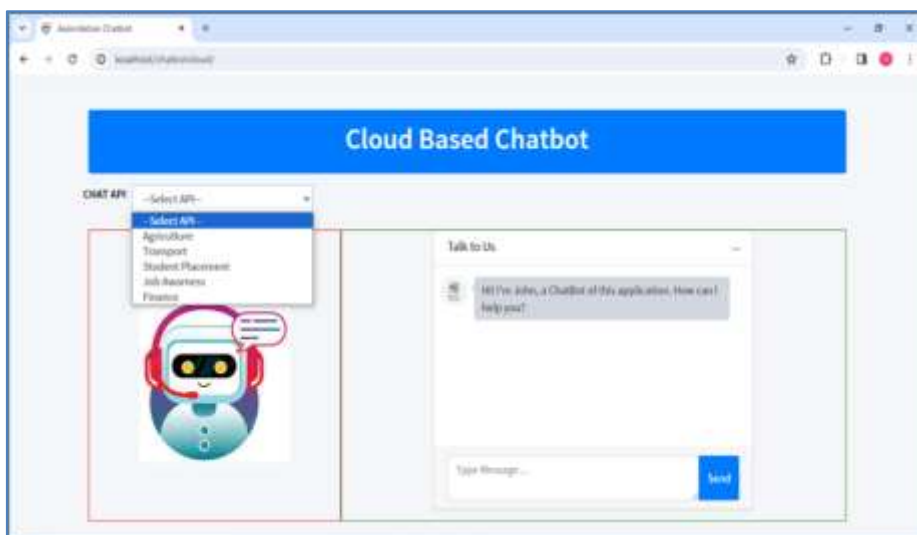
The List of Responses page shows a sidebar with navigation options: Dashboard, Settings, Responses List, and Unanswered List. The main content area is titled 'Assimilation Chatbot' and 'Responses'. It features a 'List of Questions Responses' section with a 'Create New' button. Below it is a table with columns for 'Question', 'Response', and 'Action'. The table contains 7 rows of data.

Question	Response	Action
1. What are the benefits of organic farming?	One is organic farming, which is better and will work.	Update
2. What is the best and most powerful?	What is the best?	Update
3. Farming	Organic farming, traditional farming, commercial farming.	Update
4. How many different types of farming methods are there in India?	Organic farming, traditional farming, commercial farming.	Update
5. Organic	One is organic farming, which is better and will work.	Update
6. What is the best?	What is the best?	Update
7. What are the crops covered under government subsidy?	Wheat, sugarcane, paddy, etc.	Update

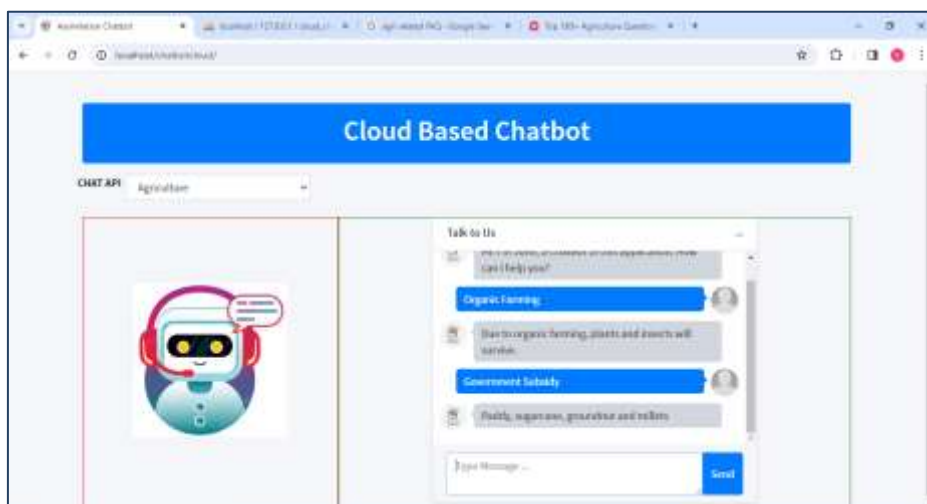
### Chatbot Home



### Selecting API



### Chatbot Interaction



## **VI. CONCLUSION**

The suggested approach is an effective, affordable, simple, and quick solution to help consumers have one-on-one conversations with chatbots that support and aid them in making decisions. Users can ask questions and receive answers from the chatbot by posting a query. The system is conveniently accessible at any time and from any location. The chatbot is open around-the-clock. When using this application, users will discover a number of conveniences that will alter how they respond to problems. Rather than panicking, people may find a quick and efficient solution with the help of this system.

## **VII. SCOPE FOR FUTURE ENHANCEMENTS**

The goal of installing chatbots is to enhance client connection and respond more quickly. However, this procedure looks more time-consuming and expensive because of the fixed data availability and self-updating time required. As a result, chatbots that are designed to handle multiple clients at once seem unsure on how to interact with people.

The project's future scope may include an AI-based chatbot system that uses natural language processing (NLP) and a mobile assistant with additional features that many people will be able to use.

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