

# Design and Implementation of Student Chat Bot using Machine Learning

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**ABSTRACT-** Students today are confronted with numerous issues regarding college student information. In a college, there is no effective communication channel for obtaining necessary student information. The automation of web-based communication using computer programming is the primary focus of this paper. A chat bot, or conversational agent that responds to user statements, is created using a computer program. It is able to receive user input in a variety of formats, including speech and text. The appropriate response to the user's query is generated by combining LSA (Latent Semantic Analysis) and AIML (Artificial Intelligence Markup Language). The system will send an automatic ping to the administrator if it cannot locate the appropriate response to the user's query.

**KEYWORDS-** AIML: LSA-based Artificial Intelligence Markup Language; Analyses of Latent Semantics

## I. INTRODUCTION

Many scientists, philosophers, and even sculptors were enthralled by the prospect of humanistic automation—the creation of a machine with a human mind. The communication interfaces known as "Student Information Chatbots" assist the user in getting information about the students. Since their humble beginnings in the second half of the 19th century, chatbots have evolved into powerful tools for media and e-commerce brands. The chatbots can be broadly divided into the following two categories:

### A. First one

It has numerous predefined rules, conditions, streams, and breakdown conditions that are followed by triggers to respond to specific questions or instructions. The chatbot that provides the understudy with data in a specific montage is one straightforward model. One individual or client can request any number from points of reference one such be name of the student with id number then the visit bot will check for the proper reaction and returns the yield. These kinds of chatbots may be clever if the chatbot's designer is knowledgeable and can structure the chatbot based on each discussion question.

### B. Second one

It makes use of recent developments like ML (machine learning) and simulated intelligence (man-made reasoning), which understand the meaning of words for all dialects and feelings without relying solely on pre-defined information. A customer can inquire, "What's happening in the classroom? Moreover, the engineer's input can be conveyed by the chatbot, which then uses that information to improve precision over time by comprehending convoluted conversations.

A chatbot's purpose is to facilitate conversation, allowing clients to access data through a lightweight application by providing information. Based on the information and learning methods, chatbots can be divided into two categories, which are as follows:

### C. Rule-based chatbot

The Standard-based chatbot functions as an intuitive chatbot that responds appropriately in accordance with the design principles. They are also referred to as the FAQ bot. The software engineer provides these kinds of chatbots with a lot of information through the two questions and distinct responses. When a customer asks a question, the system responds in accordance with the software engineer's instructions.

### D. AI chatbot

Artificial Intelligence (AI) chatbots act like a fake human brain. As a modern intellectual, it employs NLP (normal language processing) handling strategies. It understands the purpose of the question and the client's feelings, as well as setting in the demand. As a result, it learns how to structure client conversations' content. AI chatbots have a lot more to learn. Big market players like Google Home, Siri, and Alex are creating chatbots these days.

The development of chatbots faces a number of challenges, including the following

- The bots should be able to learn on their own, so they should be able to learn in an intelligent mode when the client uses them. Maintaining an appealing mode for customers, which encourages them to use the bot for longer periods of time and helps the bot learn, is one of the main challenges.
- Most of the time, chatbots learn to structure the principles provided by the engineer and the

client. They lack the morality to distinguish between good and bad behavior.

- It's hard to explain some of the instructions to a machine. Give us a chance to think about a model of feeling and learning. Compared to the other parts of the chatbot challenge, this one is the most difficult, but it is essential to creating the best chatbot. The first chatbot, Eliza, was developed in 1996 by a person at MIT (Massachusetts Institute of Technology), and it imitates a psychotherapist. They are developing lives step by step, and they have been used for the past two years. One of the illusions is that the best simplicity is at the front and that there are numerous issues to be resolved that cause the client to experience a consistent problem, such as stream improvement, error checking through API coordination, and deception through acceleration of live human conversation.

Consider texting between chatbots and humans. Chatbots can respond to questions and interact with customers in a manner similar to that of a human through the use of artificial intelligence and carefully crafted computer content.

The main reasons for growing of chatbots usage are as follows

- Growing Customer Expectations
- Changing Conditions for Organizations
- Technological Factors.
- The result: Increasing use of chatbots

#### **A. Reason for Sometimes filing of chatbot**

When compared to one-on-one discussions, balanced discussions are simple. Currently, chatbots have one-to-many conversations in which a single server attempts to converse with multiple clients. The most important aspect of this project is how scripted each conversation is and how well you can connect with the customer. Sometimes, a chatbot doesn't give the right answer because the direction, the question, or the database is broken because too much data is wasted, the server is overloaded, or the client uses an obscure feeling.

#### **B. History of chatbots**

Joseph Weizenbaum created the first chatbot in 1966. It was called Eliza, and it acted like a psychotherapist and asked important questions of the client. With scripted responses, it presented a deception of comprehension. In 1972, Kenneth Colby created the advanced chatbot Repel than Eliza, which could imitate a person with distrustful schizophrenia. Later on, in 1988, a project to create chatbots with artificial intelligence (also known as human-made consciousness) and human collaboration was launched under the name Jabberwacky. In 1992, Imaginative Labs for MS-Dos develops the chatbot Dr. Sbaits, which combines AI and is designed to display a digital voice, Counterfeit Phonetic Web PC Element (A.L.I.C.E. chatbot) was created in 1995 using regular language preparation. This chatbot uses heuristic example to coordinate human contribution to request a discussion. In 2001, a clever bot known as smarter child is developed and typically distributed across SMS systems. Later, in 2006, IBM developed Watson, a program that uses machine learning and normal language handling to extract

relevant information from a large amount of data. Siri, an intelligent personal assistant chatbot that uses a common language user interface to answer questions and fulfill other requests, was released in 2010 and served as the foundation for all subsequent chatbots. In 2012, Google launched Google Now, an application for mobile phones. Currently, it is the component of updates and UI changes for portable use. Later in 2015, bots gained popularity with new features like voice collaboration using language preparation calculations in the Alexa bot and Cortana bot, which can understand common voice commands and is available in a variety of languages. These bots also search the internet. Facebook launched bots for the flag-bearer stage in 2016, allowing developers to create chatbots and collaborate with Facebook customers.

Customers can use a variety of chatbots, such as NIKA (for timesheets), ACEBOT (for costs), TWYLA (for client administration), QnA (for FAQ), and WIZU (for inputs), which are all available to them.

## **II. LITERATURE SURVEY**

Artificial Intelligence Chat bot in Android System using open Source Program-O

The framework operates in content and voice modes. The primary mode is activated when the client contributes to the content configuration. The middleware API receives the client input for processing. On the other hand, the second mode is started when the client speaks.[1] In this voice mode, we first convert the voice into content before sending it to the middleware API. Middleware is the model that connects our Android application to AIML content.[2] The example coordination calculation continues to run over the AIML contents as soon as client input is received by the middleware. The example coordinating calculation for coordinating the substantial reaction from the available AIML contents is carried out right away in this procedure. The comparing layout is returned to the middleware when the design is coordinated. The layout is then encoded by Middleware into a JSON design and sent to the Android application[3]. After accepting the response, the application interprets the JSON and delivers the response to the customer[5].

There are two phases to the response generation process:

- Preparation for Pattern Matching
  - Implementation of Pattern Matching
- Behavior:

- A comprehensive text-based chatbot implementation.
- Detailing the voice-based chatbot's implementation in detail.

#### **A. An E-business Chatbot using AIML and LSA**

Web-based businesses are typically used to collaborate over the internet for e-plans of action. The quality of their client service is one of the real problems in this industry. In every e-plan of action, clients must wait longer for a response from the client administration agent or partner side structure.

As a solution to this problem, another chatbot that uses AIML and LSA (Man-made reasoning Markup Language and Dormant Semantic Examination) can respond to customers in a matter of seconds (division of seconds)

[4]based on the information provided by the designer and frequently addressed questions.

### B. Web navigation prediction using multiple evidence combination and domain knowledge

In this, the system of fake neural networks (ANNs) is utilized. This paper focuses primarily on the internet, where the client's movement can be used as information to recommend the next pages of a website that the client will open. Markov models and counterfeit neural systems are utilized. When a client requests access to the World Wide Web (WWW), the request is processed, and based on the client's previous browsing habits, the next available page can be identified and stacked for easy access.

### C. College Enquiry Chatbot Using A.L.I.C.E

A characteristic language handling and artificial reasoning visit robot is A.L.I.C.E. Alice bot programming and AIML programming are examples of open-source software that can be used by anyone without restriction. Here, a chatbot is made into an application that helps new students deal with some of the problems they're having and answers questions about the students during confirmation. AIML acts as a mediator between the client and the AIML-based design coordinating calculation, which results in the output. It also helps when incorporating newly acquired knowledge or information into the information base.

### D. Leveraging Question Answer technology to address terrorism inquiry

This paper investigates the possibility of using discourse-based ALICE bots to disseminate information that incites fear among the general public. Developed the framework for the Psychological Warfare Movement Asset Application (TARA), which is based on a modified version of ALICE Program D[9], which can be freely obtained from [www.alicebot.org](http://www.alicebot.org). There are a lot of similarities between TARA and ALICE's segments.

### E. Android based Chat-Bot

To make the process of booking a room easier, this framework has been designed to work with any Inn The Board Android app. ALICE saves data in Artificial Intelligence Machine Language (AIML) records by employing design coordination. ELIZA is a visit bot that is mostly used to talk to customers. It is mostly used to talk to the user casually. [7]The chat-bot has a database, conversational capabilities, constant support, and a human-like appearance. It is able to carry out multi-dimensional assessments and serve as an outstanding remote assistance tool for hotel reservations[10].

## III. PROPOSED MODEL

The framework operates in content and voice modes. The primary mode is activated when the client contributes to the content organization. The middleware API receives the client input for processing. In contrast, the second mode is activated when the client provides voice input. In this voice mode, we first convert the voice into content before sending it to the middleware API. Middleware is the model that links our web application's AIML content to it. The example coordination calculation continues to

run over the AIML contents as soon as client input is received by the middleware. The example coordinating calculation for coordinating the legitimate reaction from the available AIML contents is carried out right away in this procedure. The comparing format is returned to the middleware when design is coordinated. If the example is not coordinated, the data will continue to flow through the LSA scripts. The middleware receives the output if the example is found.

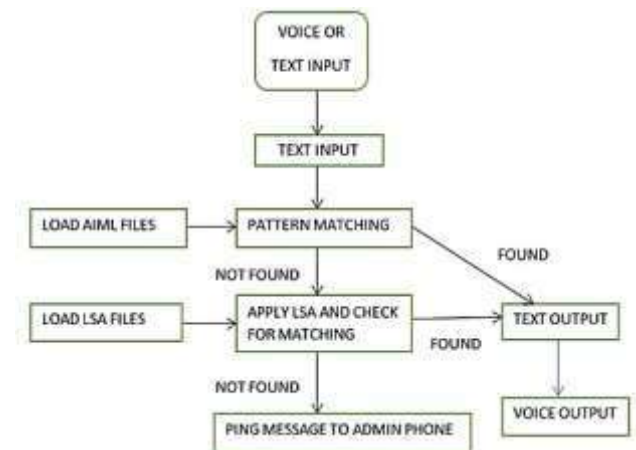


Figure 1: Block Diagram show an overview of the proposed model

sends the client the response after encoding the layout into the JSON design in Middleware. Web decomposes the JSON after receiving the response and displays it to the client. It sends a message to the administrator's phone in the event that the example is not coordinated using both AIML and LSA content. The diagram of the model we propose is shown in figure 1.

### A. Matching patterns

It is the demonstration of checking a specific group of tokens for the proximity of an example's constituents. The match typically needs to be precise in order to qualify for design recognition: It's possible that it won't or won't work."The majority usually have arrangements or tree structures as their state.

Uses of example coordinating grasp include producing the areas (if any) of an example within a token succession, producing a portion of the coordinated example, and replacing the coordinated example with a different token arrangement.

### B. AIML

Extensible Mark-up Language (XML), which is used to artificially construct a conversational agent (chatbot), is the source of Artificial Intelligence Mark-up Language (AIML). For the purpose of producing responses to user input, we make use of "program-O," which is an AIML interpreter. We developed a chatbot for an Android application using this strategy, which will use voice and text responses to communicate with the user.

When a customer asks a question to the Visit bot, one part of Natural Language Processing gets started. The AIML mediator receives this inquiry and responds using a learning base (Jindal et al., 2004). A detailed task can be found in Figure 4. The AIML language was used to create this information base, which had labels on a class



structure. We have the appropriate response to each class's inquiry and use individual example and layout labels. When we have a similar inquiry that is carried out in a variety of ways, we can use more than one response to one inquiry to improve collaboration and make it as reasonable as could be expected in the circumstances. The framework generates a haphazard response in the event that the question is not included in the learning base chatbot, ensuring that the client will always find the same answer. The above illustration makes it much easier for us to understand how these labels are used.

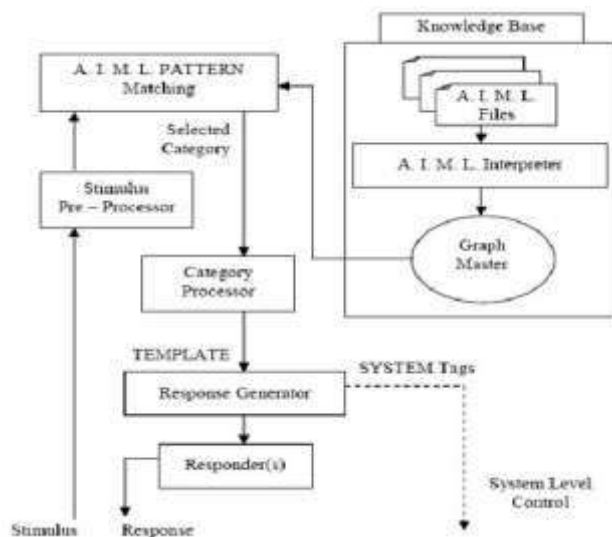


Figure 2: Flow chart Markup Language

Latent semantic analysis, or LSA, is a theory and method for separating and addressing the relevant use of words by applying factual calculations to a large corpus of literary material. The basic idea is that the majority of word settings in which a particular word appears or does not appear adhere to a strict set of shared constraints that, in large part, determine the similarity of importance of expressions and sets of words to each other. Techniques have had a negative impact on the size of LSA's reflected human information picture (see figure 4) pies human expression arranging and classification decisions, reenacts word-expression and section word lexical preparing data, and, as stated in organization Papers, effectively measures entry soundness, learnability of entries by means of individual students, and the quality and amount of mastery contained in an article. For instance, its rankings cover the ones of people on current vocabulary and subject matter evaluations. LSA works as a below figure 4.

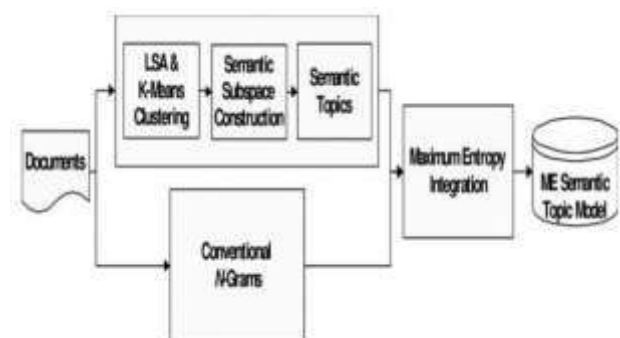


Figure 3: Block Diagram of Data transmission

### C. LSA

```

>> text-r.recognize_google(audio)
>> kernel.learn("learn.aiml")
loading learn.aiml...done (0.02 seconds)
>> kernel.respond("LOAD")
loading ai.aiml...done (0.02 seconds)
loading astrology.aiml...done (0.00 seconds)
loading atomic.aiml...done (0.27 seconds)
loading biography.aiml...done (0.09 seconds)
loading bot.aiml...done (0.22 seconds)
>> kernel.respond(text)
Artificial intelligence is the branch of engineering and science devoted to constructing machines that think.
>> _

```

Figure 4: LSA work flow

## IV. CONCLUSION & FUTURE SCOPE

In our project, we used AIML scripts to generate the output and implement voice-to-text conversation, which functions as a straightforward chatbot. Any interface that serves as an intermediary channel between the backend, AIML, and SQL is available to us. Python is used as an interface in our implementation because it is platform-independent, has many built-in functions, and has many advantages. In the coming days, this chatbot will use LSA to respond to the user's query and provide the appropriate response. If LSA and AIML fail to locate the response, the query will be sent to the administrator via Python and

Android development. The user can receive a response from this prototype in a shorter amount of time and with appropriate results thanks to its accuracy of up to 90%. By utilizing this method and applying for that particular business, this bot implementation can be utilized in various business sectors.

## CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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