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BANKING CHATBOT

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ABSTRACT

Chatbots are intelligent systems that understand users natural language queries and respond accordingly in a conversational ,which is the focus of this study.It is more likely a virtual assistant, people feel like they are talking with real person. They speak the same language we do,can answer questions. In Banks, at customersc are centers and enquiry desks, human is insufficient and usually takes long time and also reduce quality of customer service. The primary goal of this chat bot is, customer can interact with mentioning their questions in plain English and the chatbot can resolve their queries with appropriate response in return. The proposed system would replicate the customer service experience with one difference that the customer would be interacting with a bot instead of a real person and yet get the queries attend and resolved.It can extend daily life, by providing solutions to the people ,customer care centers. This paper explains the dataset that we have prepared from bankwebsites, architecture and methodology used for developing such chatbot.

Keywords: Chatbot, Bank, Vectorization, NLP.

I. INTRODUCTION

CHATBOTS are intelligent agents which are capable of understanding the spoken language and use speech communication as user interface. These chatbots are embedded AI agents and using NLP they respond to user queries. The idea of chatbots originated in the Massachusetts Institute Of Technology where the Eliza chatbot was built to emulate a Rogerian psychotherapist . Eliza simulated conversations by keyword matching: rephrasing statements from the user's input and posing them back as question .It was found that Eliza's users believed the computer program really heard and understood their problems, and could help them in a constructive way. The Eliza chatbot impressed alternative chatbots sort of a A.L.I.C.E or just Alice, which applied heuristic pattern matching rules to user input to converse with user.

Types of Chat Bot:

Menu/Button-Based Chatbot: Menu/Button-based chatbots are unit the foremost basic form of chatbot on the market now-days.In most cases, these chatbots are unit un-authorized call tree hierarchies bestowed to the user with in type of buttons .Similar to the automated phone menus we all interact with on almost a daily basis, these chatbots require the user to make several selections to dig deeper towards the ultimate answer.

Keyword Recognition-Based Chatbot: Unlike menu-based chatbots , keyword recognition-based chatbots can listen to what users type and respond appropriately, or atleast try to. These chatbots utilize customizable keywords associate degree AI to work out the way to serve on applicable response to the user.

Contextual Chatbots: Contextual chatbots are unit far and away the foremost advanced of the three bots mentioned during this post. These chatbots utilize Machine learning (ML) and Artificial Intelligence (AI) to remember conversations with specific users to learn and grow over time.Unlike keywords recognition-based chatbots, contextual chatbots are smart enough to self-improve supported what users are unit inquiring for and the way they are asking.

1.1 About The Project:

Bank plays an important role in every country's economy development. In day to day life, everybody needs banks. But most of the people, especially the first-timers, struggle to know various procedures and processes required to get their work done at the bank and avail of its different products and services.

Present banks have their own websites, mobile applications and facilities like internet banking, mobile banking but sometimes, the sources can be a bit overwhelming for most of the users who are either not well versed with technology or in some cases where the information is too scattered to search for easily.

There are various types of platforms that are provided by different banks but people are facing difficulties in accessing them. All though customer care centers are available, there are lot of wait times and re-direction in some cases, leaving the customer with no option but to experience considerable delays getting a simple informational query solved. People have various doubts about bank policies, loans, fixed deposits.

This results in an unnecessary crowd in banks for inquiry. Banks also face problems in solving same queries of different customers. This is time consuming and banking staff gets frustrated. Man power and money gets wasted for separate inquiry counter.

Basics of Chat Bot:

A chat bot is a conversational agent that interacts with users in a certain domain on certain topic with natural language sentences. Generally a chat bot works by a user asking a question or raising a new topic. Chat bots can also be called as software agents that simulate entity usually a human. These are the software with artificial intelligence which allows them to understand the users input and produce meaningful response using predefined knowledge base.

Chat Bot for Banks:

Developing a chat bot will provide a smart answers to solve the queries ,provide information as when required, to improve service and increase number of clients..It removes human factors included in organization and can give 24/7 hours to increase productivity. Our intention is to provide a chat bot interface for the customers which could be available on the web and on any hand-held devices. Clients can mention their queries in natural language and the chat bot can respond to them with correct solution.

The proposed chat bot application is easily accessible to customer there by solving the redundant queries anywhere at any time. There will be the fast response for inquiry, this will be time saving for both the bank and clients. The proposed system would be stepping stone in having in place an intelligent query handling program which could in next phases not just respond but self learn to improve themselves thereby increasing not only the quality of client service but also decreases

1.2 Objectives:

- Developing a Banking Chatbot.
- Creating username and password by the user to login into the system.
- To get the information related to the type of accounts and material required for creating the account.
- To get the information related to loans and more about education loan.

1.3 Scope:

This banking chatbot project is build using AI ,that is used to give required answers for the user queries. The system is designed for banks purpose where a person can ask any query related to the account ,loan.

This bot gives the information regarding the types of account a person can create and the material (such as UIDAI,Address proof) that are required for a person to be submitted for creating different accounts. This bot also provide the information about the loan, types of loans that a person could opt for, depending upon their requirements. But this indepth talks only about educational loan that are opted by the students who wish to study further but need financial support for pursuing the course.

Finally this bot helps a person who might not be knowing the process of creating an account, helping him find and create the right account for their future purpose.

1.4 Advantages:

1. Cost saving: Chatbots are unit comparatively cheap to develop to maintain compared to human equivalent. Chatbots need less committal to writing the stand alone banking apps, can be supported by associate increasing array of channels and won't require more data storage thanks to chatbots cloud-based system.
2. Ease of Use: Chat bots are more intuitive and easier to use than a traditional banking app. There is no download required and the experience can be personalized over time through machine learning.
3. Conversational Interface: Studies have already shown that people find phone calls tedious and slow as compared to chat . Customers are looking for speed and personalization when interfacing with their financial institution. At the same time, they don't require the impersonal experience of email or online forms.
4. Financial advice: Advanced banking chatbots give access to all or any of a customer's information. This leave of AI-chatbased recommendations and recommendation for higher cash management.
5. 24/7 Digital support: A 24/7 instant chat feature is expected by the increasingly digital' always on customer. This means that the banks with chatbots built in to their websites have a competitive advantage, and are likely to attract and retain clients.
6. New Account Generation: If a prospect visits a bank's website and is greeted with a polite welcome message, invited to ask queries about the product and pointed in the right direction where they will realize relevant data, the engagement is additional possible to end in a brand new account gap.
7. Time Saving: Gone are the days of standing in long queues at the bank and doing paperwork to access general banking services. In this case chatbots can be used to get the users queries get clarified.

1.5 Disadvantages:

As with any digital innovation leveraging machine learning and artificial intelligence, the benefits and limitations of using chatbots are changing over time as, more organizations develop use cases and continue expanding the functionality of the technology .At this time, some chatbots have limited functionality compared advanced chatbots being used inside and outside the banking industry.

1. Chatbots are not able to give the exact answer unless queries are asked exactly how they are setup to input a user input.
2. Chatbots are not able to interpret multiple questions asked at once.
3. Chatbots are not fully equipped to deal with "real time" scenarios.
4. Highly Expensive: Production and maintance of artificial intelligence demand huge cost since they are very complex machines .AI also consists odd advanced software programs which require regular updates to meet of the changing environment .In case of critical failures, the procedure to reinstate the system and recover lost codes may require enormous time and cost.
5. Bad Calls: AI can be learned and improved, but cant't makes judgement calls. Human's can take individual circumstances and judgement calls into account when making decision. Which cannot be done by AI replacing adaptive human behavior with AI may cause irritational behavior with in ecosystems of human and things
6. Unemployment: Replacement of the work force with machines can lead to work -reaching unemployment.
7. Distribution of Power: there is a constant fear of AI superseding over the humans. Artificial Intelligence can give a lot of power to the few individuals who are controlling it. Hence, AI carries the risk and takes control away from humans while dehumanizing actions in several ways.

1.6 Applications:

- Information Service: Most bank chatbots are capablr of informing users about the or balances, recenttrans actions, credit card payment dates, limits and so on.
- Investment management: Robo-advisors are getting smarter everyday and will soon serve as the first level of advisor for most non-affluent customers.
- Credit applications: Just as robo-advisor chatbots are taking over investment advisors, chatbots are also capable of collecting necessary data for credit decisions.
- Money Transfer: Chatbots are also capable for transferring money from a person to person.

- Bill Payments: In today's generation as everything is online people make many payments online. Chatbots can be used for these billing purposes also
- ATM Finder: Chatbots can be used to locate ATM's in their areas by matching area, station or city name.
- BBranch Locator: User can get various branch locations by searching station name or city name.

II. LITERATURE SURVEY

This paper leads the discussion of the design and techniques. It says that collaboration is necessary for a lucrative design system. Finally the user experience with digital bank assistants becomes more intuitive.[1]

In this paper, approaches towards building a Banking Assistant paper proposed the various NLP techniques and patterns for processing the users' queries. The architecture can be further improved by the 3-tier architecture. Here the user interface and some preprocessing is done on the presentation service (1st tier). The main processing is done on the application server (2nd tier) and all the databases are on the database server (3rd tier).[2]

Mr. Aniket Dole, Mr. Hrushikesh Sansare, Mr. Ritesh Harekar in this paper proposed a chatbot for banking where the bot is built using AI algorithms that analyse the questions given by the user and understand the message. This bot gives information about loan, account policy etc. The system understands

the query even if the sentence formation is not proper and responds to the query.[3]

The authors in this paper referred the intelligent Chatbot that is used to produce information to any queries that are posed by the user related to bank. The input for this chatbot from the users is taken either in voice or written format. AIML files are accurate and produce quick response to the users. The author says that this bot can be used by the non-educated persons also by using voice input facility.[4]

This paper the authors refer a chatbot is a computer program which conducts a conversation via auditory or textual methods. Such programs are often designed to engage in small talk with the aim of passing the Turing test by fooling the conversational partner into thinking that the program is a human.[5]

Chaitrali S. Kulkarni, Amruta U. Bhavsar, Savita R. Pingale in this paper proposed a chatbot for banking so that the customer can interact with mentioning their queries in plain English and the bot can resolve their queries with correct response in return. The proposed system helps in replicating the customers with the difference that the customer would interact with a bot instead of a person and yet the queries are resolved.[6]

III. METHOD & MATERIAL

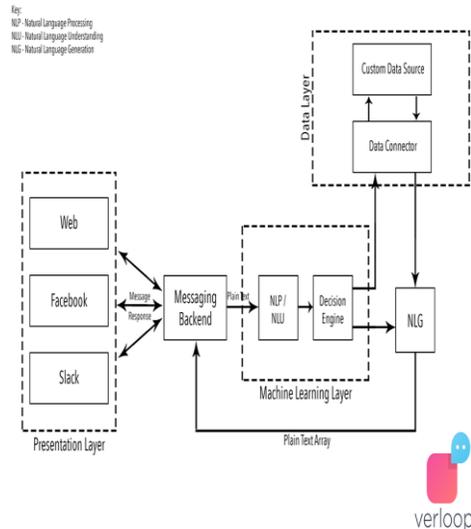


Figure 1: Architecture Diagram For Chatbots

NLP or Natural Language Processing:

NLP empowers bots to understand the nuances of human conversations. In simple technology, it is a skill of a machine to decode and process human understandable language within the context in which it is spoken.

NLU or Natural Language Understanding: Is a set of human language technology that deals with the a lot of narrower, however equally necessary side of the way to best handle unstructured inputs and convert them into a structured kind that a machine can understand and act upon. While humans already effortlessly handle mispronunciations, swapped words, contractions, colloquialisms, and different quirks, machines are less adept at handling unpredictable inputs.

NLG or Natural Language Generation:

simply put, is what happens once computers write language. NLG processes turn structured data into text.

Step by Step Process A Chatbot Follows:

1. The information you require is found in the presentation layer. User only ever see the presentation layer and send the bot message that is picked up by the backend using user want some information about Bank.
2. Using Natural Language Processing (what happens when computer read language. NLP process turn text into structured data), the machine now converts this plain text request into code commands for itself.
3. Now the chatbot send this data into a decision making engine since in the bots mind it has particular criteria to meet to exit the conversational loop, notably the information you want.
4. Using Natural language Generation (what happens when computer write language. NLG processes turn structured data into text), where in this section the bot asks the user, question regarding the particular information you wanted.
5. This array of responses return back into the messaging backend and is presented as a form of question to user. The user tells the bot regarding the query and this query go back through NLP into the decision engine.
6. The bot now analyses the pre-fed data about user query.
7. It then gives you the required information.

IV. MODULE

4.1 Create User Information Repository

In this module we collected the basic information about different types of accounts and loans, the documents required for different account and loans and also the steps to be followed.

4.2 Question Processing Module

In this module the user enters the query and then it will pass to query interpreter. The query interpreter will interpret input using NLP (Natural Language Processing) and NLP will convert the query into specific format, removing stop words and so on.

4.3 Answer Generation Module

The meaningful word of question is taken from the question processing module and it will be sent to server then server will match the answer after matching it will be sent to the user in proper format. Here system will use data provided by the administrator

V. RESULT & DISCUSSION

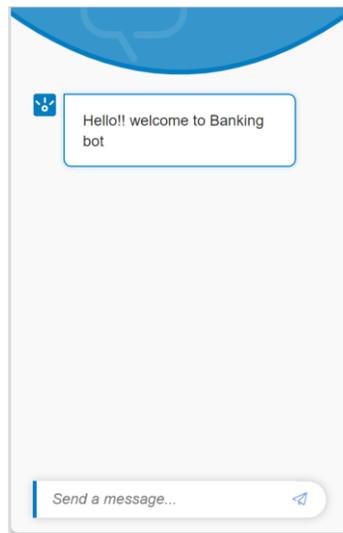


Figure:2 Welcome Message

When user enter in the output screen the bot looks in the above manner. Then the user can start their conversation.

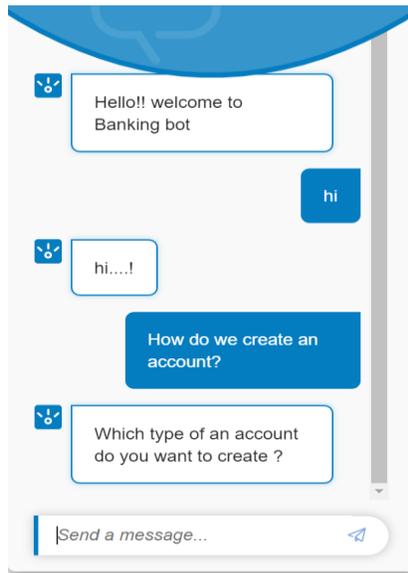


Figure 3: output of first Question

When the user ask about account creation the bot asks the type of account the user want to create.

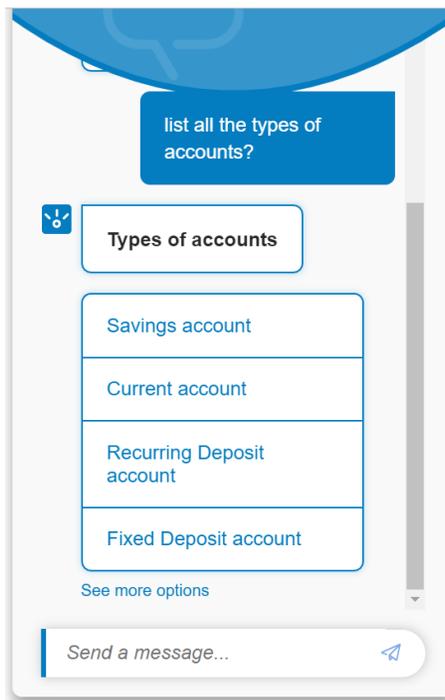


Figure :4 Output of second Question

The user can know the types of accounts in case the user don't know the types of accounts.

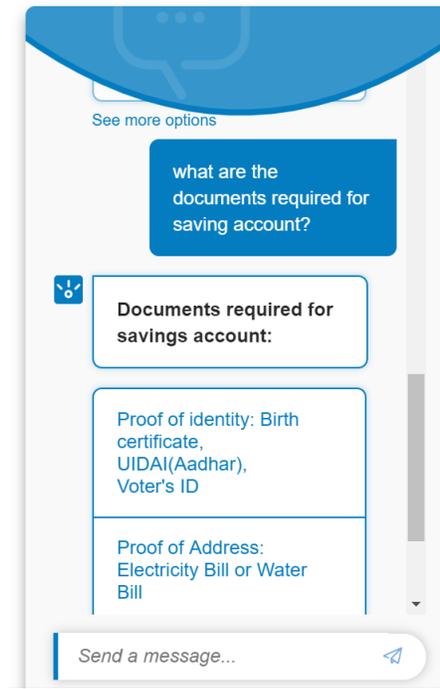


Figure 5: Output of Third Question

The user has given the input about their choice then the bot gives the required information. The user can also get the required documents for the other accounts also.

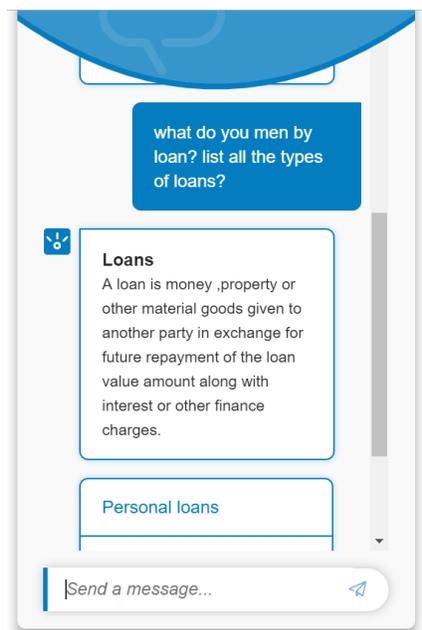


Figure 6: Output of fourth Question

The user can also get the information regarding loans and types of loans and the documents required.

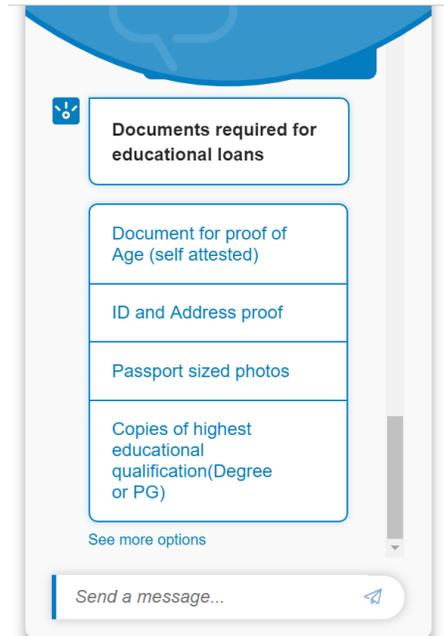


Figure 7: Output of fifth Question

VI. CONCLUSION

The chatbots were introduced to banking in early 2000s. From Bank's point of view, chatbot opens up a direct line of communication that can be used to built natural interactions. Because it is more like talking to a human. If the banks get their chatbots right, they will be at the heart of the ecosystems. In this paper we will show you what a banking bot is and review few bank chatbot applications. These bots can easily process all sorts of queries about accounts and loans. The few application can be shown such as knowing the details of the accounts and the loans that the banks provide taking your interests. The bot provides you with all information of the documents and papers required to open an account or apply for an loan. The bot enables the user with the required information for all the accounts and loans.

This is done so as to ease the customers job by clearing their queries at almost anywhere without the customer visiting the bank. This makes it very easy for the customers. This paper also discusses about the advantages and disadvantages because of their 24/7 customer support. Since users want to get fast answers and real consultants. this eliminates the long waiting of customers in the bank where the staff has to deal with too many customers an hour. The other benefit is personal banking.

Today's clients demand not only round the clock consultants but personal assistance as well. This application is achieved because of live chat with the chatbot. This also increases customer satisfaction rating. Therefore, unlike the traditional banking methods, chatbots can bring a better and faster user experience.

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