Price Negotiation Chatbot for Online Stores

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ABSTRAT

The article details an artificial intelligence chatbot that works on online stores. The e-commerce website may facilitate smoother interaction and pricing negotiation with the help of this chat bot. By using plain English, the chatbot is able to comprehend and engage the user in conversation. An internet marketplace features this chatbot. All sorts of things are available on this website. You may get a great deal on a product that fits your needs with the aid of the chatbot. When you are short on cash but still want to buy that goods, this is a lifesaver. In essence, it acts as a go-between for the buyer and seller.

Keywords: AI, Chat bot, E commerce, original price, offer price.

I INTRODUCTION

E-commerce websites today apply various AI techniques to determine most liked products or most sold products which eventually are calculated to provide an effortless search for customers shopping on their website. But at times when the best products are sold at high prices, customers have to compromise on their product. There are also some other problems that customers may face on low cost products. These problems can be eliminated by giving them an opportunity to negotiate on the products. Negotiation is a combination of both linguistic and reasoning problems. Negotiation is the process of exchanging the

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highest likelihood of satisfying the needs of both parties [3]. The first party i.e. product seller will provide a minimum price along with the product data that he/she can afford to sell the product at. This price and the product price before negotiation (original price) are the limits for our algorithm. The chatbot is implemented on the website which uses flask APIs to connect to UI so that we can depict real life implementation of our model. A chat bot is an artificial intelligence (AI) software that can simulate a natural language conversation (or chat) with a user via messaging applications, websites and mobile apps, or by telephone[1]. Chatbots can solve most of the customer queries without need for a customer executive. The chatbot uses NLP techniques to identify the user intent and replies accordingly. Besides all these practices, chatbot will also automate the process of negotiation on E-commerce websites. Such a system will help the users to freely interact with the software and upload their product related queries and budget to get the response related to the query. Just like retail and logistics companies use data to plot the most efficient route to deliver goods [5]. It will bring a huge impact on sales and number of customers on the website. The customers

will most likely increase due to getting online products at their fair prices.

II EXISTING SYSTEM

the first chat bots and the brain behind it was Joseph Weizmann. Eliza's key method of operation involves the recognition of cue words or phrases in the input, and the output of corresponding pre- prepared or pre-programmed responses that can move the conversation forward in an apparently meaningful way[4]. Thus the key technique here—which characterises a program as a chat bot rather than as a serious natural language processing system—is the production of responses that are sufficiently vague and non-specific that they can be understood as "intelligent" in a wide range of conversational contexts. [1] More recent notable programs include A.L.I.C.E.[5], Jabberwacky[6] and D.U.D.E. While ELIZA and PARRY[7] were used exclusively to simulate typed conversation, many chatter bots now include functional features such as games and web searching abilities. Most of the existing virtual agents, also known as the chat bots, are mainly for entertainment and research purpose. Successful and Award winning chat bots like A.L.I.C.E and Clever Bot[8][9]

focus on generic responses to entertain the end user. Some companies like IKEA, Lloyds Banking Group and Royal Bank of Scotland are using automated online assistants as first point of contact

III PROPOSED SYSTEM

Personal experience made us believe that discount offerings are one of the most efficient methods of abandoned cart recovery. Primarily, because the way e- commerce ecosystem is consistently training consumers to expect discounts all the time. If we check your own email inbox. We will find several promotional emails from various merchants that you earlier used or subscribed to in the past. However, providing discounts consistently might not be enough for small businesses.. Also, trying to recover abandoned carts through targeted discount emails might not be that effective. Customers might already buy a product from a competitor website rather than waiting for a discount email to pop, this also expose your discount strategy, making you more predictable.

SYSTEM ARCHITECTURE:
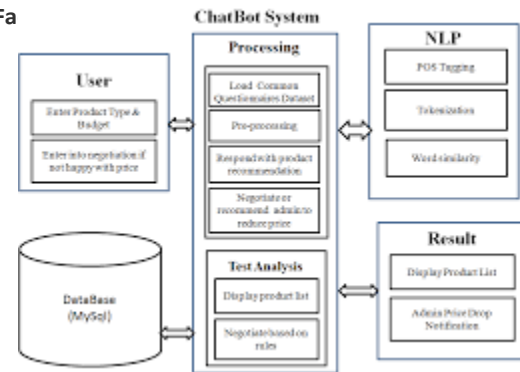
IV IMPLEMENTATION

We have used the dataset of e-commerce items containing the price of products and their minimum prices i.e min price which will be used for negotiating. The website for demonstrating the working is made upon HTML, CSS, JavaScript for front end while the backend uses Flask. Database is made by mariadb. In an E-commerce website the customers select the product(s) that they wish to buy, then they proceed with ordering the product(s). On our website we have added the chatbot where they purchase the product by placing a button to negotiate. The offer price will be then stored when they are satisfied. They can select whether they want to buy that product or add the product to cart and see for another product(s). Customers judge the products on E-commerce websites by various factors such as ratings, price, reviews, etc. But for some customers, price plays a crucial role

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in the decision for purchasing a product. We have assigned categories to the products which are based on the sales of the corresponding products. The highest selling products are marked as A category and in this category there won't be much negotiation. Since users generally don't bother on the price of highest selling products. The next category is B which are average selling product. In this we offer little more negotiation to increase the sales and profit. The last two categories are C1 and C2 categories which are less selling products and we offer high negotiation on these products in which the C2 category products are basically the products which are of stock clearance type or having rare sale. The customer can negotiate more and can get a better price on these products and also this will help the sellers. These categories will be updated as per the sales of product, market demand and supply, etc which will help website to earn profit even with negotiation. Using the above categories, we define a price which will set lower limit for negotiation i.e. min price for algorithm. When the customer asks for the negotiation, then the first negotiated price will be given by Machine Learning algorithms on the available dataset which contains data for

products with their price and discount. It will consider the different parameters in the database and accordingly predict the price of the product which will be used for negotiating. The machine learning algorithms used are SVM, KNN. Different dataset attributes(like minimum price, category, likes, etc) are used in the SVM and KNN for prediction of price and then finally the ensembled result of both algorithms is considered and this price is the initial negotiated price. If the customers agreed to buy, they can buy the product at this negotiated price or else they can go for further negotiating the price of that product with the chatbot.
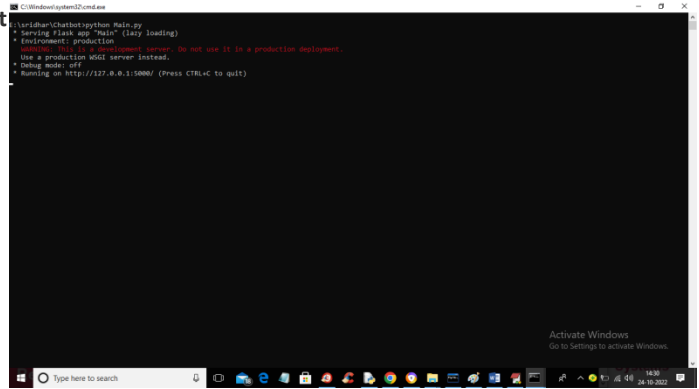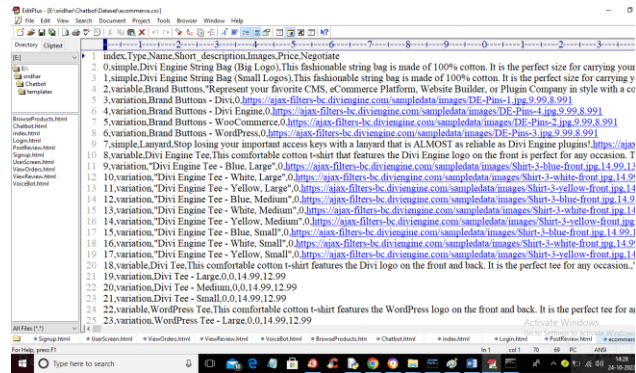
Price Negotiating Chatbot with Text & Voice on E-commerce website

In this project we have designed E-commerce application where user can browse products list and then select Chatbot as Text or Voice and then negotiate with Chatbot. Chatbot will understand two types of voice command such as 'first price' which will give reasonable price to the customer and if customer not satisfy then it will ask for 'final price' and then Chatbot will add another 10% discount as final price and then serve to customer.
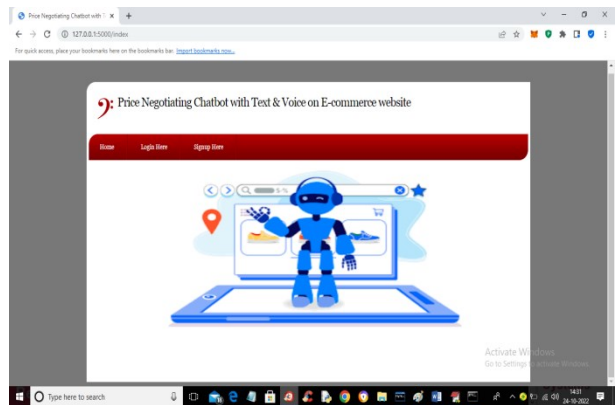
If say another word other than 'first price' or 'final price' then Chatbot will give error.

To display list of products we are using below dataset which contains list of products and prices

in above dataset we have list of products and its images and in last column we have Actual Price and negotiable price and using this list we will serve products to customers and Chatbot will use above dataset to get actual price and negotiable prices.

To run project double click on 'run.bat' file to get below screen

In above screen python Webserver started and now open browser and enter URL as 'http://127.0.0.1:5000/index' and press enter key to get below page

In above screen click on 'Signup Here' link to get below screen

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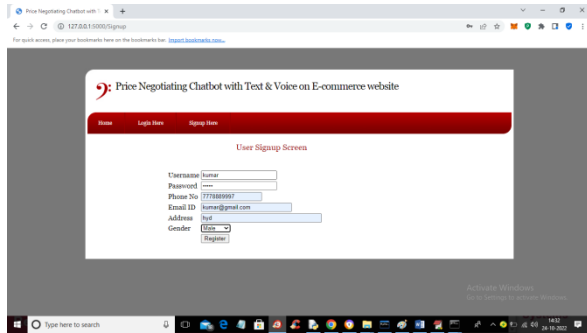
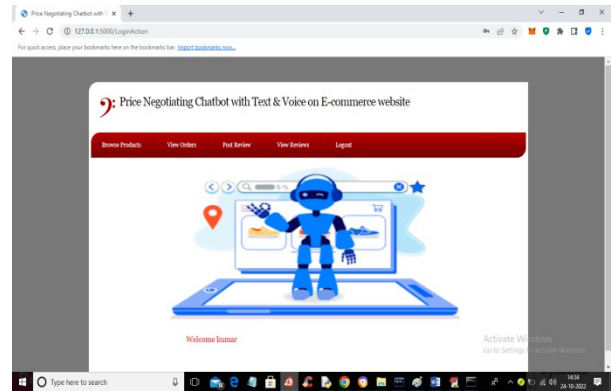In above screen user is entering signup details and then click on 'Register' button to complete signup and get below output
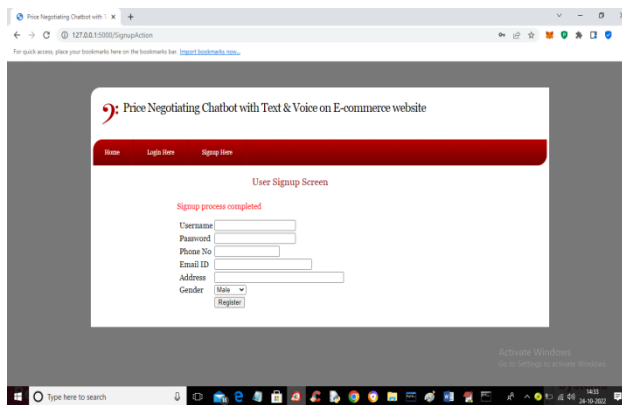
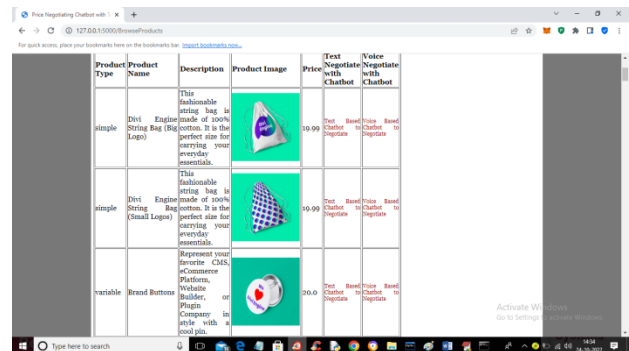In above screen signup process completed and now click on 'Login Here' link to login as user
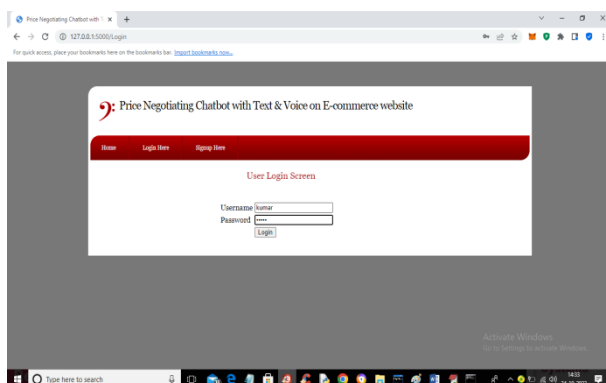
In above screen user is login and after login will get below screen


In above screen user can click on 'Browse Products' link to get list of products

In above screen user can see list of products with actual prices and have red colour links to chat with Chatbot using text and voice and now I will click on 'Text Chatbot Negotiate' link to chat with text like below screen

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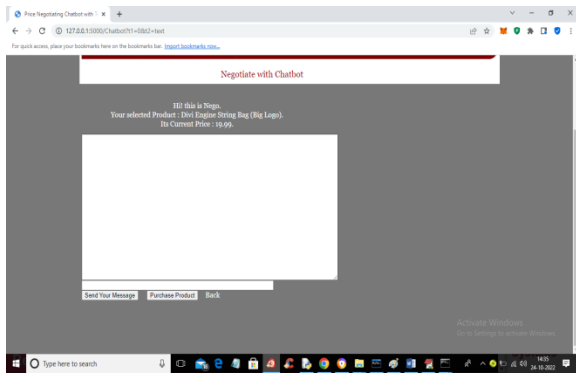
In above screen Chatbot displaying current product price in text field user will enter some text and press 'Send Your Message' button to get output from Chatbot
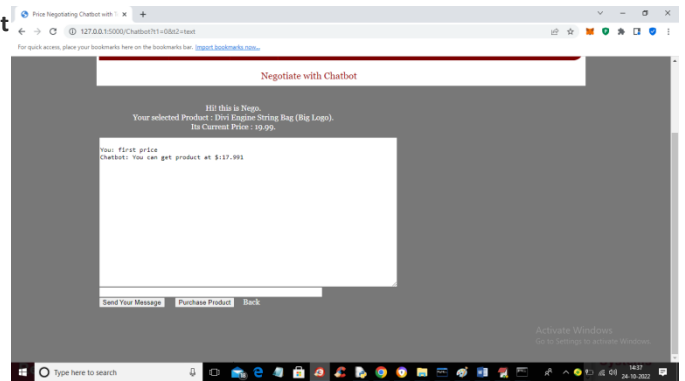
In above screen from Chatbot we got negotiate price as 17.99 from actual price 19.99 and now ask for final price and get below output
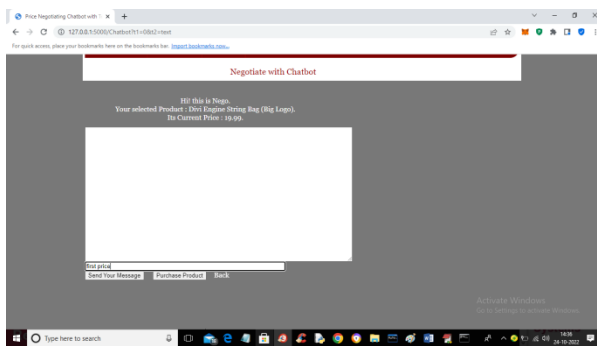
In above screen in text field I entered text as 'first price' and then press button to get below output
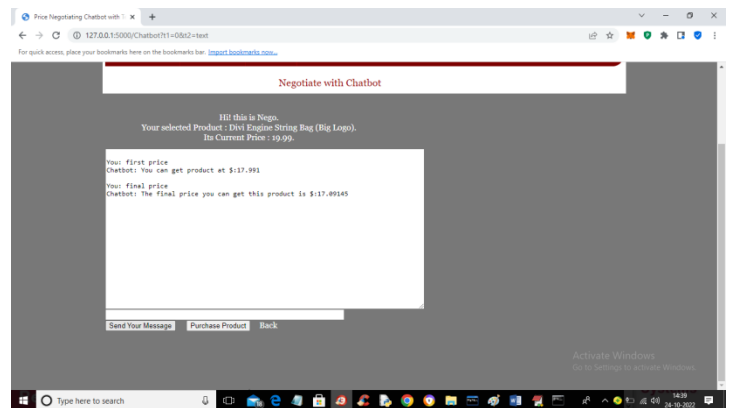
In above screen for final price Chatbot offer 17.09 and now if customer satisfy then click on 'Purchase Product' button to confirm order and get below output

CONCLUSION

The negotiation on products is a challenging task when it comes to e-commerce systems.

We tried a primary chatbot that covers many aspects and cases for negotiation but is not evident to provide the best results. ☐ The chatbot which we created sometimes falls to the price customers ask for though it is always greater than minimum price but may result in loss for seller if it goes the same for many customers. Such situations have to be handled. ☐ We used various algorithms such as SVM, KNN but in future there may be some better price prediction algorithms which can be used. Shows the ways in which a user can better negotiate with chatbot and get cheaper prices. Such cases should be handled. KBAgent is considered to be better when it comes to negotiation, this can be added to our application. An example can be Apple's Siri which has huge knowledge base to provide satisfactory outcomes.

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