

Financial Planning & Assistance With Naha Chatbot

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ABSTRACT

Any technology progress should have the primary goal of assisting humanity in living easier lives. Natural language processing is no exception. This is also why conversational systems, often known as chatbots, have become increasingly popular in recent years. Many different domains have had their chatbot systems adapted and developed. Savings and plannings are the most valid commitments of every individual. Every person need to spend their salary as well as save the salary and increase the salary in different modes. But each individual is not aware of financial planning and hence if there is an interactive financial assistance which would give a variety of options based on the needs of each user. The chatbot is named as "NAHA" which would be an interactive financial assistive tool based on each user needs.

Keywords : Chatbot, Artificial intelligence, machine learning, financial planner

INTRODUCTION

AI gives a foundation for learning complicated new ways of life and servicing a nonstop cycle. Artificial intelligence, conferring to which the spectacle of the locomotive from which the struggle is to impression and act and accomplish the fallouts, on the machine is that when using the replication truthfully mimics the countenance of the human intellect, the advance of the role of the cramming, to variation and ways of cracking problems, on the machine is that when using the replication accurately mimics the countenance of the human intellect, the progress of the role of the congestion, to change and ways of solving problems.

When a computer executes or simulates "cognitive" tasks of gadgets that link with added individuals, such as "exercising" and "problem-solving," it is referred to as "artificial intelligence." Artificial intelligence gives machines the best chance of imitating human thought and behaviors in front of them. As AI bots contrary with professionals in many turfs, such as investigators, they pave the path for their safekeeping. Additionally, a alteration befalls, ensuing in the convenience of reliable medical chatbots that may be suggested.

A chatbot is a software program that employs artificial intelligence to interact with humans. Chatbots, often acknowledged as conversation robots, are package agents that pretend human discussion via text or voice messaging. The goal is to imitate human discussions with a person on one end and a machine on the other. Bots take remained used in a assortment of businesses, plus e-commerce, medical support, recommender systems, and educational purposes. They are backwards compatible with existing software systems. ITSM encompasses all facets of IT business management. Every software company nowadays has a specialized crew of IT professionals that handle difficulties that other employees encounter. One of Chatbot's original and maximum imperative goalmouths was to emulate an smart hominoid and type it incredible for others to recognize them.

As new technologies and capabilities have been developed, the employment of chatbots has risen considerably. These conversational agents can clown clients into intelligent they are chatting with a person, but their dimensions to expand their acquaintance base during runtime is constrained. To understand user input and answer correctly, the chatbot utilizes artificial intelligence and deep learning algorithms. Still, they connect with public in a choice of Chat-bot applications such as medical chatbots, call centers, and so on, applying natural language.

LITERATURE SURVEY

Yue Zhao[1] et.al proposed the prediction of employee turnover inside an organization is accomplished using supervised machine learning techniques, which are presented, illustrated, and evaluated. In this study, machine learning is used in numerical experiments to depict businesses with small-, medium-, and large-sized employee populations in human resources datasets that are both real and simulated. Each of these supervised machine learning algorithms for predicting employee turnover is subjected to a thorough and thorough evaluation procedure that analyzes and establishes their performance using statistical techniques. Furthermore, solid recommendations are given for the selection, application, and interpretation of these methodologies for the analysis of human resources datasets of various sizes and complexity.

Prem Bahadur[2] et al. developed a study's purpose is to investigate the relationship between staff expenses and employee bonuses and the clear profitability of Nepalese commercial banks. This analysis is built on sheet data acquired from five sample banks by evaluating their annual reports from fiscal years 2012/13 to 2016/17. To assess the acquired data, expressive data, the Pearson correlation coefficient, and log-log multiple regression models are all employed. The Mini-Tab application is cast-off for data scrutiny. The data reveal that, despite their substantial association, staff expenditures as a predictor variable have minimal influence on the bank's net profitability. On the other hand, the predictor variable staff bonus has a significant influence on the response variable (net profit).

Davis[3] and colleagues discussed the design of the Retirement Funds Plan Advisor, including the motivation for the focus stuff, style, enactment, transformations, constraints, and existing use. The Retirement Savings Plan Advisor is a archetype knowledge-based expert system that supports an employee in allocating investment funds among tax-deferred savings plan choices.

In a recent edition of this Journal, Hannan[4] et al. established a test to discern between profits and costs in the banking sector. By means of a shared time series of combined SMSA data, he discovers that in monopoly banking markets, together the quantity of finance personnel and bank pay and income expenditures are higher, implying "that an expense-preference model may be a additional convenient context for recitation and envisaging bank behaviours than the outmoded profit-maximization model" (Edwards 1977, p. 158). This discovery is expected to be applicable to all regulated enterprises[10].

Ittner et al established hypotheses on how much weight different sorts of metrics receive based on monetary and emotional lessons on recital appraisal and pay principles. We discover that the subjective nature of the record proposal permissible managers to diminish "stability" in advantage rewards by tapping the common of the mass on pecuniary trials, to include features extra than card trials in routine appraisals, to variation the estimation measures from single quartier to the succeeding, to overlook procedures that predicted imminent pecuniary routine, and to give more mass to trials that did not foresee the anticipated conclusions.

We discover that managers can diminish the "stability" in advantage rewards by putting the majority of the weight on financial measures, include features extra than card procedures in routine estimations, change the estimation measures from one quartier to the next, disregard procedures that foreseen forthcoming economic recital, and give more mass to procedures that did not predict the desired outcomes due to the subjective nature of the record idea.

Rickwood[7] et.al the findings of an inquiry into the elements that influence a person's decision to use a professional financial services advisor when saving for retirement. 289 people in the sample, ranging in age from 30 to 65 years in Australia showed that attitudes and self-efficacy are the primary drivers behind consumer saving

retirement, utilizing a financial planner's services, and/or accountant. Analysis using structural equation modeling (SEM) revealed that goal clarity and subjective awareness a little impact on behavioral intentions in this situation. Additionally, it was discovered that objective clarity, subjective Knowledge and perceived danger had no discernible effect. on the intentions of behavior. Including 57% of the difference As a result, their findings are regarded as reliable.

Kotsantis[9] et.al This study looks at how well machine learning approaches can identify companies that produce false financial statements (FFS) and investigates the elements that contribute to FFS. The choice of a particular approach is a challenging challenge. Making a hybrid forecasting system with many potential solutions as components (an ensemble of classifiers) is a decent substitute for selecting only one approach. This is why we developed a hybrid decision support system that outperforms all simple and ensemble methods by combining the representative algorithms utilizing a stacking variant technique.

METHODOLOGY

A GUI web interface is developed which collects the details of the person and gives the person specific ideas regarding the financial planning[8]. The chatbot NAHA is an interactive tool and adjusts the needs of the users according to the user convenience. Each person ideas and logics are ultimately different and hence a interactive chatbot is needed for giving the suggestions for every individual.

The Chatbot is trained with a multiple constraints and multiple data. It is also connected with a long database for verification and assistance. The chatbot is developed with K-NN algorithm. The most nearest clusters are formed together, and hence when a relative question is been asked by the user then it searches the near by cluster using keyword mapping and identifies the answer and gives the solution. The complete ML algorithms works on the flow of ML (K-NN) clustering based on the English language word mapping features based on the nature of the questions that are been asked. The architectural diagram is given below

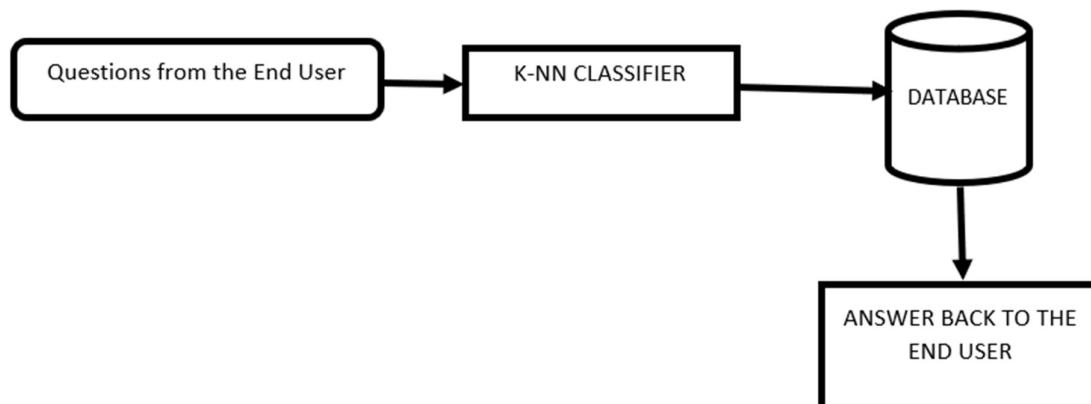


Figure 1 Architectural Diagram

KNN is a non-parametric supervised method. It forecasts the classification of the new sample point by means of data from numerous classes. KNN algorithm completes well crosswise all constraints of deliberation.

Step 1 - When evolving an algorithm, you will constantly necessitate a data set. So you commence by freight the training and test data.

Step 2: Choice the adjoining data points (the value of K). K can be any integer.

Step 3 - For each test data, do the following:

3.1 - Estimate the aloofness among the test data and each row of training using Euclidean distance, Hamming distance, or Manhattan distance. When defining distance, the Euclidean approach is most frequently applied.

3.2 - Category the data assortment in ascending order by distance.

3.3 - Choice the first K rows from the sorted array.

3.4 - The test point will be allotted a class based on the most often stirring class in these rows.

Step 4: Finish

RESULTS AND DISCUSSIONS

To make the chatbot real the questionnaires been asked to many people of various classes and various considerations. The considerations are Educated(School, UG, PG, and more), Employment(Government, Private sector, Self-employed, Daily Wage Employed), Classes(Very low class, Low class, Middle class, Upper middle class, Upper class). There are more than 10000 questions asked to various above constrained people and those are recorded in the Database and the model KNN is been trained with those questions and answers. Then a chatbot is created with the same. When a question is been asked by the end user the model gets the queries from the database and answers the end user.

The sample image of the chatbox is given in the below figure 2.

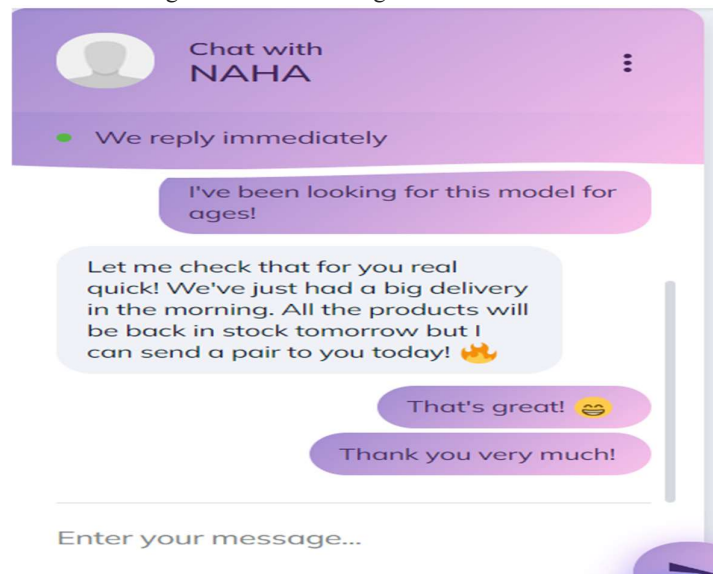


Figure 2 sample chatbot

Notifications of the chatbot are attached for the reference

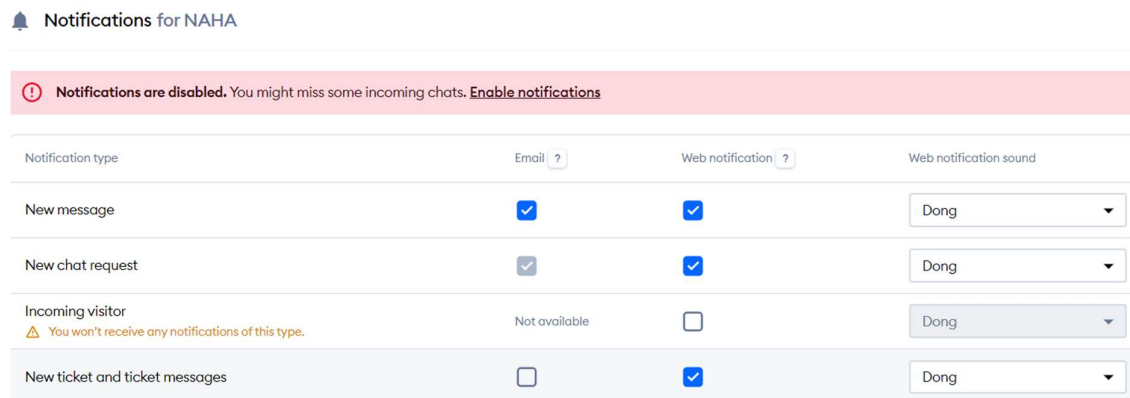


Figure 3 Notifications of NAHA

CONCLUSION

In the day to day life mechanism of the current scenario world no person have a time to think regarding finance and the planning and everyone wants to boost up their income in a good manner. Hence the NAHA chatbot will assist each and everyone and satisfy their queries based on their needs using K-NN clustering algorithm. When compared with previous state of art models our current NAHA chatbot gives the results much more accurate and satisfies the need of the enduser.

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