iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** VI **Month of publication:** June 2021

DOI: https://doi.org/10.22214/ijraset.2021.34944

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue VI Jun 2021- Available at www.ijraset.com

Chatbot using Zomato API

Kushagar Aghi[1], Nayyum[2], Mrs. Anoopa[3]
[1, 2]*Student B.tech 4th year CSE,* [3]*Assistant Professor, Panipat Institute of Engineering and Technology, haryana, India*

Abstract: ***Chatbots are program that interact with humans using natural language like English. Computer based chatbots are getting to be distinctly famous as an intuitive and successful open framework between human and machines. They provide conversational output in response, and if commanded, can sometimes also execute tasks. One such bot is being designed in this project, where data about restaurants on the basis of some inputs are collected. Using this data, chatbot is trained to answer the queries. Our project describes the design and development of a conversational agent called Intelligent-Bot. Any questions regarding the restaurant details, are all answered by restaurant searchbot.***

I. INTRODUCTION

Chatbots are computer programs, it maintains a conversation with a user in Natural language, understand the user's Intent and send responses based on the user intent(NLP) i.e answer to the questions asked by the user. Chatbot was created in 1960 by Joseph Weizenbaum that is ELIZA bot which stimulates human conversation for the purpose of entertainment using pattern matching. Natural language understanding (NLU) is a unique category of natural language processing that involves modelling human reading comprehension or in other words, parses and translates input according to natural language principle. Apple's Siri or Amazon's Alexa performs natural language understanding work in the context of hearing and deciphering user inputs. A similar natural language understanding engine is built into Amazon "Lex," an enterprise service for building machine learning platforms. By understanding how natural language understanding is applied to these applications, it is easy to see how natural language understanding involves the comprehension of language input. Chatbot is built using Rasa Stack, consisting of two components, Rasa NLU and Rasa core. There are plenty of easy-to-use bot building frameworks developed by big companies like API.AI developed by Google, Bot framework developed by Microsoft. For developing a chatbot for business/ education contains confidential information from its users. So, it is more comfortable to keep all the components of chatbot safely. This is where RASA platform comes incredibly handy. It is an open source bot building framework. Rasa NLU is responsible for natural language understanding of the chatbot. The NLU handles intents and entities while the core handles dialogues and fulfillment. RASA is an open sourced python implementation for NLP engine. The format of providing the path of nearby Zomato restaurant using chatbot system is very useful theme at the unknown locations.

A. Objective

1) To know the impact on people's for providing path of Zomato's like restaurant Using Chatbot system.
2) To know the impact on Zomato's restaurant business.
3) To know the strategies of Chatbot system to providing path of zomato's like restaurant.

II. LITERATURE REVIEW

A research on the changing market for food delivery (Carsten Hirschberg et al 2016) indicates that online's penetration of the total food-delivery market broke 30 percent in 2016. We believe penetration rates will grow further as the market matures, eventually reaching 65 percent per year. According to gloria food the advantage of online ordering and the reasons for the growth of food delivery app industry are Convenience, Simpler menu to manage, significant savings, no Hassels etc.Food Panda is an introduction to the newest food sensation that's here to stay (Shiyin Chan, 2015)

Foodpanda is a global online food delivery marketplace headquartered in Berlin, Germany. Fun factthey're also known as hellofood in other places in the world.

Bhavnā Singh (2015) said that Foodpanda has been present in the Indian market since May 2012. Foodpanda first major move was acquisition of TastyKhana, which was launched in the city of Pune in 2007. Together with TastyKhana and JUST EAT, it is now present in over 200 cities and partnerswith over 12,000 restaurants. She also talked about JUST EAT was launched in Denmark in 2001 and was traded publicly on the London Stock Exchange. Their Indian business was launched as Hungry Bangalore in 2006. It was renamed in 2011 when JUST EAT acquired a majority share in the business. Today, the company partners with over 2,000 restaurants.

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According to Deepinder Goyal, Zomato CEO and co-founder told TechCrunch that he expects to reach 10,000 restaurants in India in a few months. "We have a sales team of around 300 in India and5,000-odd advertisers… these partners know the volume we bring to them so it is quite easy for us to launch this new service."

A. Motivation

Users may face different problems like getting to know about the best restaurant, restaurant cuisine, budget ,address of restaurant. A way of providing help as soon as possible, by developing chatbot named chat Bot which provides help by answering their queries.

B. Data Collection

This research is totally based on Secondary data. Secondary data included collecting information about various apps, the industry position, etc from the various portals from the internet, journals, magazines etc.

C. Indian Food app scenario

With the boom in digital industry across the globe, it's had its impact on the Indian economy too. The online food ordering firms have sprouted up in bulk. The market size of food in India is expected to reach Rs. 42 lakh crore by 2020, reports BCG. Presently, the Indian food market is around $350 billion. The space is coming up with a lot of innovation catering to their customer convenience, satisfaction and retention. This has also built room for a lot of new players, who are targeting specific groups of people. Many new players joining the segment with innovative business models such as delivering food for health conscious people, home cooked meals, etc. Food tech is the hot talk in the startup town. After technology start-ups have made their mark in the e-commerce, taxi & real estate sectors, now the ever-hungry Indian entre-preneurs are looking to satiate the appetite of others. Food tech is a vast market and food delivery start-ups are just a part of it. Various apps in the Indian market are:
Food Panda Zomato Swiggy Box8 Fasoos
Fast food delivery apps

The various food apps available in India Services Provided					
Apps	Originated	Delivery	Online Menu	Expanded	Providing Path
Food Panda	Singapore	Yes	Yes	12000 Restaurants	No
Zomato	Portugal	Yes	Yes	10000 Restaurants	Yes
Beer Café	India	No	Yes	33 Restaurants	No
Dominos	India	Yes	Yes	800 outlets	Yes
Just Eat	Denmark	Yes	Yes	2000 Restaurants	No
Swiggy	India	Yes	Yes	5000 Restaurants	Yes
Pizza Hut	US	Yes	Yes	1300 Outlets	Yes
Fasoos	India	Yes	Yes	200 Stores	No

III. COMPONENTS OF CHATBOT

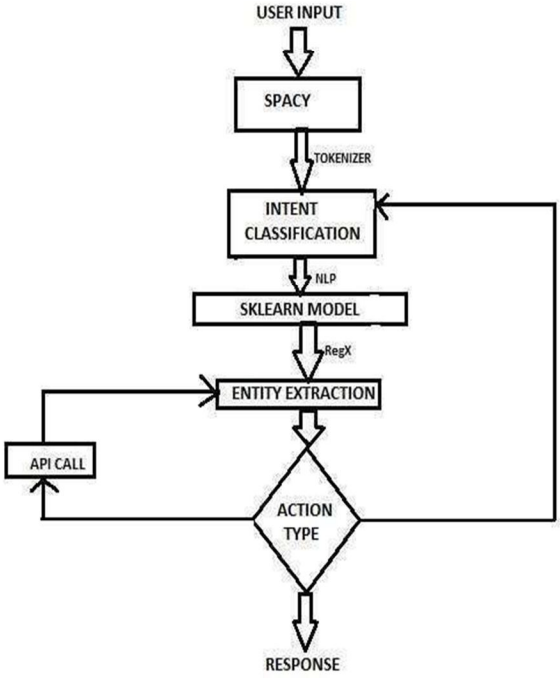
For structuring a generic Chatbot there are four basic components.

1) *Natural Language Processing:* NLP is a module used to analyse user requests. It basically takes in unstructured data from the user and turns it into structured data. There are various tools available for the same like Dialog flow.
2) *Dialog Manager:* It is used to decide what to say to the user, given its input, users past interactions stored in the database and the data it learns using different AI methods.
3) *Content:* It is the basis of content the Bot decides to respond to the user after analysis of user input. It can be customized according to design of Bot.
4) *Custom Interaction:* This component is although optional but is used mostly by complex Chatbots. It is used topull data from web service or databases, runs conditions and informs the Dialog Manager.

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IV. ARCHITECTURE DESIGN

A system architecture is a conceptual model that defines the structure, behaviour, and more views of a system. An architecture description is a formal description representation of a system, organized in a way that supports reasoning about the structures and behaviour of the system. A system architecture can comprise system components that will work together to implement the overall system.



V. BENEFITS OF THIS SYSTEM

1) *Easy to Use:* This chatbot system are easy to use and offers high convenience with time and effort saving for the customers. This has encouraged more users to use the mobile apps and findthe way of their nearby restaurant online.
2) *Real Time Tracking:* This project is equipped with real time GPS tracking systems, such that the customers can track the location of their nearby restaurant, along with help of this system the customer can easily find their exact location of the nearby zomato restaurant.
3) *Loyalty Points:* Online chatbot system often offer loyalty points to the customers for encouraging them to use the mobile app even more often. These loyalty points can be used by the customers to place future orders, thus helping them to use the system more often.
4) *Effective Customer Support:* With 24/7 customer support facilities, this system can offer the best customer supports, answering to their queries and assisting them in any need or complaints. Customer support has effectively become even more efficient, since the customers can connect to the executives, with just a few clicks on their system.

A. *Zomato*

Zomato initially named as Foodiebay was started in 2008 by Mr. Deepinder Goyal. It is a restaurant searching platform providing in-depth details with autonomous reviews and ratings. Foodiebay, the initial name was changed to Zomato in November 2010 to increase their reach among people.

B. *Vision*

To expand to more 50 countries

C. *Success Factor*

1) First mover advantage Strong content platformEfficient employees
2) Good rating mechanism and social platformFunding from experienced source

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D. Strategy of Zomato

Zomato works with keen interest on various strategies to achieve theirgoal. It includes

1) *Financial Strategy:* To increase their fund and revenue
2) *Marketing Strategy:* To tap their customers from across the globe
3) *Growth Strategy:* To grow continuously and increase their customers and page traffic Globalization strategy: To expand themselves across the whole globe as a leading serviceprovide

E. Marketing Strategy

1) Featured and user friendly website Global mobile app
2) Focusing on digital marketing channels for potential customers
3) Acquire the competitors: To be the largest resource in food supply market, Zomato bought urbanspoon for $52 million to enter US, Canada and Australia
4) Simpler review and rating system
5) Integrating other tools in their marketing strategy has given them wonderful hike in their business.
6) Sales promotion: Coupons and price-offs Direct Marketing: Phone call and direct mail

VI. INTEGRATING TELEGRAM WITH RASA CHATBOT



Telegram is a freeware, cross-platform, cloud-based instant messaging (IM) software. The service also provides end-to-end encrypted video calling, VoIP, file sharing and several other features. It waslaunched for iOS on 14 August 2013 and Android in October 2013. The servers of Telegram are distributed worldwide to decrease data load with five data centers in different regions, while the operational center is based in Dubai.Various client apps are available for desktop and mobile platformsincluding official apps for Android, iOS, Windows, macOS and Linux. There are also two official Telegram web twin apps – WebK and WebZ – and numerous unofficial clients that make use of Telegram's protocol. All of Telegram's official components are open source,[21] with the exception of the server which is closed-sourced and proprietary.

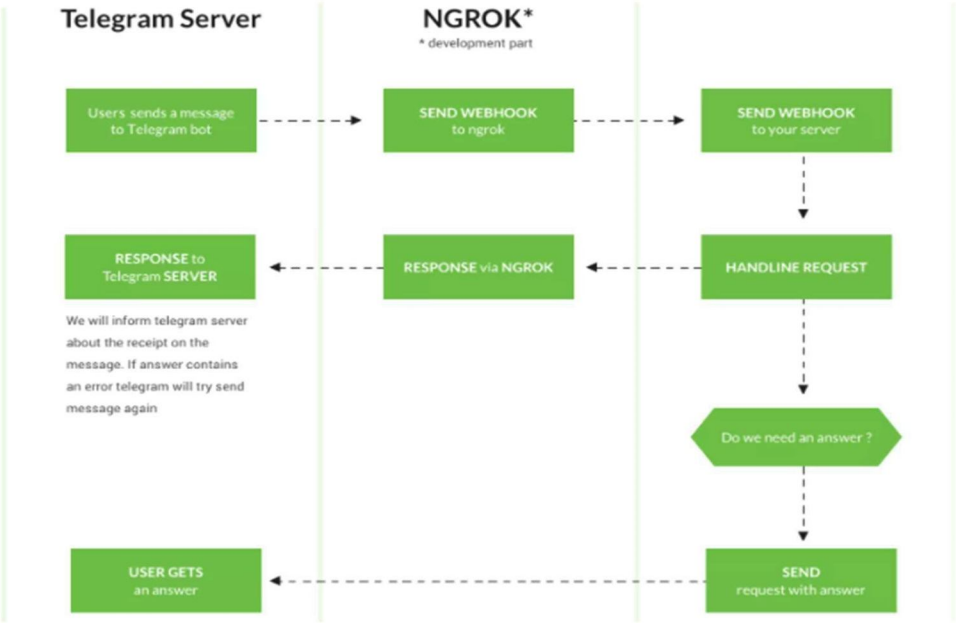
Telegram provides end-to-end encrypted voice and video calls and optional end-to-end encrypted "secret" chats. Cloud chats and groups are encrypted between the app and the server, so that ISPs andother third-parties on the network can't access data, but the Telegram server can.

Telegram was launched in 2013 by brothers Nikolai and Pavel Durov. Previously, the pair founded theRussian social network VK, which they left in 2014 after it was taken over by President Putin's allies.

Pavel Durov sold his remaining stake in VK and left Russia after resisting government pressure.NikolaiDurov created the MTProto protocol that is the basis for the messenger, while Pavel Durov provided financial support and infrastructure through his Digital Fortress fund.Telegram Messenger states that its end goal is not to bring profit,but it is not structured as a non-profit organization.

In June 2015, Telegram launched a platform for third-party developers to create bots.[92] Bots are Telegram accounts operated by programs. They can respond to messages or mentions, can be invited into groups and can be integrated into other programs. It also accepts online payments with credit cardsand Apple Pay.Dutch website *Tweakers* reported that an invited bot can potentially read all group messages when the bot controller changes the access settings silently at a later point in time. Telegram pointed out that it considered implementing a feature that would announce such a status change withinthe relevant group There are also inline bots, which can be used from any chat screen. In order to activate an inline bot, user needs to type in the message field a bot's username and query. The bot thenwill offer its content. User can choose from that content and send it within a chat. Bots can also handle Ravepay, Razorpay and QiWi, Google Pay for different countries. Bots also power Telegram's gaming platform, which utilizes HTML5, so games are loaded on-demand as needed, like ordinary webpages.Games work on iPhones 4 and newer and on Android 4.4 devices and newer. People can use Internet Of Things (IoT) services with two-ways interaction for IFTTT implemented within Telegram.

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VII. HOW DO TELEGRAM BOTS WORK?

At the core, Telegram Bots are special accounts that do not require an additional phone number to setup. Users can interact with bots in two ways:

1) Send messages and commands to bots by opening a chat with them or by adding them to groups.
2) Send requests directly from the input field by typing the bot's @username and a query. This allows sending content from inline bots directly into any chat, group or channel.
3) Messages, commands and requests sent by users are passed to the software running on your servers. Our intermediary server handles all encryption and communication with the Telegram API for you. You communicate with this server via a simple HTTPS-interface that offers a simplified version of the Telegram API. We call that interface our Bot API
4) Users can interact with your bot via inline queries straight from the text input field in any chat. All they need to do is start a message with your bot's username and then type a query.
5) Having received the query, your bot can return some results. As soon as the user taps one of them, it is sent to the user's currently opened chat. This way, people can request content from your bot in any of their chats, groups or channels.

A. *Positive and Negative effects of Chatbot Using Zomato's APIPositive*

When done right, delivery can help restaurant operators cultivate customer loyalty, enhance profitability, and expand into new market segments. Overall, customer-facing technology is poised to deliver a distinguishing, competitive edge – for a price. Some chains, facing poor traffic numbers,are hoping delivery will help garner them new or lapsed customers. For those in the foodservice industry that don't offer delivery, they are certainly missing out on a multitude ofopportunities.

1) *It's Just One Click away:* Today, more than ever, people can easily order online thanks to the smartphones and tablets.Studies conducted by the Interactive Advertising Bureau and Viggle show that about 69% ofcustomers order food online using a mobile device. Whetheron a break, stuck in traffic, or riding the bus, virtually anyone will place an order quickly and painlessly. In fact, this is a better, and highly desirable alternative to waiting until getting home and placing the order over the phone.
2) *It's Fast, Easy and Comfortable:* In a nutshell, your customers choose to order food online because it's literally at their fingertips. Virtually anyone with a smartphone can order food online from your restaurant.

B. *Negative*

This system is very useful as we know but in some situations like the user were never know the howto use the system. Sometimes provide location to the system can't be suitable for the user.

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VIII. CONCLUSION

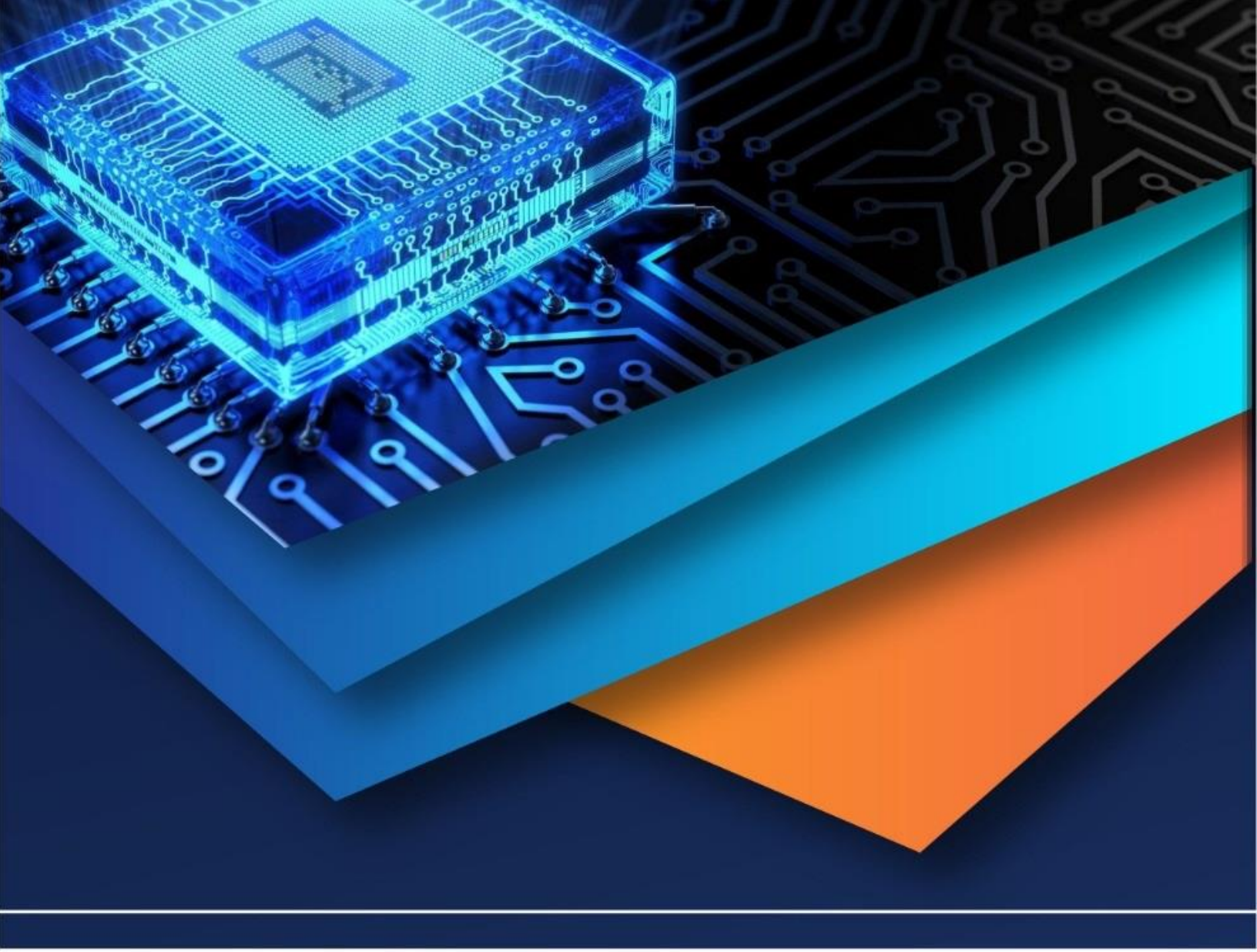
A conversational agent is built as a helper bot in this project, which provides suitable answers to any questions asked by the users . We've succeeded in building chatbot using the libraries since itis the most challenging factors for naïve users and non-professionals. As a future work we can make chatbot which enable users to interact with helper bot in a more user friendly way and enhance the discussion by including and changing patterns and templates. We can improve the efficiency by training with more complex data sets and other enhancements like voice recognitionwhich requires further training.

Chatbot have been around the world for decades. Reason for this increasing interest in chatbots include tremendous advances in artificial intelligence (AI) and AI based technology design and technical development approaches. One of the major usage shift from online to mobile messaging apps and to real interactive agents as robots. Major Internet companies such as Google, Facebook, and Microsoft have already done marvellous work on chatbots and popularized it as a popular technology for all. In this paper we reviewed around twenty journals including related books and websites to generate trends graph, and presented a survey on Chatbots discussing about the basic approach of design and architecture of developing Chatbots along with a broad application domain of using them world-wide from working as personal assistants, organizing meetings, ordering food, which have helped users explore online content and services. Then we have took an overview on different techniques and algorithms developing efficient chatbots with variety of evaluation methodsto test its performance. We have also conducted a survey to know how Chatbot brings interest to theusers now and how it motivates in future.

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