Doctor Appointment Automation from Social Media Feeds

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Abstract

The research work is about developing a software bot to implement automated appointment booking based on his/her social media feeds. The developed bot will continuously look into user's social media feeds and will pass those feeds to a machine learning algorithm which finds the probability for the "need for physician" sentiment is exhibited in the sentence. It will then look into the disease repository for doctor specialist in that field and finds the respective specialist. Then will search for all the available doctors from the user's city and will let the details go on to another machine learning algorithm which chooses the best among the doctors and sends user a mail to confirm booking appointment with that doctor.

Keywords - *bot, machine learning, deploy, physician*

I. INTRODUCTION

This Today we live in a business driven fast moving world. As the standard of living arose, the individuals of the family started getting more engaged in making money. In most of the family in urban areas, both men and women are engaged in making money to adopt to technology-driven world and to have a decent status in their society. This being the scenario of many in this modern world, people tend to concentrate more on money-making. They nearly spent their entire time to handle their business pressure, business project. They have started to sacrifice their time with their family, their leisure time, but the worst of them all, they have started to sacrifice their own health. Thus we wanted to help them, take care of their health, as we believe their family relies more on his/her health, that the money that he brings back home after work. We don't mean that the user will not concentrate on his/her health, but we are obvious that he gives his/her health the least priority as his/her highest priority at that point of time might be to complete their business project. We have a lot of online web portals to ease the task of booking a doctor and getting an appointment from the hospital they belong to such as https://practo.com. So our aim is not going to be about developing a platform for doctors to connect with people in a locality. We believe even men who was busy with his/her work and still has a health issue can goto such portals and look for physician if needed and book an appointment for him. We believe the carelessness of businessmen along with of course laziness and lesiureness will not let them go and search for physician. And How would that be if a bot can understand your feelings and chooses a physician for you ?

II. EXISTING MODAL

A. Web Portals
Examples -
https://ors.gov.in/index.html ,
https://www.infodoctor.in/ ,

These web portals require a user to sign up for the first time and log in from then afterward and let him choose his/her location, his/her needed desired hospital at that locality and his/her appointment booking time should match with the doctor's availability time and then will move on to make a payment.

B. Appointment booking chatbots
There are few chat bots available over the web which would be a chat screen and there will be a bot which would be chatting with you and it will recognize your sentence if there is any need for you to consult a physician. The bot is deployed in the server and is capable of recognizing the sentence stating there is a need for a physician.

III. FEW DRAWBACKS IN EXISTING MODEL WHICH COULD BE OVERCOME BY THIS PROPOSED MODAL

(i) There is a need to move on to certain website and navigate to the desired page.
(ii) There is a need to enter your city every time when you search.
(iii) There is a need to go to log in every time when you enter.
(iv) There is a need to decide/select the best doctor in terms of many criteria.
(v) Sometimes there is a chance of not selecting the best doctor, it might be due to the burden of business work or might be a wrong decision.
(vi) There is a feeling of laziness to do all these when one posses much concentration to claim the mountain of works in his/her business, this piece of stone might not be in his/her considerations.
(vii) There is no need to open a chatbot on the web and type your query.

(viii) The Bandwidth is required for accessing websites for an appointment or for a site which has chatbots.

(ix) The processing of queries from us in case of chatbots, the bot is deployed over the server, that has to be active every time since the request from any client can come on any time over the web.

(x) When communicating with chatbots user need to type his/her query in the appropriate text box provided.

Finally, complete content and organizational editing before formatting. Please take note of the following items when proofreading spelling and grammar.

IV. DATA FLOW CHART
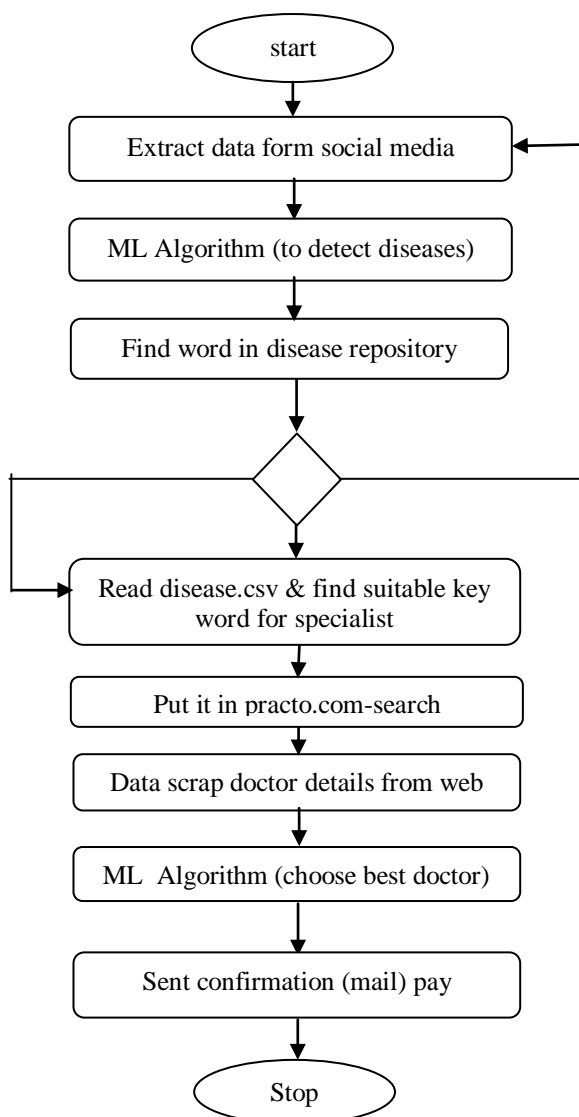
The software bot on which our research relies on, will be deployed locally into the local machine. The bot gets turned on automatically as soon as the system is switched on and runs in the background. The name of the user (or) multiple users, their respective email IDs, cities where they are residing, their facebook, twitter, Instagram, LinkedIn profile

page, passwords and other required details such as range of fee they can pay and doctors to exclude are stored in a local config base typically a XLS or CSV file. The bot gets prerequisite data from local config base and open a web browser puts the profile links in URL and loads the pages. Then from the loaded profile page, it gets data of the recent feeds made by the user from various social media profile page and passes that information as a parameter to a machine learning function which gives out the need for physician sentiment and which kind of health issues is expressed in the feeds. If the need for physician sentiment is found in the sentence, then the respective disease will be searched in a disease repository which is again a locally stored xls or CSV file. The disease repository is used to map the disease keyword with the respective specialist or suitable physician for that health issue. The value of need for physician sentiment value will range from 0 to 1, where any above 0.5 is considered as a positive result. Then will automatically open the web browser and goes to https://www.practo.com (a website for online booking), will search for the specialist in that area by automatically filling the specialist name and city of the user. Then extract all the details of the doctors available and puts it in another machine learning algorithm which then will select the best among the doctors based on the distance between the doctor's locality and user's locality, fee collected by the doctor and based on the reviews that the doctor had received. Will choose the best doctor among those and send a mail to the user with all the details of the user and the link for payment.

V. PERFORMANCE EVALUATION

The modules of the research work project in terms of sequential data flow are
(i) Local Config Base
(ii) Bot to get Feeds
(iii) ML Algorithm 1
(iv) Local Disease Repository
(v) Bot to get Doctors
(vi) ML Algorithm 2
(vii) Bot to send User a Mail

However, the modules based on technology used would be
(i) A Bot (UiPath / Automation Anywhere)
(ii) Machine Learning Algorithms (2)

The whole performance of the system relies on the success of the ML Algorithm 1 which finds the need for physician sentiment is expressed in the system and correctly spots the health issue of the user.
The next most contributing module for the success of the system would be the ML Algorithm 2, which selects the best among the given doctors based on various criteria.

VI.ESTIMATED SUCCESS CONTRIBUTION BY VARIOUS MODULES

Module	Success Contribution
Local Config Base	2%
Bot to get Feeds	9%
ML Algorithm 1	37%
Disease Repository	3%
Bot to get Doctors	14%
Ml Algorithm 2	28%
Bot to send Mail	7%

VII. PROCESSING OF SYSTEM (WITH EXAMPLE)

A. Example – from practo.com

User: Gopalakrishnan
User_City:Coimbatore
Facebook_profile:facebook.com/gopalakrishnan
Posted:2 minutes ago
Sync. Factor: 0.25 hours or 15 minutes
Recent Post: "Finally developed the project with 5 sleepless nights and the bot is ready to run. Feeling restless but excited "
Sentiment Analysis Report after passing feeds through ML Algorithm 1:
Health Issue Identified KeyWord: Sleepless, Restless.

Need for Physician Sentiment: 0.89272
Since the value is positive, it moves on further proceeding.
Disease Repository Match: Psychiatrist
Results of Psychiatrist in Coimbatore,
Best One Selected: Manam Behavioural Medicine Clinic   (practo.com results)
Email Received By User within Sync. Factor Time:
Doctor Name: Dr.Naveen Kumar V
Specialist: psychiatrist
Clinic: Manam Behavioural Medicine Clinic
Rating: 5
Our Preference: 83%
Timing: 5:00 PM - 9:00 PM
Place: 48, Rajiv Gandhi Nagar, Landmark: Near G V Residency and Fun Mall, Coimbatore Sowripalayam, Coimbatore
Pay No: {{Pay_link}}

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