ACM-W
5th National Level Hackathon

Theme - Health Care
Team Name - Noob Force
College Name - IIT MANDI
Team Leader Name - Nidhi Jain

Problems & Why this Idea

- Less availability of doctors
- Corona Pandemic/Social Distance
- Proper medical advices anywhere
- Lack of Time and Resources
- Doctors charge high consultancy fee in rural areas
- Illiteracy rates
- Instant advices based on users medical reports (like you sugar level is high, lower sweet food consumption)

Idea/Approach Details

Domain : Health Care

- Our main idea is to develop a web platform to help people get medical advices instantly (something like “Anywhere_Doctor”) .
- By knowing person X’s symptoms, the bot will suggest medicines. If a person has an injury, the bot will guide him aiding the wound using video, pictures, voice instruction, etc.
- Also the bot will regularly recommend medical checkups to the user by evaluating his medical reports.
- We can also connect the user to a live doctor according to his/her availability, wherein doctors may charge consultancy fees.

Major USP of Idea

Software will contain 4 modules each of which will perform following tasks -

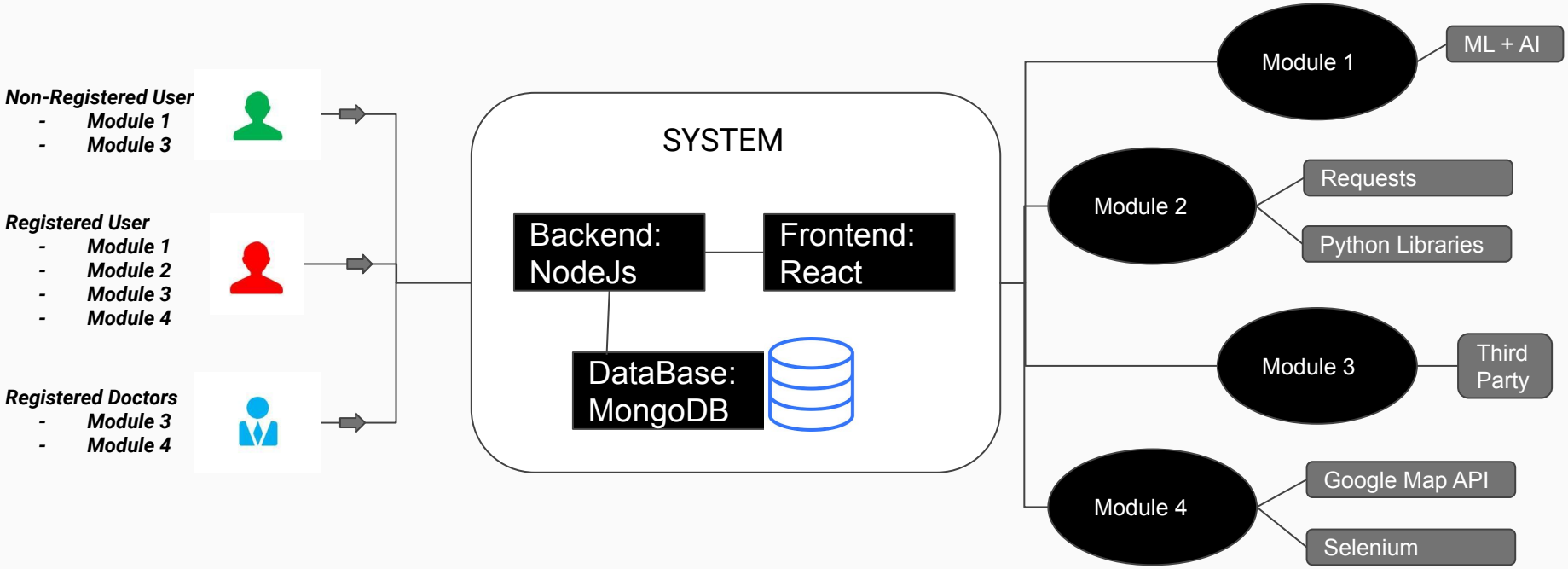
Module 1 - AI driven bot for communication and finding best/alternative solutions. Video/Picture animations for guiding surgery operations.

Module 2 - Recommendations for users health like medical checkups

Module 3 - Live assistance by real doctors who are free at the emergency moment.

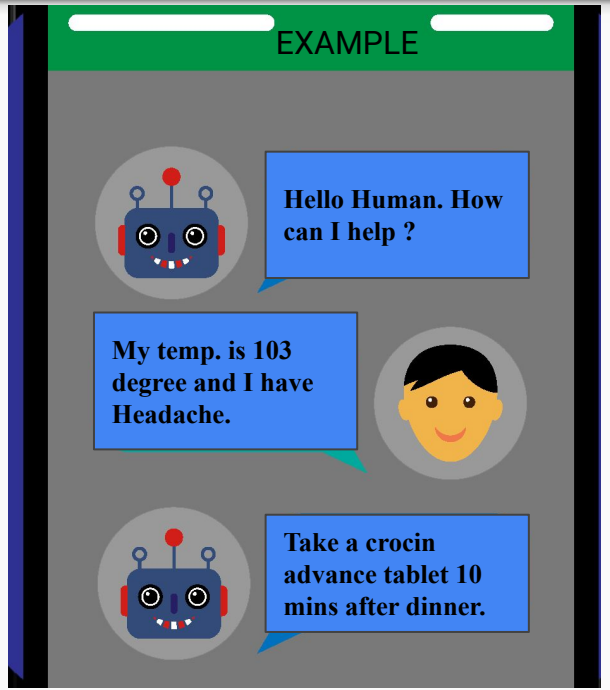
Module 4 - Finding best/nearest places for medical advices/surgery/treatment.

Technology Stack with Flow-Chart



Module 1- AI Bot

- ➔ The bot aims to bridge the gap between medical advices and people
- ➔ not having the either time/money to make get them.
- ➔ It has ability to suggest better and alternative medicines that would be a boon to a middle class Indians.
- ➔ asks you about the details of your medical state and offers you various solutions and advices in accordance to user's medical based database.
- ➔ Not only text, voice usage feature will also be added for user's ease. Bot will offer actionable health information based on highly accurate sources and lets the user make the best choices for his health.



Reference

Module 1- AI Bot Technical Details

- **NodeJS**
  A simple web server with one webhook endpoint. We'll use Express.js for webhook and proxy server with ngrok
- **Cheerio**
  It parses markup and provides an API for traversing/manipulating the resulting data structure.
- **Dialogflow**
  It (once known as Api.ai) is a service owned by Google that allows developers to build speech to text, natural language processing and artificially intelligent systems that you can train with your own custom functionality. This incredible tool uses machine learning to understand what users are saying and it's beyond simple to set up nonlinear bots quickly.
- **FB Messenger for Developers**
  For deploying the chat box here
- **NLP**
  Natural Language Processing (NLP) is a branch of Artificial Intelligence (AI) that studies how machines understand human language. Its goal is to build systems that can make sense of text and perform tasks like translation, grammar checking, or topic classification.

Module 2 - Medical Checkups

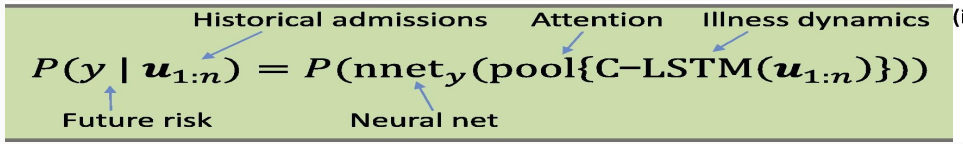
A model of Healthcare memory

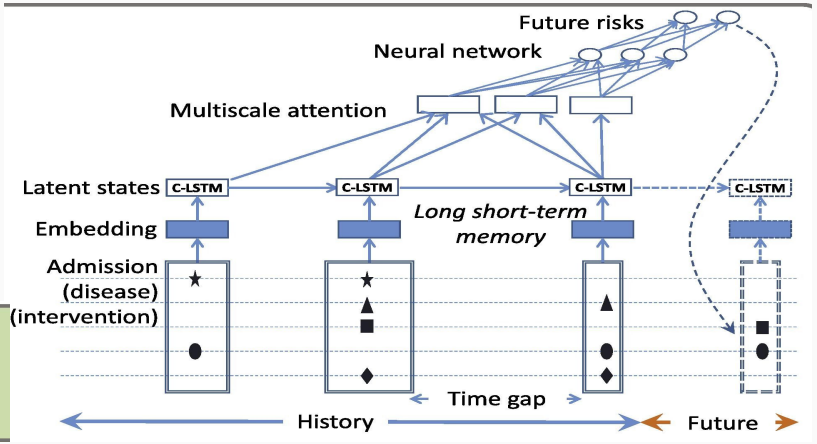
- Prediction based on medical reports: an end-to-end deep dynamic neural network.
- Automatic extract data from medical records, stores previous illness history.
- Infers current illness states and predicts future medical outcomes.
- Efficacy for disease progression modeling, intervention recommendation, and future risk prediction.
- Notifier: Send alerts and notifications for timely test checkups.

Reference: Journal of Biomedical informatics

Module 2 - Medical Checkups Technical Details

- Request,bs4: to scrap the data from medical reports and test details.
- Deep Neural Networks and SVM: To train the data and therefore predicting present states and future results





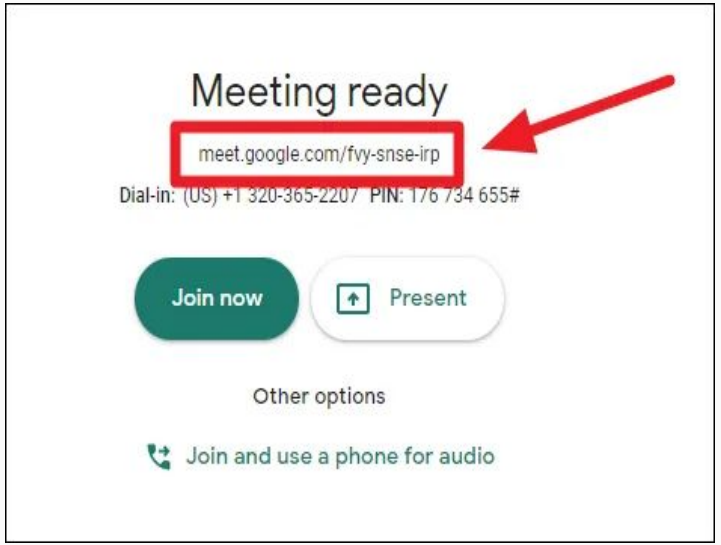
Module 3 - Live Support

Features of the app -

1. User Registration - User sign-in with the help with email and password. For further convenience, integrate your app with all the major social media networks (Gmail, Facebook, Twitter) so users can sign up easily.
2. Profile Management - General user information on the profile like phone no, medical record , social media connections etc.
3. Frequently contacted contacts - List of frequently connected doctors as they know the person’s history very well and will guide him/her better.
4. Audio and Video calls - Video calls will help in better live support.
5. Chat - If the doctor can’t connect through audio or video calls , chat can be the other option.

Module 3 - Live Support Technical Details

- We will connect the user to the doctor or any specialist through an automatically generated gmeet link.
- It will have the option to connect to any available doctors
- Cloud Platforms - Amazon EC2
- Streaming Protocols - WebRTC



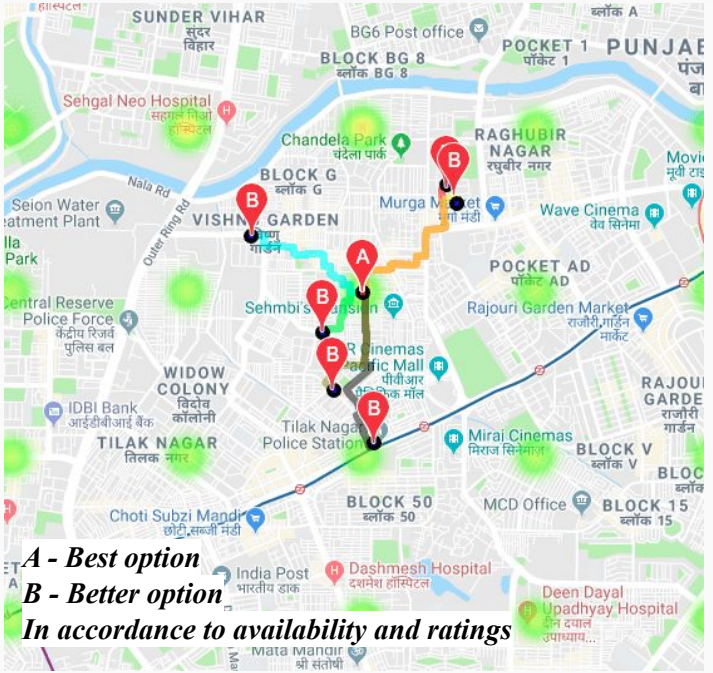
Module 4 - Nearby Availability

The project is split into two parts.

The first part deals with the scraping of the hospital data. For real-time availability we will use scrapping of data from online websites.

The second part, under express, is a Node.js Express app that searches for the nearest hospitals, and then returns the closest with their ratings. The app module uses MySql.

Google Geocoding Web API - for finding hospitals and ratings.



Reference

MODULE 1 - Bot

- Self Learning (ML+AI) Chatbots
- Based on Retrieval Models
- NLP & NGL
- Python Libraries used : NLTK , scikit and Bag of words

MODULE 2 - Medical Checkups

- E-mail notifications
- Automate scheduling the bot
- Predictions based on medical reports
- Python modules include: smtplib, request, bs4

MODULE 3 - Live Support

Key Features :

- User profile
- Frequently connected contacts
- Audio / Video calls
- Chats
- Technology : Swift, iOS SDK , Third Party APIs (Twilio, Wowza GoCoder SDK)

MODULE 4 - Nearby Availability

- Parsing google maps to find:
- Nearest hospitals
- Number of beds available in particular hospital
- Technology : Google Map API, selenium web-scraping

Thank you !

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