



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 10, Issue 7, July 2021

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 7.569



9940 572 462



6381 907 438



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Disease Prediction and Consultation Using Machine Learning

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ABSTRACT: The medical industry deals with massive amounts of data on a regular basis. Using traditional approaches to handle large amounts of data can have an impact on the outcome. Machine learning algorithms can be used to discover facts in medical research, particularly for disease prediction. For the analysis of patient medicines and specialists, early disease recognition is critical. To diagnose various disorders, machine learning algorithms such as Decision trees, Support vector machines, Multilayer perceptrons, Bayes classifiers, K-Nearest Neighbors Ensemble classifier techniques, and others are utilised. Machine learning algorithms can help predict diseases quickly and accurately. This study looks at how machine learning techniques are used to forecast various diseases and their forms. This study looked at research publications on chronic renal disease prediction, machine learning, heart disease, diabetes, and breast cancer, among other topics. The hybrid technique, which improves the performance of individual classifiers, is also investigated in the research.

KEYWORDS: Dynamic policy, patient preference learning, physician recommendation

I. INTRODUCTION

Machine Learning is an area of artificial intelligence that tries to give computer methods for accumulating, changing, and updating the knowledge of intelligent systems. Artificial intelligence (AI) enables computers to analyse their surroundings, execute certain functions, and improve their chances of solving real-world problems. With technical advancements and scientific progress, AI is proving to be a fascinating field. As a result, ML approaches are receiving more attention. Machine learning (ML) is a powerful data analysis technique that uses learning algorithms to iteratively learn from existing data. For example, in primary care, model and evaluate electronic visits, and research They-based appointment systems. They-based or mobile-based healthcare applications like as ZocDoc, Quest Diagnostics, and WeDoctor and HaoDF in China are well-known, and these systems are assemblages of a big number of resources, especially doctors, from many hospitals in various places.

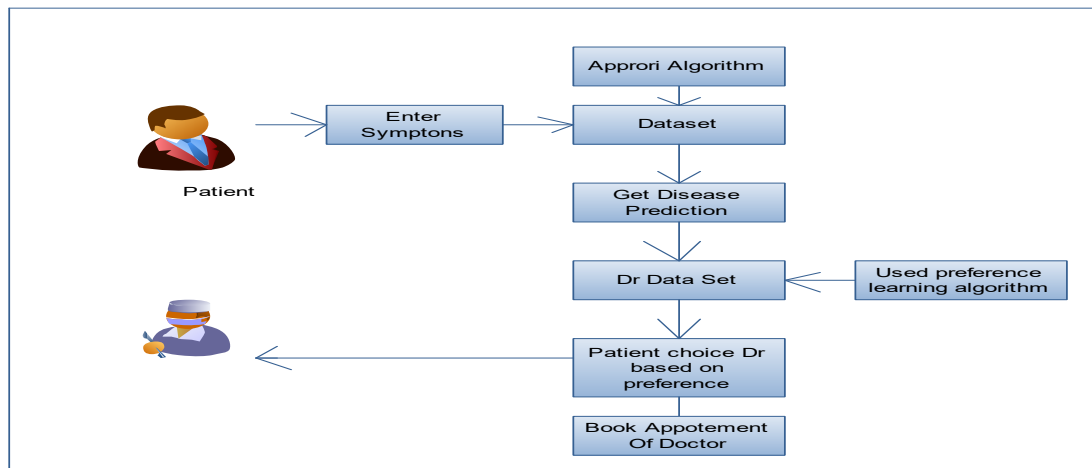
According to several industry findings, patients are unable to discover the most suited physicians for their illness condition due to a lack of medical understanding. To that end, physician advice, which is the basis for this research, becomes an effective tool for web- or mobile-based applications for allocating suitable resources to patients. In general, these apps offer patients appointment services through physician selection recommendations, from which they can choose one for medical services. Patients must first choose their preferred hospital location and appointment time before beginning the service.

II. RELATED WORK

In hospital system doctor predict the diseases and charge huge amount of money for checkup and test. And they take long period of time for that but some diseases can increase their effect with time. Instead of doctor we can predict diseases at home using online portal and can find specialist for the same. This will also eliminate consultation charges. Some patient do not have information about specialist doctor and their experience so they are not able to choose the best doctor and hence they waste money on general surgeon. This system will dynamically recommend physician according to patient preference. It will Predict the diseases from the given symptoms, create and monitors a

health profile of every individual patient. There will be verification of data for multiple times. Generating the result and send to the doctor for verification and then further services are provided to the patients.

A. PROPOSED-SYSTEMARCHITECTURE



B. SYSTEM REQUIREMENTS

1. DatabaseRequirements

- ForConnectionofFrontendandBackend:-JAVA
- ToStoreRecords:-MySQLQueryBrowser

2. SoftwareRequirements

- Operating System: Windows 7 and Above
- Front End : HTML and CSS, JavaScript, Bootstrap
- Back End : MySQL and JAVA
- Server : Tomcat 8.0
- Platform : Eclipse

3. HardwareRequirements

- System : Intel I3 Processor and above.
- Hard Disk : 200 GB.
- Monitor : 15 VGA Color.
- Ram : 4 GB.

C. Methodologies/Algorithm Details

Apriori Algorithm

All non-empty subset of frequent itemset must be frequent. The key concept of Apriori algorithm is its anti-monotonicity of support measure. Apriori assumes that Before we start understanding the algorithm, go through some definitions which are explained in my previous post. Consider the following dataset and we will find frequent itemsets and generate association rules for them

Id	Frequent match Item
Sympton1(I1)	4
Sympton2(I2)	5
Sympton3(I3)	3
Sympton4(I4)	5
Symptoms5(I5)	6

Figure1: Frequent Items matched

Minimum support count =3

minimum confidence is 60%

Confidence

$\text{Confidence}(A \rightarrow B) = \frac{\text{Support_count}(A \cup B)}{\text{Support_count}(A)}$

So here, by taking an example of any frequent itemset, we will show the rule generation.

Itemset {I1, I2, I3} //from L3

SO rules can be

$[I1 \wedge I2] \Rightarrow [I3]$ //confidence = $\frac{\text{sup}(I1 \wedge I2 \wedge I3)}{\text{sup}(I1 \wedge I2)} = \frac{2}{4} * 100 = 50\%$

$[I1 \wedge I3] \Rightarrow [I2]$ //confidence = $\frac{\text{sup}(I1 \wedge I2 \wedge I3)}{\text{sup}(I1 \wedge I3)} = \frac{2}{4} * 100 = 50\%$

$[I2 \wedge I3] \Rightarrow [I1]$ //confidence = $\frac{\text{sup}(I1 \wedge I2 \wedge I3)}{\text{sup}(I2 \wedge I3)} = \frac{2}{4} * 100 = 50\%$

$[I1] \Rightarrow [I2 \wedge I3]$ //confidence = $\frac{\text{sup}(I1 \wedge I2 \wedge I3)}{\text{sup}(I1)} = \frac{2}{6} * 100 = 33\%$

$[I2] \Rightarrow [I1 \wedge I3]$ //confidence = $\frac{\text{sup}(I1 \wedge I2 \wedge I3)}{\text{sup}(I2)} = \frac{2}{7} * 100 = 28\%$

$[I3] \Rightarrow [I1 \wedge I2]$ //confidence = $\frac{\text{sup}(I1 \wedge I2 \wedge I3)}{\text{sup}(I3)} = \frac{2}{6} * 100 = 33\%$

III. RESULTS

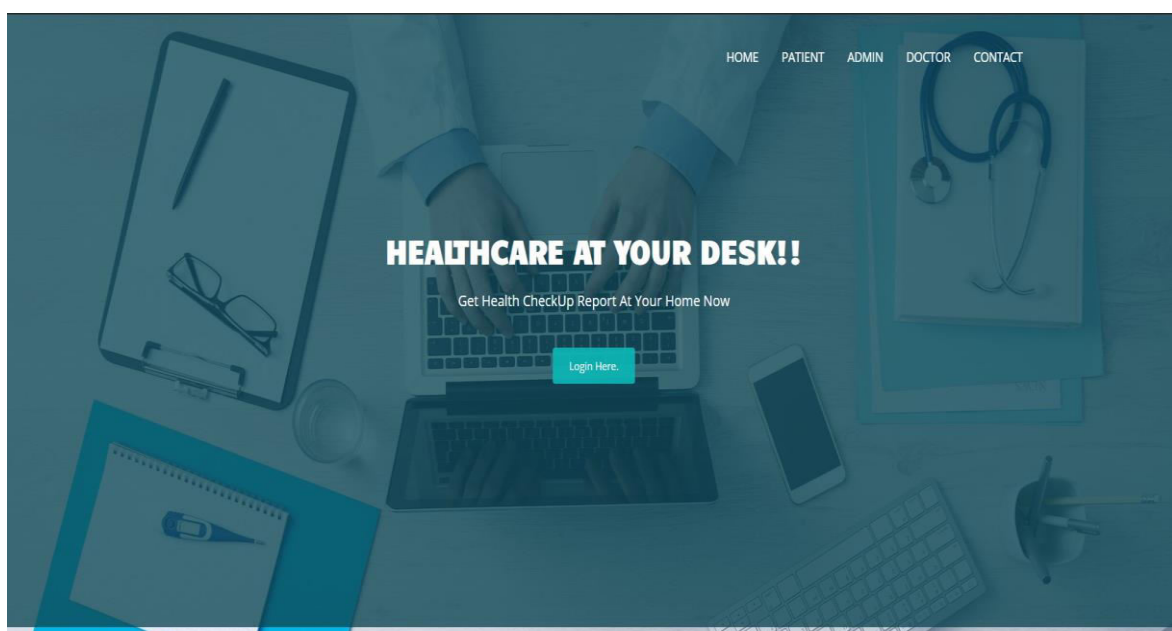


Fig:-HomePage



The image shows a web interface for patient registration. The background is a dark blue overlay on a medical-themed image of a doctor's hands typing on a laptop. The form is titled "PATIENT REGISTRATION" and is located on the left side. It contains several input fields: "FirstName" (with placeholder "Enter FirstName"), "LastName" (with placeholder "Enter LastName"), "Address" (with placeholder "Enter Address"), "MobileNo" (with placeholder "Enter MobileNo"), "Email" (with placeholder "Enter Email"), "Password" (with placeholder "Enter Password"), and "Confirm Password" (with placeholder "Confirm Password"). A "Sign up" button is at the bottom left of the form. In the top right corner, there is a navigation bar with links: "HOME", "LOGIN", and "REGISTER".

Fig:-Patient Register

The image shows a web interface for patient login. The background is a dark blue overlay on a medical-themed image of a doctor's hands typing on a laptop. The form is located on the left side and contains two input fields: "Email address:" and "Password:". A "Submit" button is at the bottom left of the form. Below the "Submit" button, there is a link: "New User? Register Here". In the top right corner, there is a navigation bar with links: "HOME", "LOGIN", and "REGISTER".

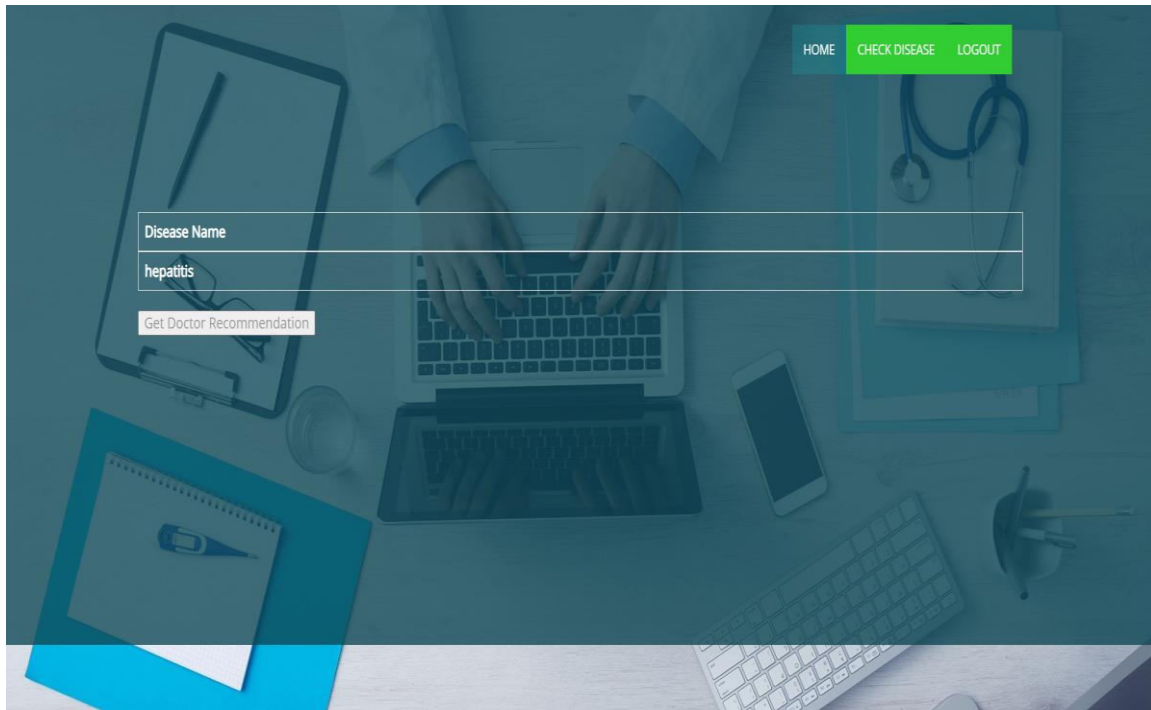
Fig:-patient Login

				HOME	CHECK DISEASE	LOGOUT
☐ Itching	☐ skin_rash	☐ Nodal_skin_eruptions	☐ dischromic_patches			
☐ peeling_skin	☐ burning_sensations	☐ dry_peeling	☐ muscle_wasting			
☐ patches_in_throat	☐ high_fever	☐ extra_marital_contacts	☐ Rapid_weight_loss			
☐ Mouth_ulcers	☐ diarrhoea	☐ dehydration	☐ sunken_eyes			
☐ vomiting	☐ dry_mouth	☐ cramping	☐ feeling_lightheaded			
☐ stomach_flu	☐ mucoid_sputum	☐ family_history	☐ breathlessness			
☐ high_fever	☐ cough	☐ fatigue	☐ red_spots_over_body			
☐ swelled_lymph_Nodes	☐ mild_fever	☐ loss_of_appetite	☐ headache			
☐ high_fever	☐ lethargy	☐ skin_rash	☐ itching			
☐ muscle_pain	☐ nausea	☐ chills	☐ high_fever			
☐ vomiting	☐ malaise	☐ back_pain	☐ pain_behind_the_eyes			
☐ joint_pain	☐ belly_pain	☐ toxic_look_(typhos)	☐ abdominal_pain			
☐ red_sore_around_Nose	☐ hister	☐ yellow_crust_ooze	☐ high_fever			
☐ rusty_sputum	☐ fast_heart_rate	☐ chest_pain	☐ phlegm			
☐ malaise	☐ sweating	☐ breathlessness	☐ fluid_overload			
☐ history_of_alcohol_consumption	☐ distention_of_abdomen	☐ swelling_of_stomach	☐ abdominal_pain			

Fig:-symptoms

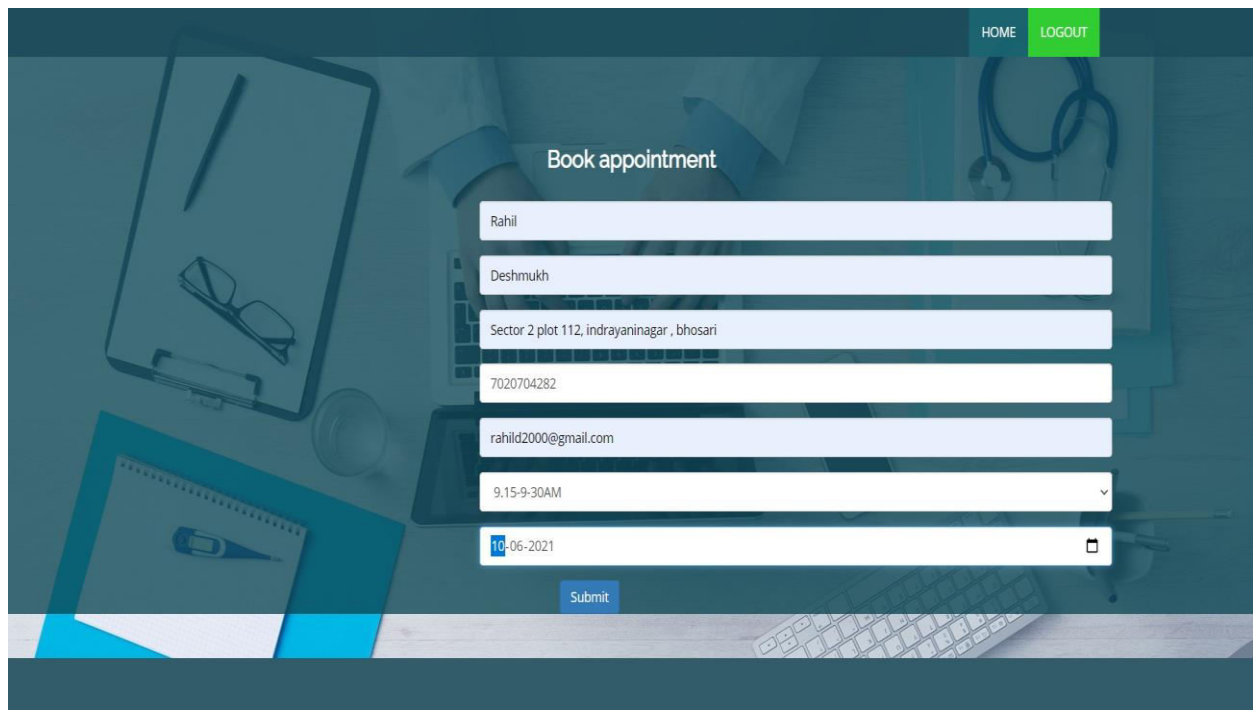
								HOME	LOGOUT
Dr Name	Dr Education	Experience	Hospital Address	Hospital Name	Specialist Disease	Distance From Me	Book Appointment		
Dr. Mahesh Pawar	MBBS DNB - General Surgery Senior Residency Training Program (Surgical Oncology)	15	Pimple Saudagar, Pune	Care Speciality Hospital	Fungal_infection	13(KM)	Book appointment		
Dr. Sumit Shah	MBBS DNB - General Surgery DNB - Surgical Oncology	15	387/5 New Timber Market Pandit Jawaharlal Nehru Marg Seven Loves Chouk Landmark: Opposite to Oswal Bandhu Samaj Karayalaya Pune	Prolife Cancer Centre	Fungal_infection	10(KM)	Book appointment		

Fig:-Doctor Recommended



The screenshot shows a web application interface for predicting a disease. The background is a dark teal overlay on a medical-themed image of a doctor's desk. In the top right corner, there are three navigation buttons: "HOME", "CHECK DISEASE" (highlighted in green), and "LOGOUT". The main form area contains a "Disease Name" input field with the text "hepatitis" entered. Below this is a "Get Doctor Recommendation" button.

Fig:-Predicted Disease



The screenshot shows a web application interface for booking an appointment. The background is a dark teal overlay on a medical-themed image of a doctor's desk. In the top right corner, there are two navigation buttons: "HOME" and "LOGOUT" (highlighted in green). The main form area is titled "Book appointment" and contains several input fields: "Rahil", "Deshmukh", "Sector 2 plot 112, indrayaninagar , bhosari", "7020704282", "rahild2000@gmail.com", "9.15-9.30AM" (with a dropdown arrow), and "10-06-2021" (with a calendar icon). A "Submit" button is located at the bottom of the form.

Fig:-User Book Appointment



Doctor Name	Education	experience	Address	specialist	contact
Dr. Mahesh Pawar	MBBS DNB - General Surgery Senior Residency Training Program (Surgical Oncology)	15	Pimple Saudagar Pune	Care Speciality Hospital	020 7117 7319
Dr. Sumit Shah	MBBS DNB - General Surgery DNB - Surgical Oncology	15	387/5 New Timber Market Pandit Jawaharlal Nehru Marg Seven Loves Chouk Landmark: Opposite to Oswal Bandhu Sarhaj Karayalaya Pune	Prolife Cancer Centre	Not Available
Dr. Ashish Pokharkar	MBBS MS - General Surgery MCh - Surgical Oncology MD - STD	13	Baner- Pimple Nilakh Road Landmark: Near Prathamesh Park Pune	Jupiter Hospital	Not Available
Dr. Vikas Kothavade	MBBS MD - Radiotherapy	10	Baner- Pimple Nilakh Road Landmark: Near Prathamesh Park Pune	Jupiter Hospital	Not Available
Dr. Rahul Dhope	Diploma in Diabetology (Mumbai University) MBBS	14	Flat No- 06 1st Floor Triveni Apartments Sinhagad Road Landmark: Near Jagtap Hospital Pune	Dhope Diabetes Care And Thyroid Clinic	022 4893 3641
Dr. Vaishali Kasare	MBBS MMSc - Diabetology	12	66 Varsha Court Anand Park Lane Landmark: Opposite HDFC Bank and Off. ITI Road Pune	Healthspring Clinic	Not Available
Dr. Amit Sakaria	MBBS MD - General Medicine	16	C1/101 Silver Oak Society Bishop School	Prudent International	Not

Fig:-viewDoctors

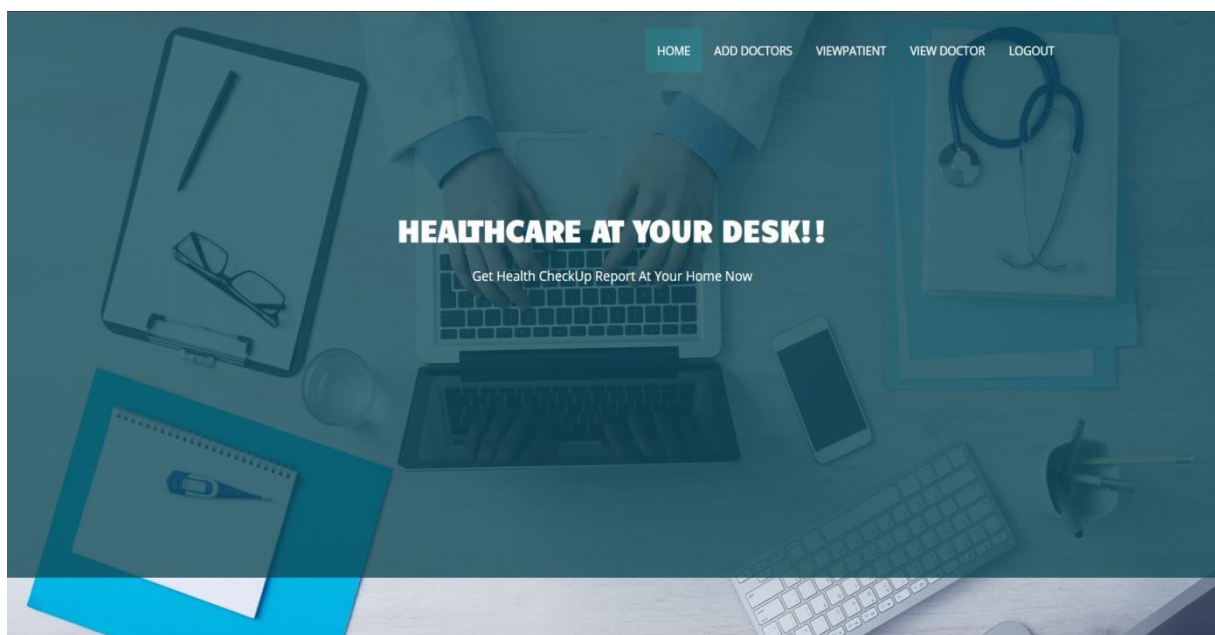
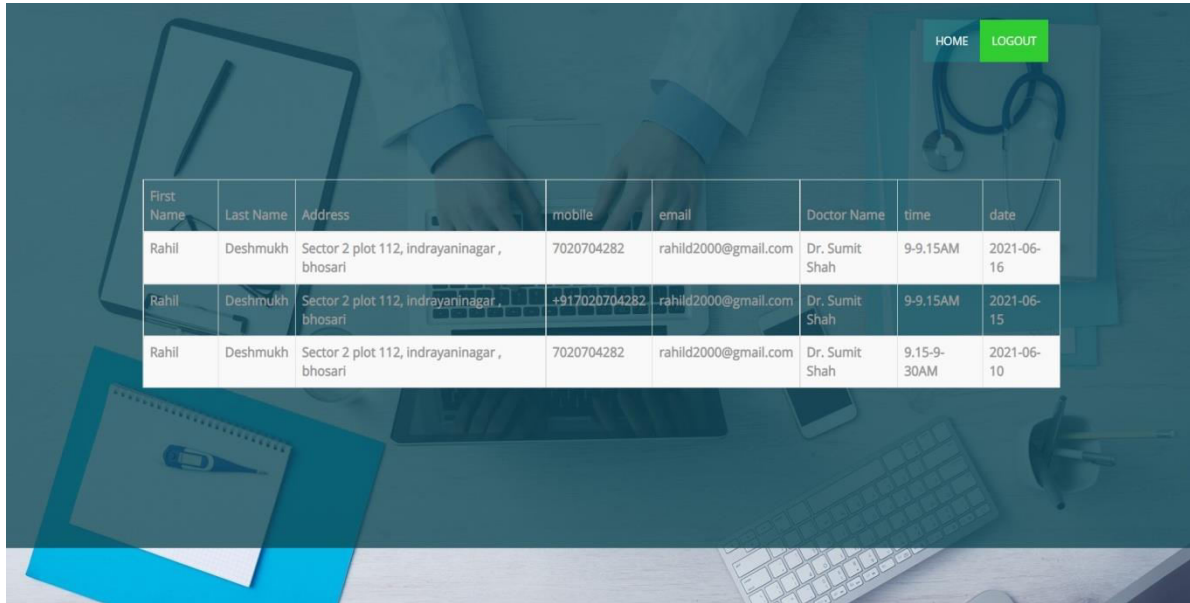


Fig:-DoctorHome



First Name	Last Name	Address	mobile	email	Doctor Name	time	date
Rahil	Deshmukh	Sector 2 plot 112, indrayaninagar , bhosari	7020704282	rahild2000@gmail.com	Dr. Sumit Shah	9-9.15AM	2021-06-16
Rahil	Deshmukh	Sector 2 plot 112, indrayaninagar , bhosari	+917020704282	rahild2000@gmail.com	Dr. Sumit Shah	9-9.15AM	2021-06-15
Rahil	Deshmukh	Sector 2 plot 112, indrayaninagar , bhosari	7020704282	rahild2000@gmail.com	Dr. Sumit Shah	9.15-9-30AM	2021-06-10

Fig:-

Booked Appointment(doctor view)

IV. CONCLUSION

The main focus of this paper is to discuss about decision parameter, attribute, and features used for predicting the disease. The method also throws lights on importance of different classification methods for prognosis of sickness in medical dataset. The dataset considered in so many existing techniques that we have discussed are related to heart and breast cancer, contagious and viral. Many data mining approaches are used as classifier, to build a cost effective model for disease. Hence it is well understood by the exhaustive survey that mining the required information from the medical data help us to support well informed diagnosis and decisions.

REFERENCES

- [1] Designing Disease Prediction Model Using Machine Learning Approach- Dhiraj Dahiwade, Gajanan Patle, Ekta Meshram, Proceedings of the Third International Conference on Computing Methodologies and Communication (ICCMC2019) IEEE Xplore ISBN: 978-1-5386-7808-4
- [2] Disease Risk Prediction by Using Convolutional Neural Network- Sayali Ambekar, Rashmi Phalnika, Fourth International Conference on Computing Communication Control and Automation (ICCUBEA)-2018
- [3] Disease Prediction using Machine Learning- ARaj H. Chauhan, Daksh N. Naik, Rinal A. Halpati, Sagarkumar J. Patel, Mr. A.D. Prajapati, International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056 Volume: 07 Issue: 05 | May 2020
- [4] Disease prediction using Machine Learning - Deepika Joshi, Renu Kant, Sachin Shaky, International Journal of Engineering and Computer Science Volume 9 Issue 02 February 2020,
- [5] Prediction of Diseases in Smart Health Care System using Machine Learning- N. Shabaz Ali, G. Divya, International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8 Issue-5, January 2020
- [6] Disease Prediction and Drug Recommendation Android Application using Data Mining - Vivek Mudaliar, P. Savaridaasan, Sacingarg, International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8 Issue-3, September 2019



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