



AMRITA
VISHWA VIDYAPEETHAM
DEEMED TO BE UNIVERSITY

School of
Engineering

CAPSTONE PROJECT REPORT

HEART DISEASE PREDICTION SYSTEM

ADVANCED PROGRAMMING & DBMS

19CSE201 & 19CSE202

SUBMITTED BY:

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ABSTRACT

Now days, Heart disease is the most common disease. But, unfortunately the treatment of heart disease is somewhat costly that is not affordable by common man. Hence, we can reduce this problem in some amount just by predicting heart disease before it becomes dangerous using Heart Disease Prediction System Using Machine Learning and Data mining. If we can find out heart disease problem in early stages then it becomes very helpful for treatment. Machine Learning and Data Mining techniques are used for the construction of Heart Disease Prediction System. In healthcare biomedical field, there is large use of health care data in the form of text, images, etc but, that data is hardly visited and is not mined. So, we can avoid this problem by introducing Heart Disease Prediction System. This system will help us reduce the costs and to enhance the quality treatment of heart patients. This system can able to identify complex problems and can able to take intelligent medical decisions. The system can predict likelihood of patients of getting heart problems by their profiles such as blood pressure, age, sex, cholesterol and blood sugar. Also, the performance will be compared by calculation of confusion matrix. This can help to calculate accuracy, precision, and recall. The overall system provides high performance and better accuracy.

INTRODUCTION

The health care industries collect huge amounts of data that contain some hidden information, which is useful for making effective decisions. For providing appropriate results and making effective decisions on data, some advanced data mining techniques are used. In this study, a Heart Disease Prediction System (HDPS) is developed using Naives Bayes and Decision Tree algorithms for predicting the risk level of heart disease. The system uses 13 medical parameters such as age, sex, blood pressure, cholesterol, and obesity for prediction. The HDPS predicts the likelihood of patients getting heart disease. It enables significant knowledge. E.g. Relationships between medical factors related to heart disease and patterns, to be established. We have employed the multilayer perceptron neural network with back propagation as the training algorithm. The obtained results have illustrated that the designed diagnostic system can effectively predict the risk level of heart diseases.

Aim:

To predict heart disease according to input parameter values provided by user and dataset stored in database.

Objective:

The main objective of this project is to develop a heart disease prediction system. The system can discover and extract hidden knowledge associated with diseases from a historical heart data set. Heart disease prediction system aims to exploit data mining techniques on medical data set to assist in the prediction of the heart diseases.

Project Scope:

The project has a wide scope, as it is not intended to a particular organization. This project is going to develop generic software, which can be applied by any businesses organization. Moreover it provides facility to its users. Also the software is going to provide a huge amount of summary data.

SYSTEM ANALYSIS

Modules:

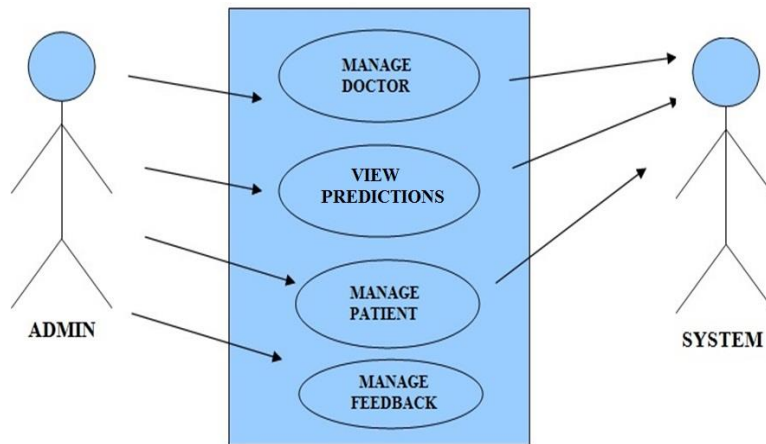
- **Patient Login:** - Patient Login to the system using his ID and Password.
- **Patient Registration:** -If Patient is a new user he will enter his personal details and he will use Id and password through which he can login to the system.
- **My Details:** - Patient can view his personal details.
- **Disease Prediction:** - Patient will specify the input parameter values. System will take input values and predict the disease based on the input data values specified by the patient and system will also suggest doctors based on the locality.
- **Search Doctor:-** Patient can search for doctor by specifying name, address or type.
- **Feedback:-** Patient will give feedback this will be reported to the admin.
- **Doctor Login:** - Doctor will access the system using his User ID and Password.
- **Patient Details:** Doctor can view patient's personal details.
- **Notification:** Admin and doctor will get notification how many people had accessed the system and what all are the diseases predicted by the system.
- **Admin Login:** Admin can login to the system using his ID and Password.
- **Add Doctor:** Admin can add new doctor details into the database.
- **Add Dataset:** Admin can add dataset file in database.
- **View Doctor:** Admin can view various Doctors along with their personal details.
- **View Disease:** Admin can view various diseases details stored in database.
- **View Patient:** Admin can view various patient details that had accessed the system.
- **View Feedback:** Admin can view feedback provided by various users.

Technologies Used:

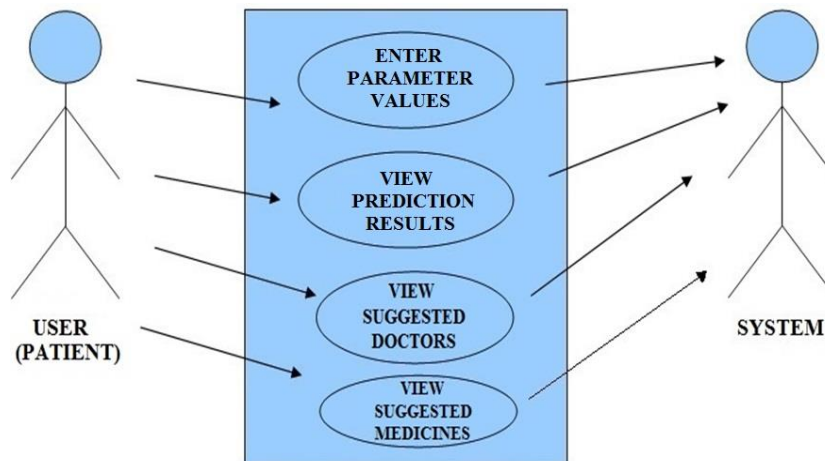
- HTML
- CSS
- JAVASCRIPT
- BOOTSTRAP
- DJANGO
- GRADIENT BOOSTING ALGORITHM
- LOGISTIC REGRESSION
- SQLITE3 DATABASE INTEGRITY
- Dataset:https://drive.google.com/file/d/1TeFzjTW_8H78SHFbWrhbf-AGpdUZKJO3/view?usp=sharing

SYSTEM DESIGN

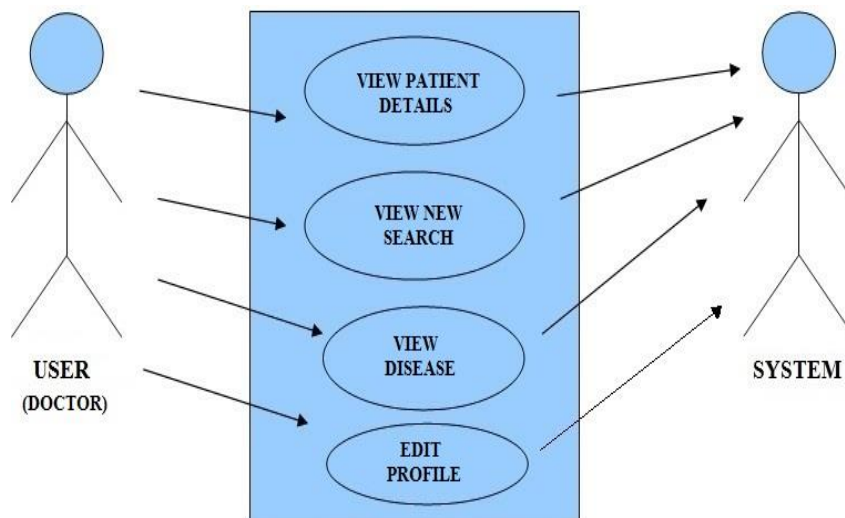
Use Case Diagram:



Use Case Diagram between ADMIN and SYSTEM:



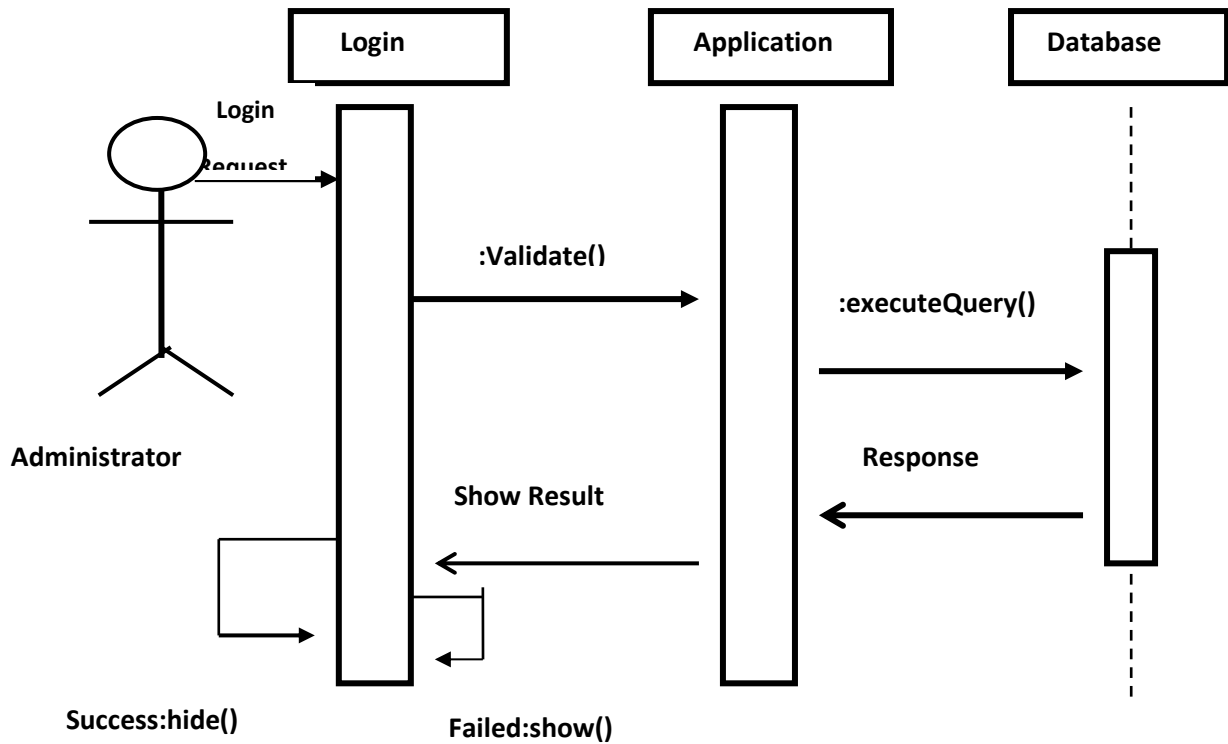
Use Case Diagram between user and system



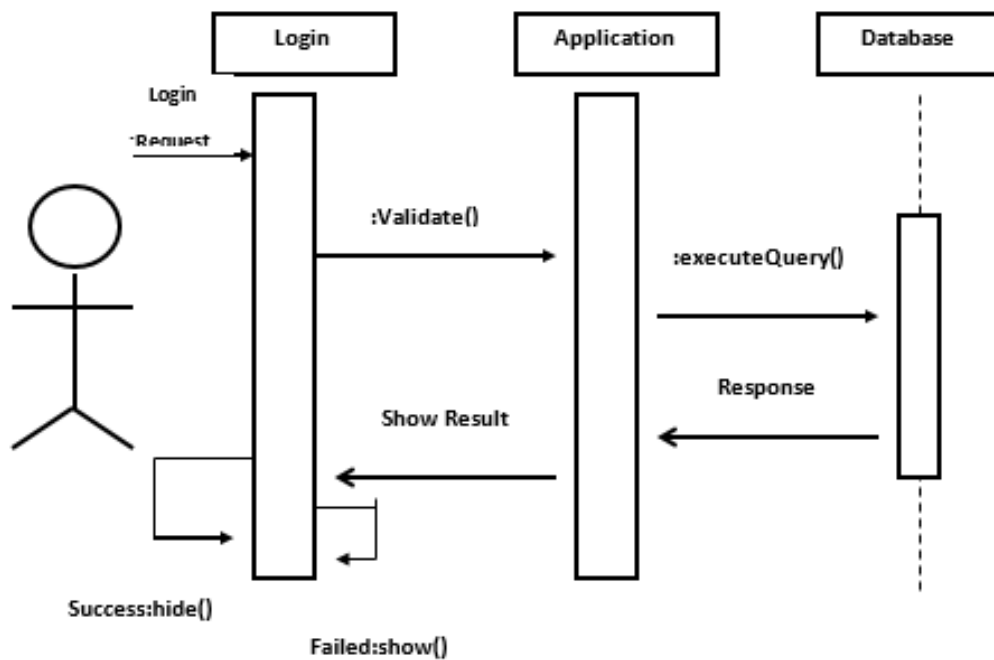
Use Case Diagram between user and system

Sequence Diagram:

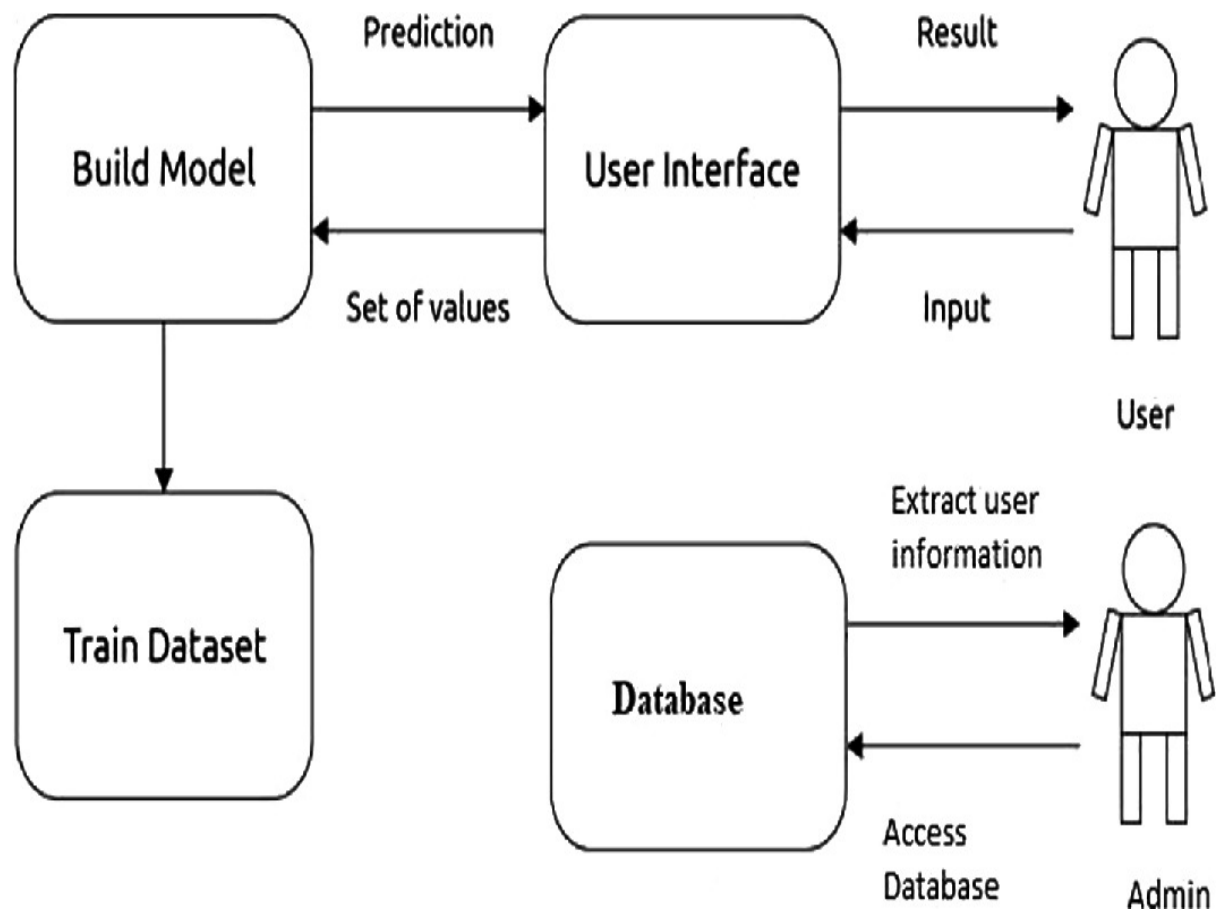
Sequence Diagram For Administrator:-



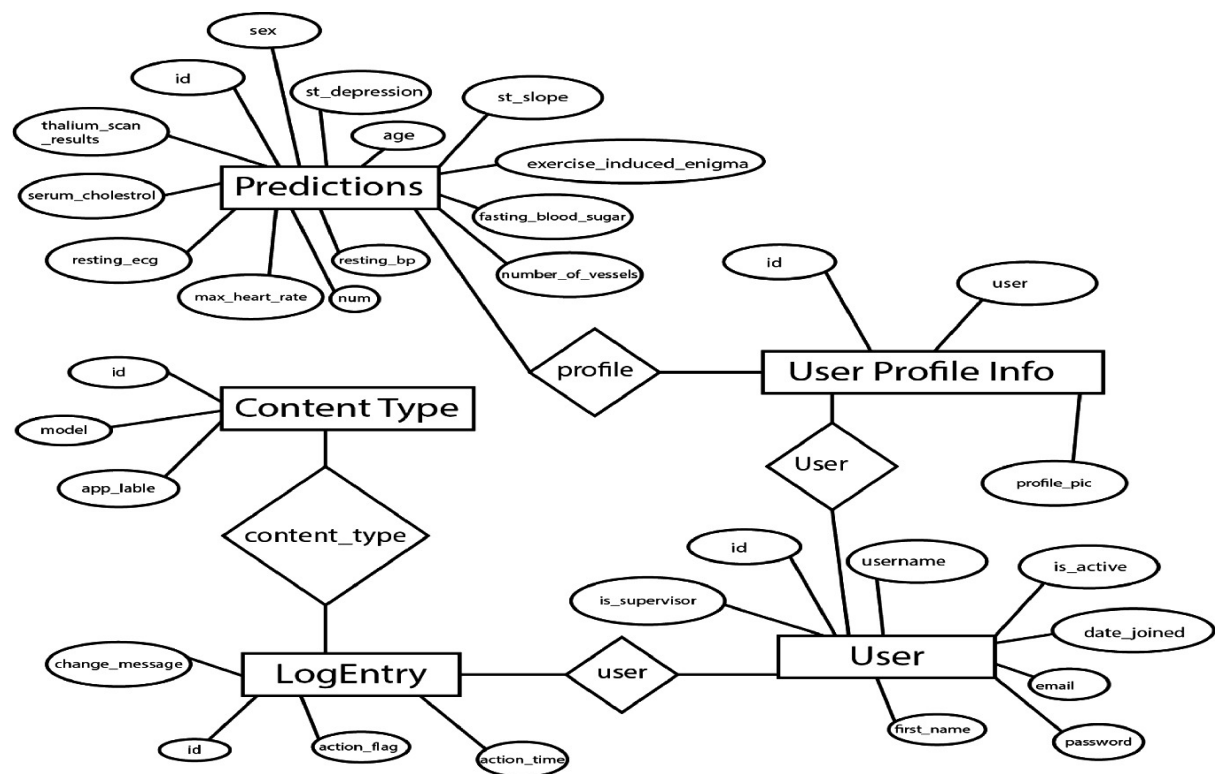
Sequence Diagram For User:-



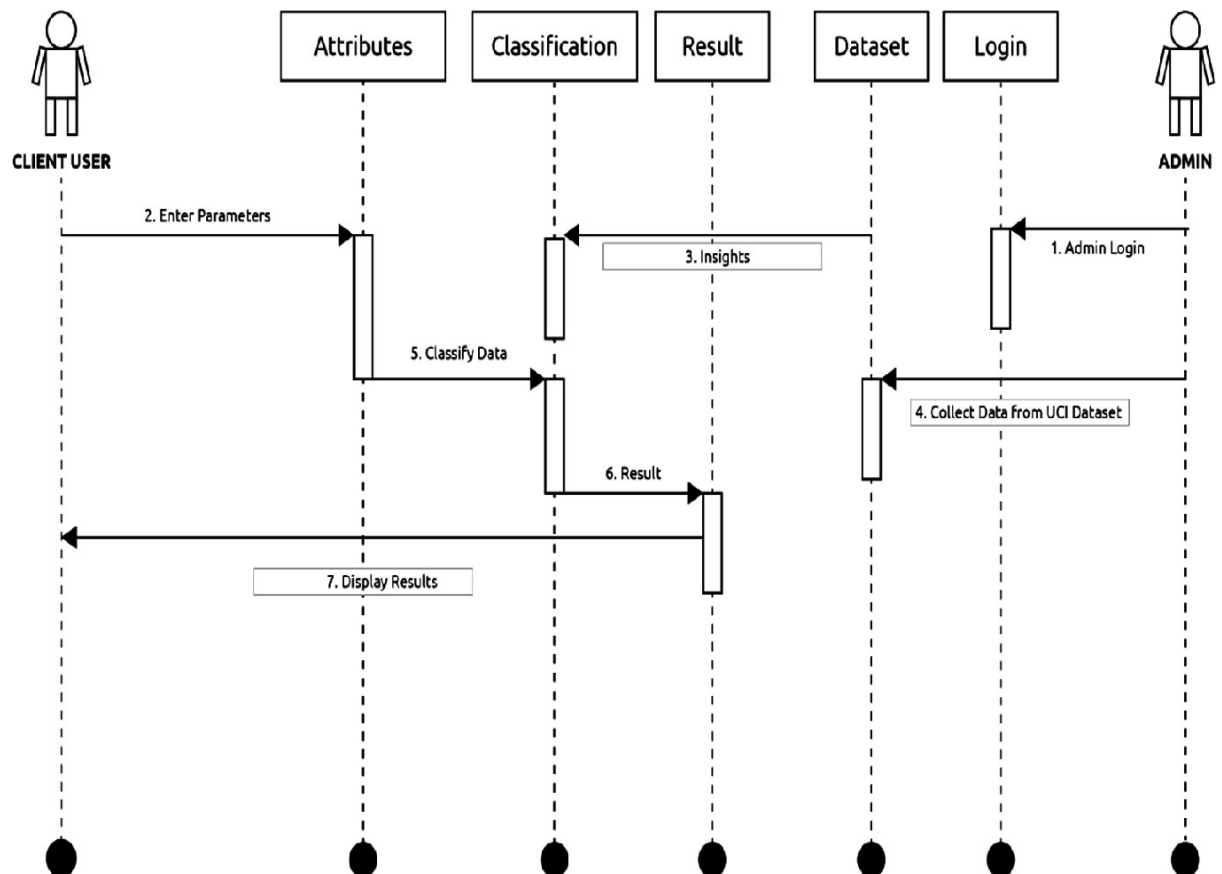
Data Flow Diagram



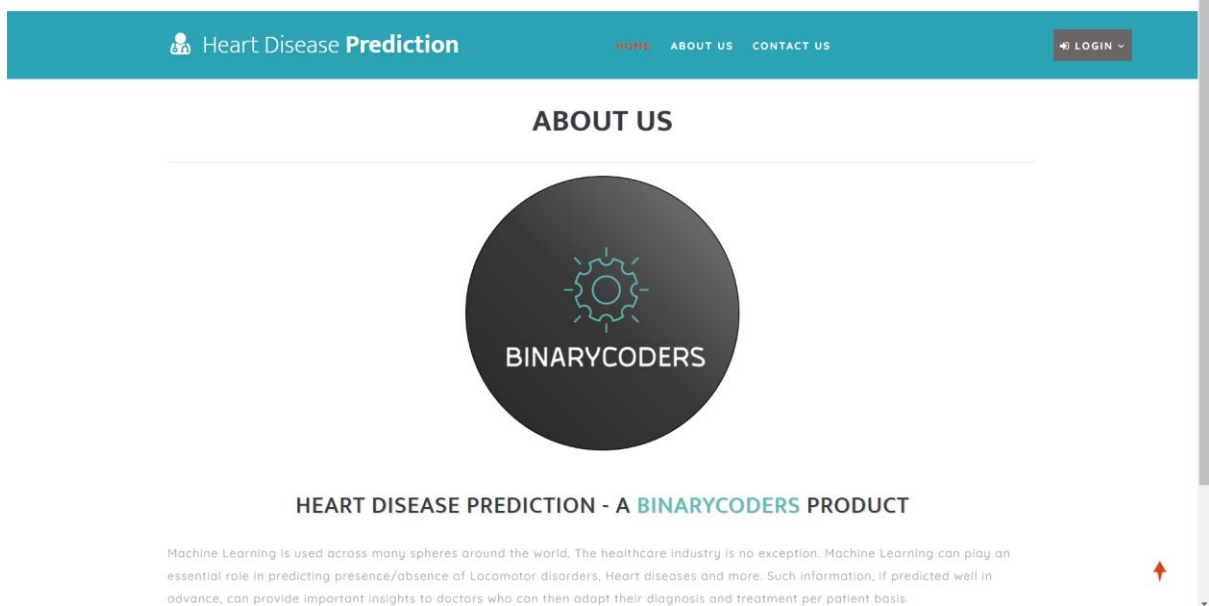
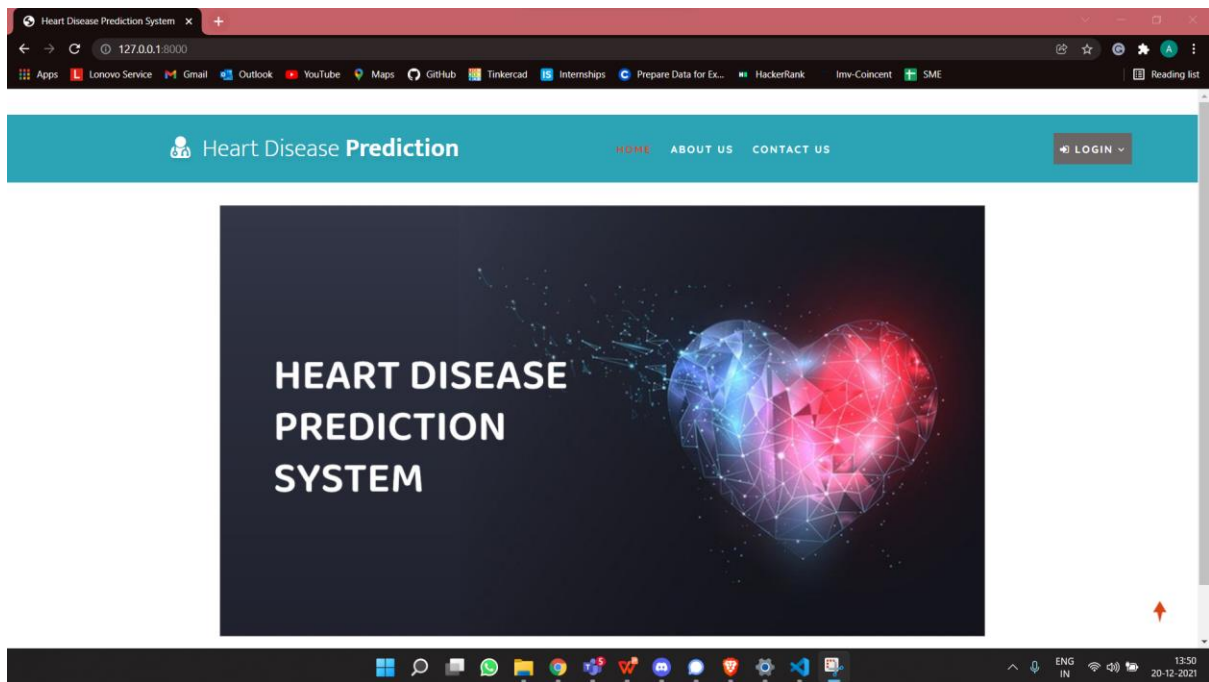
ER-Diagram

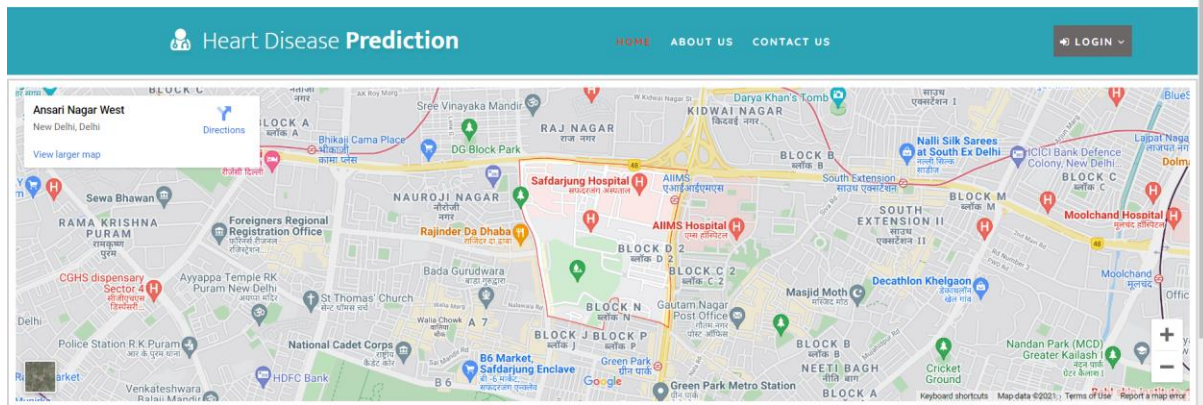


Activity Diagram



OUTPUT SCREENS





CONTACT US

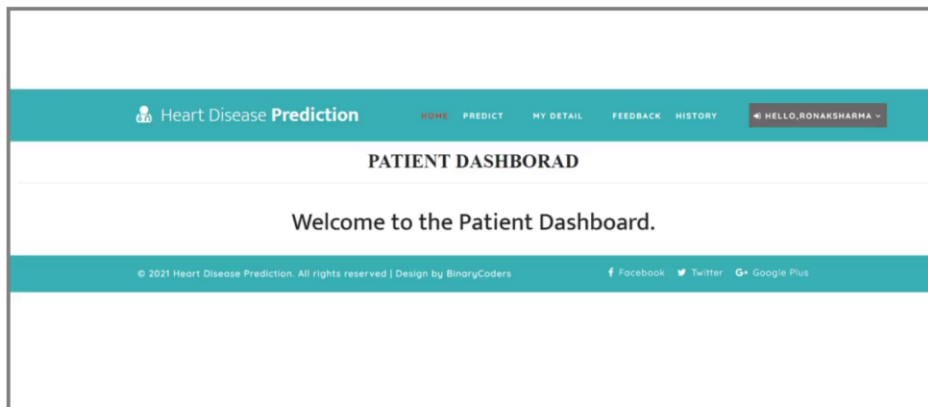
📍 Lorem ipsum, dolor sit

GET IN TOUCH



PATIENT DASHBORAD


Welcome to the Patient Dashboard.



ADD HEART DETAIL

Age	Sex	Chest Pain	Resting BP	Cholestrol	Fasting BS
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
ECG	Max Heart Rate	Exercise Induced	Oldpeak	Slope	Cardiac Arrest
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Thalssemia					
<input type="text"/>					
SEND HEART DATA					

MY DETAIL

Full Name:	Ronak Sharma
Image:	
Email Id :	ronaksharma09@gmail.com
Date of Birth :	July 12, 1979
Contact :	987654321
City :	Amritsar
UPDATE DETAIL	

SEND FEEDBACK







Username

RonakSharma

Write Message

SEND FEEDBACK

SEARCH LOGS

<div> <div>Copy</div> <div>Excel</div> <div>CSV</div> <div>PDF</div> </div> <div>Search: <input type="text"/></div>						
#	Date	Accuracy	Result	HeartValue	Action	
1	Dec. 20, 2021, 4:02 a.m.	88.52459016393442	Healty	[19, 1, 3, 145, 335, 1, 1, 158, 0, 2.3, 2, 0, 1]		
2	Dec. 18, 2021, 7:45 a.m.	88.52459016393442	Unhealty	[64, 0, 2, 140, 335, 0, 1, 158, 0, 0, 2, 0, 2]		
3	Dec. 18, 2021, 7:44 a.m.	88.52459016393442	Unhealty	[19, 1, 3, 145, 233, 1, 0, 150, 0, 2.3, 0, 0, 1]		
4	Dec. 17, 2021, 7:34 p.m.	88.52459016393442	Healty	[64, 1, 2, 140, 335, 0, 1, 158, 0, 0, 2, 0, 2]		
5	Dec. 17, 2021, 7:33 p.m.	88.52459016393442	Unhealty	[64, 0, 2, 140, 335, 0, 1, 158, 0, 0, 2, 0, 2]		
6	Dec. 17, 2021, 7:24 p.m.	88.52459016393442	Unhealty	[19, 1, 3, 145, 233, 1, 0, 150, 0, 2.3, 0, 0, 1]		

Showing 1 to 6 of 6 entries

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LOGIN

Username

Your privacy is our priority.

Password

LOGIN

ADMIN DASHBOARD

2

Total Doctors

All access are given .

5

Total Patients

All access are given .

2

Total Feedback

All access are given .

15

Searched Quantity

All access are given .

Welcome Admin

ADD DOCTOR

First Name <input type="text" value="First Name"/>	Last Name <input type="text" value="Last Name"/>
Username <input type="text" value="Username"/>	Password <input type="password" value="Password"/>
Email <input type="text" value="Enter Email"/>	Contact <input type="text" value="Enter Contact"/>
Address <input type="text" value="Enter Address"/>	Image <input type="button" value="Choose File"/> No file chosen
Specialist <input type="text" value="Specialist"/>	











DOCTOR RECORDS

Search:

#	Full Name	Image	Email	Contact	Address	Category	Status	Assign	Action
No data available in table									

Showing 0 to 0 of 0 entries
Previous
Next

PATIENT DETAILS

<div> <div>Copy</div> <div>Excel</div> <div>CSV</div> <div>PDF</div> </div> <div>Search: <input type="text"/></div>						
#	Full Name	Image	Email	Contact	Address	Action
1	NITYANAND PANDEY		www.narayani021@gmail.com	5323131	GARSANDA	
2	Harish Panjwani		harish@gmail.com	9339465099	Bhopal	
3	Demo Trial		abc@gmail.com	123456789	xyz	
4	Ronak Sharma		ronaksharma09@gmail.com	987654321	Amritsar	
5	Aniket Gupta		abc@gmail.com	123466789	delhi	

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[PATIENT](#)
[SEARCHED DATA](#)
[FEEDBACK](#)

[ADMIN](#)



SEARCH LOGS

<div> <div>Copy</div> <div>Excel</div> <div>CSV</div> <div>PDF</div> </div> <div>Search: <input type="text"/></div>						
#	Patient Name	Accuracy	Result	HeartValue	Action	
1	Aniket Gupta	88.52459016393442	Unhealthy	['64', 0, '2', '145', '335', '1', '1', '158', '0', '2.3', '2', '0', '1']		
2	Ronak Sharma	88.52459016393442	Healty	['19', 1, '3', '145', '335', '1', '1', '158', '0', '2.3', '2', '0', '1']		
3	Ronak Sharma	88.52459016393442	Unhealthy	['64', 0, '2', '140', '335', '0', '1', '158', '0', '0', '2', '0', '2']		
4	Ronak Sharma	88.52459016393442	Unhealthy	['19', 1, '3', '145', '233', '1', '0', '150', '0', '2.3', '0', '0', '1']		
5	Ronak Sharma	88.52459016393442	Healty	['64', 1, '2', '140', '335', '0', '1', '158', '0', '0', '2', '0', '2']		
6	Ronak Sharma	88.52459016393442	Unhealthy	['64', 0, '2', '140', '335', '0', '1', '158', '0', '0', '2', '0', '2']		
7	Ronak Sharma	88.52459016393442	Unhealthy	['19', 1, '3', '145', '233', '1', '0', '150', '0', '2.3', '0', '0', '1']		
8	Harish Panjwani	88.52459016393442	Unhealthy	['25', 0, '3', '145', '233', '1', '0', '150', '0', '2.3', '0', '0', '1']		
9	Harish Panjwani	88.52459016393442	Healty	['22', 0, '834', '839', '83933', '839', '383', '78', '73', '738', '88', '9', '23']		

VIEW FEEDBACKS

Copy
Excel
CSV
PDF

Search:

#	Full Name	Email	Contact	Messages	Action
1	NITYANAND	www.narayani021@gmail.com	5323131	bulabefli iabflhasb slfblshf sbfuhlsbf sljhlflhs beflb lhabflsb lzbfls ljf wf hsbfs lhbfs hbfbs flsbafli hhsbfs bdfs bsfkbs haf bsf s bsf s hlbfas habfsb lhs fbs shlbfa abfs baf lbf alhlfas lbfbs lbfaf llsf sl sfsbik.	
2	Ronak	ronaksharma09@gmail.com	987654321	Hello!!	

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Next



Code:

https://github.com/Binary-Coders/Heart-Disease-Prediction-System/tree/master/Desktop/heart_disease