PROJECT PRESENTATION

Class & Team No:	IV - CSE - A & 10
Review No:	FINAL PROJECT REVIEW
Title:	Web Application For Prediction And Classification Of Multiple Diseases Using Machine Learning And Deep Learning Techniques
Date:	24.03.2023
Time:	10:00 AM

Department of
Computer Science and Engineering
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University – Chennai

KPRIET
LEARN BEYOND

Web Application For Prediction And Classification Of Multiple Diseases Using Machine Learning And Deep Learning Techniques

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DOMAIN

The domain of "Web Application For Prediction And Classification Of Multiple Diseases Using Machine Learning And Deep Learning Techniques" is Web application with Machine learning and deep learning.

INTRODUCTION

- This web application is aimed at providing an efficient and reliable system for diagnosing diseases using advanced algorithms.

- This web application along with machine learning and deep learning can predict and classify various diseases such as cancer, diabetes, heart diseases, and many others with high accuracy.

- The application will use large datasets of patient records and medical reports to train the algorithms, and it will continually improve its accuracy over time.

LITERATURE SURVEY

AUTHOR	TITLE AND YEAR	METHODOLOGY	ADVANTAGES	DISADVANTAGES
Alzubaidi, A. Zaidan, B. B. Zaidan, M. A. Jalab, and H. Al-Qaysi	"Deep Learning for Healthcare: Review, Opportunities and Challenges", 2020	Deep Learning	• Provides a comprehensive review of deep learning applications in healthcare, highlights opportunities and challenges in the field.	● May not cover all recent developments in the field, limited focus on disease prediction.
S. S. S. Nair, A. N. Purushothaman, and N. K. Babu	A Survey of Machine Learning and Deep Learning Applications for Healthcare", 2021	Machine Learning and Deep Learning	● Comprehensive survey of machine learning and deep learning applications in healthcare, covers a wide range of applications, including disease prediction.	• : Limited focus on specific techniques or algorithms used in healthcare, may not cover all recent developments in the field.

LITERATURE SURVEY

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Y. Zhu et al	"A Review on Deep Learning Techniques for Medical Image Classification", 2021	Deep Learning	• Comprehensive review of deep learning techniques for medical image classification, covers a wide range of applications and architectures.	• Limited focus on non-deep learning methods, may not cover all recent developments in the field.
S. Rajaraman	"Deep Learning Applications in Healthcare: A Review",2018	Deep Learning	• Comprehensive review of deep learning applications in healthcare, covers a wide range of topics and includes practical use cases and challenges	• Some sections may be outdated due to the fast pace of development in the field since 2018, limited focus on ethical and legal considerations.

OBJECTIVES

- The main objective of our project is to provide a novel platform and the most promising method

  for the early diagnosis of various diseases which helps doctors in cross- verifying their diagnostic

  findings.

- The application will provide users with accurate and timely diagnoses, ultimately improving
  patient outcomes and reducing healthcare costs.
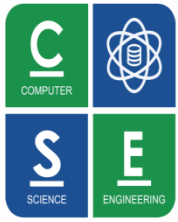
PROBLEM STATEMENT

- The goal is to provide healthcare professionals and patients with a user-friendly and accessible tool that can aid in early detection, diagnosis, and treatment of diseases.

- This system should be able to process large amounts of medical data, extract relevant features, and use them to accurately predict and classify diseases.

- The challenge is to develop a system that can handle the complexity and heterogeneity of medical data and produce reliable results that can be trusted by healthcare professionals.

PROPOSED SYSTEM

User-friendly Web application for prediction of disease using machine learning algorithm and deep learning .
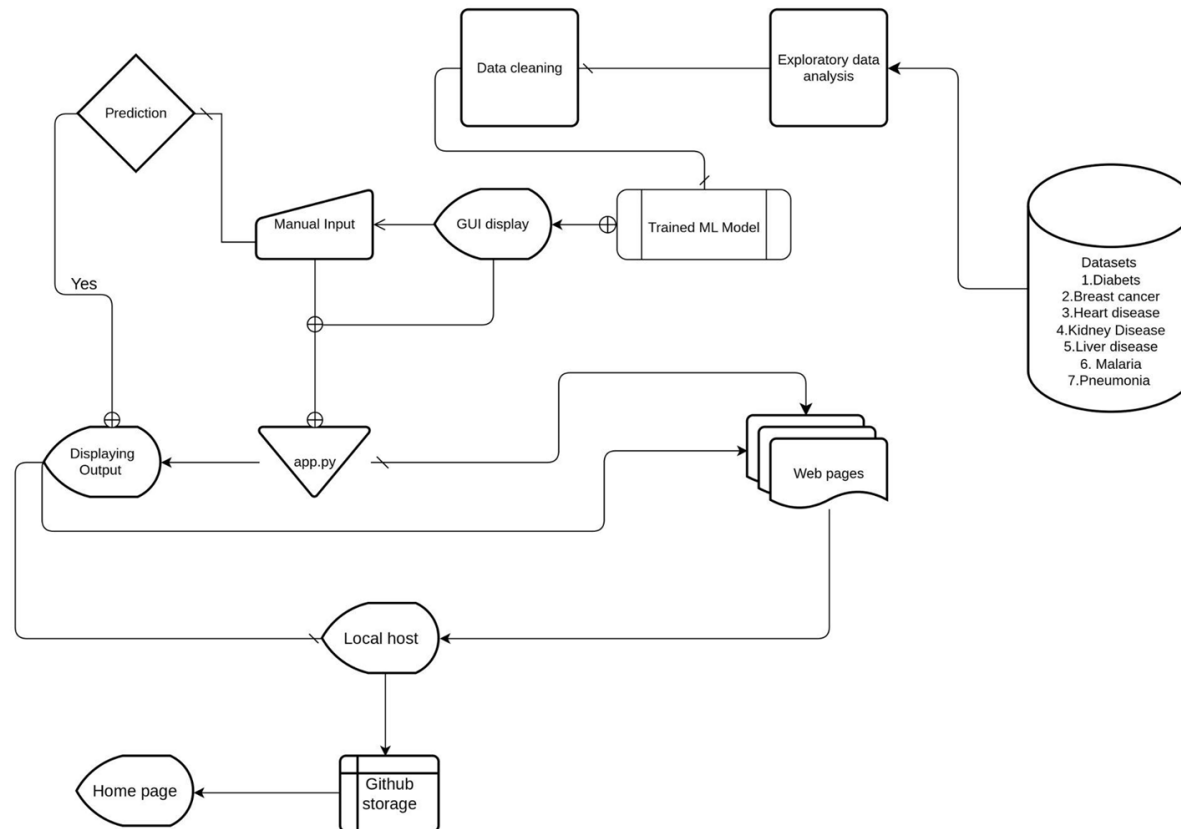
1)Back end

- ○ Machine Learning
- ○ Deep Learning
- ○ Model Creation

2)Front end

- ○ Home page
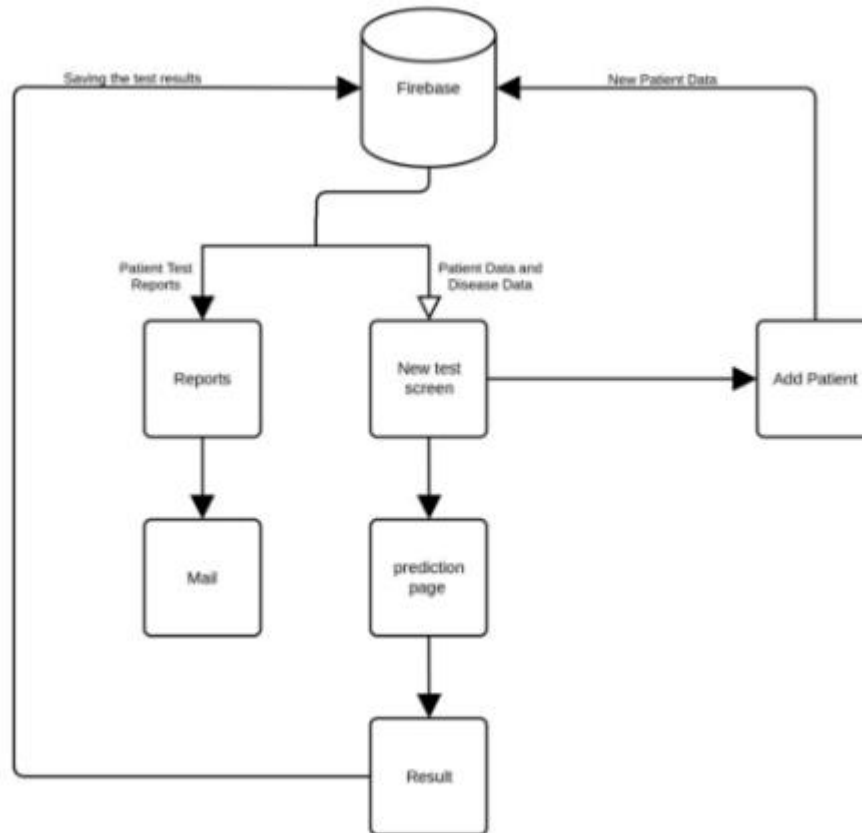- ○ Analysis page
- ○ Add Patients
- ○ Reports

3)Database

Firebase

SYSTEM ARCHITECTURE

Fig 1 - System architecture for Web Application For Prediction And Classification Of Multiple Diseases Using Machine Learning And Deep Learning Techniques

System architecture for System architecture for Web Application For Prediction And Classification Of Multiple Diseases Using Machine Learning And Deep Learning Techniques

SYSTEM ARCHITECTURE

Fig 2 - System architecture for Web Application

System architecture for System architecture for Web Application For Prediction And Classification Of Multiple Diseases Using Machine Learning And Deep Learning Techniques

USE CASE DIAGRAM

Admin :
        Access whole web application and maintain the model

Medical laboratory professional:
        Able to add/manage patients reports and informations

Fig 3 Use case diagram

SYSTEM REQUIREMENTS

SOFTWARE REQUIRED:

- Operating System – Windows 7/8/10

- Language – Python 3.8 and above

- IDE – Visual studio

- Node JS

- Flask

- Python Pacakage based on requirements (i.e Pickel , Sklearn etc..)

- Database Connection → Firebase

1. Development Framework:
   a. React.js will be used to develop the web application.
   b. React is a popular front-end development library that enables developers to create fast and dynamic user interfaces.

2. Email JS:
   a. The Email JS library can be used to send reports via email. This library allows developers to easily send emails using JavaScript and HTML templates.
   b. It provides an easy-to-use API that can be integrated with the web application to send reports to users.

1. Disease Prediction:
   a. The web application will use machine learning algorithms to predict and classify multiple diseases.
   b. For heart, liver, breast cancer, kidney, and diabetes diseases, the machine learning algorithm Random Forest can be used to train and classify the datasets.
   c. Random Forest is a powerful classification algorithm that can handle complex datasets with high accuracy.
   d. For malaria and pneumonia diseases, the web application can use deep learning algorithms to train and classify the image dataset. Convolutional Neural Networks (CNNs) are commonly used for image classification tasks, and they can be used in this project to classify the images of malaria and pneumonia.

4.Datasets:

       For heart, liver, breast cancer, kidney, and diabetes diseases, publicly available datasets such as the UCI Machine Learning Repository can be used.

a. These datasets contain a large number of samples and features that can be used to train the machine learning algorithm.

b. For malaria and pneumonia diseases, image datasets such as the Malaria Cell Images Dataset and Chest X-ray Images Dataset can be used.

c. These datasets contain a large number of images that can be used to train the deep learning algorithm.

5.Database:

a. Firebase can be used as a NoSQL database to store patient reports. Firebase provides a cloud-based database that can be easily integrated with React.js.

b. This will enable the web application to store and retrieve patient reports.

IMPLEMENTATION DETAIL

6. Reporting:
   a. The web application can generate a report for each patient based on their medical history and the disease prediction. The report can be sent to the patient via email using the Email JS library.
   b. The report can also be stored in the Firebase database for future reference.

7. User Interface:
   a. React.js can be used to create a user-friendly interface for the web application.
   b. interface can allow patients to input their medical history and symptoms, view their reports, and receive email notifications when their reports are ready.
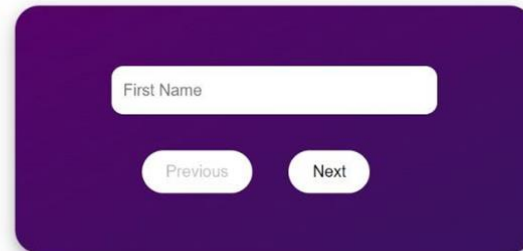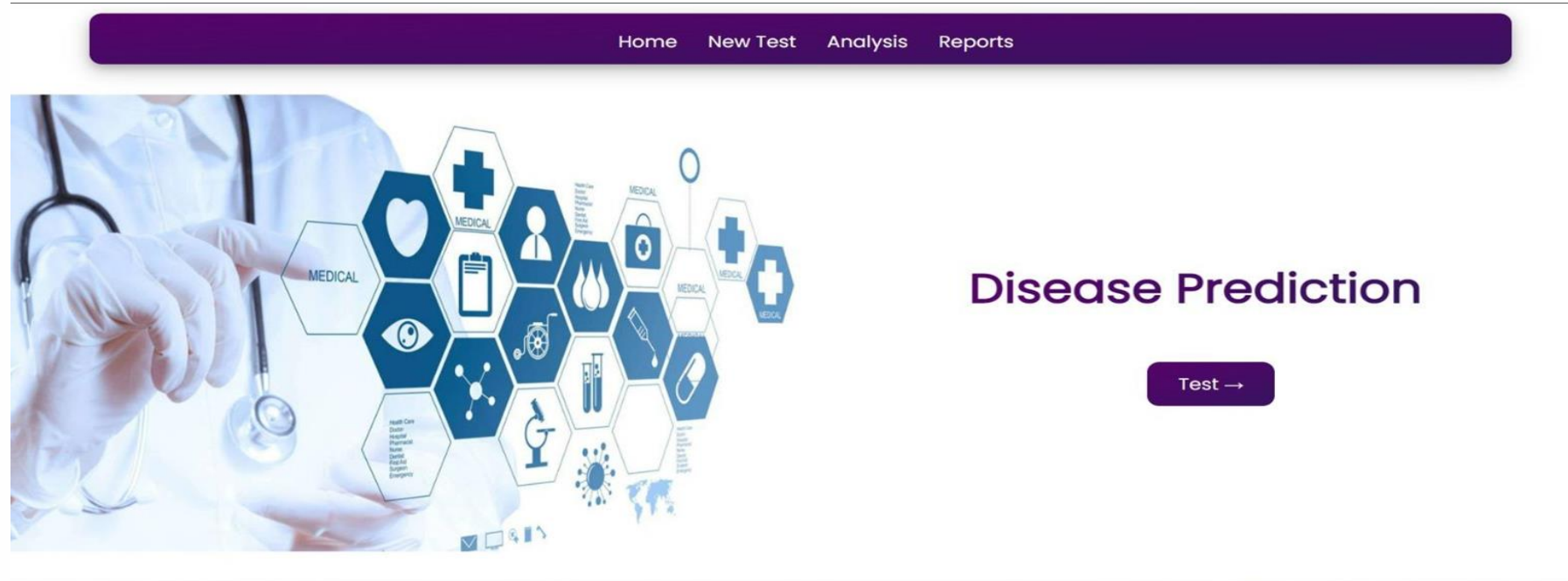
RESULTS

Fig 4 Home page

Home Page :
Main page to redirects to all other pages in web application .
Test → will redirects to test the disease based on blood test and ct scan

RESULTS

Fig 5 Adding a new patients

Add New Patient Page :

- Enables to a patients details to database
- Input Parameter of users like
  - Name
  - Email
  - Age etc..
- Redirects to predict disease based on the blood test

RESULTS

Fig 6 Prediction page

Prediction Page :

This pages shows the results based on input parameters

RESULTS

Fig 7 & 8 Reports page

Reports Page :

- Consists of all reports of patients with patients details

- From this page , It redirects to mail to share the reports to patients

CONCLUSION & FUTURE SCOPE

- Our system can be adapted to any kind of Environment and it supports well with any Ideology to make the change.

- In the future, it can add more strategies like the XGB Algorithm which is an Extreme Gradient Boosting algorithm that can make even high accuracy of predictions.

- Improvement with patients interface .

- Addition making a appointment with doctor speciality of specfic disease

- Chatbot for patients queries.

- It and also be developed as a Android Application.

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PUBLICATION DETAIL

PAPER TITLE	CONFERENCE	ACCEPTED	PRESENTED	PUBLISHED	SUMMARY	Link
A Perlustration on the optimistic prognosis of chronic renal failure using evolutionary machine learning and deep learning techniques	ICCCI	Yes	Yes	No	Our ideology is practicable and, if possible, might be developed as an application. Making image detection easier by segmenting and creating images from all conceivable angles. Other than binary classification, various other features may be used to discover further classifications such as low, mild, medium, and high (chances).	http://iccci.in/

PUBLICATION DETAIL

PAPER TITLE	CONFERENCE	ACCEPTED	PRESENTED	PUBLISHED	SUMMARY	Link
Web Application For Prediction And Classification Of Multiple Diseases Using Machine Learning And Deep Learning Techniques	ICAISC	Yes	Yes	No	The primary goal of this study was to develop a system that could accurately forecast several diseases. The doctors doesn't have to navigate via several websites thanks to this project, which also saves time. The project is set up so that the gadget uses the user's symptoms as input and produces illness prognosis as the output.	https://www.bitsathy.ac.in/events/ICAISC-2023/committee.html

Queries.

Thank you.