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DISEASE PREDICTION WEB BASED SYSTEM

KCA UNIVERSITY

PROJECT 1(!!)

## Background

Use of computing in the field of medicine can be seen from the early 1950s. However, the first applications of systems using AI in medicine can only be seen during the 1970s through expert systems such as INTERNIST-I, MYCIN, ONCOSIN. The application of artificial intelligence in medicine was mostly limited in Kenya before 2000. An international conference was organized on September 2010 in Nairobi County to provide a clear view how to help patients with the act of first Aid across the world, BLIZZ health care was concerned with the disease prediction system that would bring a brighter change to the remote future.

## Relevance of the project

The major problem with using AI for the diagnosis of disease is the lack of data for training predictive models. Though there is vast amount of data including mammograms, genetic tests, and medical records, they are not open to the people who can make use of them for research. The project tries to cover up and identify various way that patients can be help with necessarily going to the hospital.

## Problem statement

The primary goal is to develop a prediction engine which will allow the users to check whether they have diseases like malaria, tuberculosis, typhoid, diabetes or heart disease et cetera sitting at home when feeling sick. The user don't need visit the doctor unless he or she has a strong disease that required physical checkup, for further treatment. The prediction engine requires a large dataset and efficient machine learning algorithms to predict the presence of the disease. Pre-processing the dataset to train the machine learning models, removing redundant, null, or invalid data for optimal performance of the prediction engine

## Objectives

- ▶ The primary of this project is to predict the disease from the given symptoms create and monitors a health profile of every individuals patients
- ▶ In order to predict disease several factors has been consider such as body mass index, cholesterol level, blood sugar, blood pressure and so on.
- ▶ It also recommend necessary precautionary measures required to treat the predicted disease
- ▶ Diseases that can be predicted using machine learning are simple cart, naïve Bayes, svm and random forest are used for prediction and analyze the diabetes data
- ▶ The secondary aim is to develop a web application that allows users to predict heart disease, malaria, tuberculosis, diabetes et cetera utilizing the prediction engine
- ▶ To implement the IT in real world problems.
- ▶ To help general practice doctors, nurses, nursing students and to assist the eye patients as first aid diagnosis

## Scope of the project

The disease diagnosis system will permit end-users to predict disease like malaria, tuberculosis, typhoid, heart disease et cetera

## Growth of AI systems

Artificial Intelligence is one of the hottest topics today. The revenue for cognitive and artificial intelligence systems is expected to hit \$12.5 billion

Regression method fall within the category of supervised ML, They help to predict or explain a particular numerical value based on a set of prior data. For example predicting the disease based on previous disease result data inserted

## Availability of doctors and chat bot

Other than disease diagnosis, artificial intelligence can be used to streamline and optimize the clinical process. There is only one doctor for over 1600 patients in Kenya. AI health assistants can help in covering large part of clinical and outpatient services freeing up doctor's time to attend more critical cases. Chat bot like "SH chat bot" can assist patients by understanding what disease to cure' symptoms and suggest easy-to-understand medical information about their condition

## Internet of things (IOT), Healthcare and machine learning

- ▶ Increasing use of Internet of Things has promising benefits in healthcare.
- ▶ Dynamically collecting patient data using remote sensors can help in early detection of health problems and aid in preventive care

## Agile methodology

Agile is a process by which a team can manage a project by breaking it up into several stages and involving constant collaboration with stakeholders and continuous improvement and iteration at every stage. It promotes **continuous iteration** of development and testing throughout the software development life cycle of the project. Both development and testing activities are concurrent

## Literature Survey

The following chapters give an overview of the various methodologies used by various authors for disease prediction using machine learning methodologies. We can observe that there is fine comparison made between 5 major machine learning algorithms whether they are able to predict the presence of the disease with a greater accuracy, achieving optimal performance. The research efforts presented by the authors in the following papers are focused in developing and evaluating a web-based tool for disease prediction

**Author: Priyanka Sonar, Prof. K. JayaMalini**

- ▶ **Published In: Proceedings of the Third International Conference on Computing**

- ▶ **Methodologies and Communication (ICCMC 2019)**
- ▶ **The authors have used Machine Learning approaches to predict diabetes [1]**
- ▶ Diabetes is one of lethal diseases in the world. It is additional an inventor of various varieties of disorders for example: coronary failure, blindness, urinary organ diseases etc. In such a case the patient is required to visit a diagnostic centre, to get their reports after consultation. Due to every time they must invest their time and currency. But with the growth of Machine Learning methods we have got the flexibility to search out an answer to the current issue, we have got advanced system mistreatment information processing that has the ability to forecast whether the patient has polygenic illness or not. Furthermore, forecasting the sickness initially ends up in providing the patients before it begins vital. Information withdrawal has the flexibility to remove unseen data

**Authors: Samrat Kumar Dey, Ashraf Hossain and Md. Mahbubur Rahman**

- ▶ **Published In: 2018 21<sup>st</sup> International Conference of Computer and Information Technology (ICCIT)**
- ▶ **The authors design and develop a web application to predict diabetes [2]**
- ▶ Diabetes is caused due to the excessive amount of sugar condensed into the blood. Currently, it is considered as one of the lethal diseases in the world. People all around

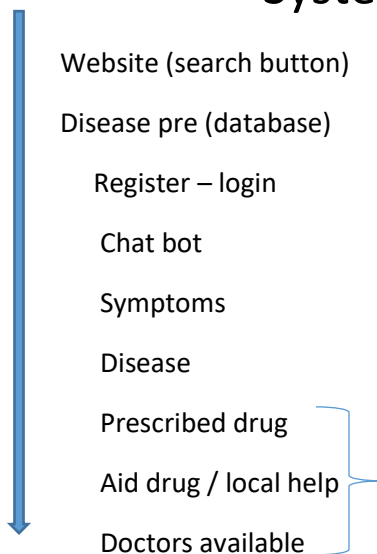
## Budget and resources

Budget		Alternative
Laptop	HP notebook 500GB	HP envy x306 500GB
software	Visual basic, XAMPP, adobe illustrator	Sublime text, WAMP server
Hard disk	100gb	50GB

## Project schedule

Task no	Description	Task no of hours	Sub task no HR	Planned STRT date	Actual STRT date	Planned completion	Actual completion	Deliverables
proposal	Proposal presentation	5	2	1/10/2022	3/10/22	5/10/2022	5/10/2022	
SRS	SRS DOC	72	48	17/10/22	20/10/22	25/10/22	26/10/22	
SDS	SDS DOC	72	48	25/10/22	28/10/22	10/11/22	11/10/22	
Testing plan	Testing doc	48	24	13/11/22	15/11/22	17/11/22	17/11/22	
User manual	User manual	48	48	18/11/22	18/10/22	19/11/22	19/11/22	
Implementation	Implementation doc	100	100	20/11/22	20/11/22	28/11/22	28/11/2022	
Final report	Final report doc	48	24	29/11/22	29/11/22	30/11/22	30/11/22	

## System overview



## Reference

- ▶ Beverly G. Hope, Rosewary H. Wild, « AnExpert Support System for Service Quality Improvement», Proceedings of the TwentySeventh Annual Hawaii International Conference on System Science, 1994
- ▶ Analysis and design of information systems by V.Rajaraman, 5th print, PHI, pp 113-137
- ▶ Joseph Giarratano, Gary Riley (2004). Expert Systems: Principles and Programming, Fourth Edition,