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DISEASE PREDICTION WEB BASED SYSTEM

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TWO SEMESTER PROJECT

CHAPTER ONE

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 of 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

CHAPTER TWO

Literature Review

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 21st 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

CHAPTER THREE

**Methodology**

RESEARCH METHODOLOGY

QUALITATIVE METHOD

Interviewing

I did interview in northern areas of kenya and found out that people cannot access hospitals as needed for help, This encourages me to provide people with system that will help them provide themselves with a clear first aid of any sort.

Observation

This is a clear show that my system and ideological perspective should exist in human daily life. Most of us have problem of disease help depending on geographical location the patient is located, but I believe my system will have a positive impact to all

Questionnaire

I did some few questionnairing and found out that people luck a digitized system that detect disease and give a possible solution to cure the disease. Example. John Kamau said that It would be better if the system exist to help people figure out what is happening to them because not all people have knowledge of what to do when sick. Documentation of first aid help may help alot

DEVELOPMENT METHODOLOGY

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

AGILE SCRUM METHODOLOGY

SCRUM is an agile development method which concentrates specifically on how to manage tasks within a team-based development environment. Scrum encourages Iearner to learn through experiences, self-organize while working on a problem. Each iteraction consists of two to four sprints, where the goal of each is to build the most important features first and come out with a potentially deliverables product.

SCRUM VALUES

THE MAIN ARTEFACT

**Product Backlog** is the master list of work that needs to get done maintained by the product owner or product manager.

**Sprint Backlog** is the list of items, user stories, or bug fixes, selected by the development team for implementation in the current sprint cycle.

**Increment** (or Sprint Goal) is the usable end-product from a sprint

DP

DATABASE ARCHITECTURE

Database

CB

Budget and resources

|  |  |  |
| --- | --- | --- |
| Budget |  | Alternative |
| Laptop | HP notebook 500GB | HP envy x306 500GB |
| software | Visual basic, XAMPP, adobe illustrator,Pycharm | 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

Website (search button)

Disease pre (database)

Register – login

Chat bot

Symptoms

Disease

Prescribed drug

Aid drug / local help

Doctors available

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,