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PROJECT SYNOPSIS

ON

"Health Help: An All-in-One Disease Predictor"

submitted in partial fulfillment of the requirement for the award of degree of

BACHELOR OF TECHNOLOGY

IN

Computer Science & Engineering

Major Project:
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Batch: 2020-2024

PROJECT GUIDE:

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Project Title:

"Health Help: An All-in-One Disease Predictor"

Major Project:

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Programming Language: Python

Tools & Technology: Machine Learning, Deep Learning, Jupyter Notebook, Vs Code

ABSTRACT

AI and machine learning have gained a lot of popularity and acceptance in recent years. With the onset of the Covid-19 pandemic, the situation changed even more. During the crisis, we witnessed a rapid digital transformation and the adoption of disruptive technology across different industries. Healthcare was one of the potential sectors that gained many benefits from deploying disruptive technologies. AI, machine learning, and deep learning have become an imperative part of the sector. Deep learning in healthcare has a huge impact and it has enabled the sector to improve patient monitoring and diagnostics.

In this project, I will try to detect several diseases by leveraging AI with just a few clicks at home with a good accuracy. Accordingly, these diseases can be treated quickly. I am going to implement the prediction model using various Machine Learning Algorithm like Random Forest, XG Boost etc. This project can be expanded to any number of diseases in the future as well.

OBJECTIVE & SCOPE

Objective:

The objective of this project is to develop a user-friendly AI-driven system capable of detecting multiple diseases with high accuracy using machine learning algorithms. By leveraging the power of AI, the aim is to provide individuals with the ability to perform disease detection from the comfort of their homes with minimal effort and with just a few clicks. The primary focus is on utilizing disruptive technologies to enable quick and accurate disease identification, leading to prompt treatment and improved healthcare outcomes.

Scope:

- **Disease Detection System:** The project will focus on building a robust disease detection system that utilizes AI and machine learning algorithms to accurately identify various diseases. Initially, the system will be designed to detect a predefined set of diseases, with the potential for expansion to include additional diseases in the future.

- **User-Friendly Interface:** Emphasis will be placed on creating an intuitive and user-friendly interface that allows individuals to easily interact with the system. The interface will enable users to input relevant data and receive timely and accurate disease predictions with just a few clicks, eliminating the need for complex procedures or specialized knowledge.

- **Machine Learning Implementation:** The project will involve the implementation of machine learning algorithms such as Random Forest, XG Boost, and other relevant techniques to develop the disease prediction model. The algorithms will be trained on large datasets containing medical information to ensure the accuracy and reliability of the predictions.

- **Accuracy and Validation:** Rigorous testing and validation procedures will be conducted to assess the accuracy and reliability of the disease detection system. This will involve evaluating the performance of the machine learning algorithms on both training and testing datasets, as well as conducting real-world validation studies to assess the system's effectiveness in practical healthcare scenarios.

- **Scalability and Future Expansion:** The project will be designed with scalability in mind, allowing for future expansion to incorporate additional diseases and functionalities. The system architecture will be flexible enough to accommodate new data sources, algorithm enhancements, and technological advancements, ensuring its relevance and effectiveness in the evolving landscape of healthcare and AI.

INTRODUCTION

In an era marked by exponential growth in technological innovation, the healthcare landscape stands at the forefront of embracing Artificial Intelligence (AI) as a catalyst for transformative change. Across diverse healthcare settings, from hospitals to specialized clinics, there is a palpable surge of interest in harnessing AI's potential to enhance patient care, streamline operations, and optimize resource utilization. The evolving sophistication and accessibility of AI tools have opened up a realm of possibilities, presenting healthcare providers, payers, and stakeholders with an array of opportunities to revolutionize the delivery of healthcare services.

Amidst this dynamic backdrop, the emergence of the Health Help app signifies a paradigm shift in healthcare delivery. The Health Help app represents a predictive application poised to redefine the traditional approach to disease detection and diagnosis. By leveraging the power of machine learning, this innovative application empowers users to assess their health status conveniently and efficiently, thereby democratizing access to vital healthcare insights.

At its core, the Health Help app epitomizes the convergence of technology and healthcare, offering users a seamless interface to ascertain the likelihood of specific diseases based on user-provided data. Grounded in robust machine learning algorithms, the predictive capabilities of the app are underpinned by extensive training on diverse datasets, ensuring accuracy and reliability in its prognostications.

In this project, we delve into the intricacies of developing and implementing the Health Help app, elucidating its methodology, features, and potential impact on healthcare delivery. By elucidating the symbiotic relationship between AI and healthcare, this project aims to illuminate the transformative potential of predictive applications in shaping the future of patient-centric care.

TECHNICAL DETAILS

Minimum Hardware Requirements

- Processor: 5th gen Intel core (i3)

- Clock-speed: 1.7GHz

- Memory Space: 500GB

- RAM: 8GB

- Display: 1024 x 768

- Mouse: Digital

- Keyboard: 105 Digital keys

Minimum Software Requirements

- Operating System: Windows

- Jupyter Notebook: To handle python code

- Python: Version 3.0

- IDE: VS Code

PLANNING OF WORK

Machine learning is a subset of artificial intelligence function that provides the system with the ability to learn from data without being programmed explicitly.
Machine learning is basically a mathematical and probabilistic model which requires tons of computations. It is very trivial for humans to do those tasks, but computational machines can perform similar tasks very easily.
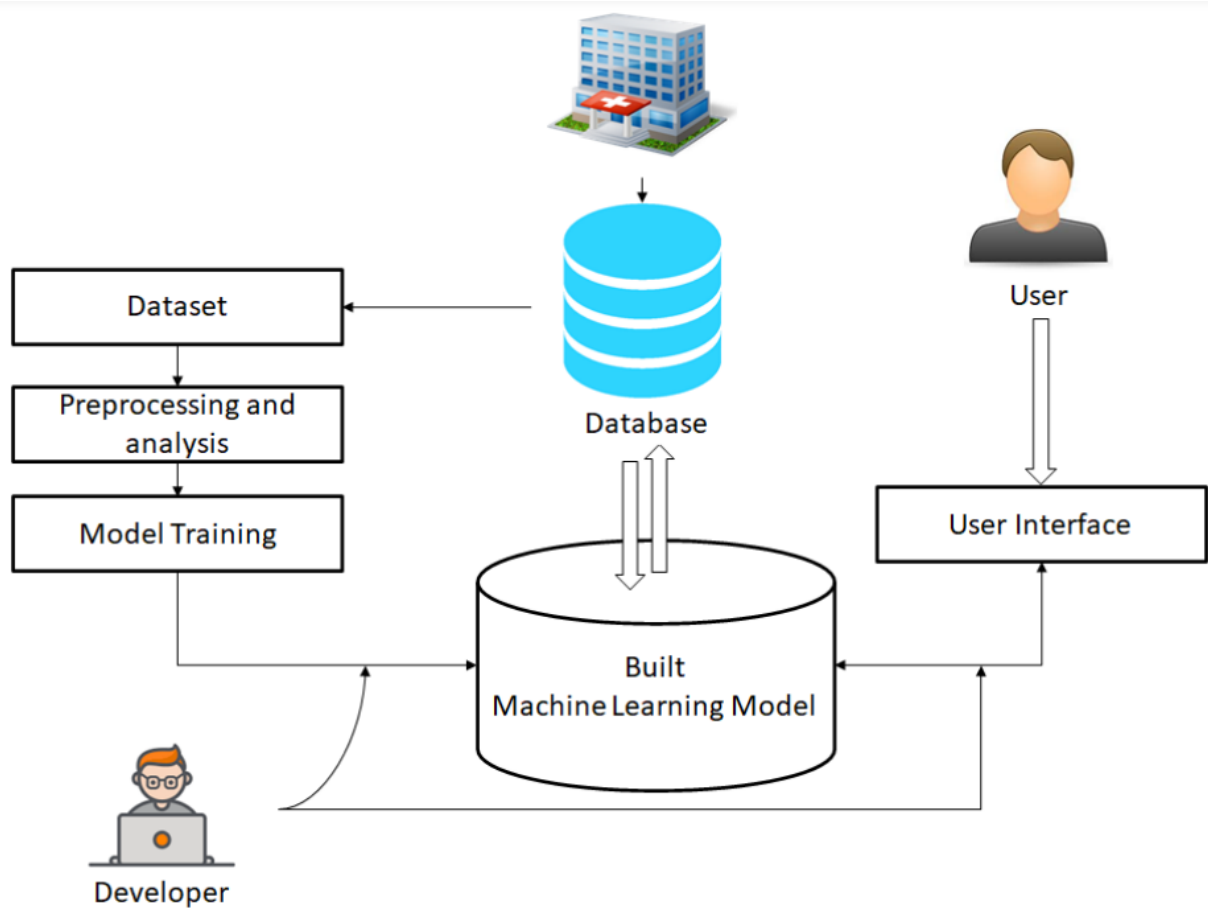
The following are the phases in the modelling process:

1.Examine the problem. We must first thoroughly investigate the situation to pinpoint the problem and fully comprehend its central issues

2.Construct a model

3.Complete the model

4.Verify and interpret the solution of the model

5.Prepare a report on the model

6.Keep the model going

SYSTEM DISCRIPTION

The proposed system consists of a developer who is responsible for developing the machine learning model with the help of the dataset obtained from the hospital. The end user can access the built model from the User Interface which was made by the developer.

The dataset which is collected from the Hospital is stored in the database and is used for building the machine learning models. The model is then trained and then deployed in the web application as the user interface for the end users to interact with.

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