

AI Based Multiple Disease Predictor

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Abstract — Due to the COVID-19 epidemic and preference for doorstep delivery, mobile health (mHealth) platforms have seen a surge in demand in recent years. However, academic research has mainly ignored the elements affecting user experiences and satisfaction levels on these platforms when using customer reviews. The AI Based Disease Predictor is a cutting-edge smartphone programmer created to help people identify illnesses based on their symptoms and offer helpful treatment advice. By aiding early diagnosis and pointing users in the direction of efficient treatments, this app seeks to enable people to take an active part in their health. It does this by utilizing cutting-edge algorithms and medical expertise. The AI Based Disease Predictor has the power to completely alter how people identify ailments, get treatment suggestions, and take charge of their own health care. This software gives users the power to take charge of their health and make wise decisions about their wellbeing by utilizing symptom analysis, personalized treatment suggestions, integration with healthcare providers, and health education materials.

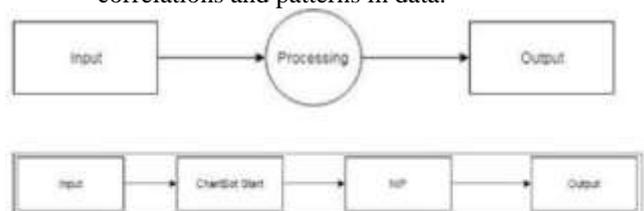
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I. INTRODUCTION

With advancements in digital healthcare technologies like artificial intelligence (AI), 3D printing, robotics, nanotechnology, etc., healthcare is taking shape right before our eyes. Healthcare digitization offers a variety of chances for lowering human error rates, enhancing clinical results, monitoring data over time, etc. The improvement of new clinical systems, patient information and records, and the treatment of various ailments are all areas where AI technologies, from machine learning to deep learning, play a critical role. The diagnosis of various diseases may also be made most effectively using AI approaches. The use of artificial intelligence (AI) in medical services provides the previously unheard-of opportunities to recover patient and clinical group results, cut expenses, etc. To identify diseases that require early diagnosis machine and deep learning models. Therefore, in related work, many methods for diagnosing illnesses are described together with their accuracy, including the Boltzmann machine, K closest neighbour (KNN), support vector machine (SVM), decision tree, logistic regression, also artificial neural network. A ground-breaking smartphone software called the Symptom-Based Disease Detection and Cure software uses cutting-edge algorithms and medical expertise to identify diseases based on symptoms given by the user. This article examines the main characteristics, advantages, and prospective effects of this ground-breaking software in delivering individualised healthcare solution.

II. METHODS AND MATERIAL:

- System have 3 users as doctor, patient and admin.
 - There is a role-based access to the system.
 - The system suggests doctors for predicted diseases. Their convenience by sitting at home. Front end: HTML, Cascading Style Sheet, JavaScript, jQuery, Bootstrap Back end: Django (python-based web framework) Database: PostgreSQL Tools: PgMyadmin, Orange the Python, python libraries, Kaggle was used to build the chat application, which is described in detail in the next section. It outlines the methodical steps taken to create the application, along with the tools, frameworks, and technologies used.
- 1) Python - python is programming language used in this title AI Based Multiple Disease Predictor Python is a high-level, interpreted, and general-purpose programming language. python libraries: The following are a few libraries that were used: NumPy, pandas, and seaborn.
 - 2) NumPy - NumPy is a strong Python numerical computation package. It supports massive, multi-dimensional arrays and matrices, as well as a set of mathematical functions for effectively manipulating and operating on these arrays. because of its quick array processing capabilities
 - 3) Pandas- Pandas is a well-known Python toolkit for data manipulation and analysis. It includes data structures such as Series (1-dimensional) and Data Frame (2-dimensional) that are designed to properly manage structured data. Pandas provide various data cleaning, transformation, merging, and aggregation methods. also works with libraries, allowing for smooth data pre-treatment before doing analytic or modelling activities.
 - 4) Seaborn- it is a Python data visualisation package regarding matplotlib. It provides a high-level interface for making aesthetically beautiful and useful statistics visuals. Seaborn makes it easier to create basic visualisation types including histograms, bar graphs, scatter plots, and heatmaps. It also has further features for visualising statistical correlations and patterns in data.



III. AI/ML METHODOLOGIES:

Logistic regression: A statistical model used for binary classification tasks is logistic regression. It estimates the likelihood that an instance belongs to a specific class (often denoted as 0 or 1). It is dubbed "logistic" because it employs the logistic function (also known as the sigmoid function) to convert the linear regression result into a probability ranging from 0 to 1. **K-Nearest Neighbours (KNN):** KNN is a regression and classification supervised learning approach. It entails calculating the difference between test inputs and data feature values. By measuring accuracy for various K values, the algorithm decides the value of K (number of nearest neighbours). **Support Vector Machines (SVM)** is a popular machine learning algorithm used for both classification and regression tasks. SVMs are based on the concept of finding an optimal hyperplane that separates data points belonging to different classes in a high-dimensional space.

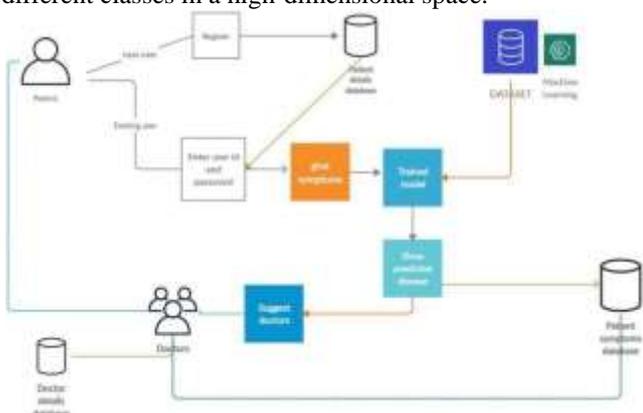


Fig. 2: flow of the model is as shown above

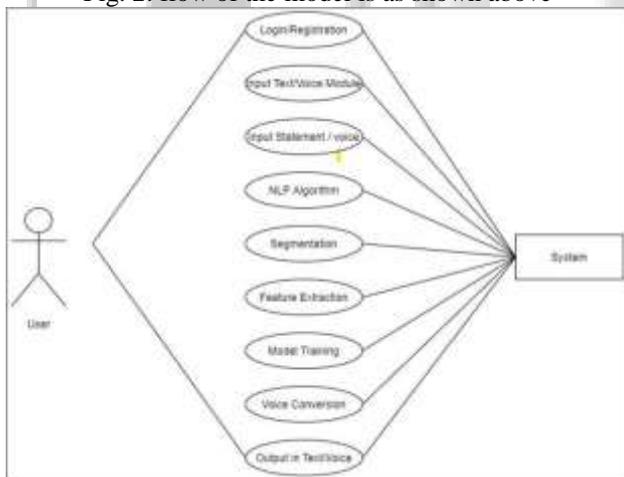


Fig. 3: Use Case Diagram

IV. RESULTS AND DISCUSSION

An overview of how long it took to complete each task, such as preliminary survey introduction and problem statement, literature survey, project statement, software requirement and specification, system design, partial report submission, architecture design, implementation, deployment testing, paper publication, report submission, and so on. This chapter also focuses on the stakeholder list, which includes information on the project type, the proposed system's client, the user, and the project member who designed the system. The activities in this work are carried out by a laptop

equipped with an i5 CPU and programming written in Python. Logistic Regression, KNN, and SVM are the algorithms utilised in this study, and the accuracies are computed using cross-validation with factor cv set to 10. The accuracy of each illness is depicted using bar graphs. For classification, illness datasets are separated into training and test datasets.

V. CONCLUSION

The AI illness recognition app is a formidable tool with the potential to transform healthcare by aiding in the early detection and diagnosis of numerous diseases. It can analyse medical data and discover trends that may suggest the existence of certain illnesses thanks to its powerful algorithms and machine learning capabilities. The AI illness detection software can give useful insights and help to healthcare practitioners in making educated decisions regarding patient care due to its capacity to handle vast volumes of data rapidly and reliably. It can assist prioritise patients for further evaluation and enable earlier action by indicating suspected illnesses or anomalies, leading to improved treatment outcomes and potentially saving lives.

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