A Major Project Synopsis on

Healthcare Web App for Disease Prediction

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by

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1. **Introduction**

Lifestyle and environmental factors complicate accurate predictions of diseases on the part of healthcare. However, early detection of illnesses, specifically cancer and heart disease, is important but difficult for medical doctors to do manually.

In this study machine learning algorithms are employed to predict the diseases more accurately, they are SVM, Linear Regression, and Decision Tree. The proposed application utilizes data mining and supervised learning approach to enhance health care accessibility and to reduce diagnosis delays. The system will use Python and Django to provide the efficient and data driven solution which helps medical professionals in timely and accurate disease prediction.

**Why should you choose us?**

1. **Advanced Machine Learning**: SVM, Linear Regression and Decision Tree algorithms are used by us in order to make accurate prediction of disease.
2. **Detects diseases at the first stage** – Helps to detect diseases at the first stage such as cancer and heart disease.
3. **Improved Healthcare Accessibility** – Enables timely diagnosis and treatment.
4. **Data Driven Insights** – minced of exact prediction by bringing out data from each aspect.
5. **Efficiency** – Technology backed solution with Python and Django.
6. **Reduces Diagnosis Delays** – Improving the medical decision making for the benefit of the patient.
7. **Motivation**

Our services include:

**1. For Users:**

* Early detection of diseases like cancer and heart disease.
* It is easy to use the application for self-analysis without visiting a hospital physically.
* Predicting disease with given symptoms and lifestyle data accurately.
* Timely alerts and recommendations for better health management.

**2. For Admins:**

* This will improve decision making for disease prediction and treatment plan.
* Secure data processing with Python, Django, and advanced algorithms.
* The ability to see the health trends and plan better healthcare strategies.

1. **Problem Statement**

**1. For Users:**

* Lack of ability to screen out disease such as cancer and heart disease from the early stage.
* Limited access to efficient and accurate disease prediction methods.
* The need for a system that is easy to use for a user that can receive real time health insights from symptoms and lifestyle that can be captured.

**2. For Admins:**

* Manual diagnosing diseases with high accuracy is a challenge.
* Inefficient data management and analysis for early disease detection.
* Requirement for the AI powered system based on SVM, Linear Regression and Decision Tree to enhance the diagnosis and healthcare decision making.

1. **Methodology/ Planning of work:**
2. **Front-end Development**:

* HTML, CSS, and Javascript would be used to design the web application to have a user friendly interface of patients as well as healthcare professionals..

1. **Back-end Development**:

* Data processing, authentication and the API integration shall be handled by the system using Python (Django framework)..

1. **Database Management**:

* Access to electronic health records and medical research data from a range of electronic storage devices will be gained and stored in a way that preserves their privacy and security.

1. **Security**:

* To fulfill patient confidentiality and putting in practice the healthcare regulations, there will be implemented the data encryption, users authentication as well as the access control.

1. **Testing & Optimization**:

* Perform **unit and integration testing** to ensure functionality.
* Optimize performance for multiple concurrent users
* Finally, I will clean (and possibly preprocess) the data to ensure prediction of the disease is as accurate as possible.

1. **Deployment**:

* Finally, through Python tools like Jupyter, Django and pickle, it may be implemented in the model and web application for an efficient execution..

1. **Future Enhancements**:

* Future improvements will focus on enhancing the accuracy of ML models (SVM, Linear Regression, Decision Tree) and incorporating additional health conditions for prediction.

1. **Requirements for proposed work:**

**1. Software Requirements:**

* **Operating System:** Windows, Linux
* **User Interface:** Web-based UI (developed using Django and Python)
* **Database:** MySQL or PostgreSQL for storing patient and disease-related data
* **Backend:** Django framework with Python, integrating machine learning models

**2. Hardware Requirements:**

* **Hardware:** Pentium-based systems with a minimum of P4
* **RAM:** 256MB (minimum)
* **Hard Disk:** 4 GB Hard Disk Space

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