An Instant Guidance on Cancer Prediction and Care Using Web Application

K.Malarvizhi, G.Rajivsureshkumar

Abstract: The medical field comprises heterogeneous data such as text, facts and images that can be properly separated to provide useful medical information. The medical data has been useful to the doctor in order to identify the pattern of disease. The predicted endurance of the patient after the illness is complex to sternness of the disease. The main goal of this paper is to design the web application for cancer prediction. There are various techniques used earlier for predicting the cancer disease. Cancer is one of the primary causes of demise in global. In the existing system have ensued several times require doctors assist immediately, but they are not accessible owing to a few reasons. The proposed system is an instant guidance on cancer prediction and care is developed for end users to sustain online session project. A web application is designed for users to acquire through control on their cancer disease using an online intelligent system. This application provides variety of cancer related information. The system facilitates users to determine their cancer related issues. It also directs the user precise details to ensure for the range of illnesses that could be linked with it. Data mining techniques are used to deduce the perfect level of disease that could be connected with patient's details. We have verified the outcome for classification routinely shows the specific doctor's place and status. A reservation system is ruined where users can honestly reserve their doctors for promote cure. A response system is as long as useful where users can allocate and view comment and status of doctors and hospitals.

Keywords: Decision tree, k-means, Cancer Prediction, Prognosis, Risk levels, reservation and Response system.

I. INTRODUCTION

Cancer is primarily a common disease in the earth so that effect is mass of demise. Cancer is a source for unrestrained extension of cubicles in each constituent of the stiff. Tumor can ensue into a few portion of the corpse and might perhaps expand near a quantity of additional components. In premature revealing of cancer [7] at the early period and evading from diffusion to additional elements in spiteful phase can keep a human beings existence. There are several causes that might distress anyone's inclination for cancer. Data mining provides a range of origin of obscured projecting information for giant databases.

Data mining tools [15] visualize imminent developments and behaviors, consent to dealing to compose hands-on, awareness determined resolutions. Data mining [8] techniques utilize the exploit of intricate data investigation utensils to determine formerly unknown, suitable models

and associations in huge data position. These tackles be able to comprise numerical sculpts, arithmetical procedure and machine knowledge [9] techniques in hasty innovation of growth. During organization information specifies the knowledge system is accessible among a lay down of confidential instances opening which it is predictable toward come across out the structure of arrangement hidden cases.

The organization erudition [10] affords a connection between facial manifestations and also distresses a group assessment. In clustering [11] set of sculpts that robust in mutually are essential. The numeric prophecy system expresses the termination to continue predictable is not a detach class but a numeric value.

Many experiments are carried out for prediction of breast cancer using data mining techniques such as digital mammography classification using association rule mining[12], Naïve-Bayes classifier, Support vector machines and Logistic Regression [1]. Data mining algorithms such as decision trees, Naïve-Bayes and ID3 are used for prediction flung, breast and skin cancer [2]. Various methods are used for prediction of lungs, breast, oral, cervix, and stomach and blood cancers. These methods include k means clustering classification based on genetic and non-genetic factors and significant pattern generation. Risk level is calculated using scores assigned to each symptoms [3]. Performance is increased by using decision trees and classification for prediction of lung, breast, oral, cervix, and stomach, blood cancers [4]. Experiments are carried out using AprioriTid, correlation, decision trees and association rules are used for predicting lung cancer [5]. Collected data set, Data set prepossessing, association rule mining, classification method and deep learning are used for prediction [6]of blood tumor.

In the existing system used architecture [13] of data mining systems supported on cancer prophecy system merging the prediction scheme with mining tools. The categorization [14] algorithms used in the existing system is called decision tree.

The user enters into the cancer prophecy scheme, and then required to retort the queries, connected to genetic and non-genetic skin textures. In that case the prediction structure allots the hazard rate to both query bases on the client retorts. One time the exposure significance is estimated, the series of the coercion preserve is resolute by the forecast structure.

II. SYSTEM MODEL

The classification [14] algorithms are used in the existing system is known as decision tree.

Revised Manuscript Received on April 15, 2019.

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The main intention is to extend a web relevance that permits customers to get instant direction on their cancer disease. The intellectual data mining methods are utilized for envisage the cancer disease. In the proposed system Clustering and decision tree techniques are combined.
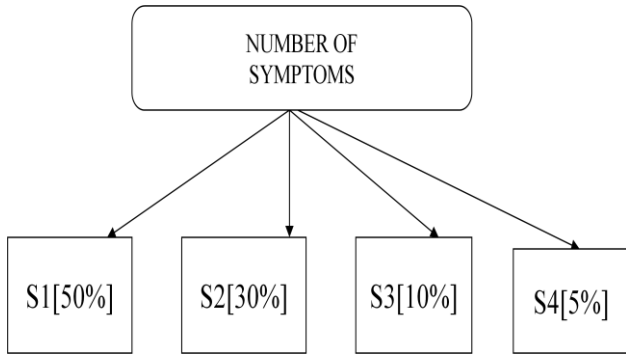

Fig. 1 Decision Tree

The system presents many tasks for identifying the level of accuracy, searching doctors and hospitals based on their location. The users create appointments with their relevant doctors. This system classifies several types of cancer disease based on the major symptoms are shown in Figure 1. These symptoms will assist various cancer diseases through online system.
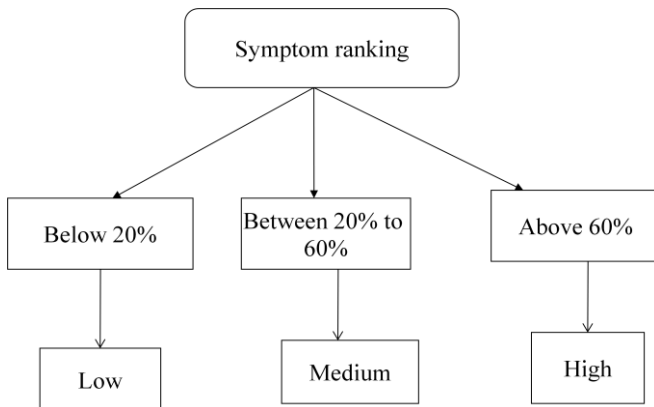

Fig. 2 Symptom Ranking

The user enters into the cancer prediction system, and then has to answer the queries related to genetic and non-genetic factors. Then the prediction system allots the risk value to each question based on the user responses. The symptom ranking values are shown in Figure 2. Formerly the chance charge is envisaged, the sequence of the peril be capable of resolute via the guess plan.

K- Mean's clustering algorithm is used for classifying cancer and non-cancer patients. The decision tree is used to identify the accurate status of illness that could be associated with the patient. The user has to choose the symptoms then the status of cancer is identified. Based on the risk levels along with the specialized doctors are shown. The patients can search for hospitals and doctors can make appointments.

III. CANCER PREDICTION SYSTEM

Cancer is caused by uncontrolled escalation of units in any elements of the corpse. Sarcoma can come up in any branch of the remains and could point to numerous other pieces. An untimely recognition of melanoma at the creation

phase and deterrence commencing dispersion to other elements in spiteful point possibly will hoard a individual life. There are a amount of concerns that can agony a anyone tendency for cancer. The proposed system consists of four components. Those are administrator, hospital, doctor and user. A web application is developed that consents users to get instant guidance on their cancer disease over an intelligent system online.

The application is fed with various details and the cancer related information. This application tolerates users to share their health related issues for melanoma prediction. Process user specific details are checked then analyze a variety of illnesses that could be allied with it. For predicting malignancy to apply the data mining techniques such ask-means clustering for classifying of cancer and non-cancer patients. To identify the most accurate illness that could be associated with patient's details. If this application is not able to provide suitable results, it urges users to go for blood test, x- ray and CT scan.

A. User Monitoring System

User monitoring system consists of components such as Patient Login, Patient Registration, and Patient information, Disease Prediction, Search Doctor and Feedback. User monitoring system consists of components are shown in Figure 3.

- **Patient Login:** Patient can Login to the application using his ID and Password.
- **Patient Registration:** If Patient is a new user, will enter their personal details like user Id and password through which can login to the application.
- **Patient information:** Patient can view his personal details.
- **Disease Prediction:** Patient will specify the symptoms caused due to his illness. Application will ask certain question regarding his illness and application predict the disease based on the symptoms specified by the patient and application will also suggest doctors based on the disease.
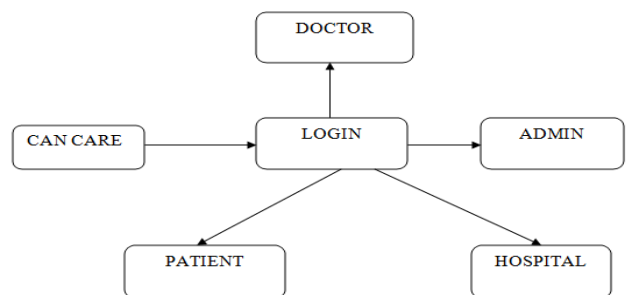

Fig. 3 User Monitoring System

- **Search Doctor:** Patient can search for doctor by specifying name, address or type.
- **Feedback:** Patient will give feedback this will be reported to the admin.

B. Doctor Management System

This module consists of components such as Doctor Login, Patient details and Patient previous details. Doctor

will access the application using his user ID and password. Doctor can view patient's personal details. Doctor will get all information about patient's previous case history. That will help him to serve him better.

• **Doctor Login:** Doctor will access the application using his User ID and Password.

• **Patient Details:** Doctor can view patient's personal details.

• **Patient's History:** Doctor will get all information about patient's previous case history. That will help him to serve him better.

C. Administration System

This module consists of components such as Admin Login, Approve Doctor, Add Disease, View Doctor, View Disease, View Patient and View Feedback.

• **Admin Login:** Admin can login to the application using his ID and Password.

• **Approve Doctor:** Admin can approve new doctor details into the database.

• **Add Disease:** Admin can add disease details along with symptoms and type.

• **View Doctor:** Admin can view various Doctors along with their personal details.

• **View Disease:** Admin can view various diseases details stored in database.

• **View Patient:** Admin can view various patient details that had accessed the application.

• **View Feedback:** Admin can view feedback provided by various users.

Admin can login to the application using his ID and Password. Admin can commend new doctor details into the database. Admin can enhance disease details along with symptoms and type. Admin can view various doctors along with their personal details. Admin can view several diseases details stored in database. Admin can view various patient details that had accessed the application. Admin can view feedback provided by various users.

D. Hospital Management System

Hospital management system consists of components such as Hospital Login, Add doctor and Appointment. Hospital has its own login. Hospital can add doctors and modify their database. Hospital can view appointments. Hospital management system processes are shown in Figure 4.

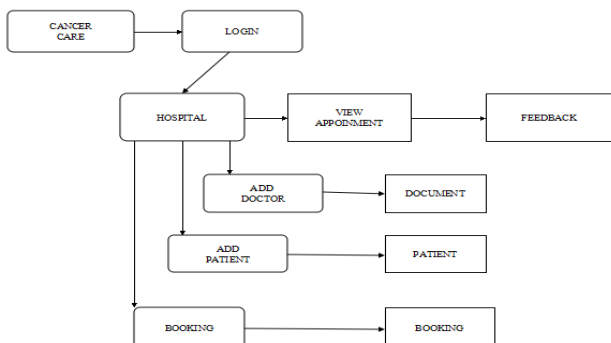• **Hospital Login:** Hospital has its own login id and password

Fig. 4 Hospital Management systems

• **Add doctor:** Hospital can add doctors and modify their database

• **Appointment:** Hospital can view appointments

IV. IMPLEMENTATION RESULTS

The implementation of the system initiates with a home page. The home page consists of user login, doctor login, hospital login as well as admin login. The home page shown in figure 5 and also contains primary guidance for cancer prediction. The hospital information system can add doctors and it is shown in figure 6. The admin has to approve the doctors. The admin can add diseases with their symptoms. Hospitals are also added by the admin.
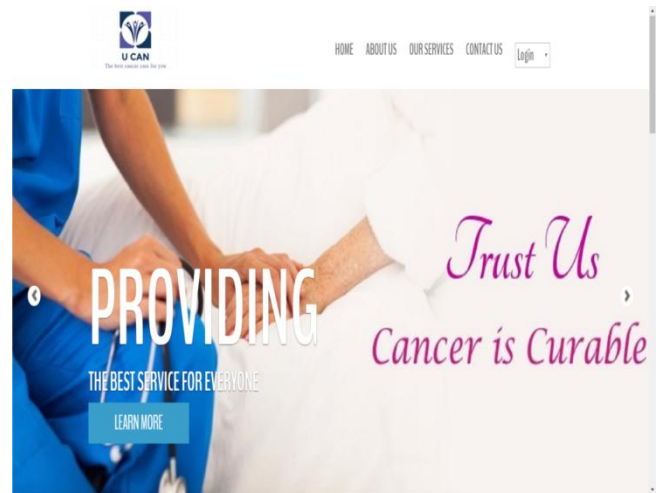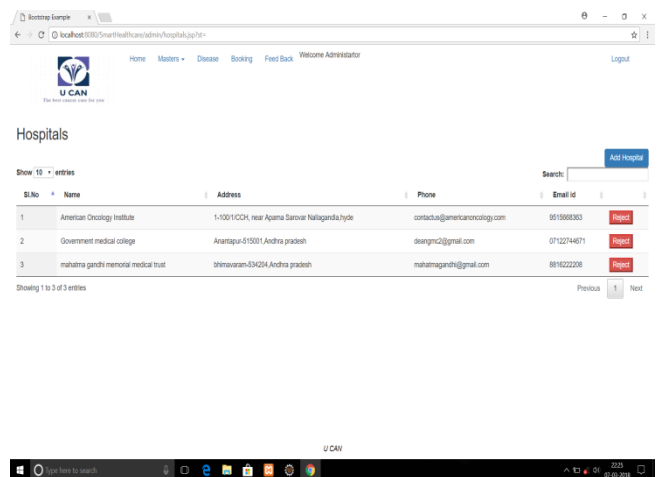

Fig. 5 Home Page

Fig. 6 Hospital information

The user enters the system there is a user registration page which has only basic details to be filled by the user. Then the user has to select the symptoms so that the type of cancer can be predicted easily. The cancer prediction system is shown in figure 7.The risk levels along with specialized doctors are shown in figure 8. User can search for hospitals and doctors based on the location.

After searching the doctors, user can make appointments. Doctors can reject or approve the appointments.
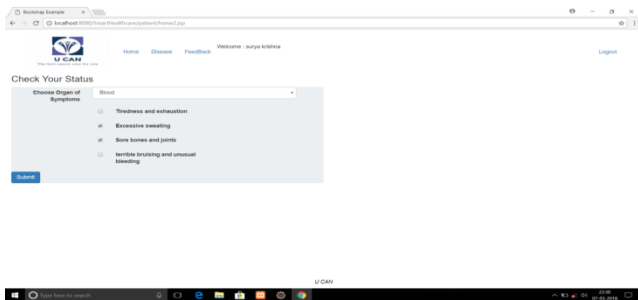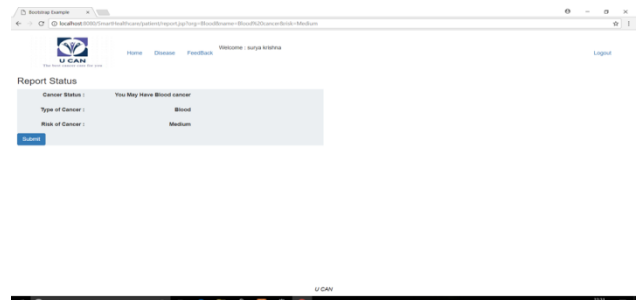
Fig. 7 Cancer Prediction system

Fig. 8 Cancer Prediction –Risk level

For predicting cancer to apply the data mining techniques such ask- means clustering for classifying of cancer and non-cancer patients. To identify the most accurate illness that could be associated with patient's details. After prediction the detailed patient history in hospitals as well as help doctors to deliberate on particular treatment for any patient.
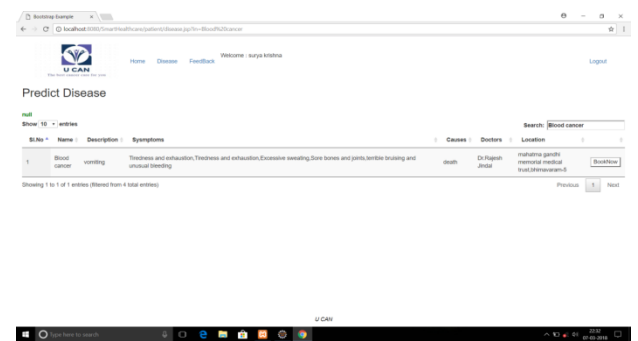

Fig. 9 Cancer Prediction Report

A reservation system and a response system is developed which can be viewed by both doctors and patients. The cancer prediction report is shown in figure 9.Finally verified the outcome for classification routinely shows the specific doctors' place and status. As well as a reservation system is ruined where users can honestly reserve their doctors for promote cure

V. CONCLUSION

Cancer has turn out to be the primary cause of decease in universal. The most valuable way to decrease cancer deaths is to perceive it in advance. Many people evade cancer screening due to the rate concerned in taking a few tests for diagnosis. The proposed system is a reflective method for merging clustering and decision tree techniques to construct a cancer risk prediction system. This prediction system may grant straightforward and price efficient system for showing

cancer and also provides an essential role in earlier analysis process for different types of cancer. This system can also be worn as a foundation of record with detailed patient history in hospitals as well as help doctors to deliberate on particular treatment for any patient. A reservation system and a response system is developed which can be viewed by both doctors and patients. We have verified the outcome for classification routinely shows the specific doctors' place and status. As well as a reservation system is ruined where users can honestly reserve their doctors for promote cure. In future work we extend a data warehouse in health and segment specific to cancer disease and also to be built for the resolution sustain system for the doctors and medical analyst.

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