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Abstract:
Breast cancer is one of the major threats compared to all other types of cancer. This cancer is mainly caused for middle aged women throughout the globe. Nowadays breast cancer is the second most threatening cause for women. Because of this type of cancer many women’s are suffering. However early detection and prevention of this cancer can significantly reduce the probability of death in women. In the world cancer is one of the most common problems for everyone with all types. In that Breast Cancer is the most frequent disease as a cancer type for Ladies. For that reason, any improvement is required for early diagnosis and prediction of cancer disease and it is also most important for a healthy life. The main objective of this paper is to early prognosis and prediction of cancer along with time that breast cancer has occurred using Deep learning techniques.

Index Term: Breast cancer, diagnosis, prediction, women, survive, globe, threat.

I. INTRODUCTION
Breast Cancer is the one of the most important reason for human death especially in middle aged women’s. Nowadays in Globe, most of human death occurs because of this cancer [2]. In many years breast cancer has been increasing day by day across the globe. It is taken as one of the most important type of cancer among women and the second most common cancer across the globe [1].

Manual diagnosis and prediction of this disorder takes more duration and the availability of system is very less, so automated diagnosis systems are required for the early detection of cancer. According to World Cancer Research Fund in the year 2018, two million new cases of breast cancer were recorded in that around 6 lakh deaths were occurred [3]. Fig 1 shows the symptoms of breast cancer. Early Diagnosis and prediction of this type of cancer is required to reduce the death rate. Due to this reason many techniques are used for the prediction of this type of cancer. Among many techniques, machine learning techniques are applied because it can work more appropriately as it collects and learns from the record given by system. Using this idea, we are making a device to recognize the type of breast cancer [5]. Computer-aided systems are used for early detection or prognosis of breast cancer and it play a major task in identification of the breast cancer so that it can be used for the decrease the death rate among women [6]. In machine learning, SVM classification technique has been used because it gives the highest accuracy value compared to other techniques along with least error rate [4]. Breast cancer diagnosis can be executed by classifying the tumor. Tumors have two kind of state that is Benign or malignant. Benign is initial state and final state so Malignant tumors are more dangerous because this stage of cancer is uncontrollable. Unfortunately, not every physician are specialist in distinguishing between the state of the tumors and the classification of tumor cells may take more than day [7].

Data mining techniques are classified into two types of techniques i.e. supervised and unsupervised learning. The unsupervised study approach does not need to supervise the model. Instead of this we just need to allow the model to work on its own to discover the information and it mainly deals with unlabelled data. Then based on the outcomes, a model will be built [8]. Breast cancer test is a critical method to comply with early diagnosis and can growth chance of obtaining a great final result in treatment. In the year 2012, Breast cancer has become most diagnosed cancer type according to WHO [9]. There are of two kinds of cancers i.e. Malignant and benign. The disease can be cured if it is detected early then treatment of patients can be done [10]. There are several work has been done in this field in order to cure this deadliest disease. In some cases, the growth of cells goes wrong and they do not die as they should. When this occurs, a mass of cells develop they eventually lead to cancer [13]. Nowadays there are many different imaging techniques are also used for early detection of cancer [14]. Breast Cancer disease has become a global health issue and is an area of concern. In the world cancer is one of the most common problems for everyone with all types. Particularly, for women Breast Cancer is one of the most common diseases. Therefore, any development of new technique for early diagnosis and prediction of cancer disease is most important for a healthy life. Breast cancer is a one of most important threat for women.
throughout the world and nowadays many humans are lose their life because of this cancer. We can reduce the chances of death by early detection and prevention of cancer. Our work predominantly focuses on detecting life threatening diseases like Breast Cancer. The idea behind this paper is to use deep learning technique for breast cancer disease prediction.

II. ARCHITECTURE OF BREAST CANCER DETECTION

In this paper we are going to use new technique for predict of breast cancer diseases before it occurs by using deep learning technique. Fig 2 shows the architecture for breast cancer detection.

The reason behind writing this paper is to early prediction of breast cancer to save humans life from cancer. So here we are using deep leaning techniques to overcome this problem. First step is to collect raw data and constrains related to breast cancer then extract and segment the data to remove irrelevant data. After removing the irrelevant data, remaining data will be moved to training, and then collected data are trained by converting into desired format. After converting data into desired format we are going to use classifications rules like naïve baye's algorithm for early prediction of breast cancer and also we are going to tell the state of cancer to save the humans life. Finally the collected data represent the results like whether the patient is having cancer or not and also it tells estimated time of cancer, if patient having any symptoms of cancer.

III. METHODOLOGY

The main objective of writing this paper is to make use of deep learning classification technique for early prediction of breast cancer. Deep learning is a subset of ML that teaches system, what exactly humans think to do naturally and it has networks capable of getting to know unsupervised information which is unstructured. In deep learning, Performance of classification tasks is learned by the computer directly from the image, text, or sound. Fig 3 shows different types of networks architecture i.e. Un supervised learning, Convolutional neural network, recurrent neural network and Recursive neural network.

3.1. Unsupervised learning

Unsupervised learning algorithm is a type of gadget and supervised learning algorithm is a set of rules typically employ human labeled statistics but unsupervised leaning algorithm uses self-structured data [4].

3.2. Convolutional Neural Network

It is one of the most trendytype of deep neural network. CNN is well suitable network for processing 2D data such as images. CNN network is used for manual feature extraction directly from the images and the relevant data are not pertained; they are learned by the network on collection of images.

3.3. Recurrent Neural Network

RNN is another form of deep learning technique which is used to exhibit temporal dynamic Conduct. RNN is used indiscriminately refers to 2 module of network i.e. finite impulse and infinite impulse.

A finite impulse network is directed acyclic graph that can be replaced with strictly feed forward neural network. Infinite impulse recurrent network is a directed cyclic graph that cannot be replaced. Both impulses can have additional storage space which is directly under the control of neural network.

3.4. Recursive neural network

Recursive neural network community is created with the aid of applying the identical set of data recursively over an established input to supply a structured input prediction of data.

3.5. Classification Rules

Classification is a process of finding a structure that describes the data classes. Structure is derived based on the analysis of training dataset. In our proposed work we are using naïve baye’s algorithm for early prediction of breast cancer.
Algorithm for the early prediction of breast cancer

Step1: Scan the dataset
Step2: Calculate the possibility of each dataset
Step3: Apply formula
\[ P(\text{attributevalue}\ (i)/\text{subjectvalue}\ (j)) = (NC + mp)/(n + m) \]
Step4: Multiply chance by \( p \)
Step5: Evaluate the values and classify attribute values

IV. CONCLUSION

Breast cancer is one of the most leading cause of death for middle aged women throughout the globe, so it is necessary to make research on the techniques for early prediction of breast cancer. In this paper we are presenting an idea using the deep learning techniques we can predict cancer at the early stage along with time that the breast cancer has occurred so that we can increase the survival rate of the individuals.

V. REFERENCES


