**Building Minimal Classification Rules for Breast Cancer Diagnosis**

**Abstract:**

A rule based classifier is widely applied in breast cancer diagnosis. The classifier with a good performance of disease classification have been developed and highly required over the past decades. The good classifier equips with high accurate classification rules obtaining from historical diagnosis. Since each diagnosis consists of a large amount of data features, it challenges to build minimal high accurate classification rules from such historical data. Since classification rules are derived from previous diagnosis with a large amount of features, it challenges to build a minimal number of rules with high performance while retaining all diagnosis information. Therefore, this paper aims at finding the best performance classifier giving minimal classification rules. Based on experiment result on Breast Cancer data set, the J48 decision tree classifier is found to be the best among the three classifiers: J48 decision tree, Reduced Error Pruning Tree, and Random Tree.

**Existing System:**

Most hospitals today use decision-support systems, but to get the results of the disease are largely limited. They can answer simple questions such as "clustering the patient ages by any disease", "Prediction of diabetes". Solutions are always made in a hospital based on intuition and experience of doctors, and not on the rich knowledge data that are hidden in the database. Machine learning can be used to determine the automatic conclusion of diagnostic rules from the past descriptions, successfully treat a patient, as well as experts and specialists will help make the diagnostic process more objective and more reliable.

**Disadvantages:**

* No analysis of the previous data.
* Simple statistical solutions.

**Proposed System:**

Classification is a process related to categorization, the process in which ideas and objects are recognized, differentiated, and understood. Rule-based classifier makes use of a set of IF-THEN rules for classification. We can express a rule in the following from − IF condition THEN conclusion. A rule based system for breast cancer diagnosis has been a powerful tool supporting doctor diagnosis. Such a system requires classification rules derived from historical diagnosis. The desirable rules should be minimal in their number and give a good performance. This paper is to obtain such rules from the Breast Cancer data set. It performed experiments on the data set to determine the best classifier among J48 decision tree, and Random Tree.

**Advantages:**

* We can predict the results using rule-based classifier.
* Dynamic nature in prediction.

**SYSTEM CONFIGURATION:**

**Hardware requirements:**

Processer                     :           Any Update Processer

Ram                            :           Min 4 GB

Hard Disk                   :           Min 100 GB

**Software requirements:**

Operating System       :         Windows family

Technology                 :           Python 3.6

IDE : PyCharm