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Breast cancer prediction using supervised machine learning techniques

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Pankaj Dadheech*, Vijay Kalmani, Sanwta Ram Dogiwal,

Vijay Kumar Sharma,

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Vijay Kalmani
 Department of Computer Science & Engineering
 Jain College of Engineering
 Belgaum, Karnataka, India
 vijaykalmani@hotmail.com

Abstract

Breast cancer is one of the most prevalent diseases in India’s urban regions and the second most common in the country’s rural parts. In India, a woman is diagnosed with breast cancer growth every four minutes, and a woman dies from breast cancer sickness every thirteen minutes. Over half of breast cancer patients in India are diagnosed with stage 3 or 4 illness, which has extremely low survival rates; hence, an urgent need exists for a rapid detection strategy. To forecast if a patient is at risk for breast cancer, we utilise the classification techniques of machine learning, in which the machine learning model learns from the previous information and can anticipate on the new information that is generated by the data. To create a model using Logistic Regression, Support Vector Machines, and Random Forests, this dataset was collected from the UCI repository and studied in this study. The primary goal is to improve the accuracy, precision, and sensitivity of all the algorithms that are used to categorise data in terms of the competency and viability of each and every algorithm. Random Forest has been shown to be the most accurate in classifying breast cancer, with a precision of 98.60 percent in tests. The Scientific Python Development Environment is used to carry out this machine learning study, which is written in the python programming language.