# Heart Disease Detection

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Diseases have tormented humanity since the dawn of time. In today’s world heart diseases are arguably the most persistent problem that is faced by humanity. Thus the ability to predict the occurrence of heart diseases with reasonable consistency and accuracy will prove to be a boon for both doctors and patients alike. This project explores the possibility of making this prediction using multiple machine intelligence classification algorithms. Thus the main purpose of this project is to predict the occurrence of heart diseases and to compare and identify the best algorithm that makes the least classification error.

The classifiers that are planned to be used are **K-nearest Neighbor, Decision Tree,** an unsupervised learning algorithm like **Radial Basis Function** and a supervised learning method like **Backpropagation.** The data preprocessing is planned to be done using PCA (Principal Component Analysis) as the data filtering and normalization provided by PCA forms a very important step for developing an ideal classifier. The data visualization that we obtain from PCA would provide important insights on the accuracy of the observed results, which helps in reducing the classification error of the algorithm.

The proposed technique that is to be followed is to make comprehensive study of medical records of heart patients by gathering enough data to predict the probability of future disease detection with fairly high accuracy. The neural network classifier would segregate the people predicted with disease and people without disease. If a person is predicted with disease, then further classification of the disease category can be done which will determine the specific type of disease. The project aims to implement the knowledge gained in class to useful effect.