

Step 1 : Importing essential libraries

Libraries used :

- Numpy
- Matplotlib
- SciPy
- Pandas
- Seaborn

Step 2 : Importing the dataset

Dataset link : <https://archive.ics.uci.edu/ml/datasets/Heart+Disease>

Step 3 : Importing and understanding the dataset

- Displaying the description
- Displaying the variable information
- Displaying the column details
- Analysing the target variable

Step 4 : Checking correlation between the variables and displaying through a heatmap

Step 5 : Exploratory data analysis

- Visualizing age and relations with heart disease
- Visualution of gender vs target
- Pie charts for thal:ThalassemiaHaving heart disease
- Plotting types of chest pain
- Plotting target against count
- maximum have a thalach between 160-170 i.e person having heart rate 160-170 suffer from heart disease

Step 6 : Analysis

- Analysing the 'Sex' feature
- Analysing the 'Chest Pain Type' feature
- Analysing the restecg feature
- Analysing the 'exang' feature
- Analysing the Slope feature
- Analysing the 'ca' feature
- Analysing the 'thal' feature

Step 7: Train Test split

Step 8 : Model Fitting

- Logistic Regression
- Multinomial Naive Bayes
- Decision Tree
- Random Forest

Step 9 : Comparison of all the models

Step 10 : Ensemble

- Majority Voting Classifier

Step 11: Ensemble Classifiers

- Bagging
- Adaptive Boosting(AdaBoost)
- Gradient Boosting

Step 12: Accuracy of Ensemble combination methods & Ensemble classifiers