
HEART DISEASE PREDICTION
USING MACHINE LEARNING
INTRODUCTION
PROBLEM FORMULATION
METHODOLOGY AND ALGORITHMS
EXPERIMENT & RESULTS
CONCLUSION AND FUTURE WORK
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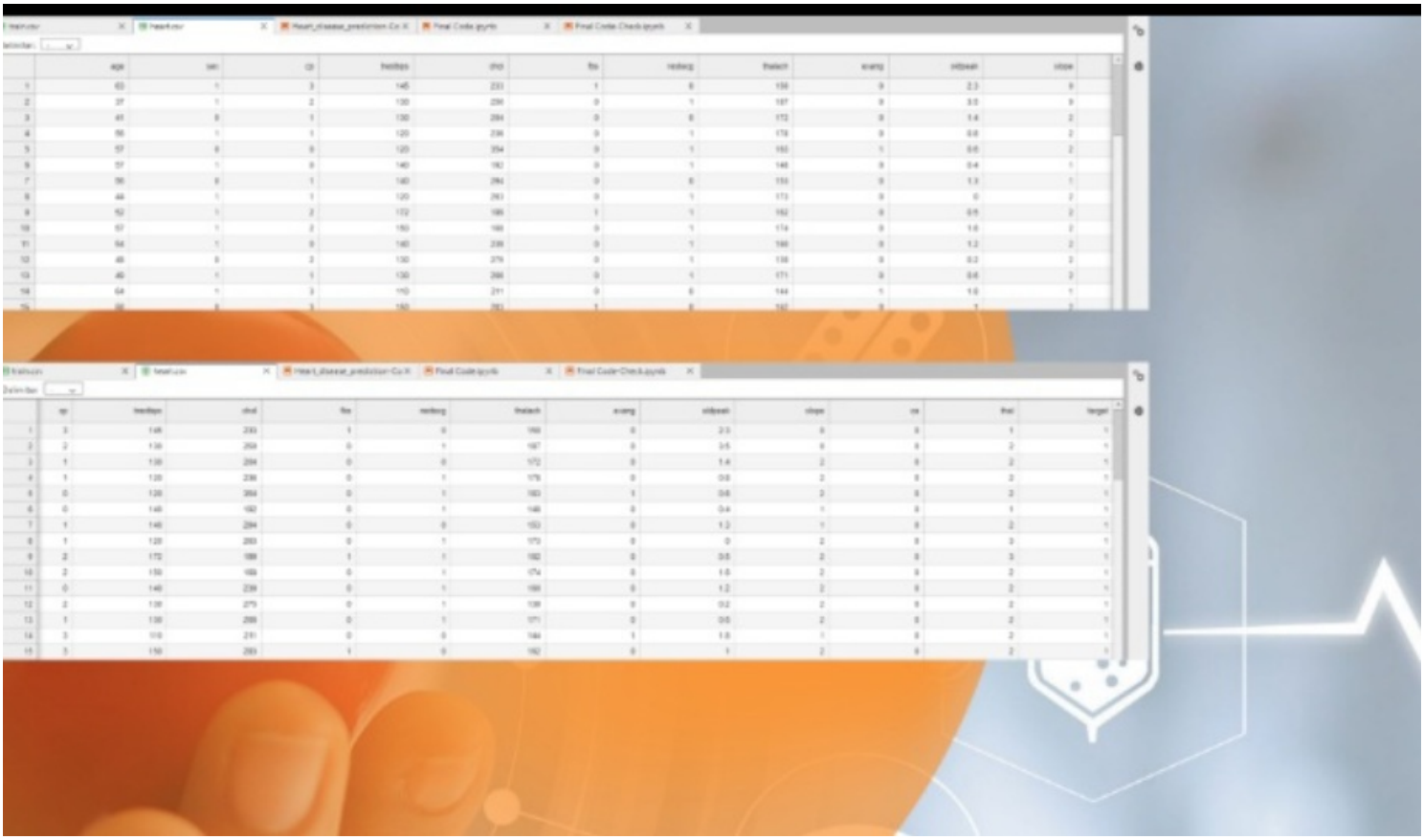
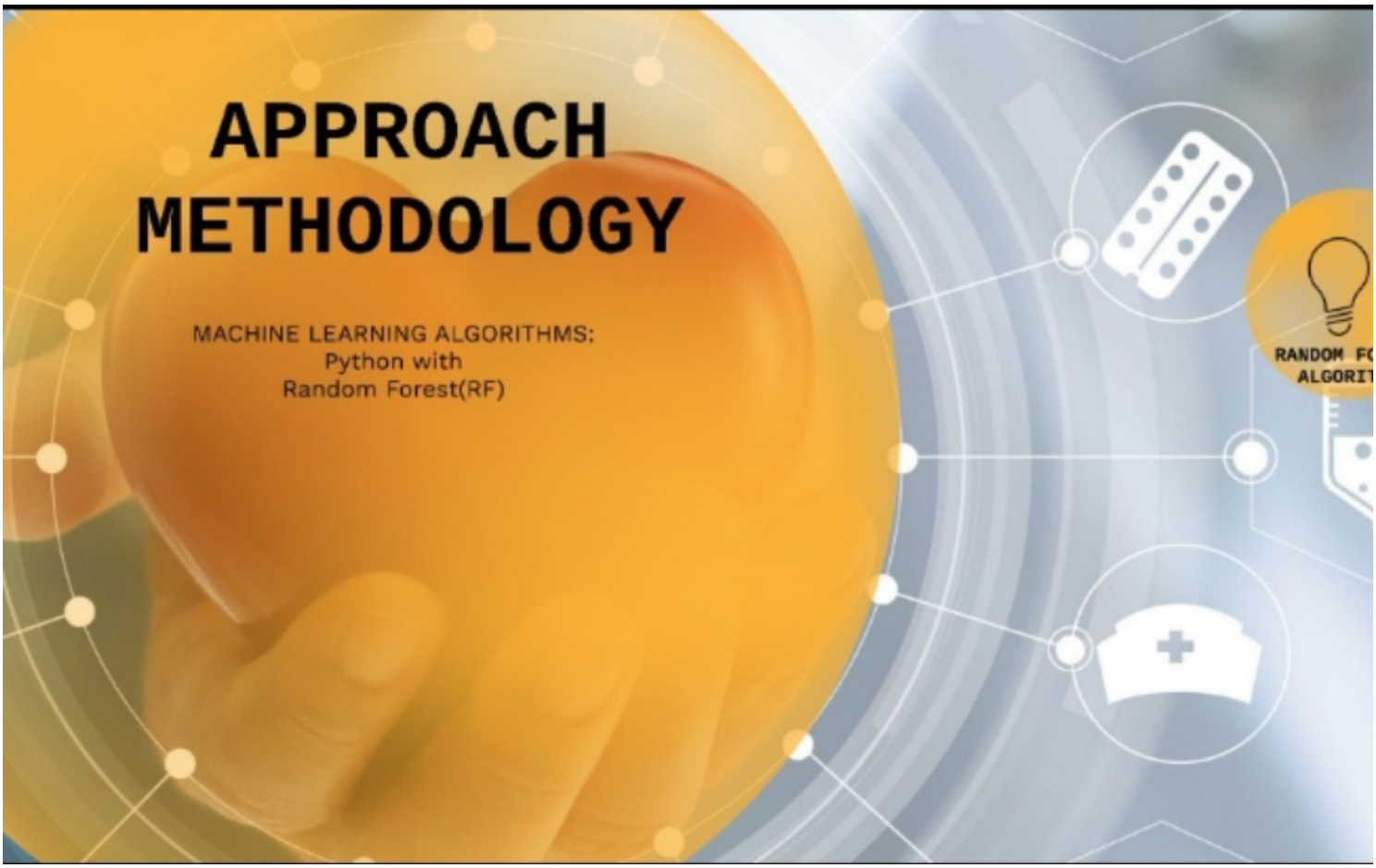
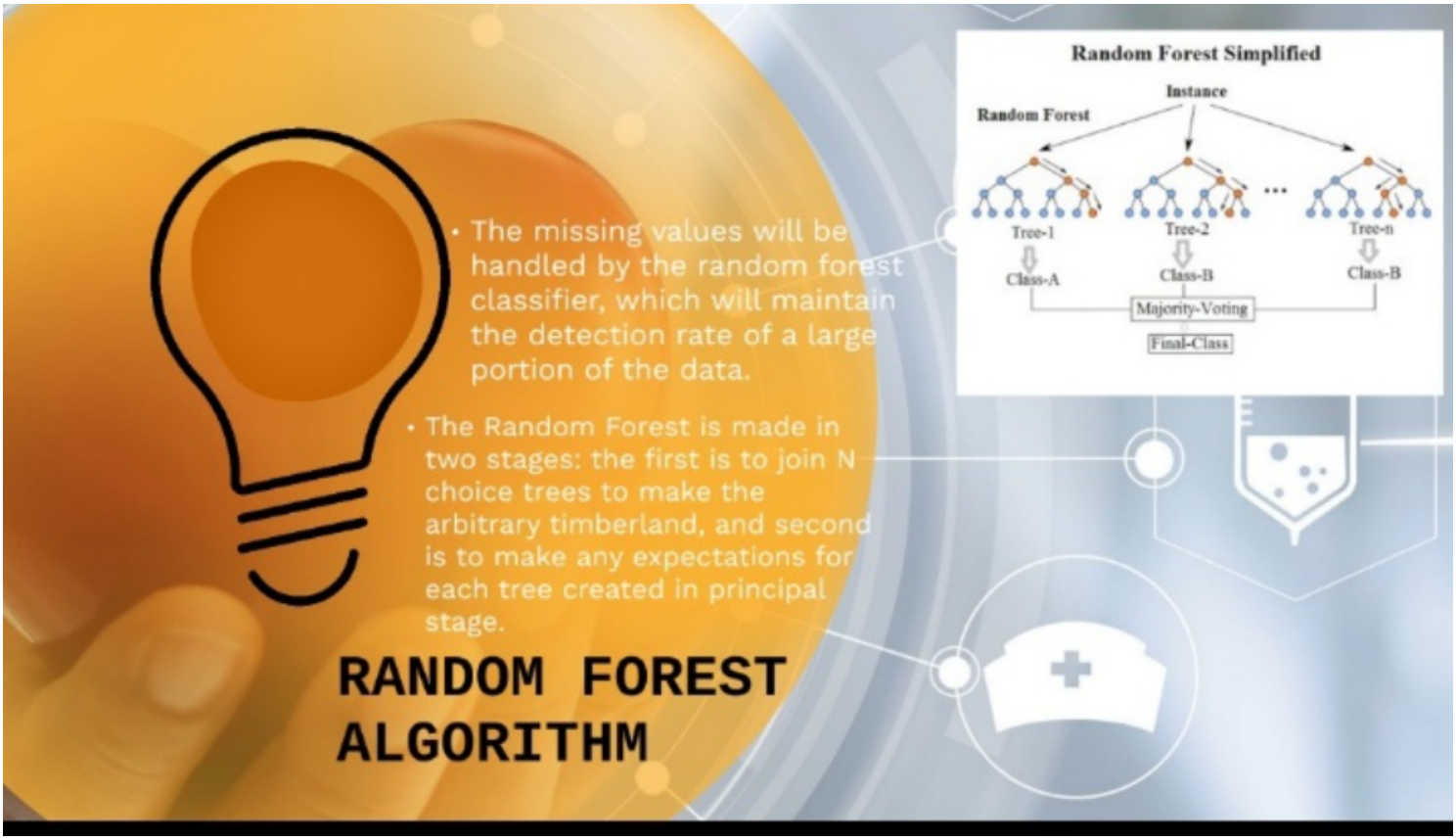
PROBLEM STATEMENT
Given the clinical parameters about the patients, can we predict whether or not they have heart disease?
MOTIVATION

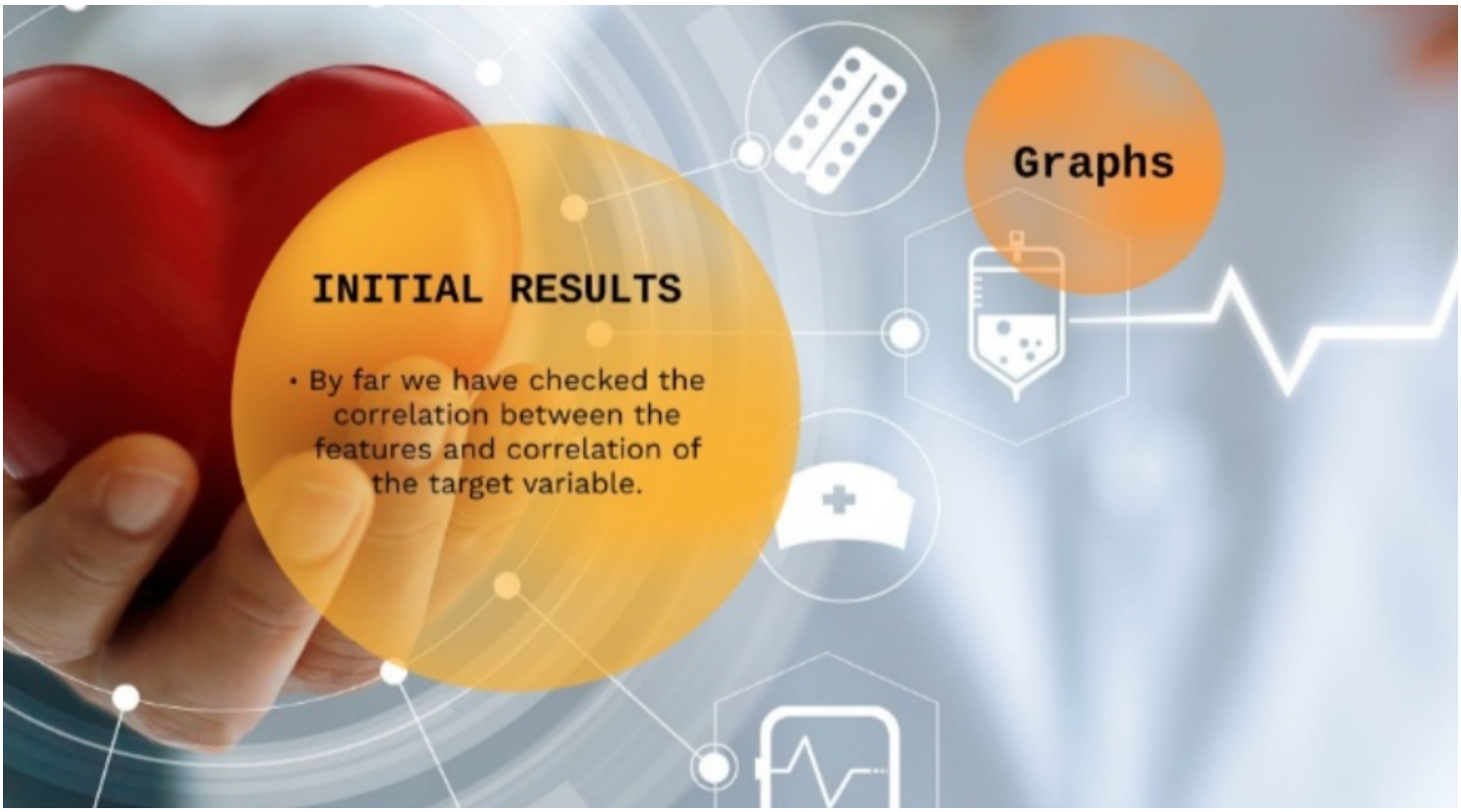
Attributes that are taken:

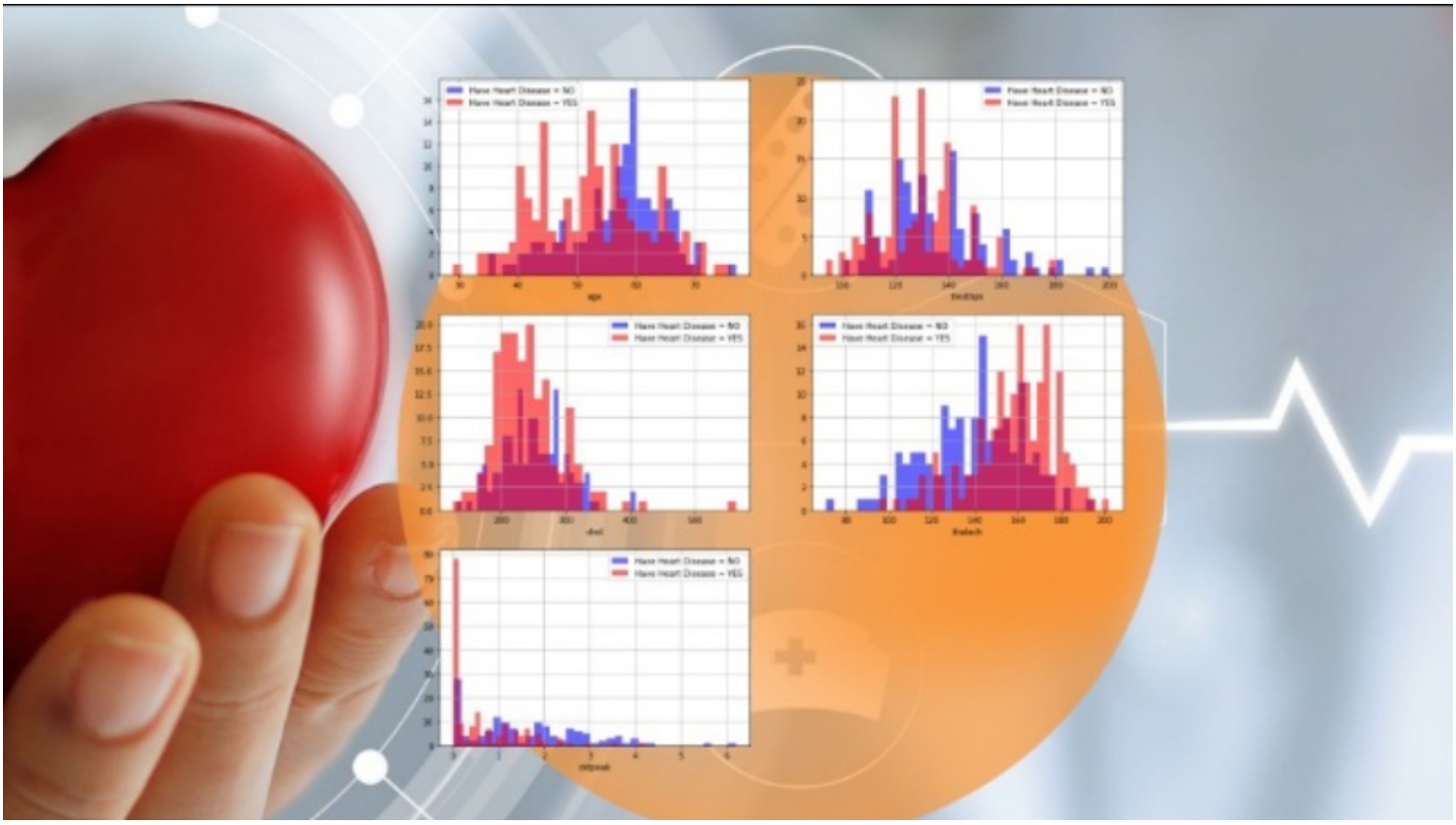
- Age.
- Sex.
- Chest Pain type (CP).
- Trestbps (on admission to the hospital, resting blood pressure in mm Hg.).
- Cholesterol.
- Restecg (resting electrocardiographic results: assesses the heart's activity.).
- Thalach (attained maximum heart rate).
- Exang (Angina caused by exercise is a common complaint of cardiac patients, particularly when exercising in the cold).
- Oldpeak (Exercise-induced ST depression compared to rest).
- Slope (the curve of the ST segment of the peak activity).
- Ca (flourosopy coloration of a lot of major vessels (0-3)).
- Thal (normal, fixed defect, reversable defect).
- Num (the predicted attribute).

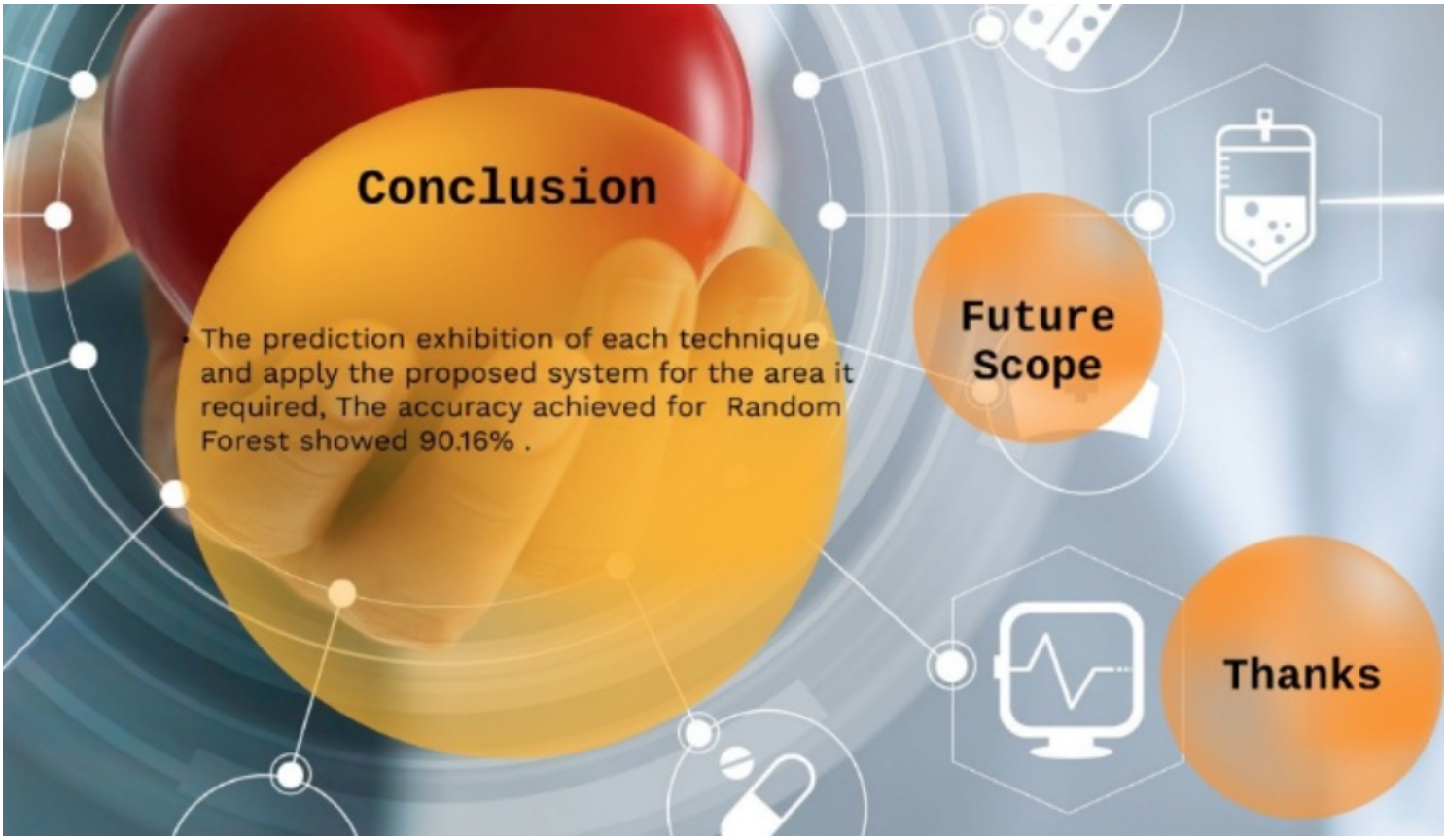



APPROACH
METHODOLOGY
MACHINE LEARNING ALGORITHMS:
Python with
Random Forest(RF)


Random Forest Simplified
Instance
Random Forest
Tree-1
Tree-2
Tree-n
Class-A
Class-B
Class-B
Majority-Voting
Final-Class
• The missing values will be handled by the random forest classifier, which will maintain the detection rate of a large portion of the data.
• The Random Forest is made in two stages: the first is to join N choice trees to make the arbitrary timberland, and second is to make any expectations for each tree created in principal stage.
RANDOM FOREST ALGORITHM


Graphs
INITIAL RESULTS
• By far we have checked the correlation between the features and correlation of the target variable.


Have Heart Disease = NO
Have Heart Disease = YES
age
trestbps
chol
thalach
oldpeak


Conclusion
The prediction exhibition of each technique and apply the proposed system for the area it required, The accuracy achieved for Random Forest showed 90.16% .
Future Scope
Thanks


Machine learning has been used to predict heart disease with promising results. A recent study 1 applied different machine learning algorithms and deep learning to the UCI Machine Learning Heart Disease dataset and achieved an accuracy of 94.2%. Another article 2 explored the domain of heart disease prediction through machine learning and discussed its promise, hurdles, and implications within the healthcare sector. The research works, related heart disease datasets, and comparison and discussion of different machine learning models for prediction of heart disease are described in 3 and 4. These studies show that machine learning can be a powerful tool for predicting heart disease and improving patient outcomes. However, it is important to note that these models are not perfect and require further validation and testing before they can be widely adopted. In the future, machine learning can be combined with other technologies such as the Internet of Things (IoT) to create more accurate and efficient heart disease prediction models


THANK
YOU