

# Team project

Team 4: AI Detectors

# TEAM



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# Introduction

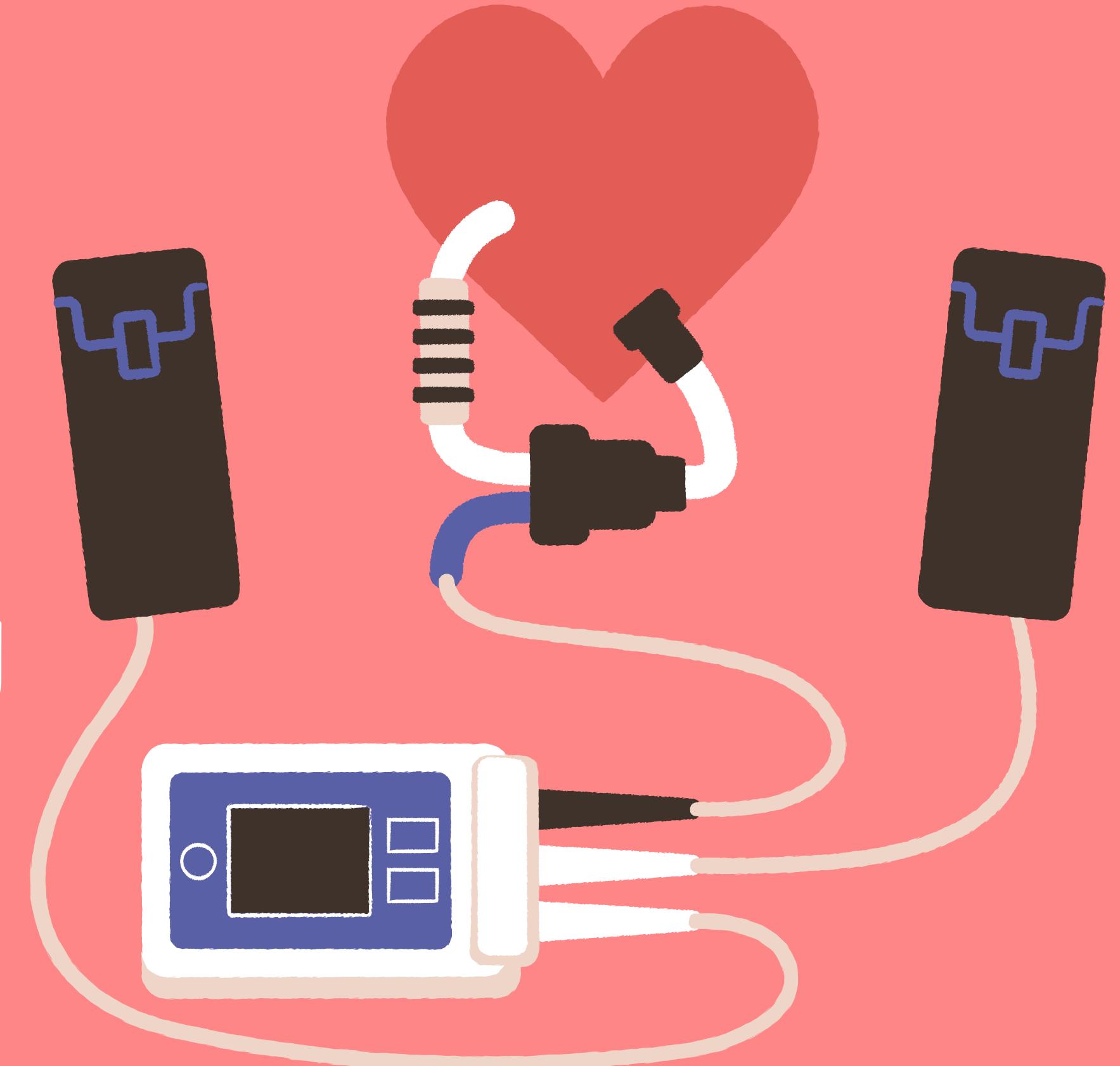
- Overview: CVDs are the top global cause of death, with heart failure being a significant contributor. This project aims to leverage machine learning to predict heart failure using a dataset of 11 cardiovascular health indicators.
- Importance: Early detection of heart failure is crucial for effective management and reducing mortality rates. ML models offer a promising solution for timely diagnosis and intervention.



THOMAS MORE UNIVERSITY

# Revolutionizing Healthcare with Machine Learning

March 2024 | Project Idea



# Dataset Overview and EDA

Utilizing **ydata\_profiling**, we gained comprehensive insights into our dataset, including feature distributions, correlations, and potential anomalies. Visualizations such as distribution plots and correlation matrices aided in understanding the data's characteristics. This exploration phase guided our subsequent steps in feature selection and preprocessing for model development.



# Modeling Approach

- Leveraging **scikit-learn**, we established a robust machine learning pipeline for model development.
- Our initial implementation involved deploying the **Decision Tree** algorithm as a benchmark model.
- Additionally, we explored alternative techniques such as **Random Forest** and **Gradient Boosting** to maximize predictive performance.



# VS CODE DEMONSTRATION



# EVALUATION

We assessed model performance using various evaluation metrics including **accuracy**, **bias** and **variance**.

The **confusion matrix** visualizations provided insights into true positives, true negatives, false positives, and false negatives for each model. By comparing these metrics, we identified the most effective model for predicting heart failure.

Turning data into hope -  
one heartbeat at a time.

THANK YOU!