Classification of Cardiovascular Disease

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WHAT IS CARDIOVASCULAR DISEASE?

Also called heart disease, is a class of diseases that involve the heart or blood vessels

Includes heart attack, stroke, heart failure, arrhythmia (abnormal heart rhythm), atherosclerosis (plaque in arteries), and coronary artery disease

Cardiovascular disease is the leading cause of death for men, women, and people of most racial and ethnic groups in the United States - CDC

DATA USED

Data was obtained from Kaggle.com

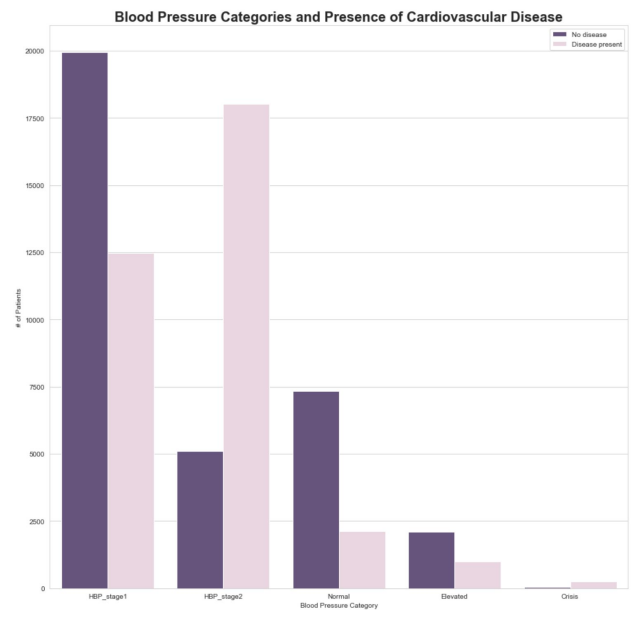
70,000 data points

6 numerical features, 6 categorical features, 1 target

Target was already balanced at 50/50

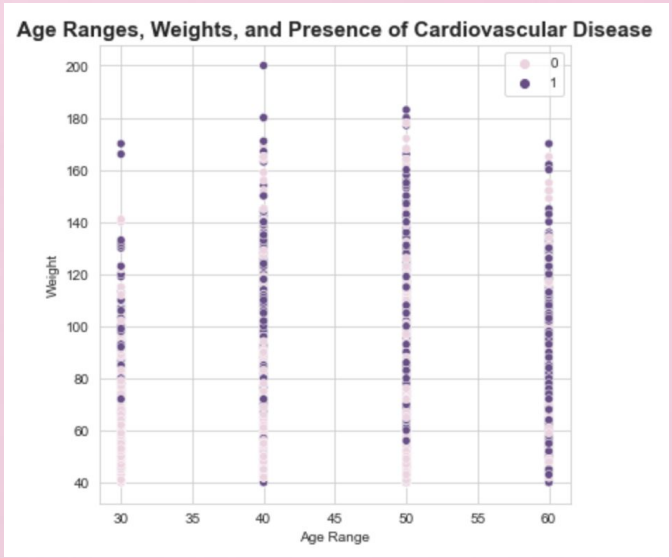
FINDINGS

Blood Pressure



Those with blood pressures in categories "Stage 2 Hypertension" or "Hypertensive Crisis" are more likely to also have CVD

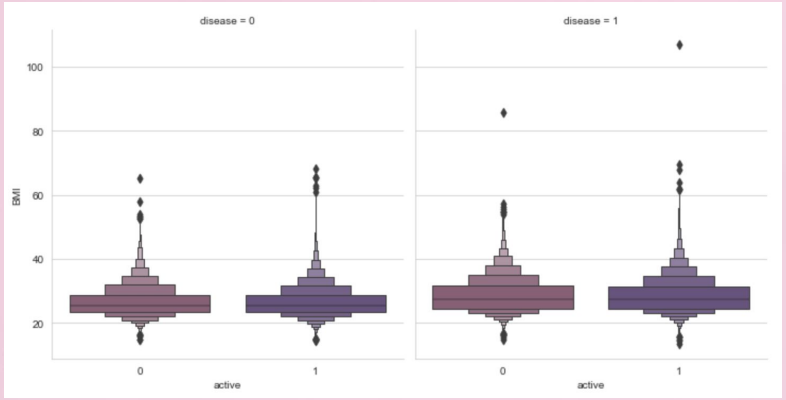
Age & Weight



As one ages, having a lighter weight does not prevent CVD

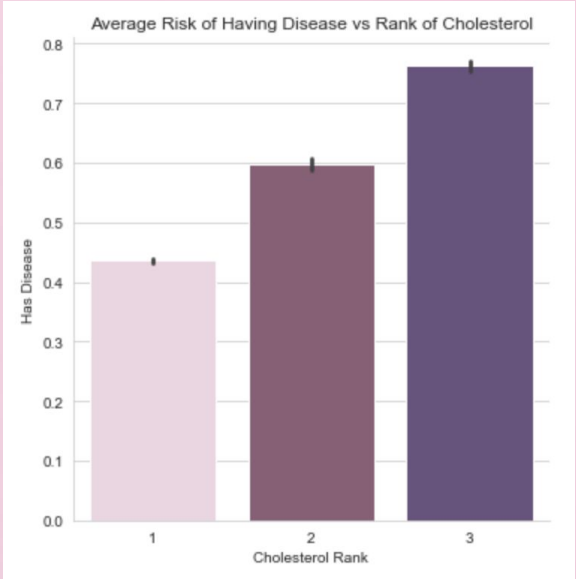
FINDINGS

Activity



Those with CVD have higher BMIs, regardless if they are active or not

Cholesterol



76% of those with cholesterol that is "well above average" also have CVD

MODEL RESULTS

1598

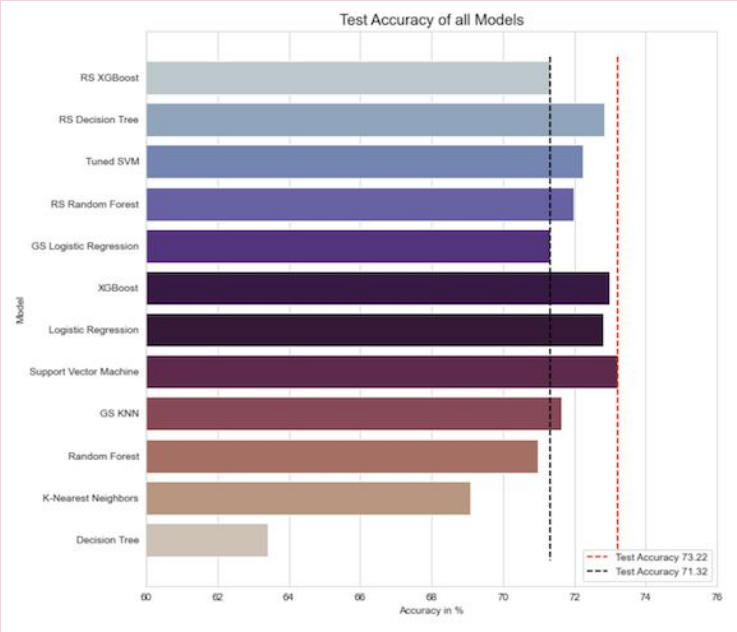
FALSE NEGATIVES:

# of people in test group that have CVD and were not diagnosed

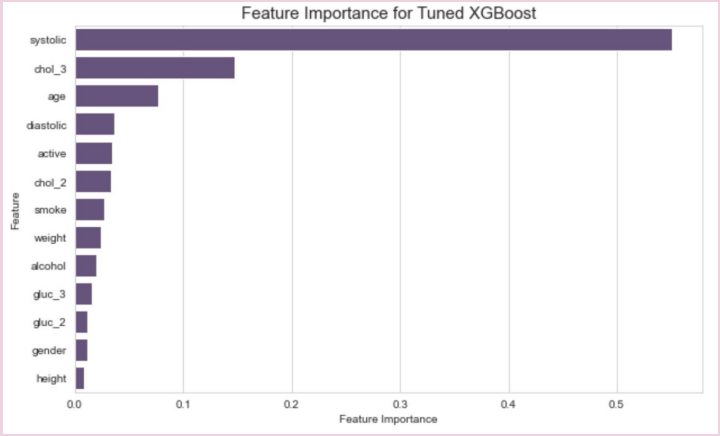
6864

TRUE POSITIVES:

# of people in test group that have CVD and were diagnosed correctly



IMPORTANT FEATURES



SYSTOLIC

Top # in blood pressure is a good predictor of CVD

CHOLESTEROL

Cholesterol of “well above average” can indicate CVD

AGE

Getting older increases risk of CVD

CONCLUSIONS

Successfully built a model that accurately classifies ~71% of patients while missing only 9% of patients with CVD

Having high blood pressure, having high cholesterol, and getting older all increase the risk of having cardiovascular disease

FUTURE WORK

Getting more specific data about cholesterol, like HDL and LDL

More information on how subjective information was gathered

More information about other illnesses like diabetes, gum disease & COPD

Data on region, ethnicity, or socioeconomic background to evaluate access to care and long-term health

THANKS

Does anyone have any questions?

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