


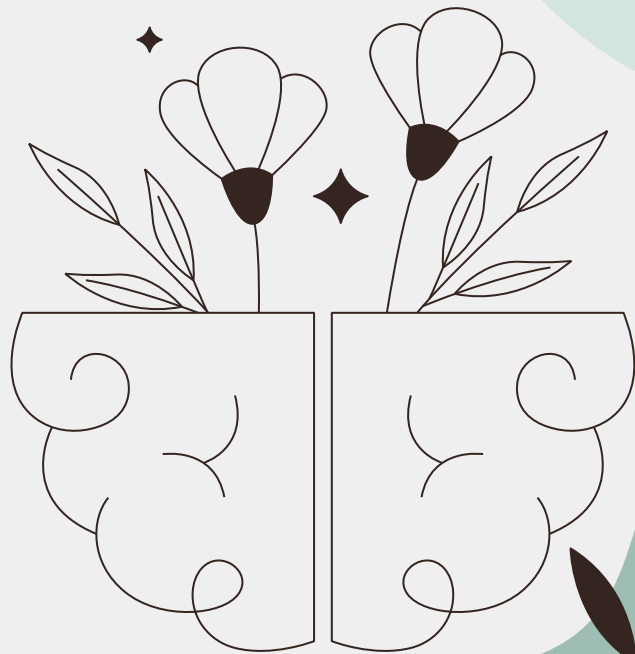


DSCI 510

Predicting Chronic Diseases from Personal Wearable Devices



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Introduction



Health

Increasing public accessibility,
knowledge, understanding of
medical data for a healthier
future.

(ex: Apple Watches, Health
App)



Tech

Harnessing advancing
technology to provide medical
insights and improve
prevention care.

(ex: AI, Machine Learning)

Data Sources

Apple Watch / Fitbit Data

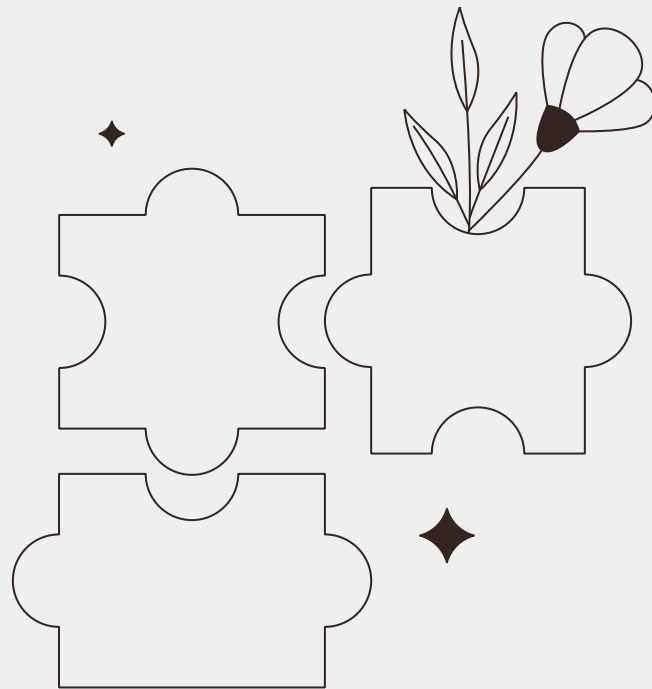
20 features and 6264 instances used for predicting chronic disease

US Chronic Disease Indicators

34 public surveillance indicators and 309215 instances for chronic diseases

Behavioral Risk Factors

33 public surveillance indicators and 106260 instances for behavioral risk factors



Process and Results

EDA

Feature engineering
and cleaning

Technique

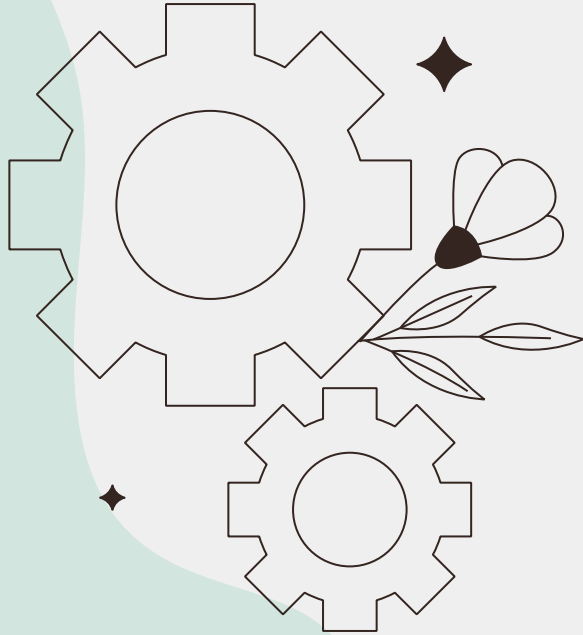
Random Forest
Classifier and
one-hot-encoding

Results

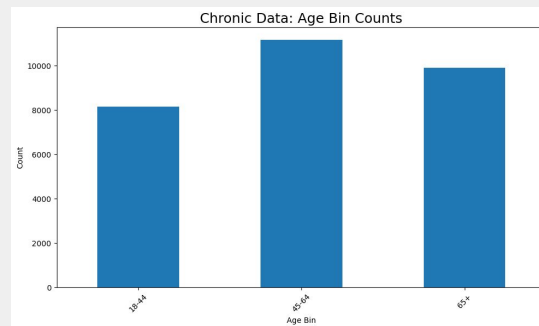
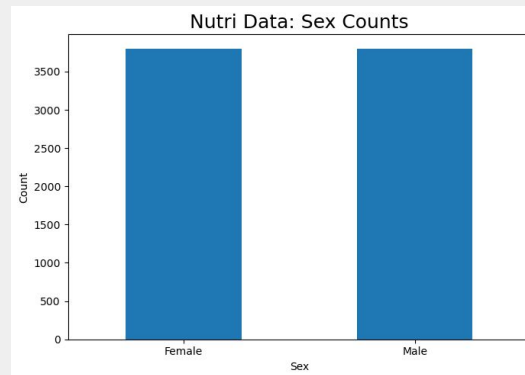
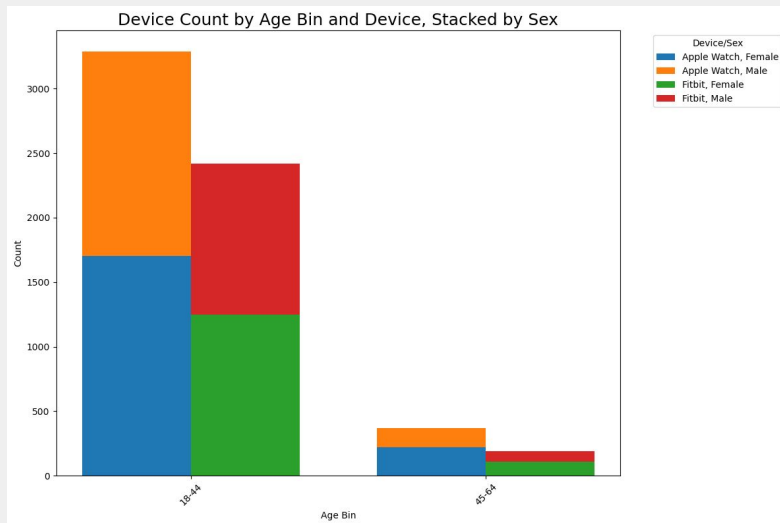
ML Algorithm bias
identified through
visualizations

Challenges

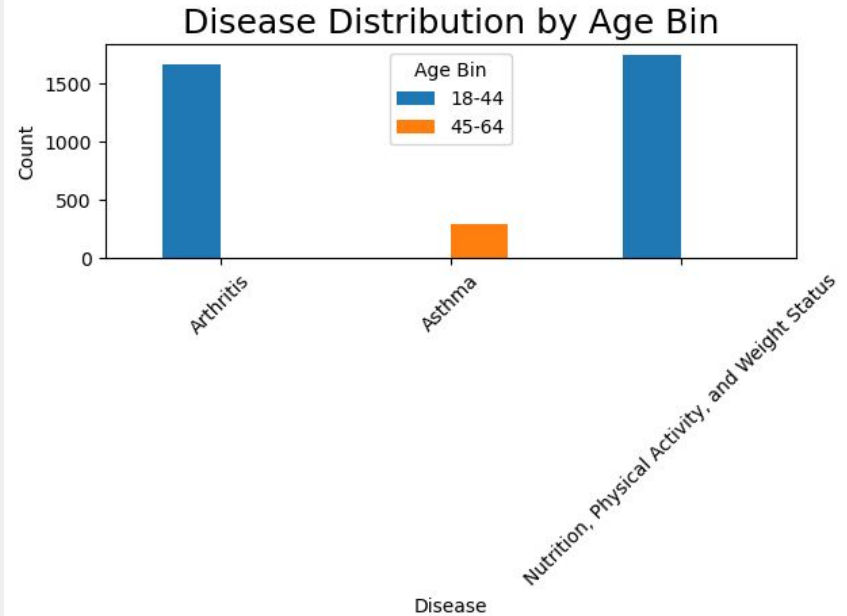
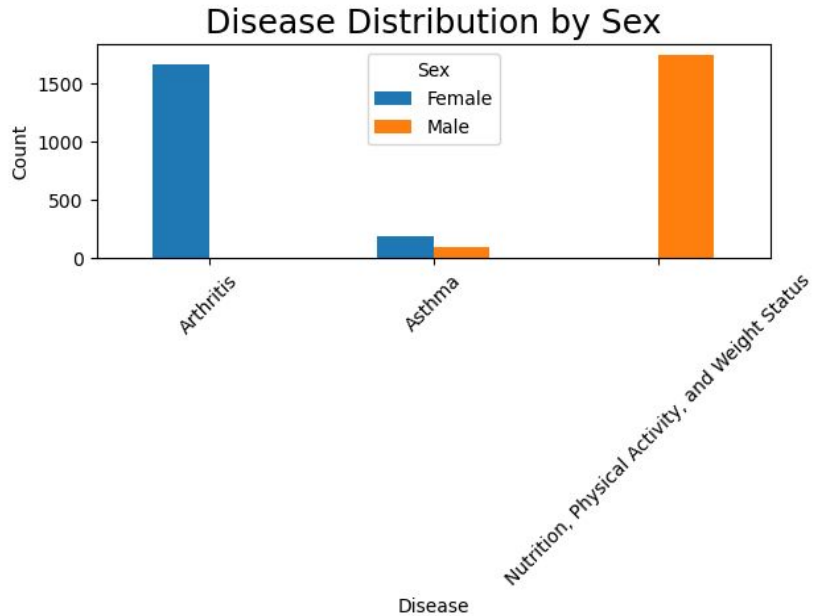
Difficulties and where
improvements can be
made



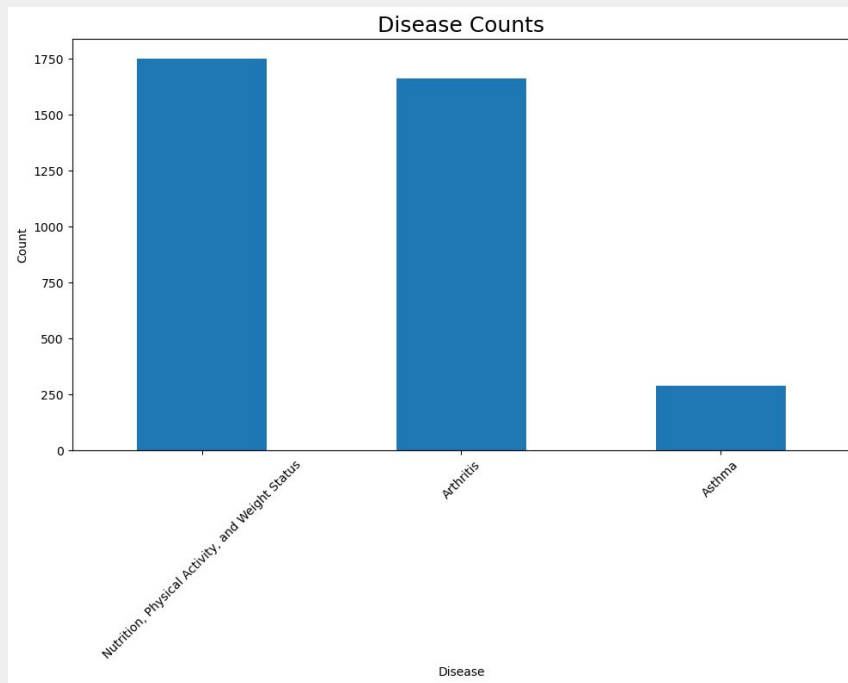
Process: EDA



Results: Visualization 1 and 2



Results: Visualization 3



Challenges and Improvements



Data Availability

Not much overlap, lots of assumptions made



Features

Additional features, better engineering

ML Exploration

Test, explore, compare other algorithms



Validation

Cross-validating with similar data/projects





Thank You!