

# TML Project 3

## COMPAS Dataset

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# Data Description

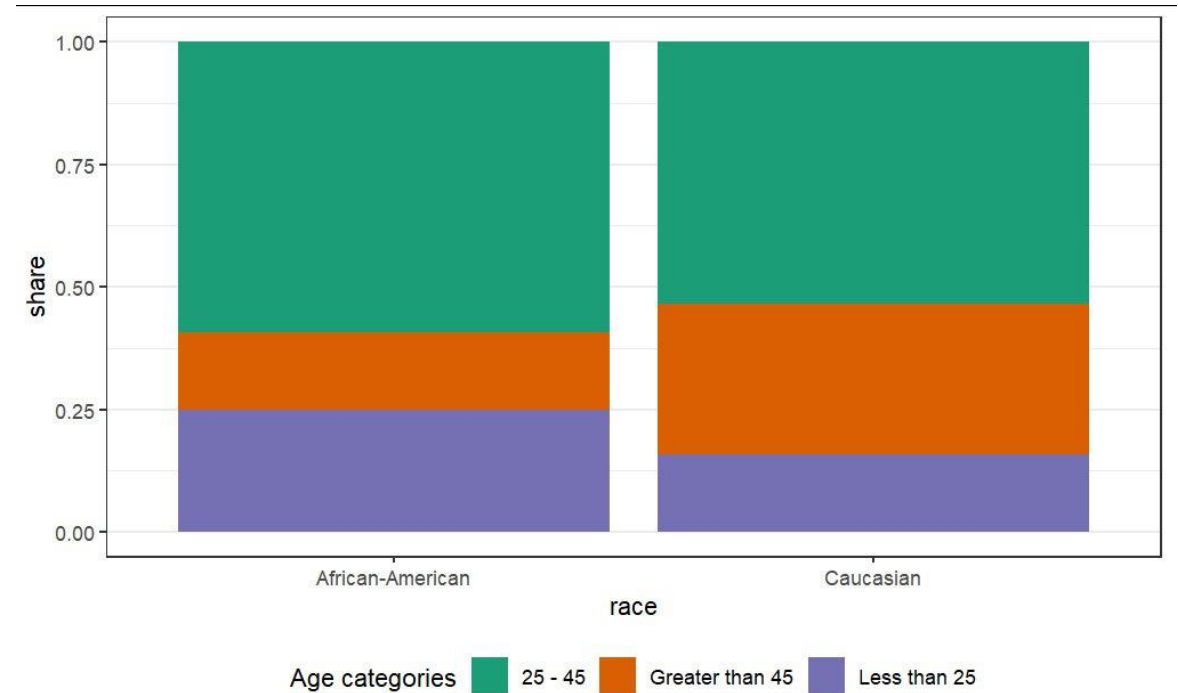
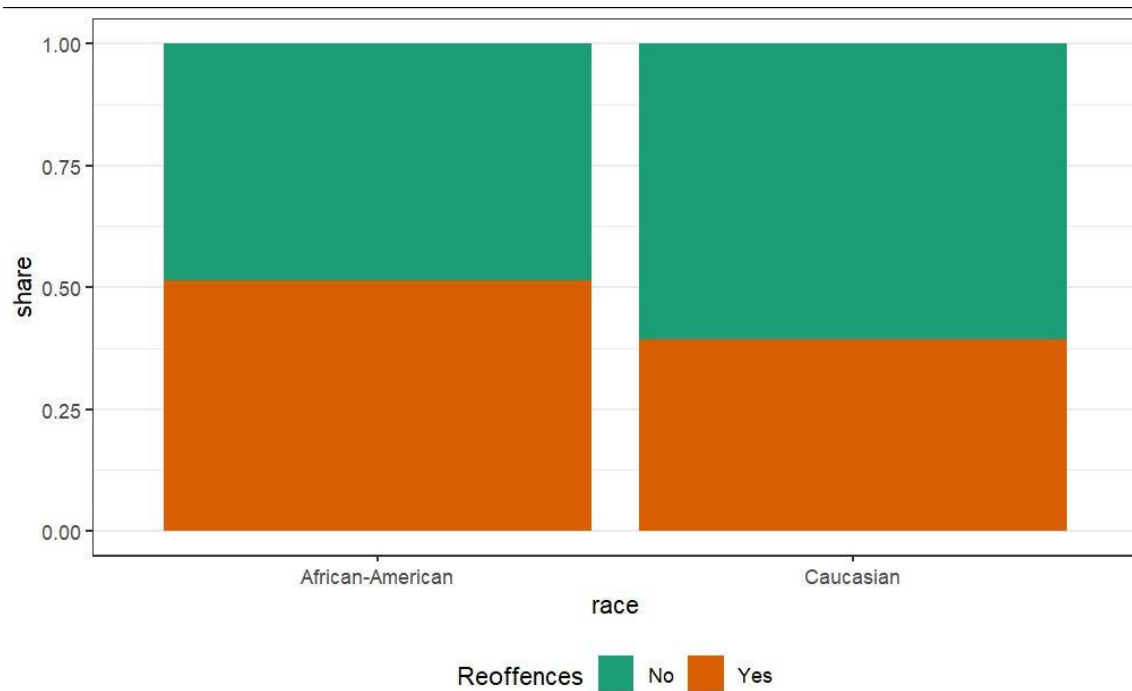
- COMPAS dataset
  - Prison and crime data with COMPAS risk scores
    - Age, sex, race, gender
    - Previous offenses, severity of offense, etc.
  - Used for assessing released prisoner reoffendment risk
  - Data contains future offenses (2 years)
  - Data preprocessing: kept 7 features (among with sex,race,age,gender)

# Predictive Task

- Predict if a released prisoner will recommit an offense
- Using '2\_year\_recid' reoffendment data directly to train our logistic regression model (binary response)
- Features used are prior offenses, sex, age category, race and the charge degree (tried to avoid using COMPAS scores to avoid further bias)
- Accuracy: 68%

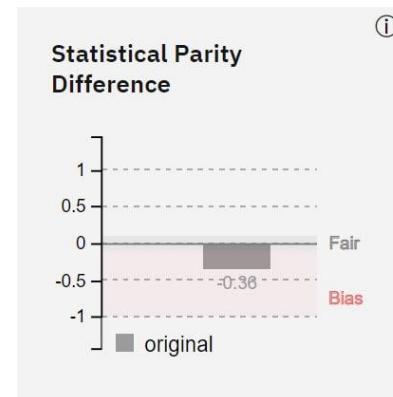
# Model Results

- We focused on comparison between African-American and Caucasian prisoners to measure bias
- African-American to Caucasian prisoners ratio is 1.5:1
- Prediction for reoffense ratio is 3:1 !



# Fairness Measures

- Aequitas fairness tool:
  - Dataset failed in all Fairness Measures
  - Passed some Protected Attributes
- Simple intuitive measures check manually:
  - Demographic parity for African-American and Caucasian
  - Equal opportunity
- IBM AI Fairness 360
  - Confirmed our findings



# Thank you!

Datasets available here: <https://github.com/propublica/compas-analysis/>