

# OBJECTIVE:

- Today we will act as data scientists for Northpointe
- We have to choose the data for the AI algorithm called, COMPAS, which predicts whether someone is likely to commit a crime again



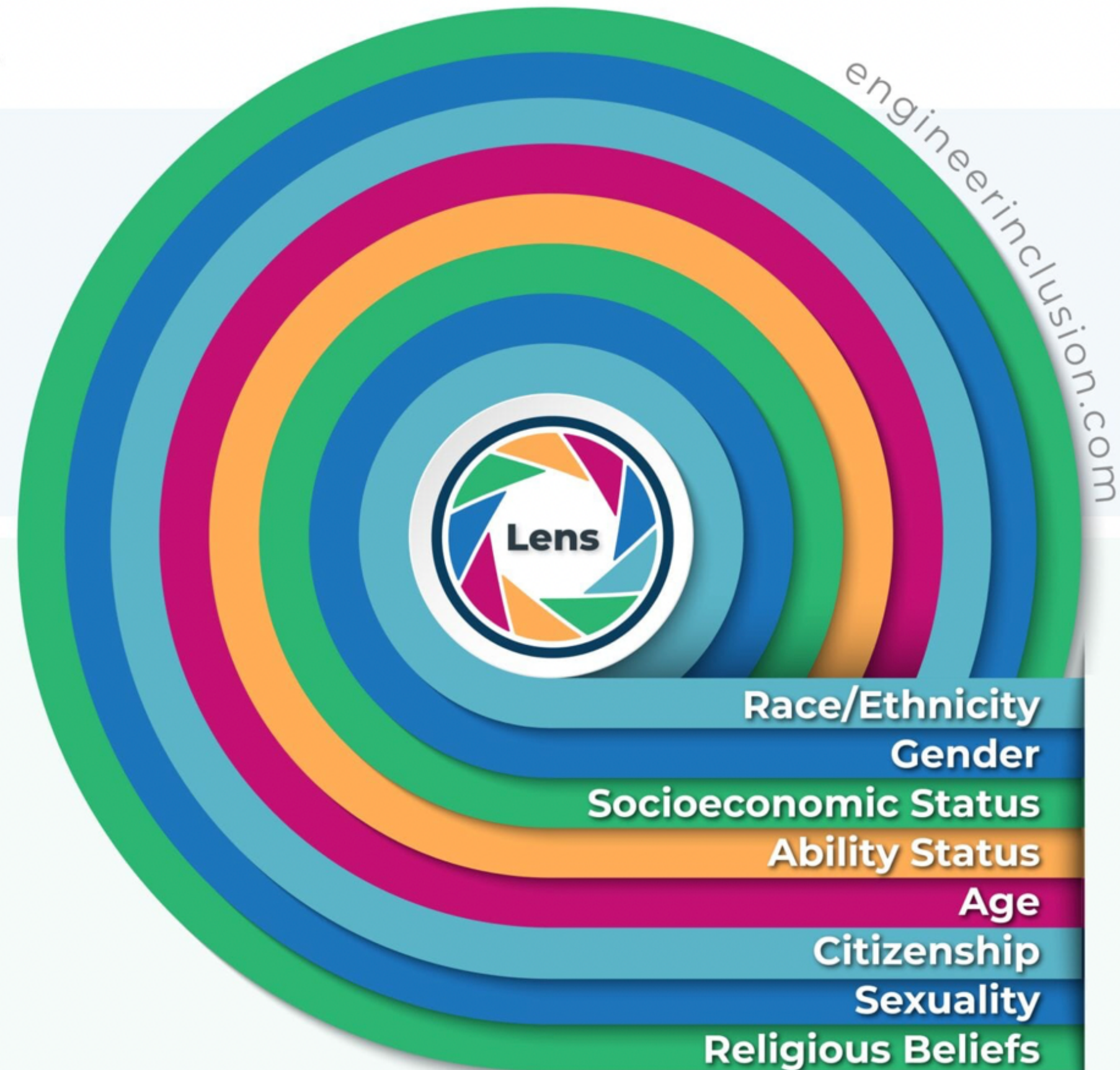


# Examine your positionally:

**Positionality** is

1) the social and political context that creates your identity and

2) how your identity influences and biases your perception of and outlook on the world.





# BACKGROUND:

- COMPAS is a Recidivism Risk Assessment Tool (RAT) that decides whether someone in jail has a low, medium, or high risk of recidivating or committing another crime.





# **BACKGROUND:**

**An assessment is a list of questions which assess someone's past history and present needs**



# BACKGROUND:

- The COMPAS score is supposed to determine which defendants are eligible for probation or treatment programs
- Propublica thinks the results have lead to judges giving longer sentences





# **BACKGROUND:**

- The risk scores are based on 137 questions that are either answered by defendants or pulled from criminal records.
- Race is not one of the questions.



# **COMPAS IS IN A HIGH STAKES SITUATION**

"If it's wrong in one direction, a dangerous criminal could go free. If it's wrong in another direction, it could result in someone unfairly receiving a harsher sentence or waiting longer for parole than is appropriate." (Propublica)



# COMPAS SCORES

- 1-4 is low risk
- 5-7 is medium risk
- 8-10 high risk
- Scores above 4 are utilized as indicators that the person will recidivate

# **TASK #1:**

- Read every question from the Assessment
- Determine with your group the questions that should be used to determine whether someone needs to stay in jail
- Determine which questions should be given more weight in COMPAS because they are more indicative of someone committing a crime again



## **TASK #2:**

- Share the data your group believes should be inputted into the COMPAS algorithm and why

## **TASK #2:**

- Propublica found that any question that relates to someone's past crime or arrest is biased because Black, Latinx and Native American people are arrested at disproportionate rates and a vast amount of these marginalized groups can not afford to get bailed out of jail



## **TASK #2:**

- Based on Propublica's findings, let's assess which questions should be used

## **TASK #2:**

- Share your experience doing the activity:
  - What did you learn?
  - What was challenging?

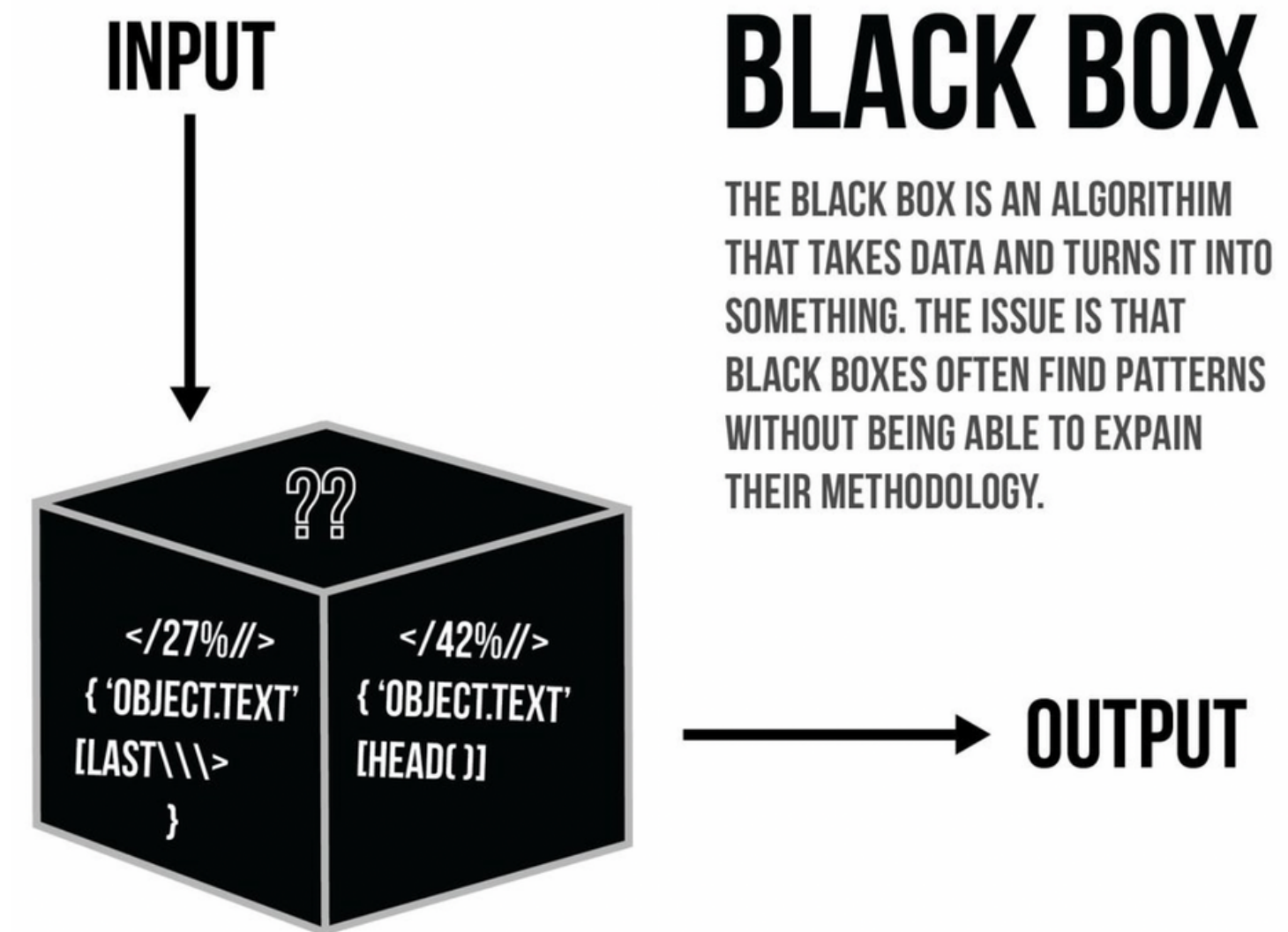


**WHICH QUESTIONS WERE USED  
OR GIVEN MORE WEIGHT IN  
COMPAS?**

ONLY NORTHPOINTE KNOWS

# COMPAS IS A BLACK BOX ALGORITHM

- Only Northpointe knows the exact calculations used to create the COMPAS scores



The black box algorithm — who knows what it's doing? Apparently, nobody.

# **AI is not less biased than humans**

1. Data reflects human bias
2. Missing data

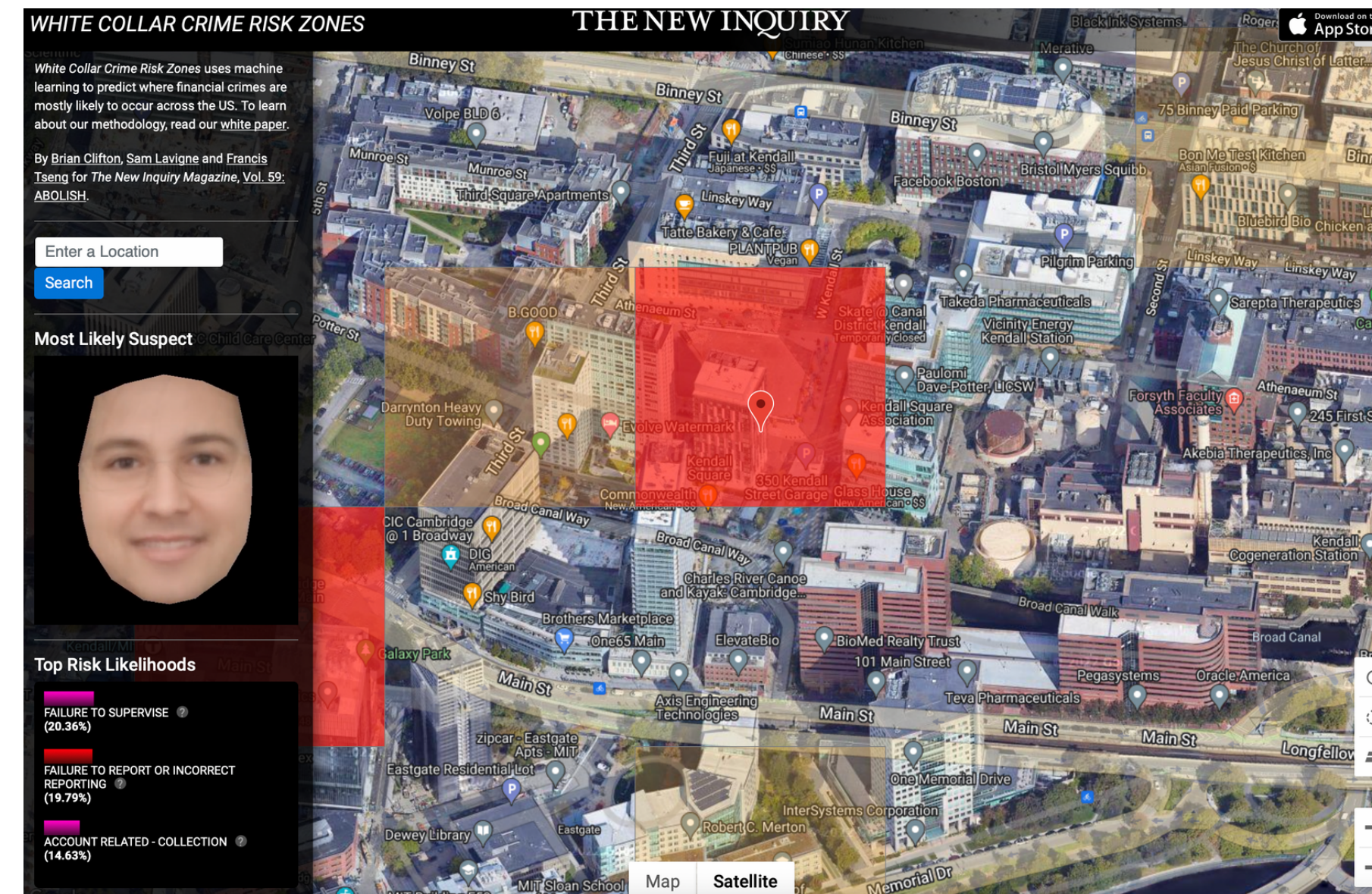


**SHOULD PEOPLE BE  
PUNISHED BASED IN  
PART ON THEIR  
ESTIMATED  
LIKELIHOOD OF  
COMMITTING FUTURE  
CRIMES?**



# BIASED AND MISSING DATA

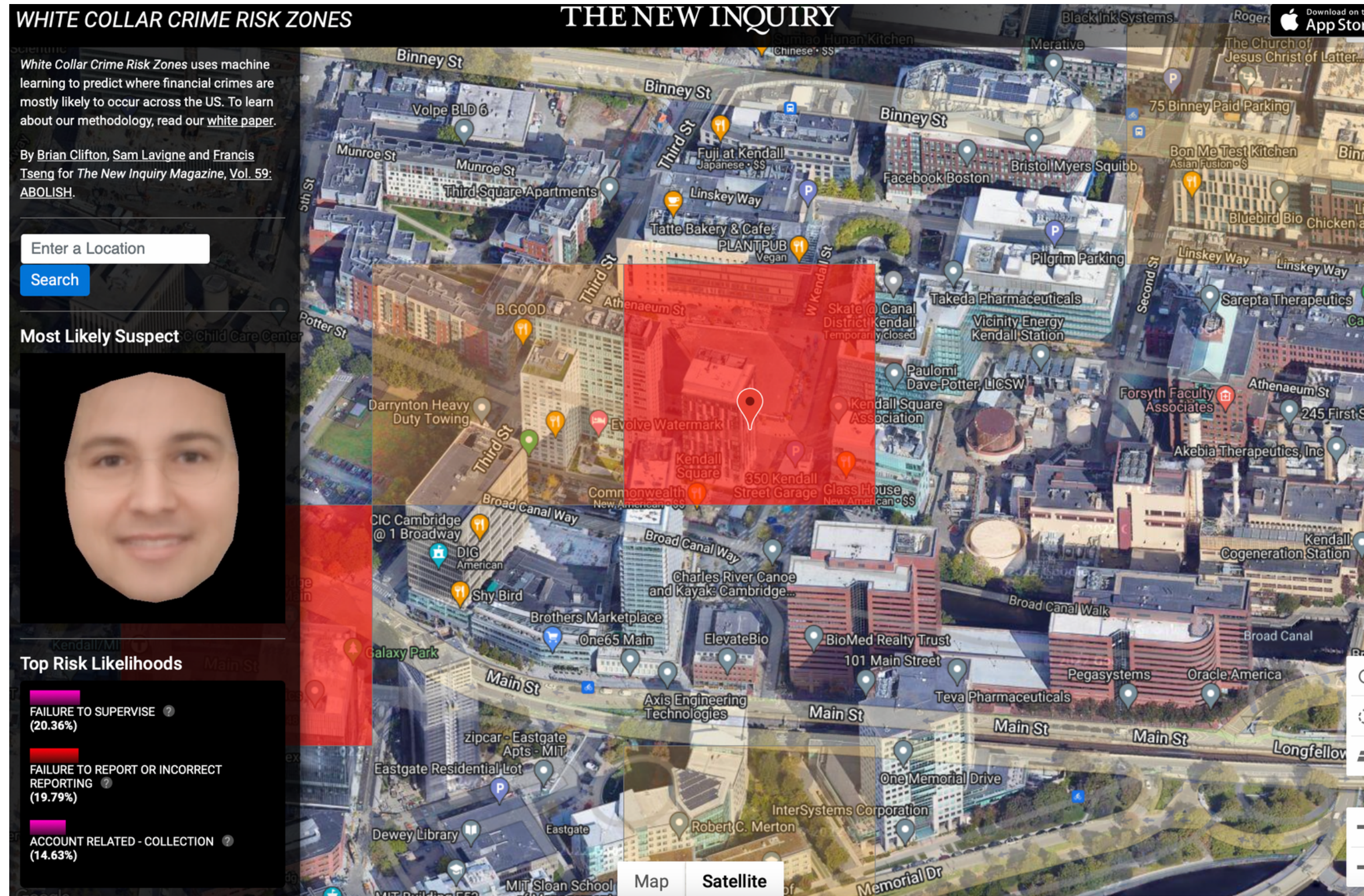
- We don't have accurate crime data because African Americans are more likely to be charged for a crime than White people (Propublica)
  - We don't arrest White people for drugs in this country nearly as much as we arrest black people for drugs (Propublica)
- The White Collar Crime Risk Zones website uses machine learning to predict where financial crimes are most likely to occur





# BIASED AND MISSING DATA

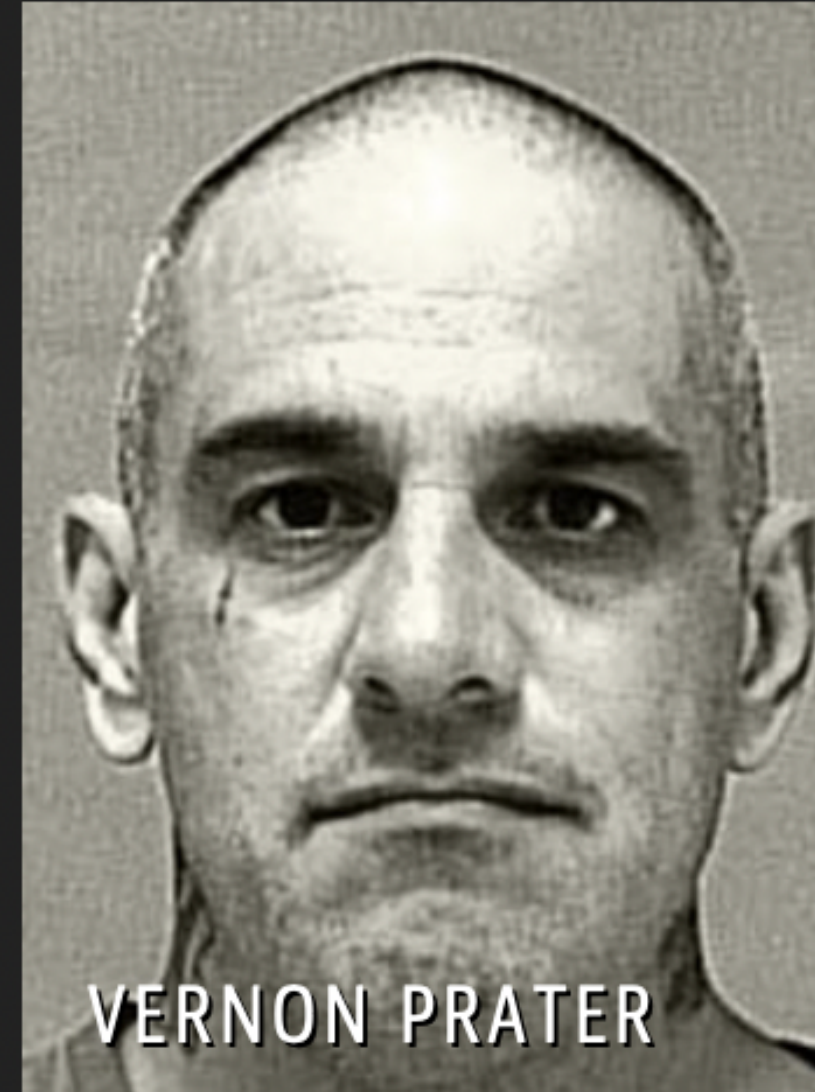
- The COMPAS data set is reflecting the human bias in arrest or is missing a vast amount of White people that commit crimes





- In a 2016 investigation, ProPublica found that African American defendants who do not end up being rearrested are twice as likely to be labelled as "likely to reoffend" as Caucasian defendants who do not end up being rearrested

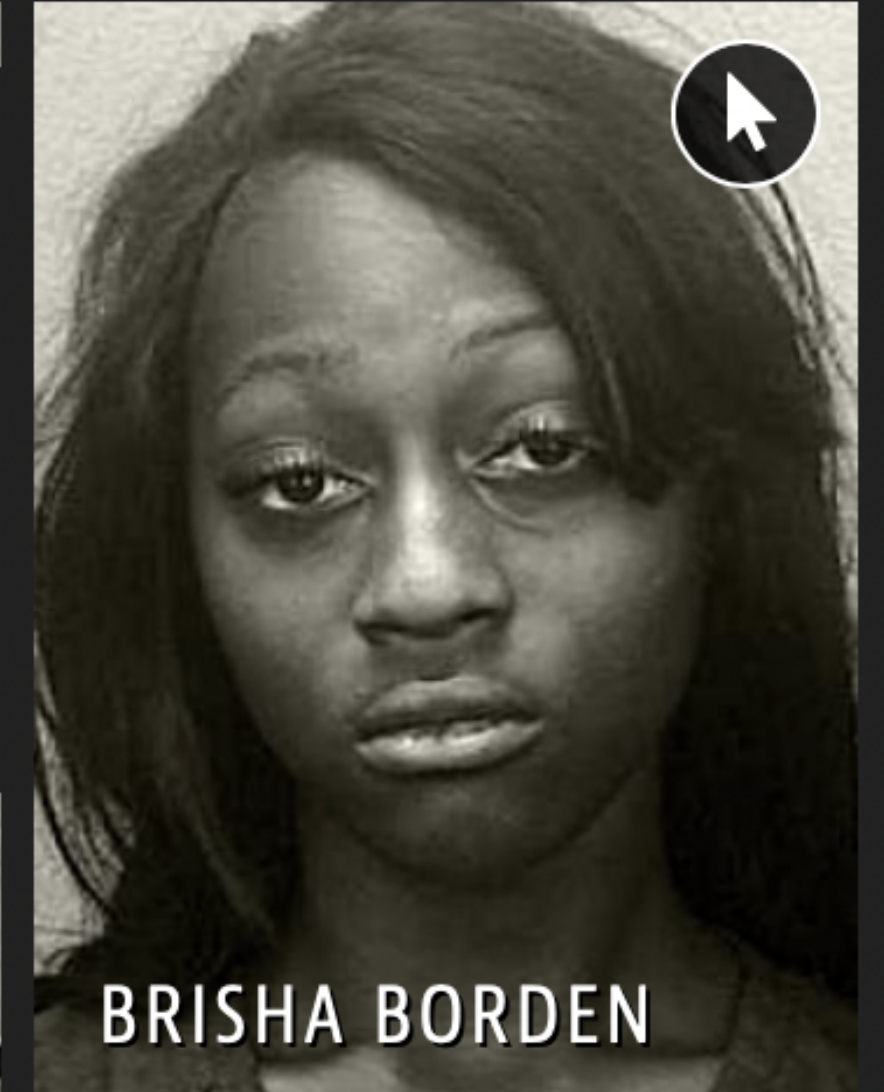
## Two Petty Theft Arrests



VERNON PRATER

LOW RISK

3



BRISHA BORDEN

HIGH RISK

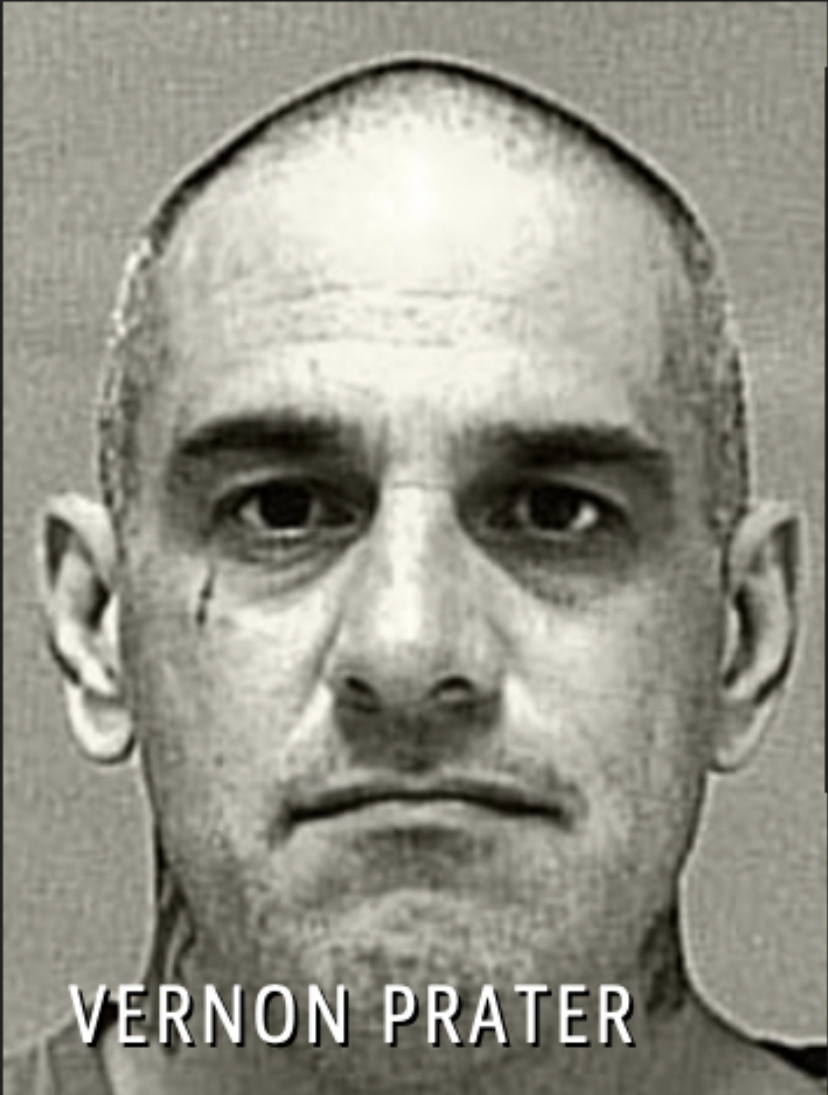
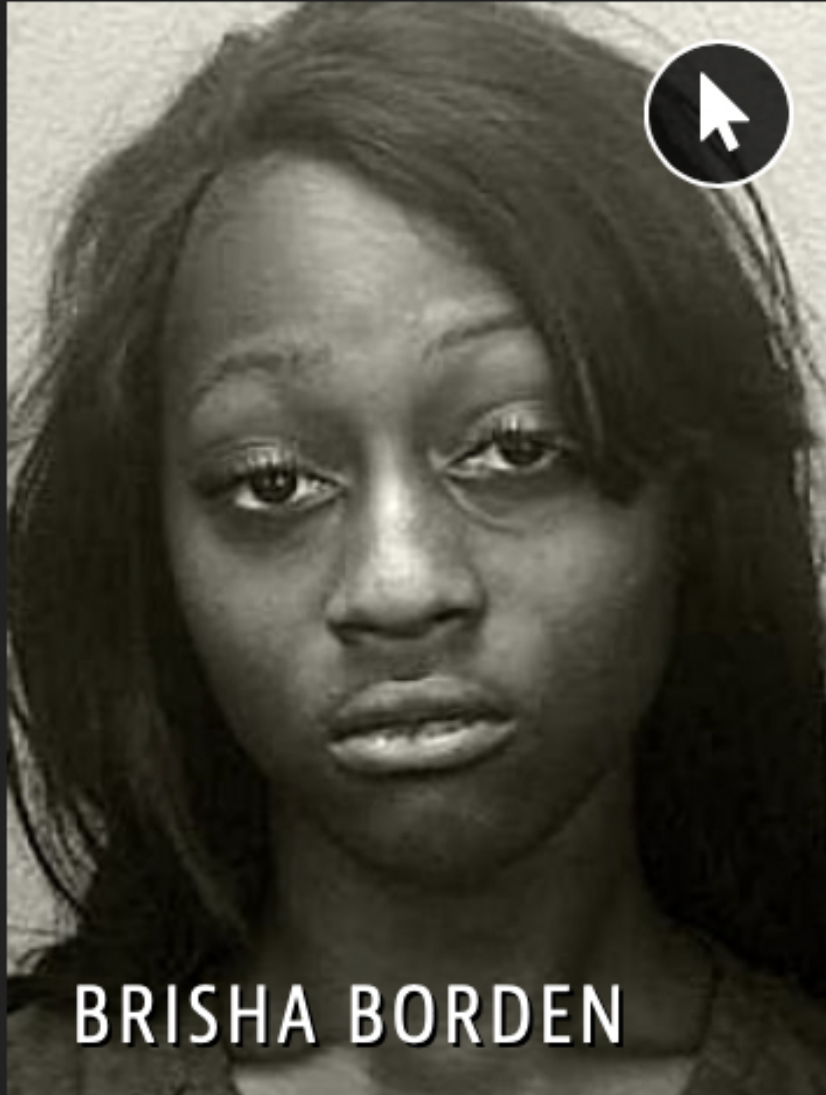
8

*Borden was rated high risk for future crime after she and a friend took a kid's bike and scooter that were sitting outside. She did not reoffend.*



- Borden past crimes:  
took a bike, misdemeanors committed as a juvenile
- Prater past crimes:  
shoplifted \$86.35 worth of tools from a nearby Home Depot store, convicted of armed robbery and attempted armed robbery
- Borden — who is black — was rated a high risk.
- Prater — who is white — was rated a low risk.

## Two Petty Theft Arrests

	
VERNON PRATER	BRISHA BORDEN
LOW RISK 3	HIGH RISK 8

*Borden was rated high risk for future crime after she and a friend took a kid's bike and scooter that were sitting outside. She did not reoffend.*

## Prediction Fails Differently for Black Defendants

	WHITE	AFRICAN AMERICAN
Labeled Higher Risk, But Didn't Re-Offend	23.5%	44.9%
Labeled Lower Risk, Yet Did Re-Offend	47.7%	28.0%

- "Black people are almost twice as likely as White people to be labeled a higher risk but not actually re-offend" (Propublica).
- "It makes the opposite mistake among White people: They are much more likely than Black people to be labeled lower risk but go on to commit other crimes" (Propublica).



# COMPAS ALGORITHM

- Now we will watch a 10-minute clip of the documentary titled, "Algorithms rule us all".
- This is the specific time stamp: 10:25-19:30
- Students must write 3 facts, 2 things they never knew and 1 question on the Padlet



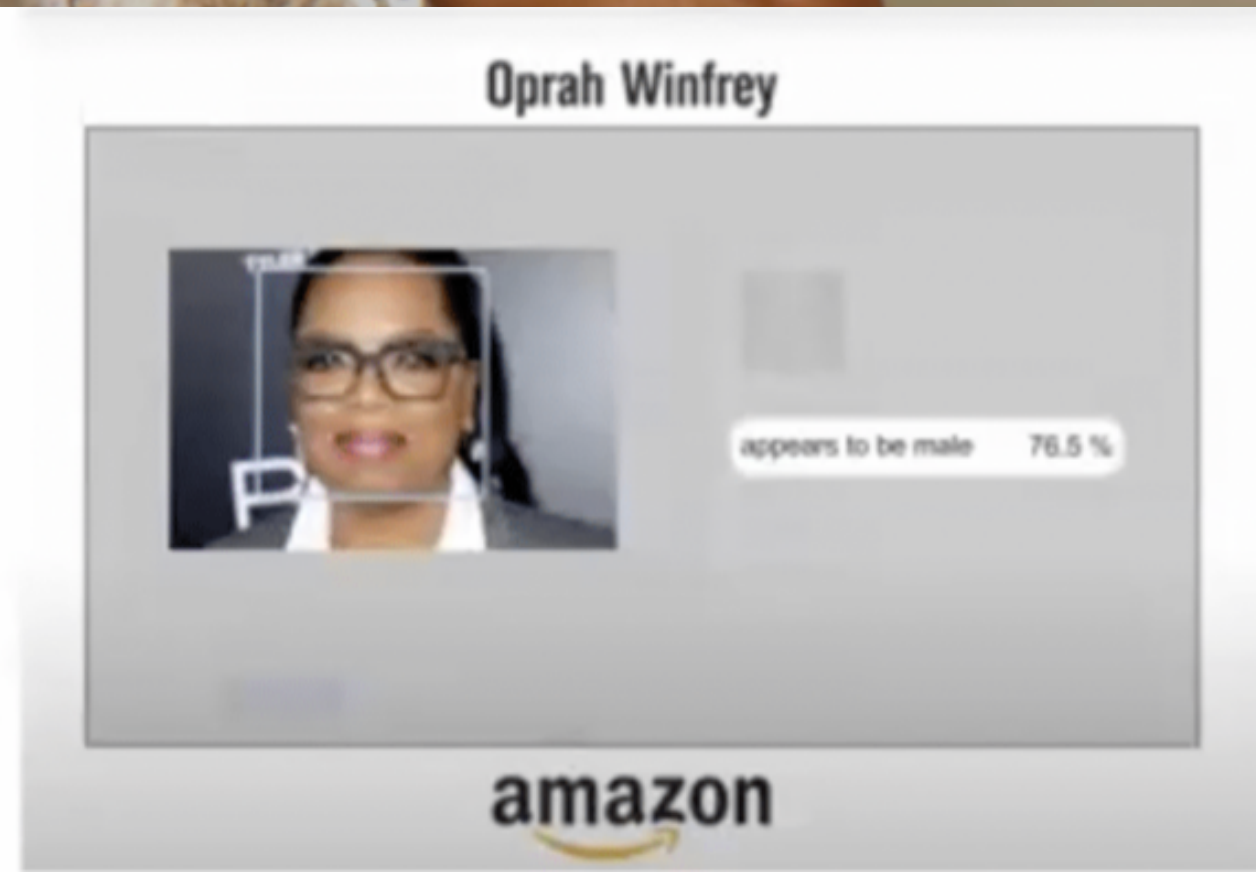
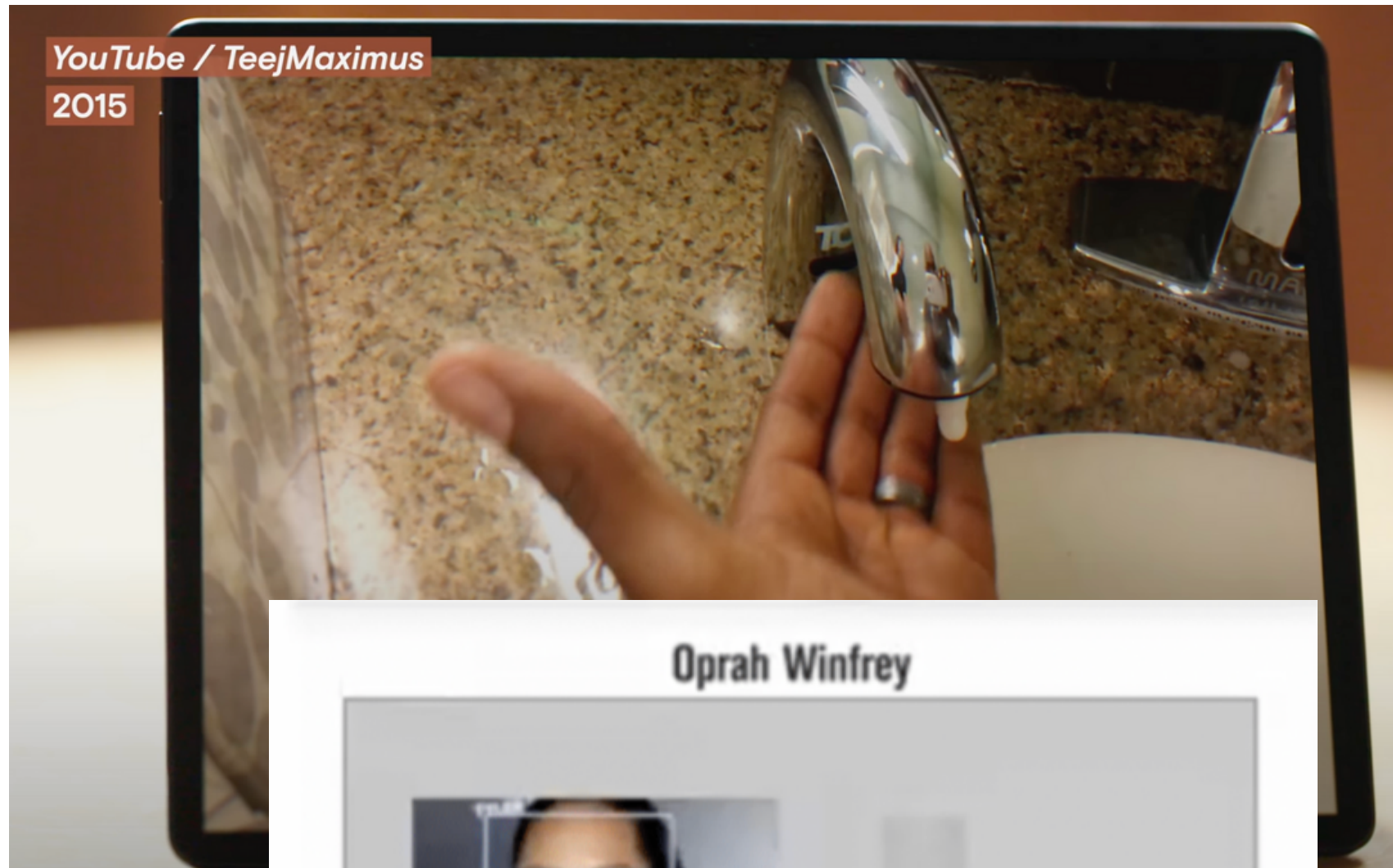
# COMPAS 3,2,1

- In your small groups discuss these questions:
  - What did you learn today?
  - Should COMPAS be used?

**Risk assessments are  
increasingly being integrated  
into high stakes decisions, yet  
consistently produce  
unexpected and unjust  
impacts.**

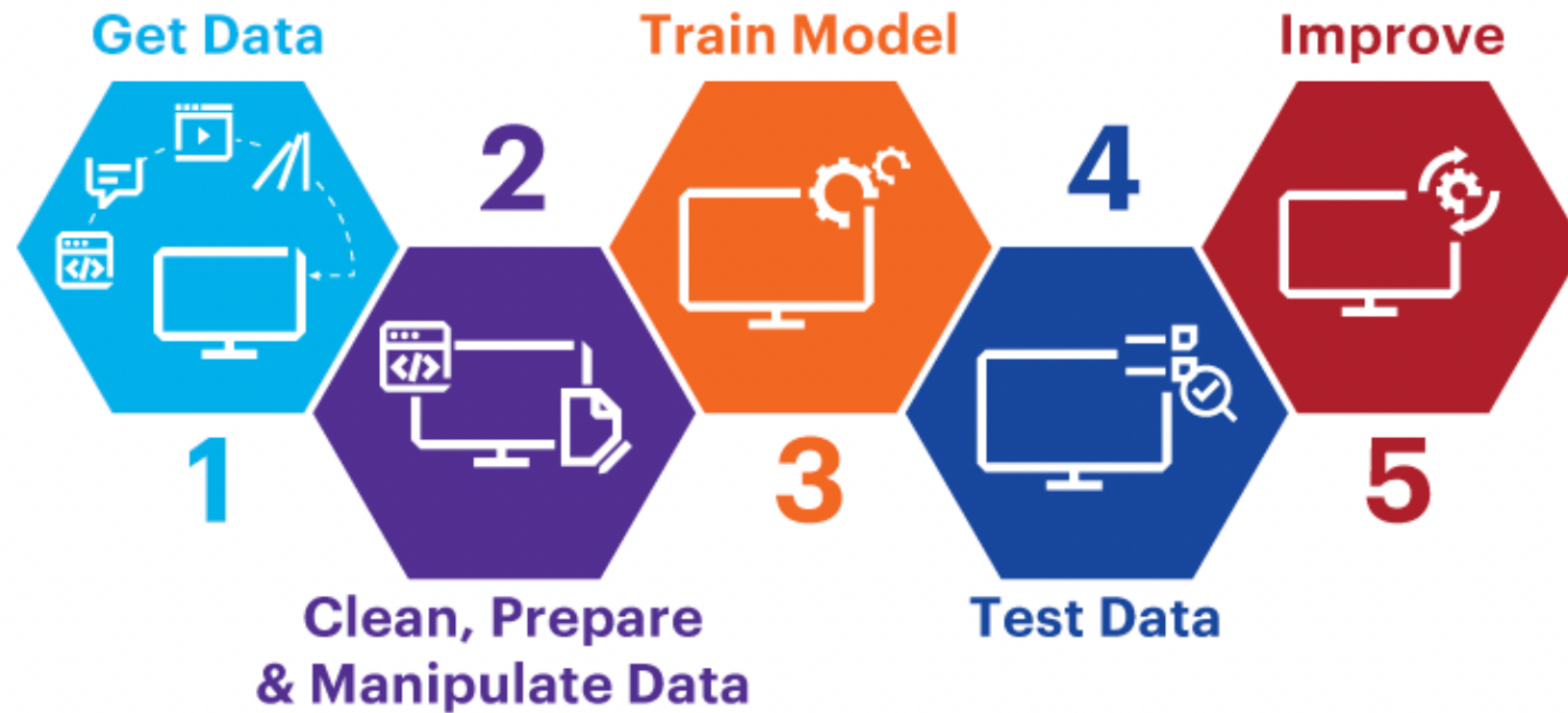


# Is AI amplifying racism?



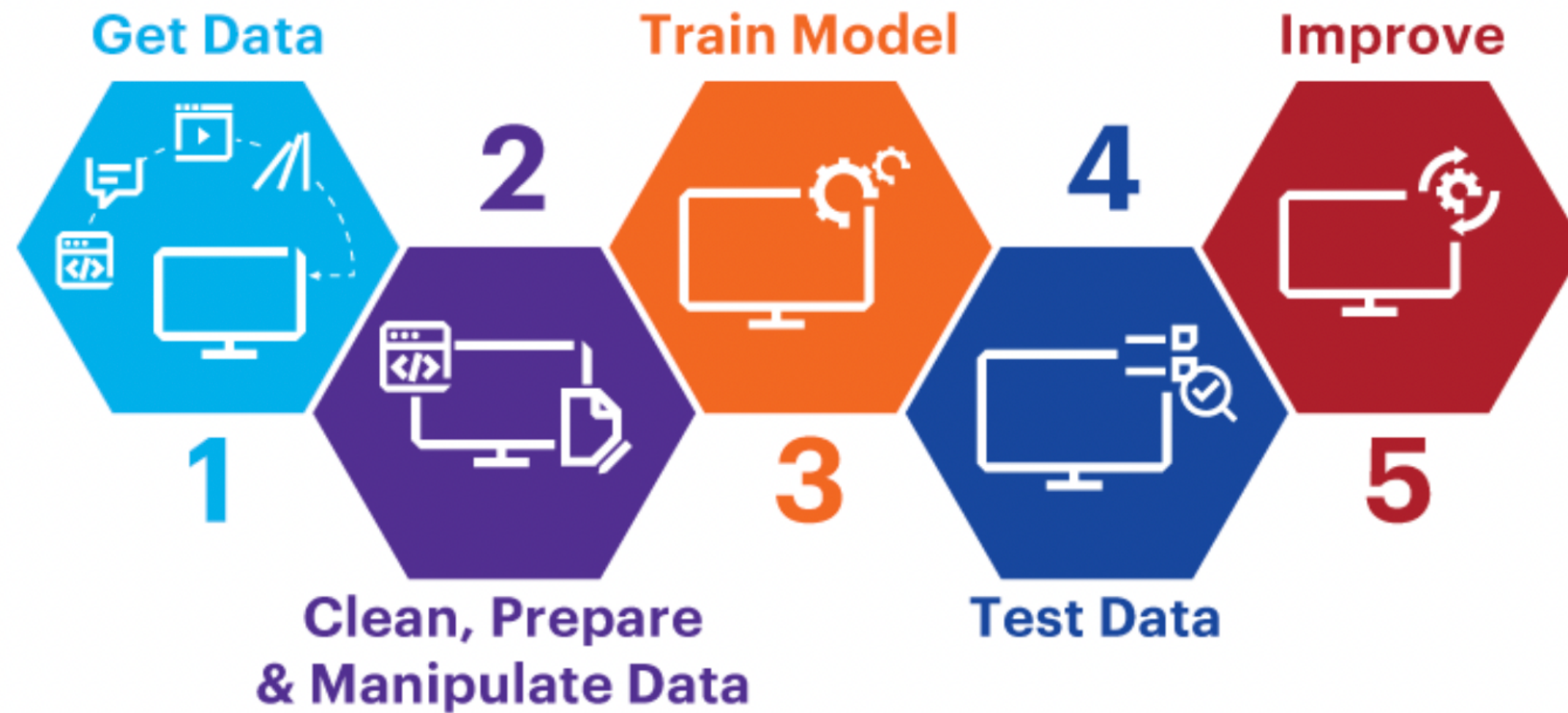


# RESPONSIBLE AI LIFECYCLE



**BIAS CAN BE EMBEDDED INTO EVERY ASPECT  
OF THE AI LIFECYCLE**

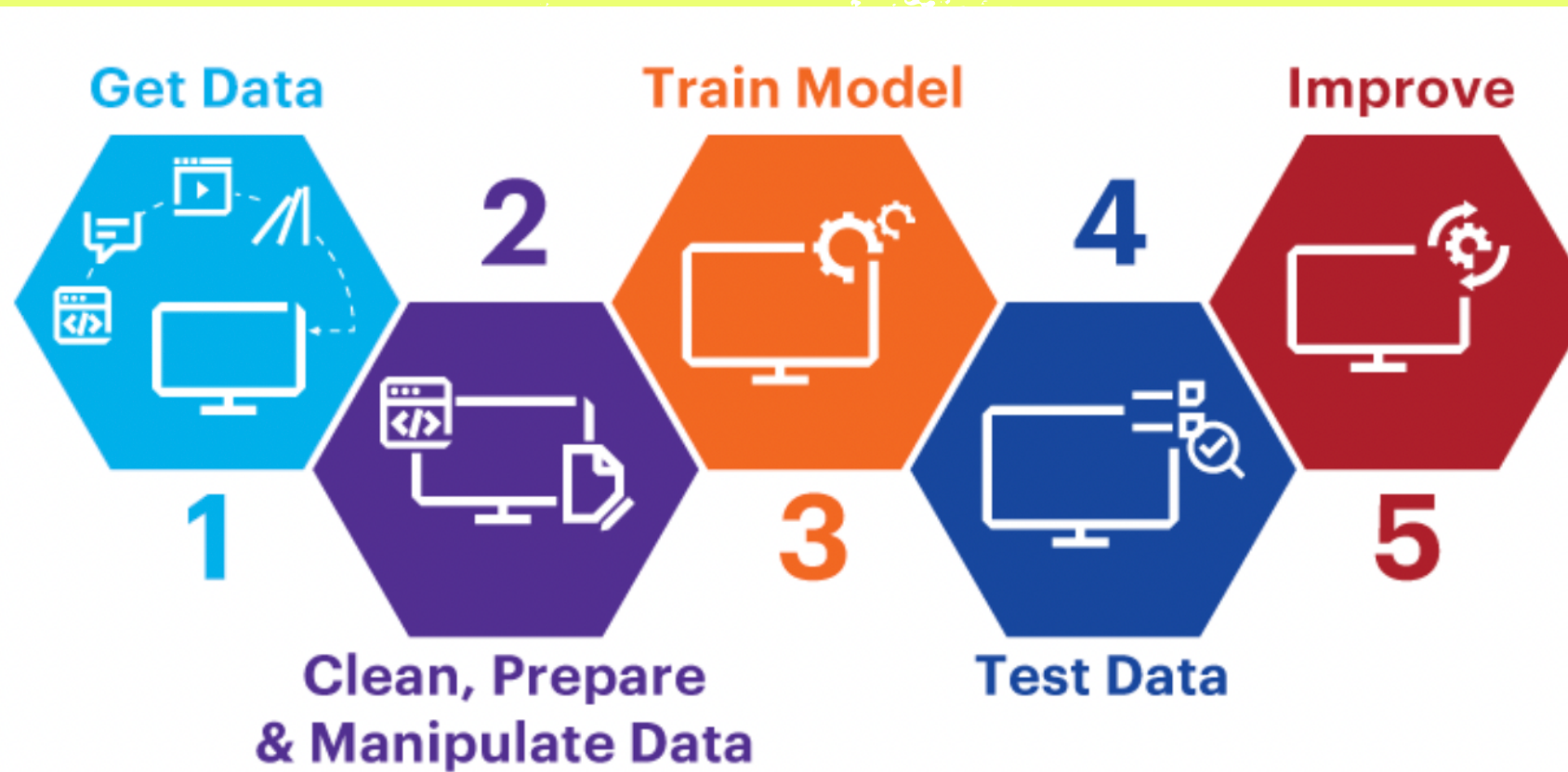
# RESPONSIBLE AI LIFECYCLE



## 1. Get data:

a. Is an algorithm an ethical solution to the problem?

# RESPONSIBLE AI LIFECYCLE

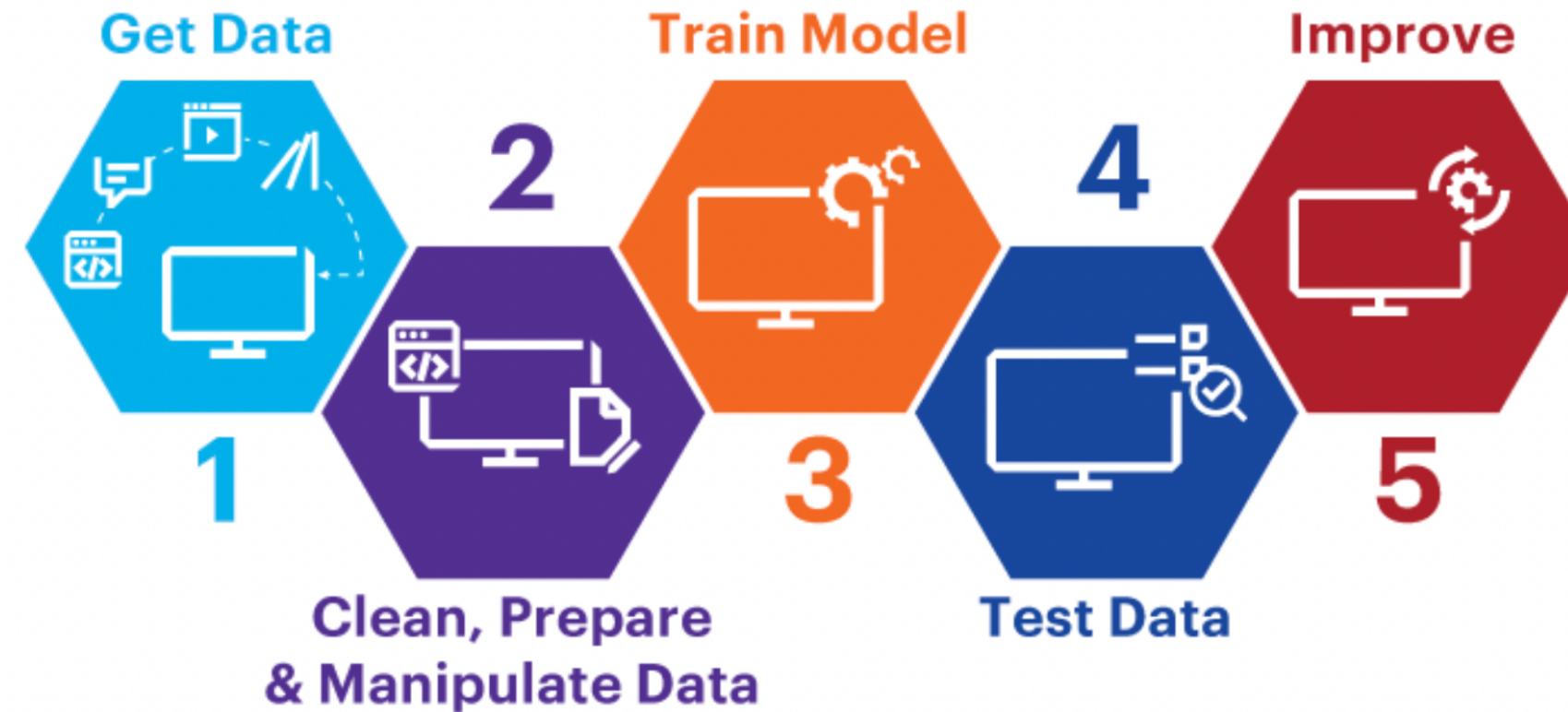


## 2. Clean, Prepare, & Manipulate Data:

- a. Is the training data representative of different groups?
- b. Are there biases in labels or features?
- c. Does the data need to be modified to decrease bias?



# RESPONSIBLE AI LIFECYCLE

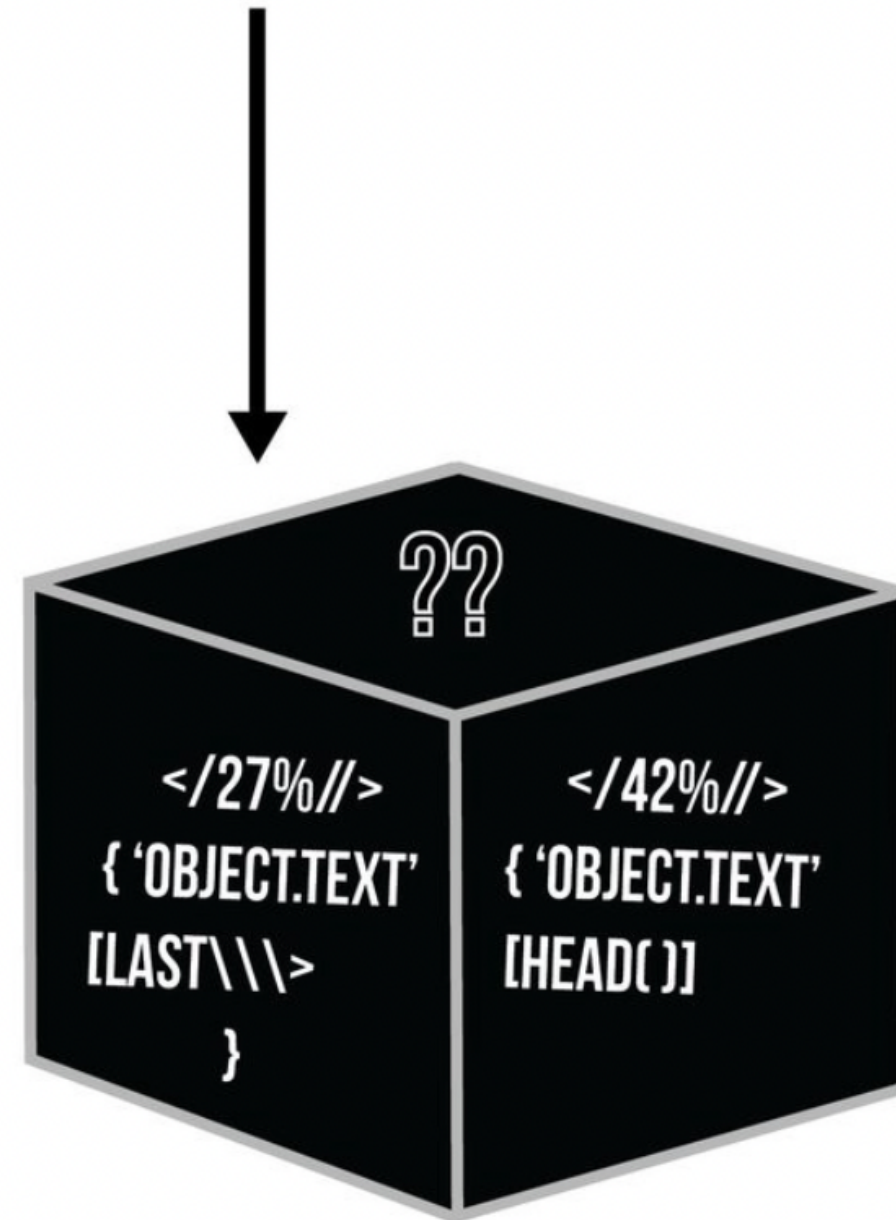


## 3. Train Model:

- **How important is it that we understand why an algorithm made a specific prediction?**
  - **Is a black box algorithm ok to use?**



**INPUT**



# BLACK BOX

THE BLACK BOX IS AN ALGORITHM THAT TAKES DATA AND TURNS IT INTO SOMETHING. THE ISSUE IS THAT BLACK BOXES OFTEN FIND PATTERNS WITHOUT BEING ABLE TO EXPLAIN THEIR METHODOLOGY.

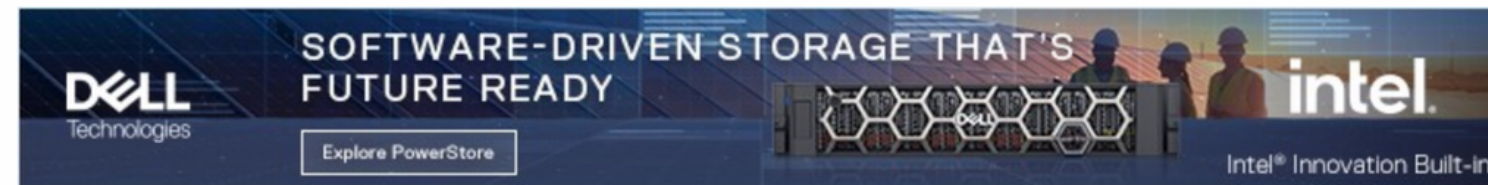
**OUTPUT**

The black box algorithm — who knows what it's doing? Apparently, nobody.

# What are the stakes?

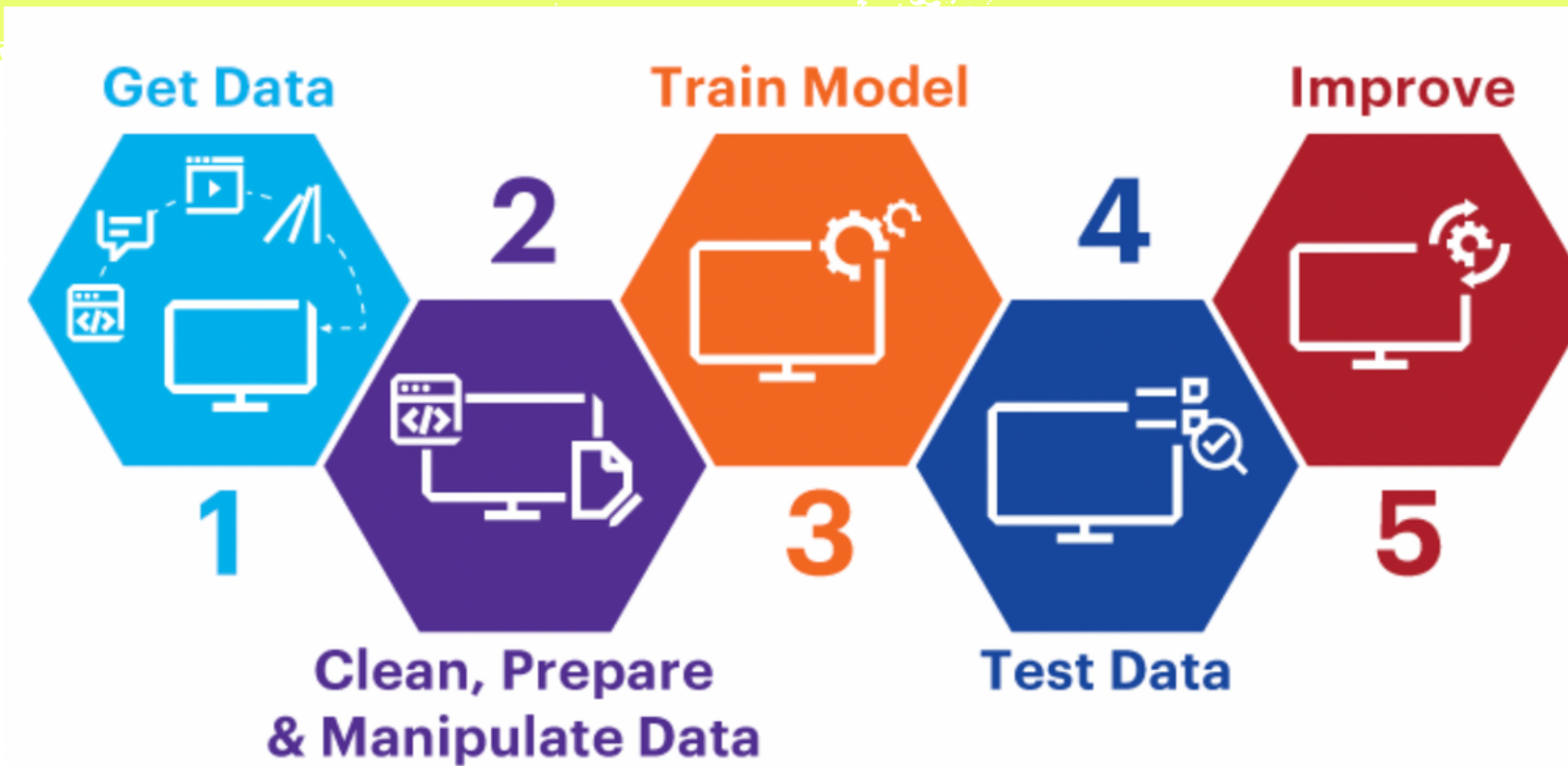
## First 'Jeopardy,' next the world: IBM's plans for Watson

IBM is betting on its cloud analytics platform to give the company a new lease on life, with the help of developers





# RESPONSIBLE AI LIFECYCLE



## 4. Test Data:

- **Has the model been checked to make sure it is fair for all groups of people?**
- **Is the ML model deployed on a population for which it was not trained or evaluated?**
- **Are there unequal effects across users?**

# **YOUR TURN:**

We will analyze if the  
COMPAS algorithm is  
amplifying racism



# Intersectional Data Analysis on COMPAS

(predicted to reoffend, but don't)

False positive

Black: 44.9%

White: 23.5%

(predicted not to reoffend, but do)

**FALSE NEGATIVE**

Black: 28.1%

White: 47.7%

**Why are we focusing so much  
on data?**



# GARBAGE IN = GARBAGE OUT

IF YOUR DATA COLLECTION IS WRONG,  
ANY CONCLUSION IS WRONG!

Garbage Data In



Analysis Pipeline



Garbage Data Out



DATA QUALITY MATTERS

**veracityapp**  
powered by AIE

<https://www.assetintegrityengineering.com/software/veracity-app/> | [info@aiegroup.org](mailto:info@aiegroup.org)

# **YOUR TURN:**

We will analyze if the COMPAS algorithm is amplifying racism by determining the best fairness metric

# **What should we do to create ethical AI practices?**

- 1. advocate for regulating AI and slowing down**
  - a. Should AI be used?**
  - b. Data Nutrition Labels**



**What should we do to create  
ethical AI practices?**

**2. marginalized groups should  
be at the forefront of  
decisions**