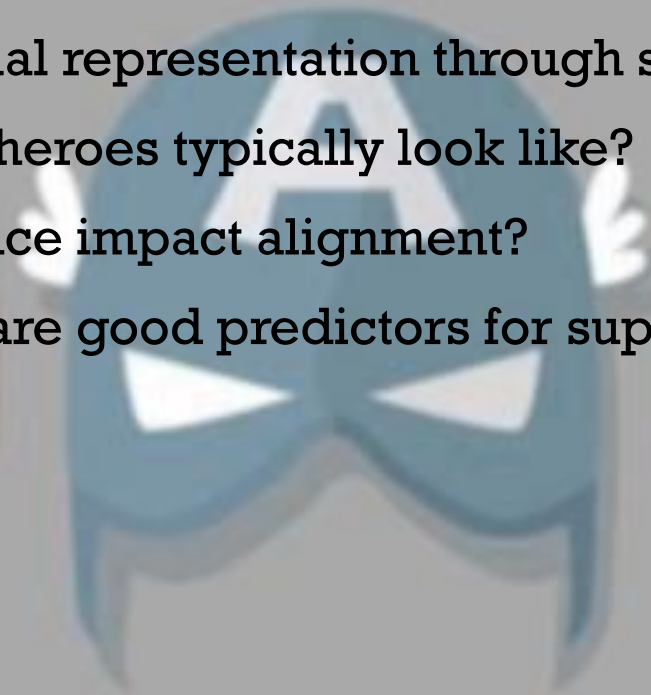




By Sardeep Virk

# QUESTIONS

- What does social representation through superheroes look like?
- What do superheroes typically look like?
- Does appearance impact alignment?
- What features are good predictors for superhero alignment?



# DATA BACKGROUND

- Alignment – whether a superhero is good, bad, or neutral. (For the purposes of this study, neutral will be excluded)
- Dataset taken from <https://www.kaggle.com/claودیodavi/superhero-set/data>
- Contains 11 features and 734 superheroes
- For the purposes of this analysis new features were added through the process of feature creation(height2, weight2, good, bad, hair, and no hair)



# TESTED FEATURES

- Height(Tall, Short)
- Weight(Small, Big)
- Hair or No Hair
- Gender
- Race
- Skin Color

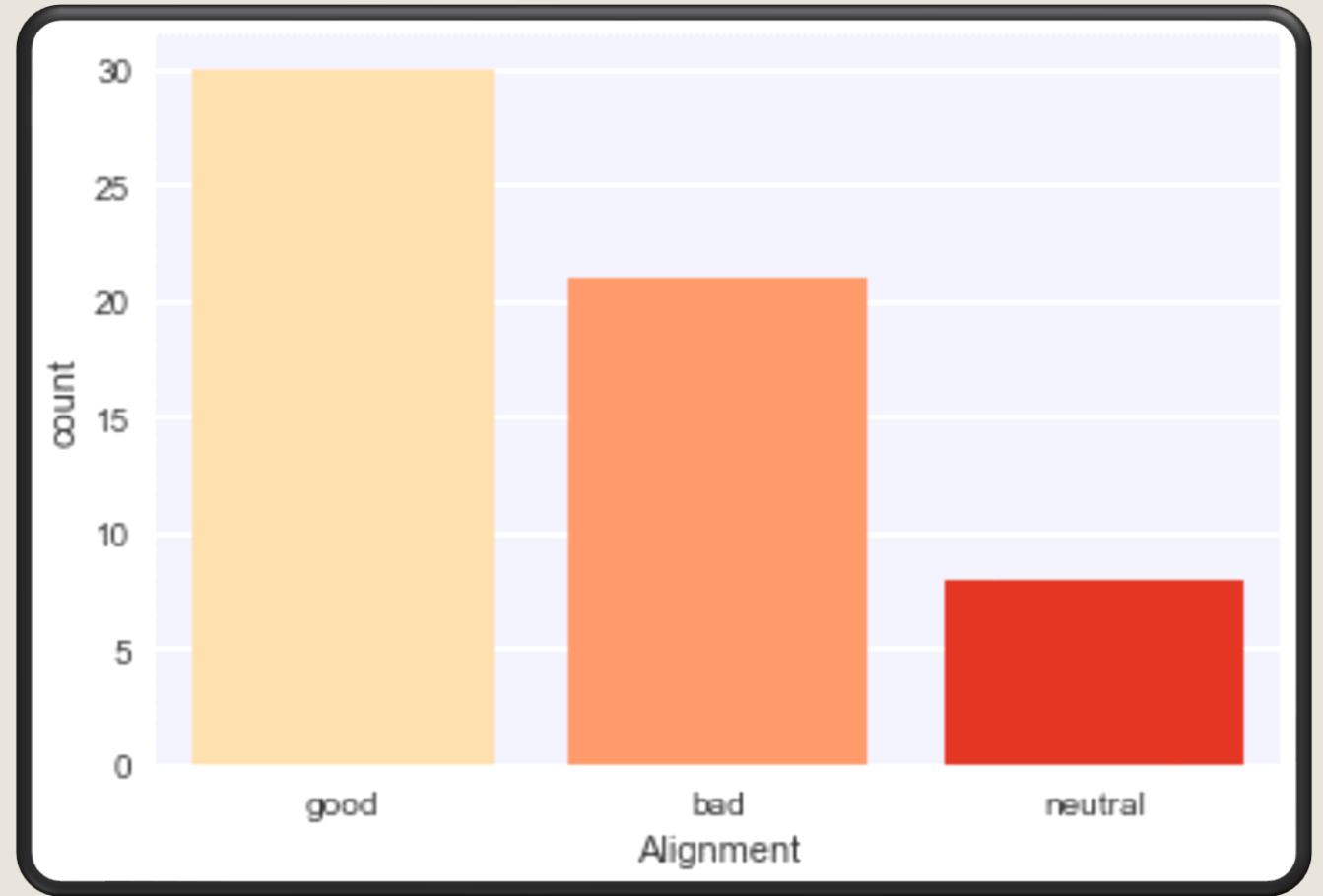




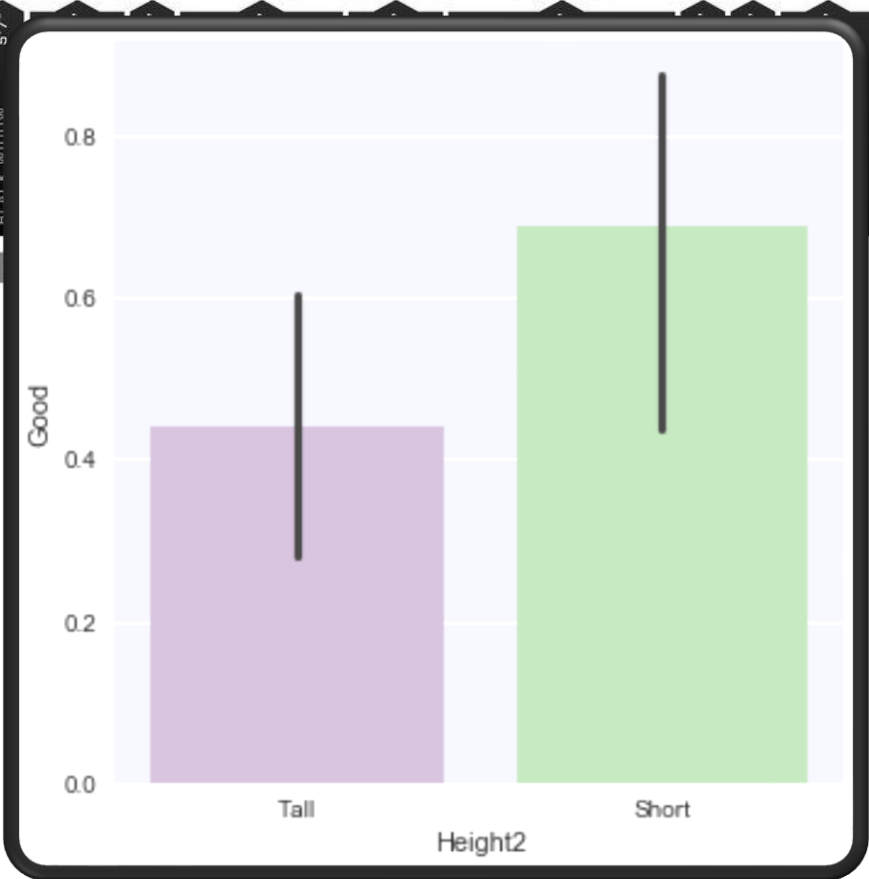
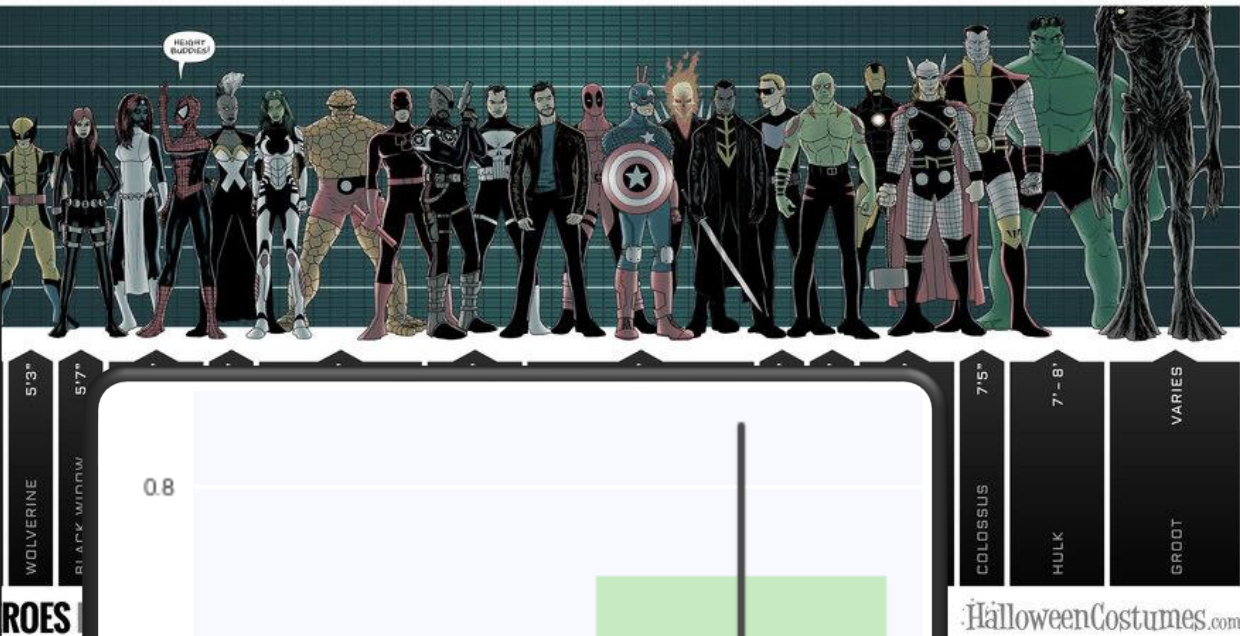
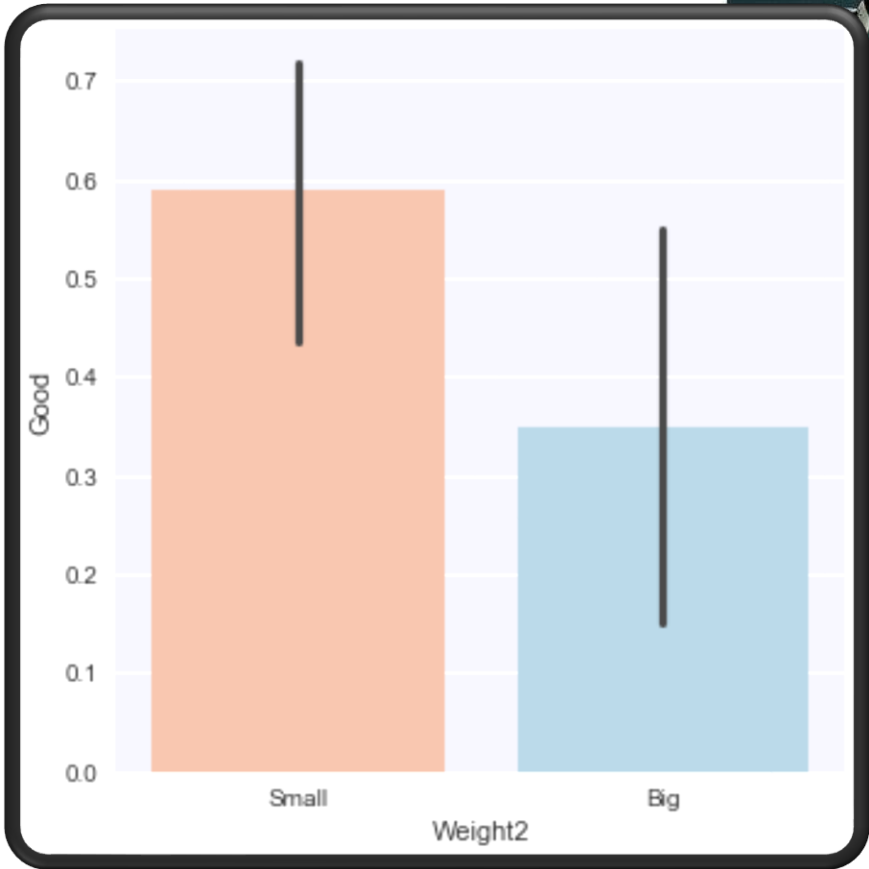


# ALIGNMENT

- Majority of superheroes trend good
- For purposes of this analysis only looked at good and bad superheroes



# HEIGHT & WEIGHT

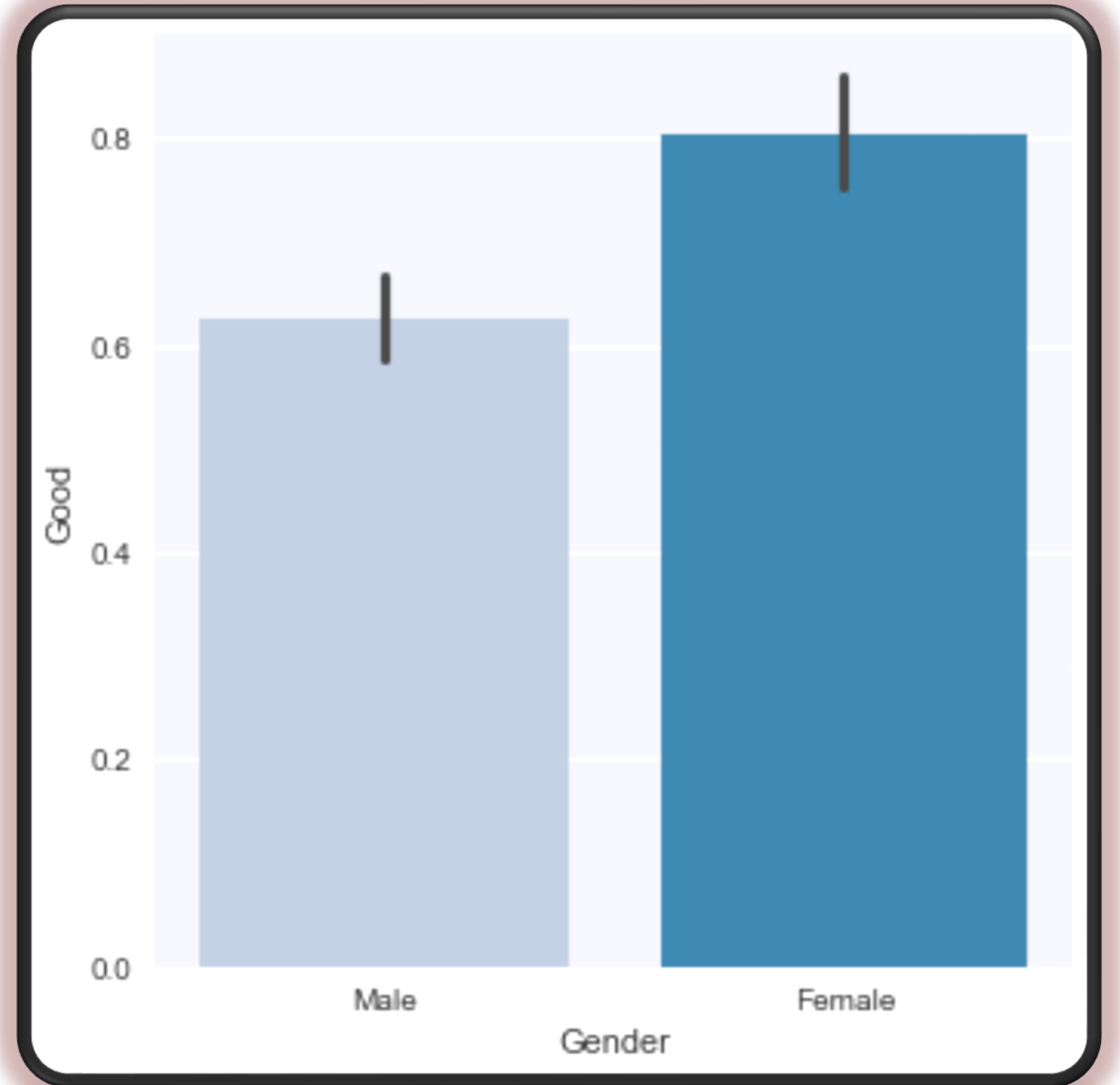


- Superheroes with a small weight and short height trend more likely to be good



# GENDER

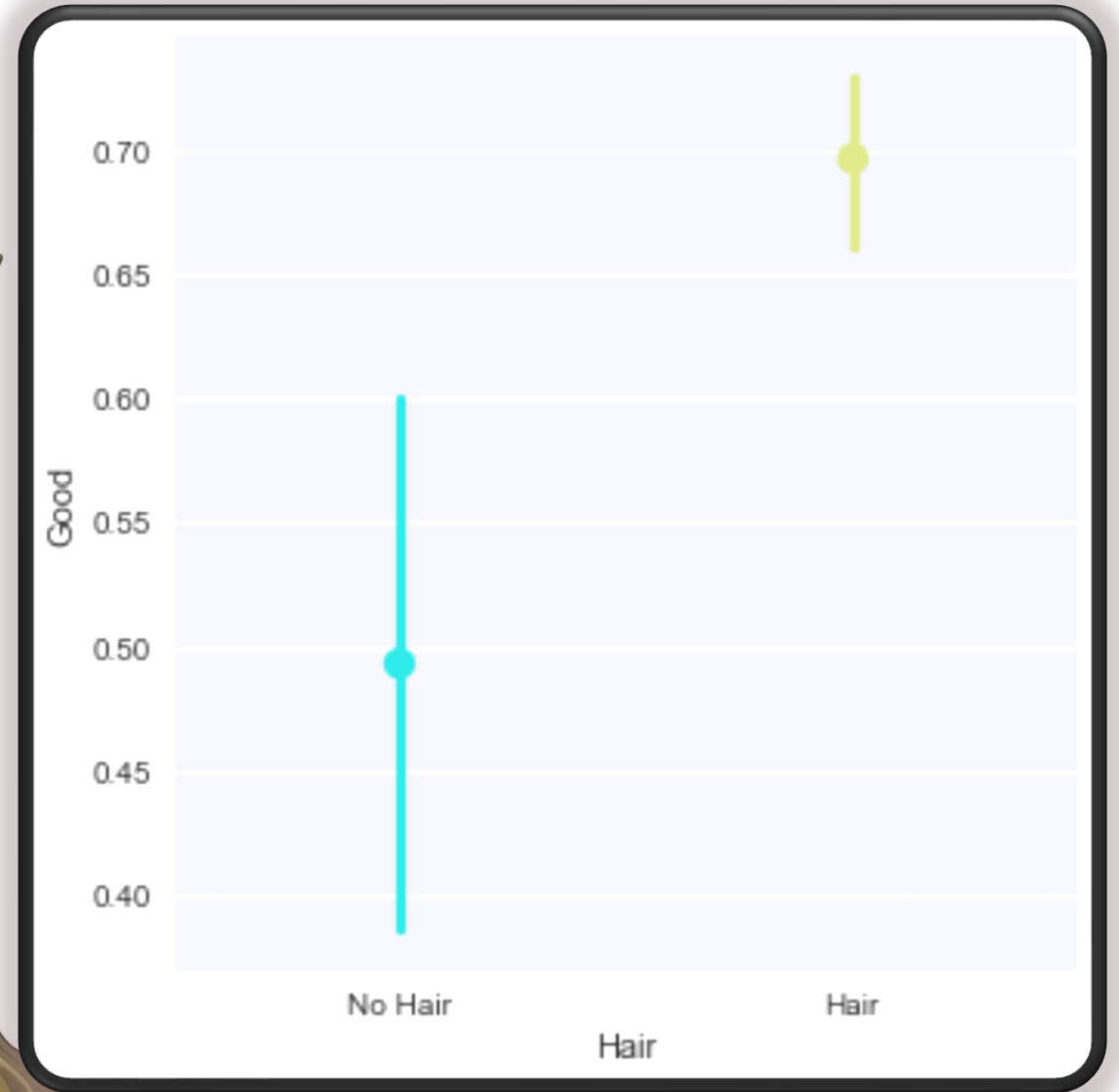
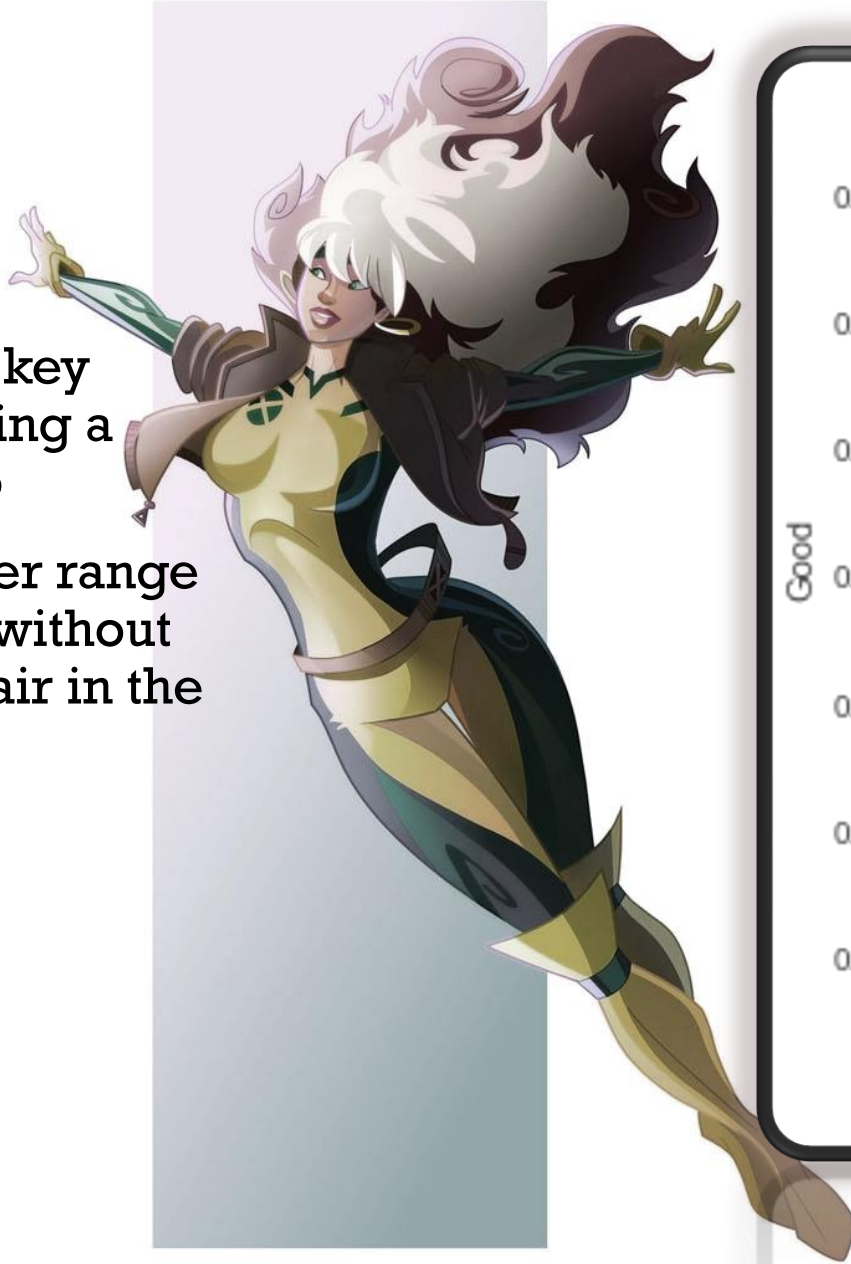
- Females trend more likely to be good than males
- There is a greater number of females in the good alignment





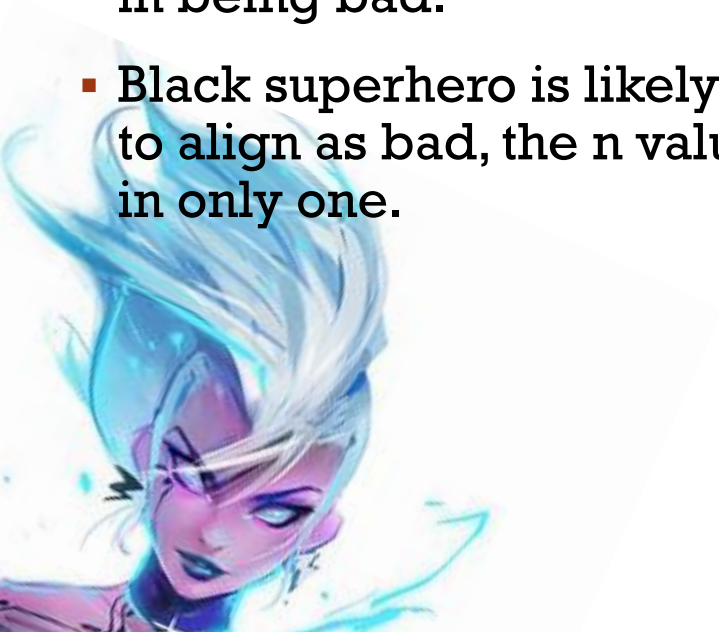
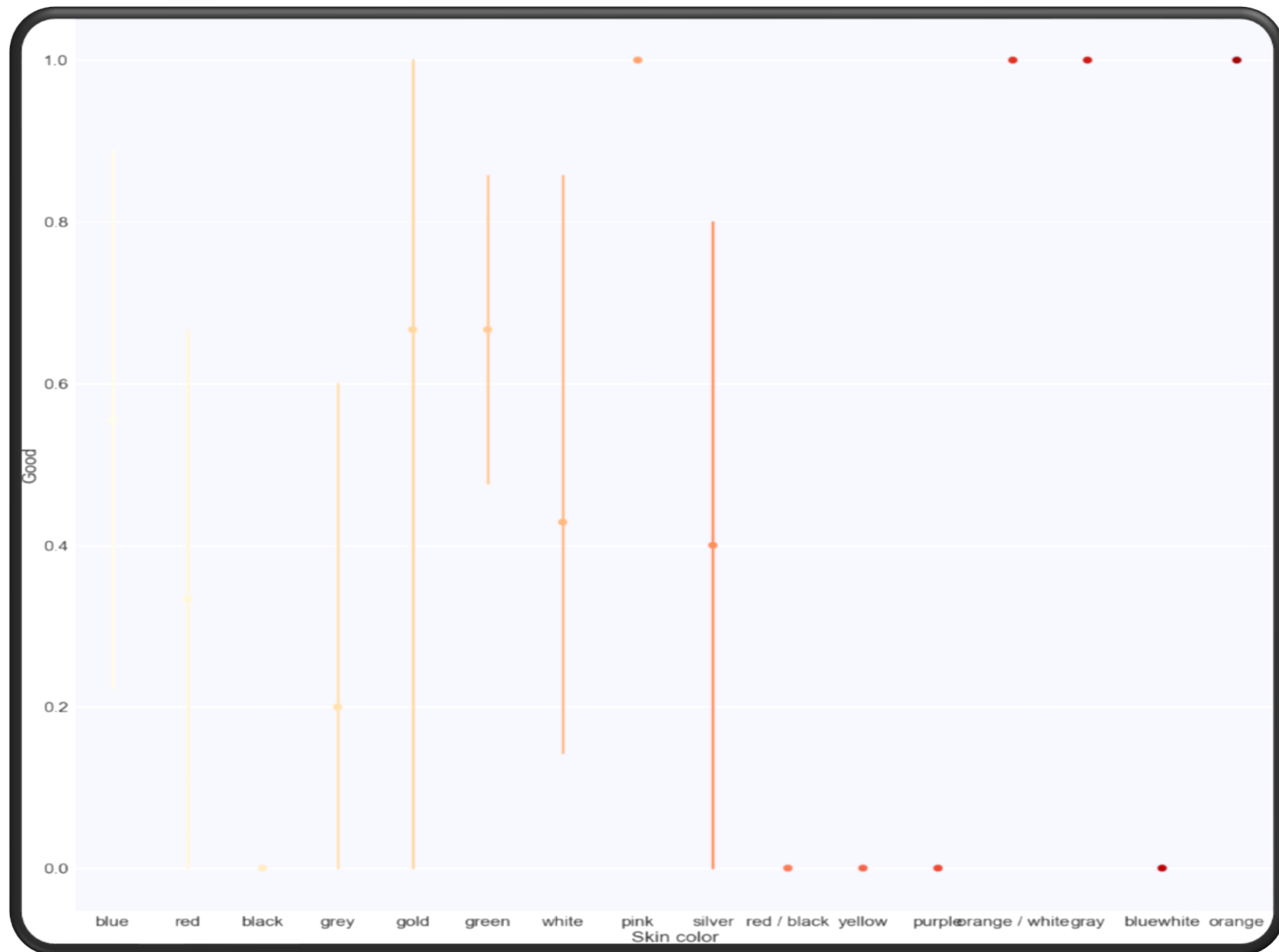
# HAIR

- Having hair is a key indicator for being a good superhero
- There is a greater range of superheroes without hair than with hair in the good alignment



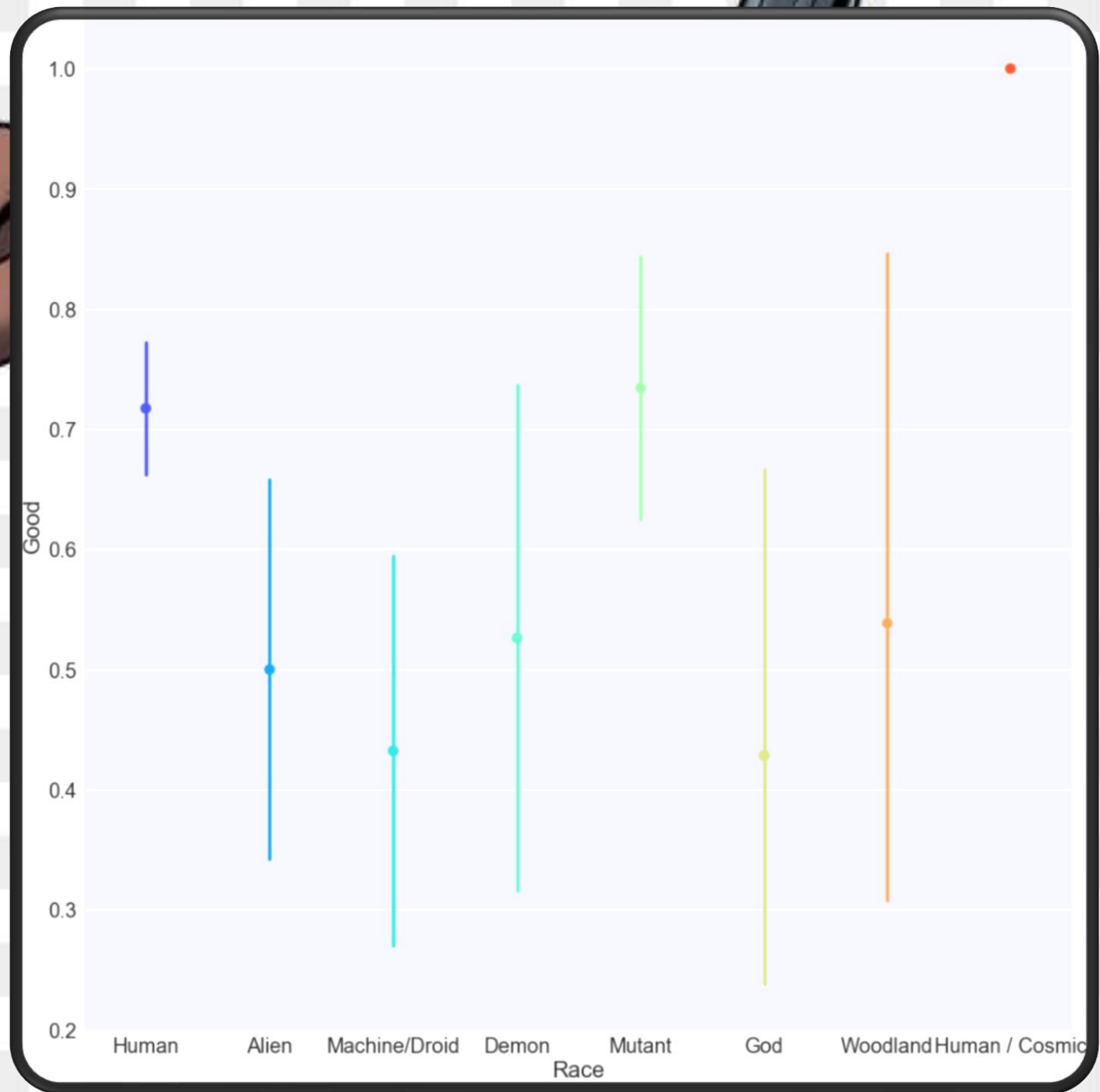
# SKIN COLOR

- Most notable colors were blue, red, grey, and green since majority of superheroes are these colors.
- Grey superheroes illustrate more of a chance in being bad.
- Black superhero is likely to align as bad, the n value in only one.



# RACE

- Humans and Mutants trend more likely to be good
- Gods and Machine/Droids trend more likely to be bad.
- Humans and Mutants possess the smallest range for good alignment





# RANDOM FOREST

- X= Gender + Race + Skin color + Hair + Height + Weight
- Y= Good
- Accuracy = 0.966

Feature	Importance
Hair_Hair	0.099285
Skin color_red	0.062541
Weight2_Small	0.062228
Hair_No Hair	0.060636
Skin color_green	0.053897
Race_Alien	0.050710
Race_Mutant	0.047263

# SOCIAL COMMENTARY

## Hair

- According to Global cosmetic industry, hair loss industry profits at \$3.6 billion in 2016 and projected to flourish over next five years
- In a survey study from Current Medical Research and Opinion, researchers discovered 70% of men associated hair with their image and 62% with their self-esteem

## Color

- According to Dr. Fields from Psychology Today, color preferences are rooted to emotional responses for humans.
- According to Kendra Cherry from VerywellMind, color based purchases linked to what the individual is trying to project:
  - Red car - bold, power, action, confidence
  - Grey car – not stand out
  - Blue car – dependable and trustworthy



# SOCIAL COMMENTARY

## Weight

- Found in an article from University of Pittsburg, body image is heavily impacted through media
  - Men = muscular; be feared
  - Women = tiny, waif like
- Living up to such ideals dangerous for impressionable teens
  - Boys: at risk by abusing nutritional supplements, being feared possible mental health issues
  - Girl: at risk of eating disorders(anorexia); websites such as pro-ana nation is bad (thinspiration= bad)

## Race

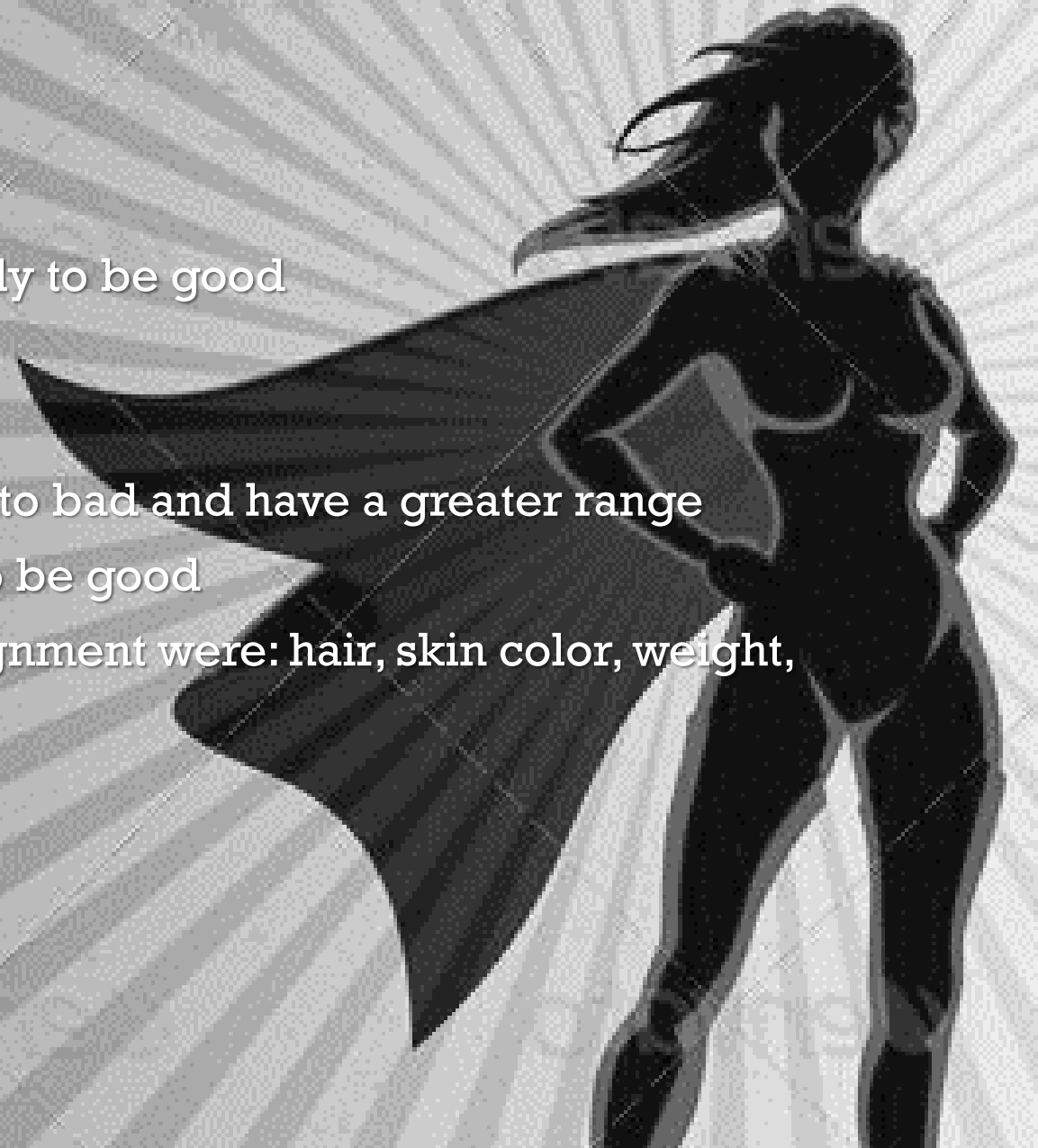
- According to Matthew Clair and Jeffery S. Denis, race is understood as a social construct by social scientists
- Definition of race evolved over years to include biological differences
- Found a segment from The City of University of New York, the concept of the other is of an individual on belonging to the group, is different





# CONCLUSION

- Short and small superheroes trend more likely to be good
- Having hair trends good as well
- Females trend more likely to be good
- Grey spectrum skin colors trend more likely to bad and have a greater range
- Human and Mutant races trend more likely to be good
- Most import features for prediction good alignment were: hair, skin color, weight, and race
- Real world application:
  - Fighting stereotypes
  - Looking at beauty norms
  - Superhero creation



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