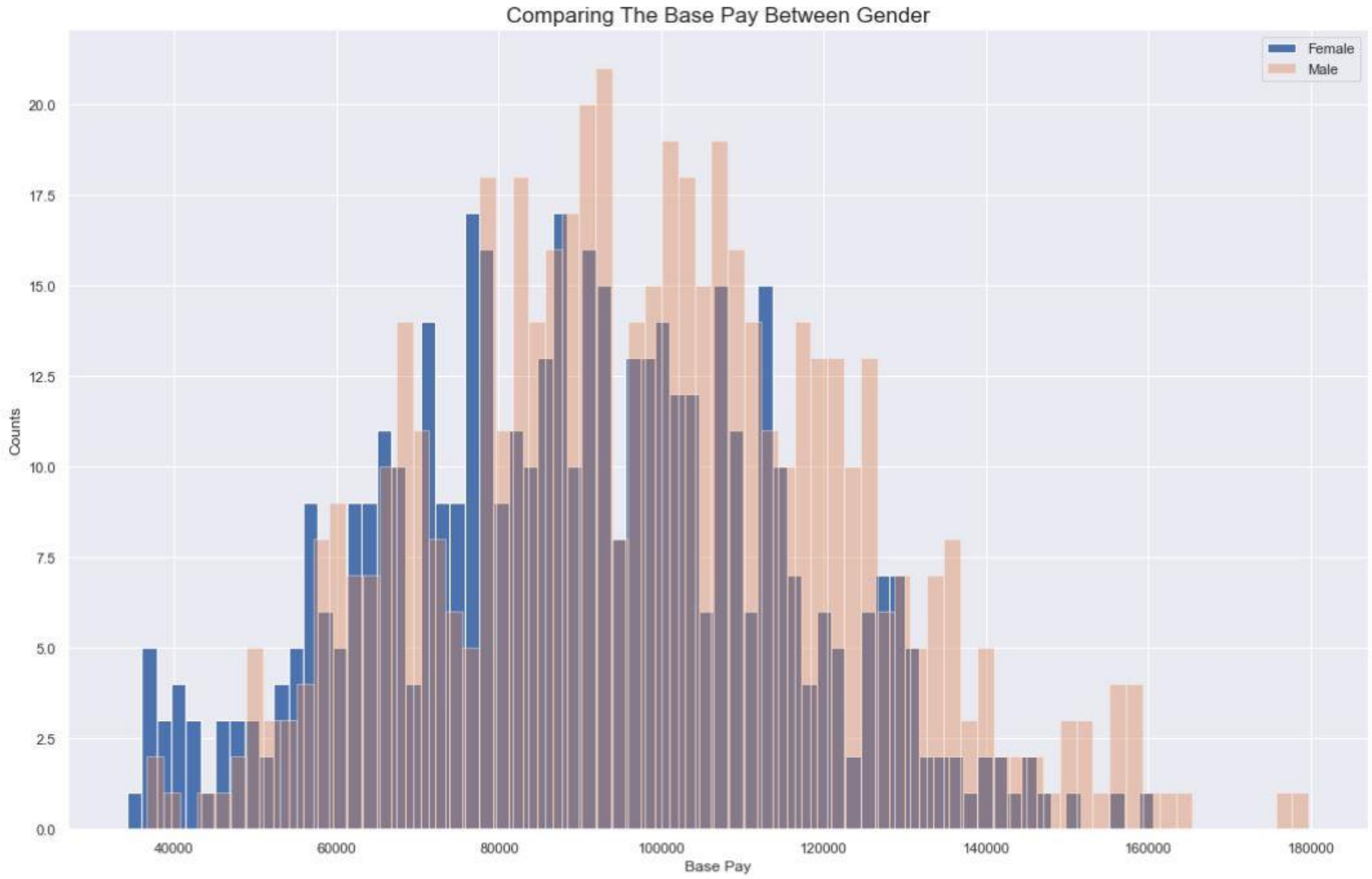
THE GENDER PAY GAP

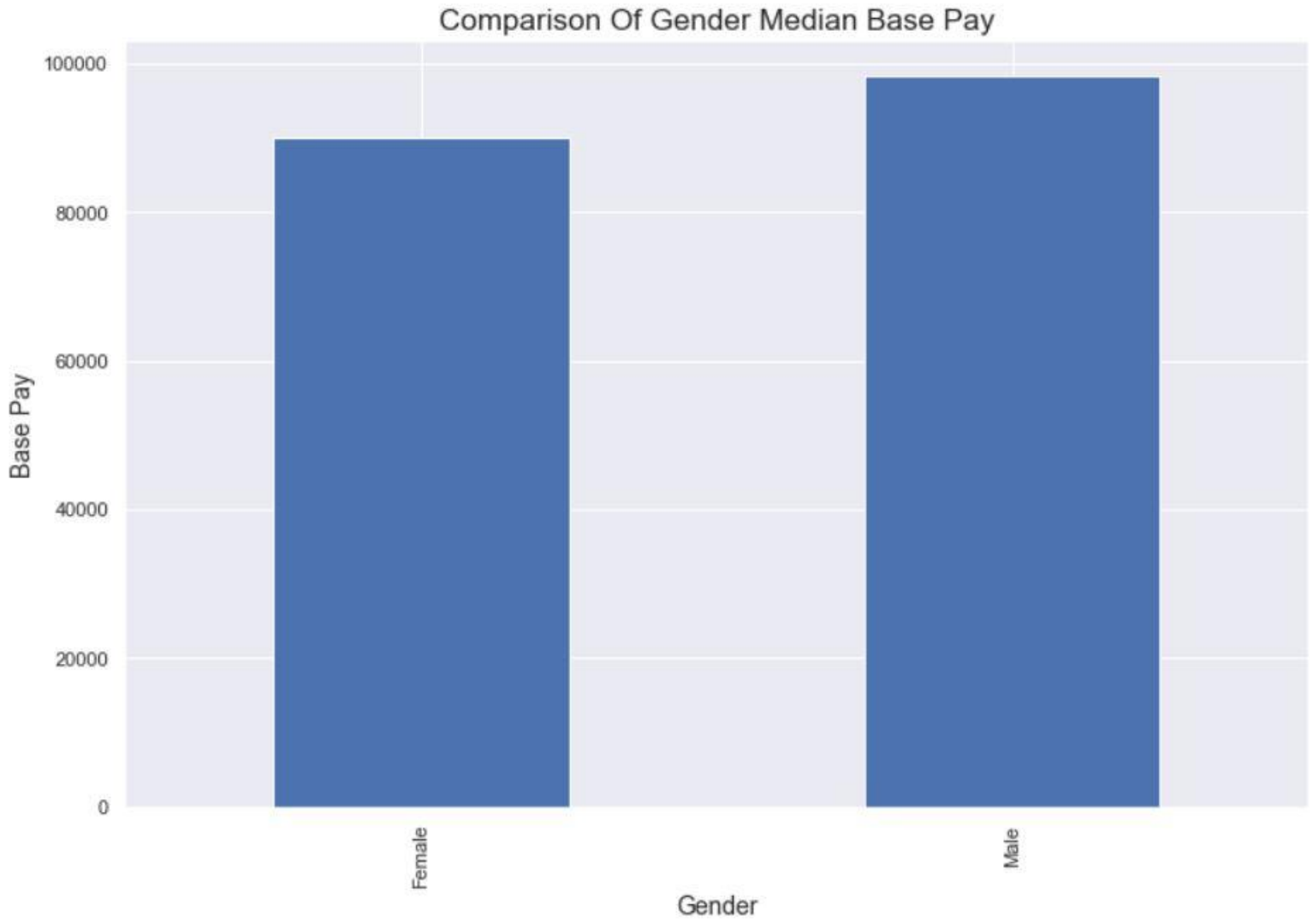
https://www.kaggle.com/nilimajauhari/glassdoor-analyze-gender-pay-gap

Why is there a gender pay gap in our company?



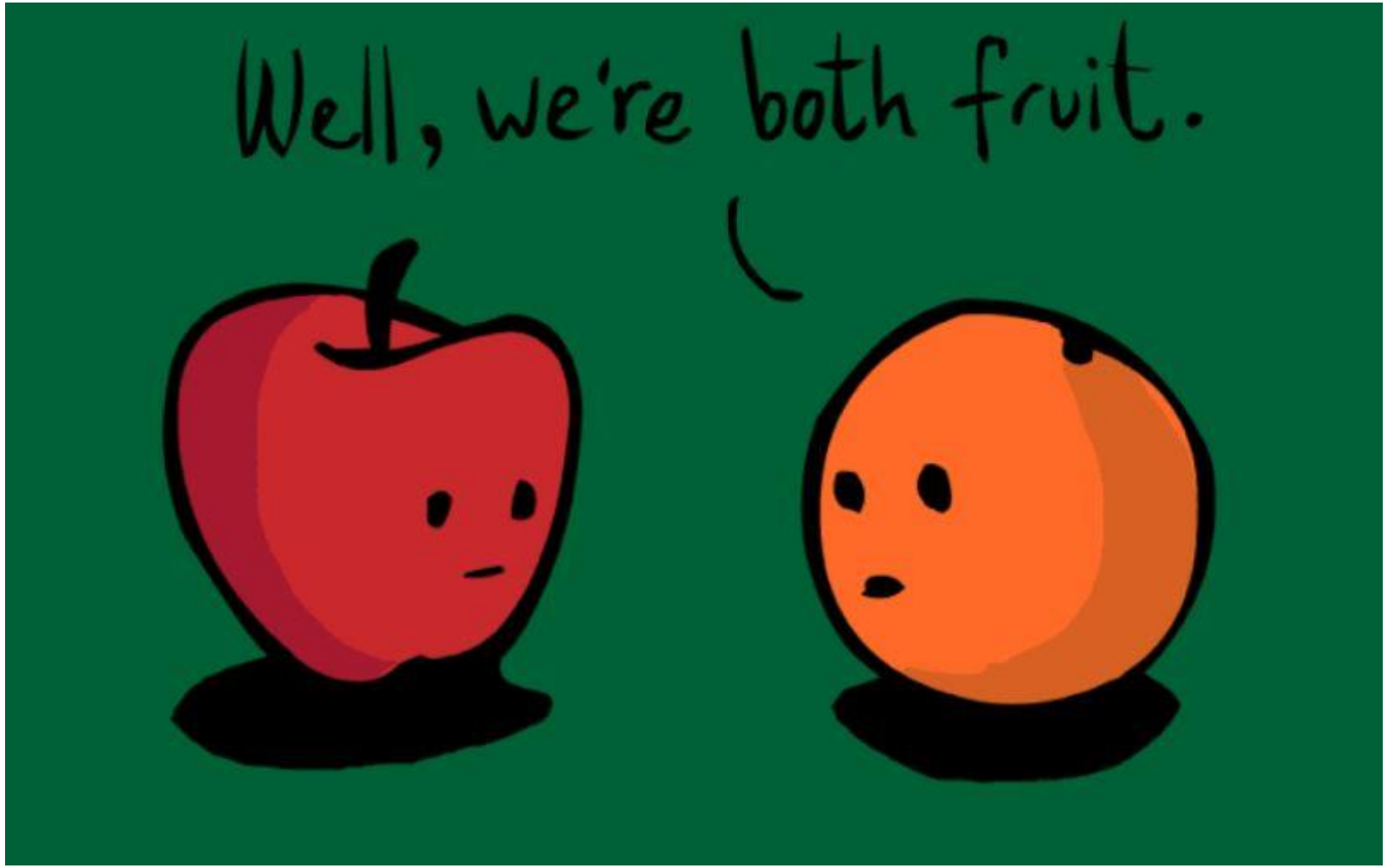
- The gender pay gap is 8.46% or $8300/year
- The P Value using the mean difference is <0.05 which says that the gap is significant and cannot be dismissed.
- Can we conclude the gender pay gap really exist?

Not just yet!



- Although this comparison looks straight forward and convincing, it does not address why there is a gap and whether it reflects the true gender pay gap!
- Therefore, we need to do some Exploratory Data Analysis!
- I am listening…..

Wait A Minute!



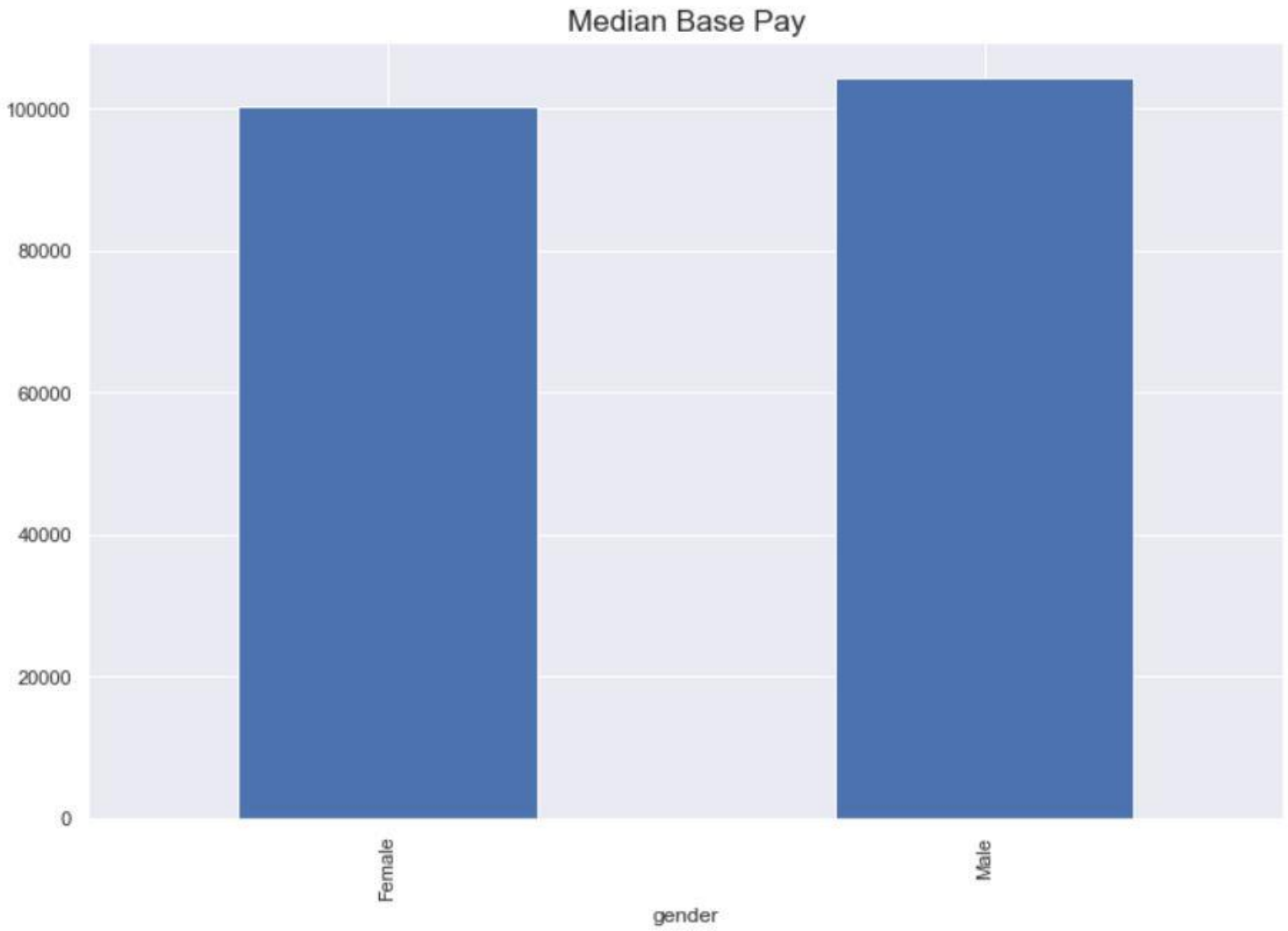
- We need to compare apples with apples
- Do an experiment.
- What's your job title, age and education background?
- Let's compare how big is the gender pay gap base on "likes-for-likes"?
- Sure. Let's do the comparison this way!

Chill Out!

the age 41

- What is your job title, education background and age?
- I am a Data Scientist, with Masters Degree and age 41.
- Let's do some comparison with these.
- Sure. Let's do the comparison this way!

The gender pay gap is 3.8%…. Not 8.5%!!!



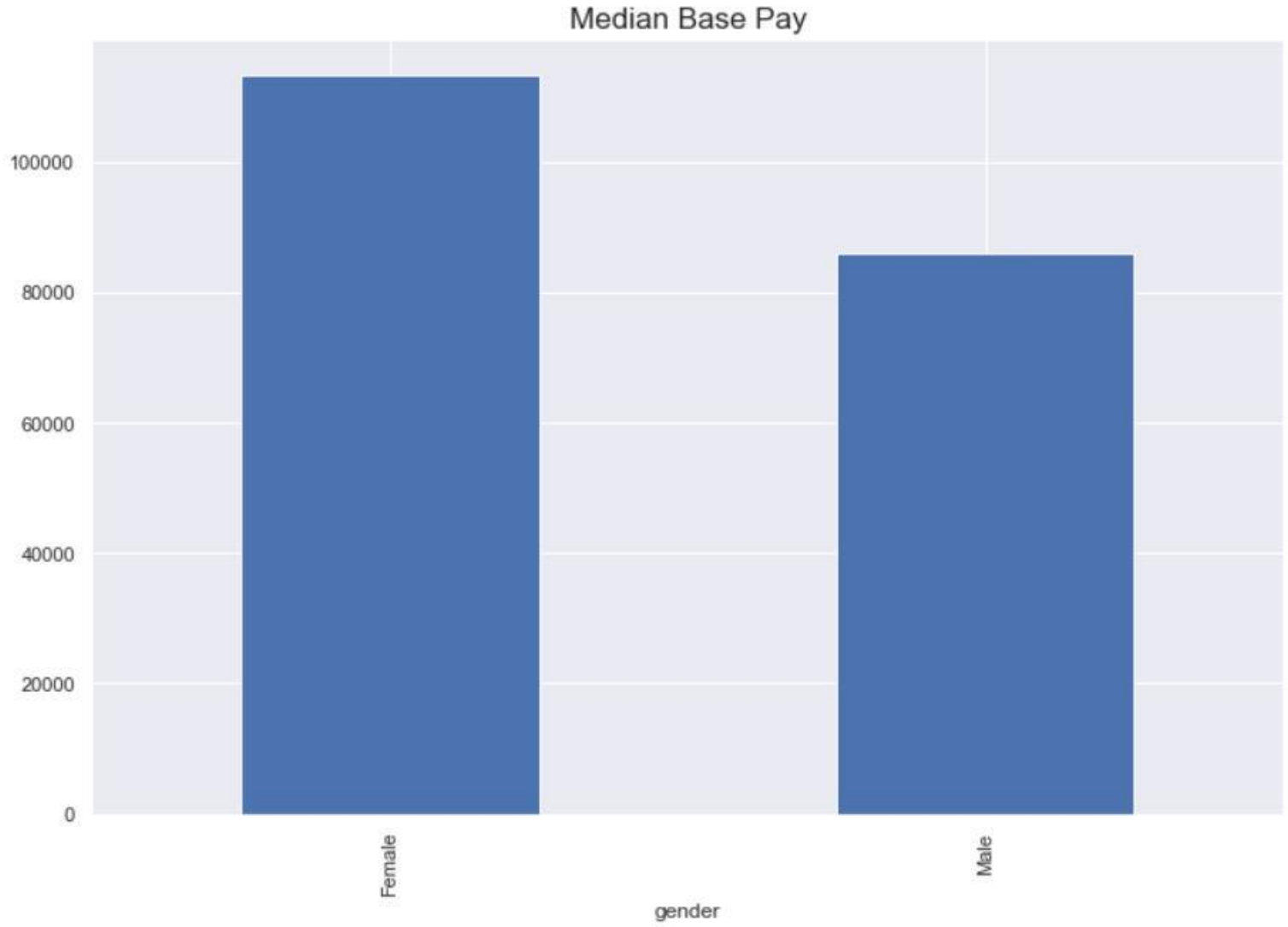
- The gender pay gap is 3.8% based on the following:
  - Job title: Data Scientist
  - Education: Masters
  - Age: 41
- Not the 8.5% we earlier thought!
- Let's compare another one shall we?

Chill Out!

the age 49

- What is your job title, education background and age?
- I am a Financial Analyst, with High School and age 49.
- Let's do some comparison with these.
- Sure. Let's do the comparison this way!

The gender pay gap is -31.7%…. Not 8.5%!!!



- The gender pay gap is -31.7%
- based on the following:
  - Job title: Financial Analyst
  - Education: High School
  - Age: 49

- Not the 8.5% we earlier thought!

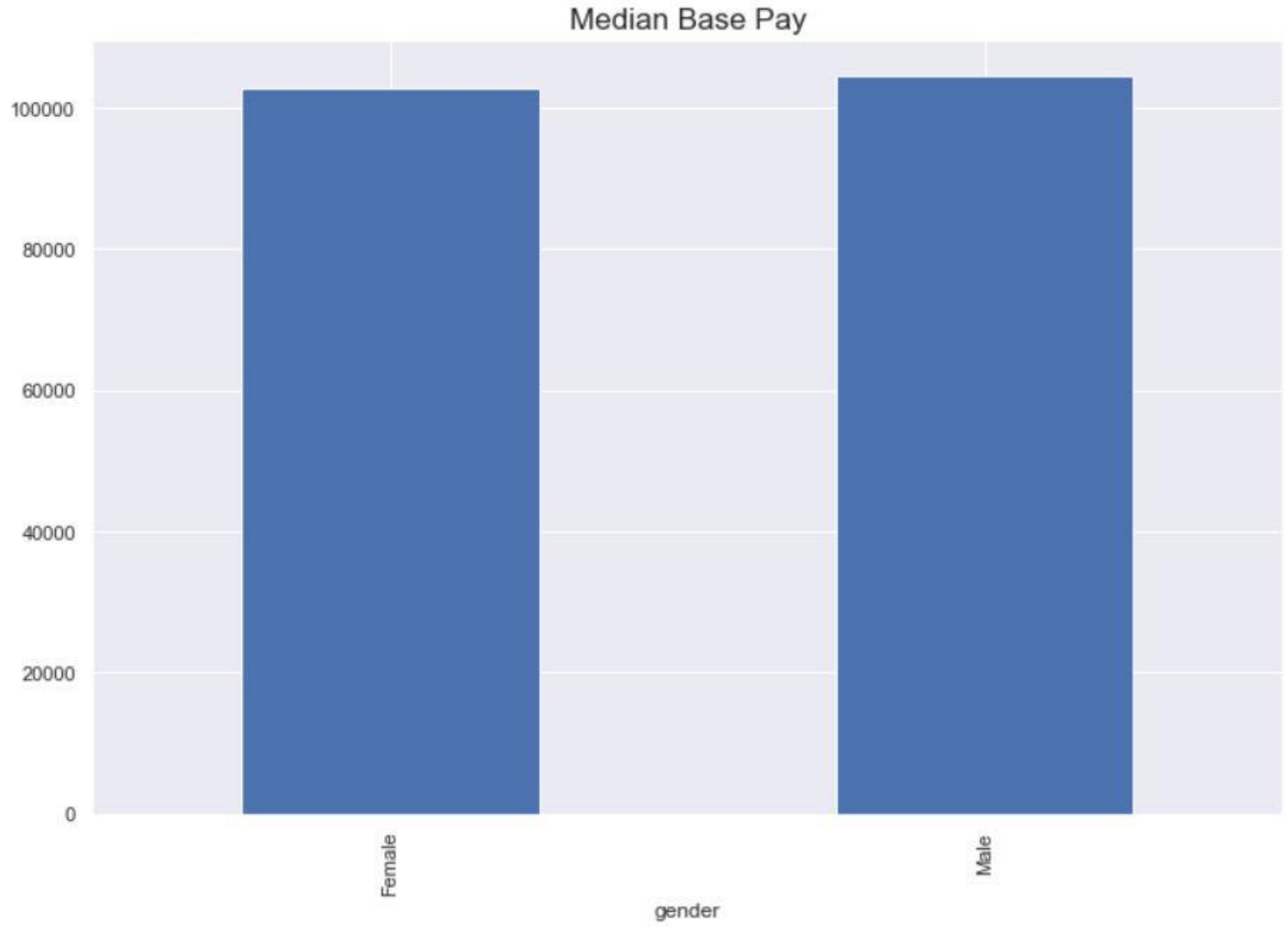
- Let's compare another one shall we?

I work in the IT dept, with PhD and 50 year old

the age 50

- What is your job title, education background and age?
- I am in Information Technology, with PhD and age 50.
- Let's do some comparison with these.
- Sure. Let's do the comparison this way!

The gender pay gap is 1.6%…. Not 8.5%!!!



- The gender pay gap is 1.6%
- based on the following:
  - Job title: Information Technology
  - Education: PhD
  - Age: 50

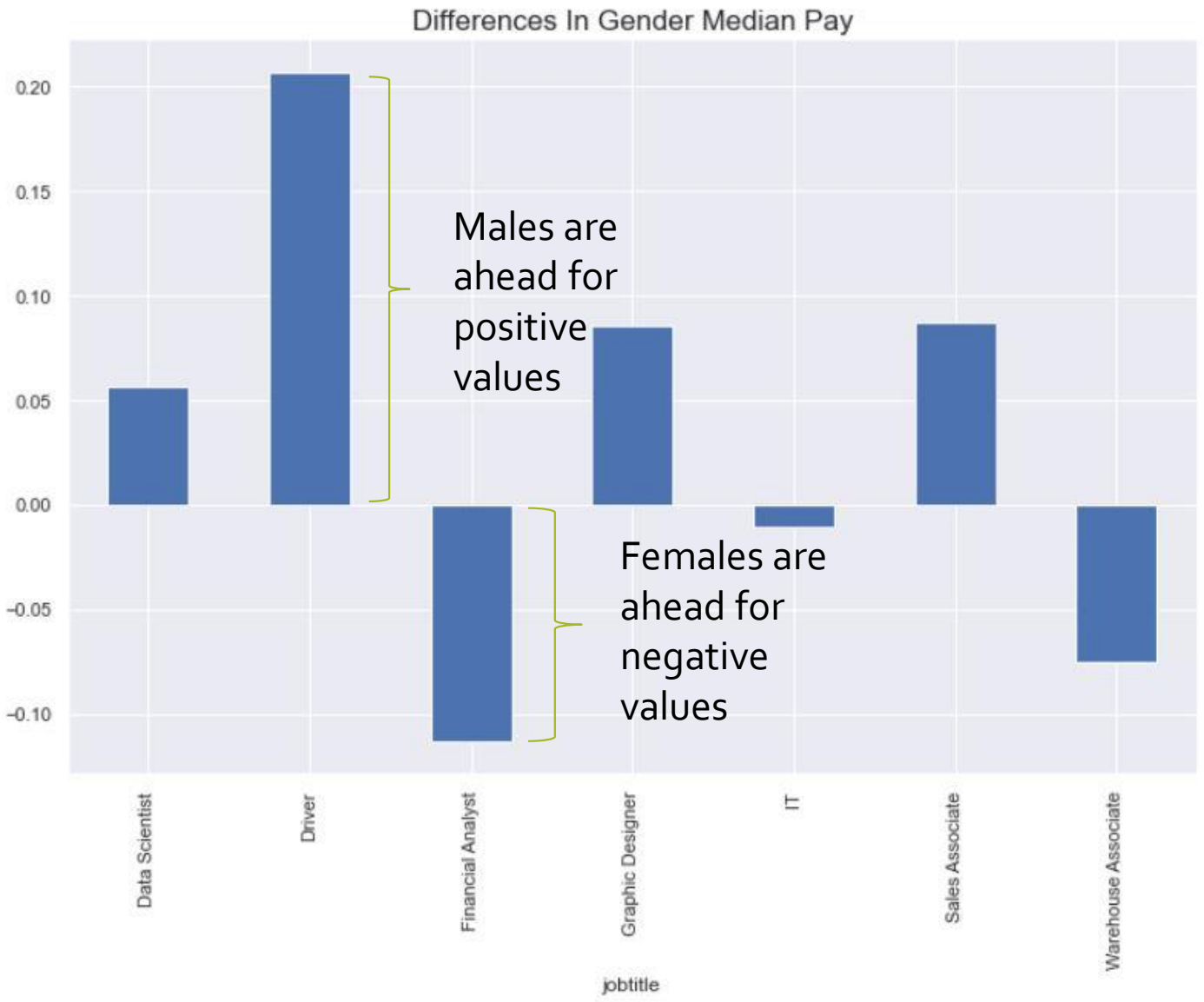
- Not the 8.5% we earlier thought!

- Let's compare another one shall we?

Let's The Overall Picture

- There are mix results across all occupations and education background.
- Woman are ahead for negative values!
- Man are ahead for positive values!
- Can you show us an even a more simpler picture?

The Overall Picture



- There are mix results across all occupations and education background.
- Woman are ahead for negative values!
- Man are ahead for positive values!
- Can you show us an even more simpler picture?

Sure! There is one number which can describe all these…

The Adjusted Gender Pay Gap is……

3.4% or

$230 per month

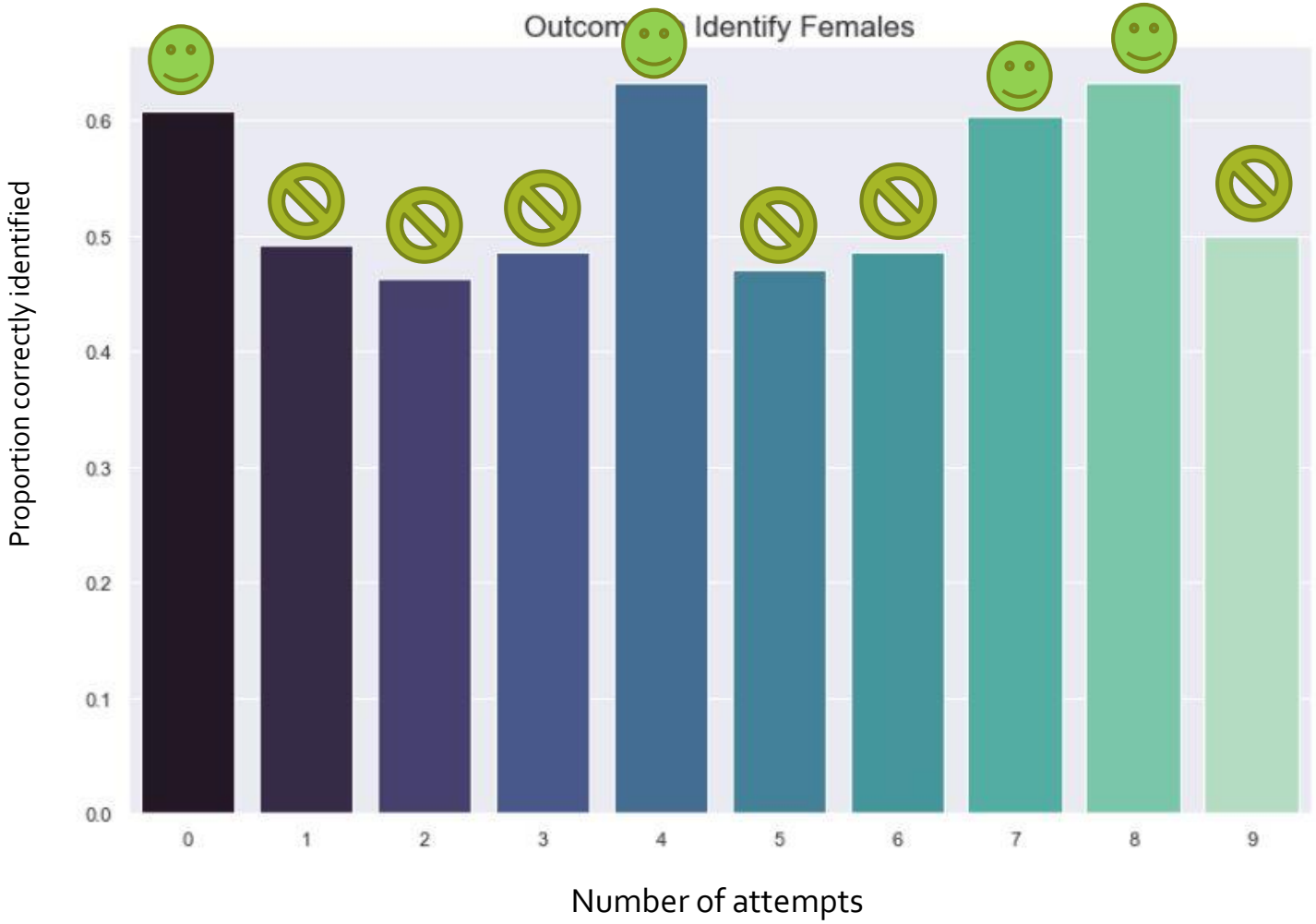
Just to ensure, there is no biasness in the way females are remunerated……

We will let the computer check the data, and Tell us!

Can The Computer Identify Females Given The Adjusted Pay Gap, Age, Education, Job Title and Seniority ?

- Let's play a game, we will train the computer to identify females based on job titles, base pay, education and seniority. If the computer identifies correctly most of the time (> 5 out of 10 correct attempts to identify), you win!
- If the machine fails to identify most of the time, I win! Ok?
- In each attempt the score must be > 0.5 to be considered correct.

RESULT : In 6 out of 10 attempts (ie. score < 0.5), the computer identifies females incorrectly.



4 correct attempts

6 incorrect attempts!

Correct attempt to identify female, scores must be > 0.5.

Incorrect attempt to identify female, scores must be < 0.5

Since there are 6 incorrect attempts to identify females, we conclude there are insufficient evident to prove that the gender pay gap is significant!

Summary and Findings

- The gender pay gap is 8.46%
- The adjusted gender pay gap is 3.4%
- The adjusted gender pay gap computes gender pay differences base on "likes-for-likes" comparison such as occupation, age, education background etc.
- We cannot conclude the gender pay gap unless we compare based on "likes-for-likes". Such as same job title to same job title, same education to same education etc.