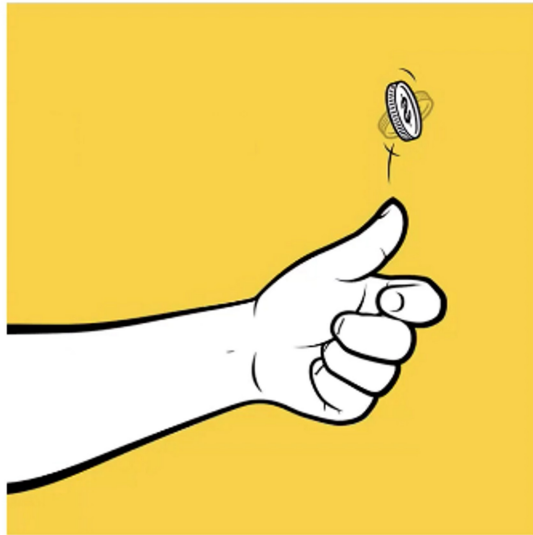


Understanding the P-Value

Sunday, April 10, 2022

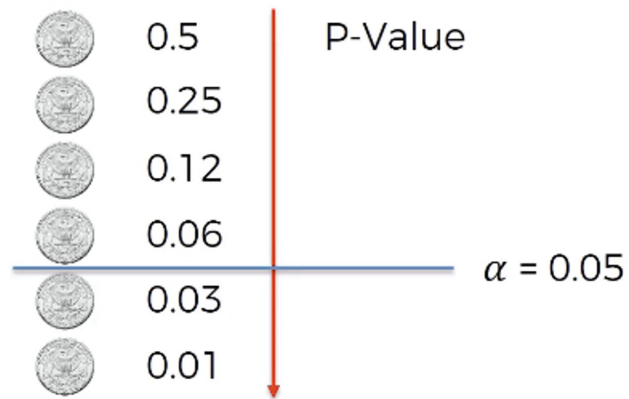
12:44 PM

Statistical Significance



H_0 : This is a fair coin

H_1 : This is not a fair coin



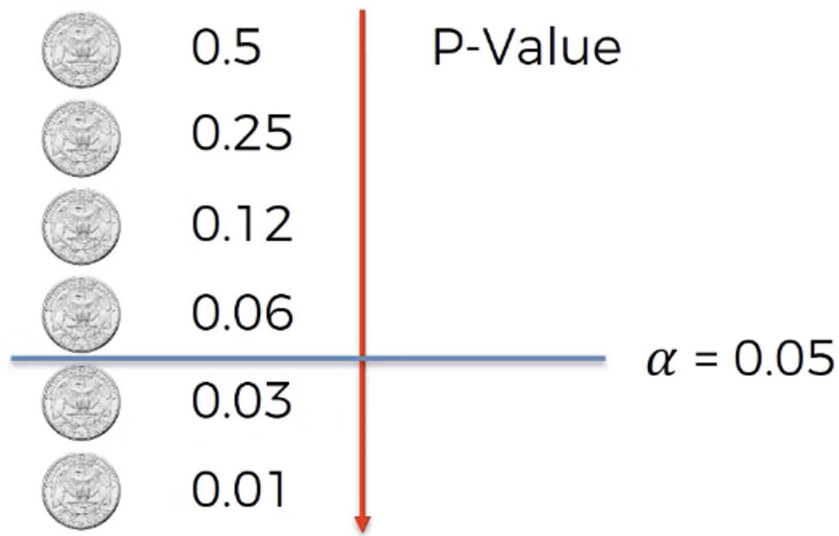
Here,

H_0 : This is a fair coin

H_1 : This is not a fair coin

- So, here we are assuming that this coin is a fair coin. Then if we toss a coin then the probability of getting tails is $1/2$ or 0.5. **And we got that above.**
- Then again we toss a coin, then the probability of getting a tails is 0.25. **And we got that above.**
- Again, if we toss a coin, then the probability of getting tails is 0.12. **And we got that above.**
- Again the toss a coin, then it is unlikely that we will get tails again but the probability of getting tails is 0.06. **And we got that above.**
- It is very unlikely that we will get tails again. At this point of time, we start to think that **THIS IS NOT A FAIR COIN**. But if we toss the then the probability of getting tails is 0.03. **We got that above.**
- It is highly unlikely that we will get tails again which is 0.01. And if we get that then **I WILL BE CONFIDENT THAT OR I WILL HIGHLY ASSUME THAT THIS IS NOT A FAIR COIN WHICH IS**

H_1 .



As a result, I will be taking the P-value close to or equals to 0.05. Because it is highly unlikely that I will get tails again. And P-value is nothing but a value where I start thinking that after that point I won't consider or believe that this is a fair coin. And here in my case, I will take $P\text{-value}(\alpha) = 0.05$.

$\alpha = 0.05$ (I will take $\alpha = 0.05$ because after that I will be doubtful that a coin can get a tails again and I will start thinking that this coin is not a fair coin.)

In conclusion, we can say that this is the P-value.